BNSF-74

BEFORE THE
SURFACE TRANSPORTATION BOARD

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UNION PACIFIC CORPORATION AND
UNION PACIFIC RAILROAD COMPANY
—CONTROL—
NORFOLK SOUTHERN CORPORATION AND
NORFOLK SOUTHERN RAILWAY COMPANY

COUNSEL'S EXHIBITS INDEX

Ex. #	Date	Description
1	July 29, 2025	Norfolk Southern Q2 2025 Earnings Call Transcript
2	September 19, 2024	Union Pacific Live Investor Roadshow
3	March 2026	UP_3217794 (SWARS Video)
4	October 22, 2026	Union Pacific Q3 2026 Earnings Call Transcript
5	November 2026	Rail Industry Overview, AAR
6	January 27, 2026	Union Pacific Reports Fourth Quarter and Full Year 2025 Results, Union Pacific
7	October 22, 2026	Union Pacific Reports Third Quarter 2026 Results, Union Pacific
8	October 22, 2026	Norfolk Southern Q3 2026 Earnings Call Transcript
9	October 1, 2022	BNSF to Build New Integrated Rail Complex in Barstow to Increase Supply Chain Efficiency Nationwide
10	June 2026	BNSF's Barstow International Gateway project in California approved by the City Council, BNSF Railway
11	August 7, 2025	New Truck Competitive Intermodal Service to Kansas City and Chicago, Union Pacific Announcement No. PR2025-61

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12	June 16, 2025	New Kansas City Terminal Begins Operations July 15, Union Pacific Announcement No. PR2025-44
13	August 1, 2024	Norfolk Southern to make strategic investments in Alabama, Norfolk Southern
14	October 19, 2026	BNSF and CSX team up for faster coast-to-coast domestic intermodal service, TrainsPro
15	July 22, 2026	Union Pacific and CN Announce Agreement to Improve North American Rail Connectivity, Union Pacific
16	July 23, 2026	CN and UP reach settlement on Norfolk Southern merger, FreightWaves
17	September 15, 2025	New Union Pacific and Norfolk Southern Intermodal Gateway Expands Market Access, Union Pacific Announcement No. PR2025-73
18	May 4, 2026	Amazon Launches Amazon Supply Chain Services, Opening Its Logistics Network to All Businesses, Amazon News
19	February 22, 2024	J.B. Hunt Signs Long-Term Intermodal Agreement With Walmart, J.B. Hunt
20	September 9, 2023	Norfolk Southern CEO apologizes before Senate for Ohio train derailment, PBS News
21	October 20, 2026	Excerpts from the Deposition of Vincenzo J. ("Jim") Vena
22	October 19, 2023	Union Pacific Q3 2023 Results
23	February 28, 2023	Union Pacific CEO to Step Down Amid Investor Pressure, Railfan & Railroad Magazine - Justin Franz
24	October 7, 2026	Excerpts from the Deposition of David Hunt
25	October 8, 2026	Excerpts from the Deposition of David Hunt
26	July 26, 2025	Union Pacific and Norfolk Southern to Create America's First Transcontinental Railroad, Union Pacific
27	September 11, 2024	Norfolk Southern board of directors appoints Mark R. George President and Chief Executive Officer, Norfolk Southern
28	July 16, 1905	Norfolk Southern 2024 Annual Report
29	September 17, 2026	Excerpts from the Deposition of Mark George
30	September 28, 2026	Union Pacific X Post (@Union Pacific)
31	December 4, 2024	The Use of Structural Presumptions in Antitrust - Note by the United States

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32	2023	U.S. Dep't of Justice & FTC, Merger Guidelines § 2.1 (2023)
33	September 4, 2026	Deposition Exhibit 369
34	September 30, 2026	Excerpts from the Deposition of Dan McLaughlin
35	October 15, 2026	Excerpts from the Deposition of Mark Israel
36	January 23, 2025	Union Pacific Q4 2025 Earnings Call
37	July 29, 2026	Excerpts from the Deposition of David Welch
38	December 6, 2024	UP_2512665
39	December 6, 2024	UP_2512667
40	September 18, 2023	Deposition Exhibit 316
41	November 15, 2023	UP_0522730
42	July 30, 2026	Excerpts from the Deposition of Michael Houston
43	September 17, 2025	NS_00095982
44	April 15, 2026	UP_0022580
45	September 9, 2026	Excerpts from the Deposition of Todd Rynaski
46	November 2009	A Study of Competition in the U.S. Freight Railroad Industry – Laurits R. Christensen
47	September 9, 2026	Excerpts from the Deposition of Claude Elkins
48	January 2014	UP_1682678
49	January 23, 2023	NS_00793384
50		Rail Services, CN Website
51	June 29, 1905	A Primer on Foreclosure by Patrick Rey Jean Tirole
52	Winter 1995	Evaluating Vertical Mergers-A Post-Chicago Approach – Michael H. Riordan H. & Steven C. Salop
53	March 1990	Equilibrium Vertical Foreclosure, 80 Am. Econ. Assoc. Rev. 127 – Janusz Ordover, Garth Saloner, & Steven C. Salop
54	January 10, 2025	UP_2638273
55	December 3, 2021	UP_0877835
56	2023	GMXT, Información Financiera Trimestral (2T 2023)
57	August 6, 2026	U.S. Dep't of Labor, News Release No. 25-1009-DAL, US Department of Labor Orders Railroad Company to Reinstate Worker, Pay Over $300K in Back Wages, Damages, Attorney's Fees (Aug. 6, 2025)

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58	September 8, 2026	OSHA Blasts Union Pacific as 'Serial Violator' in Texas Whistleblower Case," Dallas Morning News (Sept. 8, 2025) - Amber Gaudet
59	October 13, 2026	Excerpts from the Deposition of Yannik Thomas
60	September 3, 2026	Excerpts from the Deposition of Brian Barr
61	December 13, 2024	UP_1610174
62	February 7, 2024	UP_1610209
63	May 8, 2024	UP_1610260
64	July 17, 2025	Deposition Exhibit 342
65	November 18, 2025	Deposition Exhibit 333
66		Deposition Exhibit 345
67	August 26, 2026	Deposition Exhibit 347
68	October 9, 2026	Excerpts from the Deposition of Michael McClellan
69	September 10, 2026	Excerpts from the Deposition of David Lehlbach
70	October 20, 2026	Excerpts from the Deposition of Shawn Tureman
71	May 12, 2025	Deposition Exhibit 38
72	September 4, 2026	Spreadsheet HC-T2R Intermodal Segmentation Dataset vFinal.xlsx filed with Verified Statement of David Hunt
73	July 18, 1905	Norfolk Southern Q3 2026 Quarterly Financial Data
74	July 16, 1905	Union Pacific Corp. 2024 Form 10-K
75		Deposition Exhibit 350
76	October 15, 2026	Excerpts from the Deposition of Jennifer Hamann
77	August 20, 2026	Excerpts from the Deposition of Aaron Pfeifer
78	December 18,, 2024	NS_00119427
79	December 17, 2025	NS_00672649
80	November 15, 2026	Union Pacific, Golden Spike and its Promontory Companions
81		BSNF, NS, NWSA Redesign Faster Service from PNW to Chicago and Beyond
82	May 9, 2006	UP, BNSF Announce Southern Powder River Basin Joint Line $100 Million Capacity Expansion Plan
83	December 29, 2020	America's Railroads Meet PTC Mandate, Look to the Future - Association of American Railroads
84	November 13, 2026	Federal Railroad Administration, US Department of Transportation, Positive Train Control (PTC) Overview
85	November 15, 2026	RailPulse Website: About

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86	June 7, 2022	Union Pacific Railroad Joins Forces with RailPulse Coalition to Digitally Transform North America's Freight Rail Industry
87	September 18, 2024	Norfolk Southern, Norfolk Southern CMO Ed Elkins testifies on growth in freight rail
88	November 11, 2026	Union Pacific X Post (@Union Pacific)
89	November 12, 2026	BNSF Railway X Post (@BNSF)
90	October 29, 2026	Excerpts from the Deposition of Kenny Rocker
91	February 3, 2016	UP_1682669
92	September 24, 2026	Excerpts from the Deposition of Katherine Novak
93	August 29, 2025	Buffett to CNBC- We won't be acquiring CSX, or any other railroad, CNBC
94	February 12, 2026	Deposition Exhibit 534
95	May 21, 2025	Deposition Exhibit 128
96	November 24, 2025	Deposition Exhibit 576
97	July 17, 2026	Deposition Exhibit 48
98	August 20, 2026	Deposition Exhibit 317
99	March 11, 2024	Deposition Exhibit 443
100	October 14, 2026	Excerpts from the Deposition of Rebecca Gregory
101	September 16, 2026	Morgan Stanley's 14th Annual Laguna Conference Transcript
102	March 10, 2026	Rail merger critics should "quit looking backward," says Union Pacific CEO, FreightWaves – Stuart Chirls
103	December 17, 1965	Supplemental Agreement between Union Pacific & Missouri Pacific Railroad Company F-1775-0-5
104	December 16, 2009	Trackage Rights Agreement between BNSF Railway Co. & Union Pacific Railroad Company BF-57851-Main-0
105	January 5, 1966	Agreement between Union Railway Co. & Missouri Pacific Railroad Company Trackages Rights at Memphis, TN, 1966 TRA Decision
106	November 18, 2025	UP_0106714
107	September 27, 2021	NS_00300322
108	September 16, 2024	Deposition Exhibit 341
109	October 19, 2026	Huneke, William, *Remembering Hunter Harrison's Approach to Enhancing Competition*, Railway Age (Oct. 19, 2026)

EXHIBIT 1

PitchBook

Norfolk Southern

Q2 2025 Earnings Conference Call
29-Jul-2025 • 12:30 PM (UTC)

Corporate Participants

Luke Nichols
IR | Norfolk Southern Corporation

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Jason Zampi
Chief Financial Officer | Norfolk Southern Corporation

Jennifer Hamann
Chief Financial Officer | Union Pacific Corporation

Call Participants

Scott Group
Analyst | Wolfe Research

Jonathan Chappell
Analyst | Evercore ISI

Brian Ossenbeck
Analyst | JPMorgan

Brandon Oglenski
Analyst | Barclays

Fadi Chamoun
Analyst | BMO Capital Markets

Tom Wadewitz
Analyst | UBS

Jason Seidl
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Presentation

Operator

Good morning, ladies and gentlemen, and welcome to the call to discuss America's First Transcontinental Railroad. At this time, note that all participant lines are in a listen-only mode. Following the presentation, we will conduct a question-and-answer session, and if at any time during this call you require immediate assistance, please press star 0 for the operator. And I would like to turn the conference over to Luke Nichols. Please go ahead.

Luke Nichols
IR | Norfolk Southern Corporation

Please note that during today's call, we will make certain forward-looking statements within the meaning of the Safe Harbor provision of the Private Securities Litigation Reform Act of 1995. These statements relate to future events or future performance which are subject to risks and uncertainties and may differ materially from actual results. Please refer to both Norfolk Southern Corporation's and Union Pacific Corporation's annual and quarterly reports filed with the SEC for discussion of those risks and uncertainties we view as most important.

Our presentation slides are available at norfolksouthern.com in the investors section along with our reconciliation of any non-GAAP measures used today to the comparable GAAP measures including adjusted or non-GAAP operating ratio. Please note that all references to our prospective operating ratio today will be provided on an adjusted basis. A brief question and answer session will follow the formal presentation.

Starting the presentation And on slide three, I'll now pass the call over to Norfolk Southern President and Chief Executive Officer Mark George.

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Well, good morning, and thank you for joining us on today's call. As you saw from this morning's announcement, the focus of today's NS earnings call has changed. Today is a historic day for America with the announcement of our country's first transcontinental railroad. I'm actually in Omaha, Nebraska this morning, and I'm pleased to be joined by Jim Venna, Pacific's Chief Executive Officer, Jennifer Hayman, the CFO, Jason Zampi, Norfolk Southern Chief Financial Officer. So let me ask Jim to start the call by laying out our vision.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Thank you, Mark. On behalf of the Union Pacific Board and leadership team, I am honored to be with you today to discuss our agreement to combine Union Pacific and Norfolk Southern in a combination valued at over $250 billion. This is a historic, transformative moment for our companies, our customers, and our great nation. Together, we will create America's first

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transcontinental railroad. With this transaction, we will generate significant value for our stakeholders and for all Americans. It builds upon President Abraham Lincoln's vision of a transcontinental railroad from nearly 165 years ago and will usher in a new era of American innovation.

Union Pacific and Norfolk Southern are two of the strongest operating railroads in the U.S. with a combined 360 years of franchise history. Generations of railroaders at both of our companies have helped build America into what it is today, and today's railroaders will demonstrate that there's no better combined team to deliver America's first transcontinental railroad.

I ask you to turn to slide four, lays out how this new seamless single line service supports U.S. growth. Railroads are the backbone of the U.S. economy. We power industries, connect communities, and deliver the materials that build homes, grocery stores, factories, and cities. You name it, and the railroad likely moved it. Moving freight safely, efficiently, and affordably keeps American manufacturing competitive and neighborhoods growing.

To that end, the United States has the best freight transportation system in the world, and this transaction will make it even stronger. The transcontinental railroad is the right next step toward achieving that goal. Combining Union Pacific and Norfolk Southern to unite the nation from east to west transforms the U.S. supply chain and transportation landscape.

Our single-line service will create new routes and increase access across this nation, making freight rail transportation a cost-effective option for more American shippers. By eliminating interchanges, customers' products will reach their destination faster, speed and reliability combined with lower brake costs per mile makes rail a more attractive option than truck. And with improved service reliability, we will lower our customers' inventory and equipment costs with reduced cycle times.

The impacts of this transaction for American communities can't be overstated. Our merger will reduce highway congestion and road maintenance burdens on American taxpayers. One intermodal train removes more than 550 trucks from the highway, and is 75% more fuel-efficient than truck. We pay to maintain our networks with focused infrastructure investment to support long-term growth and the safety of our operations.

Together, this will enhance supply chain reliability, support the industrial renaissance, and make U.S. manufacturing more competitive and accessible. Social investments have a broad impact on economic development and job creation. Importantly, Union Pacific and Norfolk Southern are aligned.

All of our union employees who have a job today will have jobs tomorrow in our merged company. And a company that is growing its business and spurring economic development creates even more jobs. The ultimate impact of investment in our combined company infrastructure, talent, and technology will be immense for American communities and businesses nationwide. Union Pacific and Norfolk Southern are committed to finding new ways to drive growth, benefit customers, and enhance rail safety and competitiveness.

I could go on and on, but I'll pause and ask Mark for his perspective on this historic transaction. Mark?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Thanks, Jim. It is a historic day, not just for our companies, but for our industry, our country and all of our stakeholders. This combination brings together two teams with a shared commitment to advancing our nation's economy, connecting people, strengthening our communities, and building a stronger, more competitive America. Both Norfolk Southern and Union Pacific have been an integral part of our country's growth for generations. With this transaction, we will extend Norfolk Southern's rich, nearly 200-year history alongside Union Pacific, unlocking new opportunities for our customers in our next chapter.

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We've strengthened our operations and have been disciplined in the execution of our strategy, running an efficient network, improving processes, and driving excellence. We're championing safety and continuous improvement at every level and have fostered the discipline to continue delivering a service product that's not only competitive, It's compelling for our customers. And with the leaders we have and processes we're instilling, we are now demonstrating network resilience in the face of challenges. In these efforts, they have led us to today, a turning point for the industry that's only possible because of the thoroughbreds team commitment, strength and belief in our mission.

I'm so proud of everything we've accomplished and I want to commend our dedicated leadership team and our whole organization, for they've all done wonderful things to deliver results. By joining together with Union Pacific, this transaction will allow us to build on the momentum that we've created and to really create America's true first transcontinental railroad, delivering more for our customers, our shareholders, our people, and the communities we call home. The ability to deliver for all our stakeholders simultaneously was central to my initial conversations with Jim.

We share a vision for the rail industry, where traffic grows, customers have faster, more reliable shipping, our nation's economy expands with less emissions, and importantly, our people continue to be central to our business. Not only is this an opportunity to strengthen the supply chain, but one where we can deliver something no one else can, a freight railroad that unites our nation.

Joining our over 19,000-mile network and powerful franchise with those of Union Pacific will allow us to deliver a more effective and competitive railroad, creating compelling benefits for this iconic American industry and our workers. We will create opportunities for our employees as we grow by delivering reliable and timely service for our customers.

We will build value for shareholders who will benefit from both the opportunity participate in significant upside as holders of the combined organization, which we believe will be a must-own large-cap stock and should trade at a robust multiple. We will unlock potential for the American economy today and well into the future, and we look forward to all that we will accomplish together.

Jim?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Thank you, Mark. Connecting our two great companies creates an impressive rail network as laid out on slide five. The Union Pacific-Norfolk Southern combined network supported by over 52,000 railroaders will span 50,000 plus miles across 43 states, reaching nearly every corner of the United States. It connects major manufacturing centers, agricultural region, and population center. It also unlocks rail options for shippers and markets where today's rail network is currently inefficient, such as gateway operations and connecting short-distance markets on both sides of the Mississippi River.

Our combined network will connect 10 gateways with Mexico and Canada, as well as over 100 ports, opening strong international trade routes and supporting local and cross-border economic growth. Importantly, single-line service reduces interchange points and creates increased fluidity and optionality. It reduces strain at our gateways and interchange points, optimizes handoffs, and eliminates rubber tire interchanges.

Today, around one million carloads interchange between our two companies. In the future, those million carloads will immediately see a 24 to 48-hour improvement in their transit time. That combination of faster service and greater market reach is powerful, making our transcontinental Railroad, an attractive choice for both current and future customers. Our network will be strengthened by continued capital investment. In 2025, that combined investment will total around $5.6 billion. These investments are critical to support safety, service, and operational efficiency improvements and we're committed to continue those investments to support U. S. economic growth going forward.

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Now turning to slide six, ultimately, we believe this new combined network enhances competition and increases growth opportunities that are in the public interest, benefiting all stakeholders. For us, this isn't just about winning versus the other rails, which we will, but it also competing against other modes of transportation, whether that's barge, truck, or pipeline to name a few. It's providing a transportation product that competes for broader industrial development that supports reshoring manufacturing growth in the U.S.

Our unified transcontinental offering will allow us to compete more effectively with Canadian transcontinental rails, making U.S. ports more competitive and winning back U.S. freight volume in American jobs. With route optionality that creates direct routes east and west will help our customers win in their marketplaces. Intermodal line service opens up more customer options to and from underserved areas in the Ohio Valley and the Mississippi River watershed. By connecting around 100 ports and 10 international gateways, we enable more efficient and cost-effective supply chains.

Stepping back, the combined network will capitalize on the strength of Union Pacific's west coast ports and Norfolk Southern's east coast ports. Merging the strength of both companies' intermodal networks facilitates the capture of international trade volumes and domestic truck conversion. The beauty of U.S. ports is the population centers around the ports, as well as the inland reach, thus making our ports a more natural destination when paired with excellent service and a wide portfolio of destinations.

Slide seven summarizes a lot of what you've heard so far and why we see this combination as a win for our customers. Couple things I'd add. First is a question of enhancing competition. One way we're considering addressing this is through a proven framework we've employed in the past. It's a framework used by Union Pacific for select traffic in the Pacific Northwest. The results have demonstrated that it has enhanced competition while supporting carload growth that has outpaced the market. While more details will come through the STB application process, we believe it will be a win for our customers.

A significant note with this combination, fewer than 20 customers will go from having two rail providers to just one, and we intend to provide a competitive alternative. Second, the deployment of state-of-the-art technology like Union Pacific's NetControl and CADX systems, along with Norfolk Southern's advanced algorithms that drive digital train inspection will create a safer, more efficient overall network, while enhancing customer experience through shipment visibility and tracking.

Now imagine steel moving from Pittsburgh, Pennsylvania, the Colton, California, seamlessly. And then copper moving from Arizona to the east with fewer touch points. Increased speed and better customer tracking capability. The possibilities are endless and only increases my excitement about what's possible.

I'll now hand it over to Jason to transition the conversation to the financial aspects of the deal. Jason?

Jason Zampi
Chief Financial Officer | Norfolk Southern Corporation

Thanks, Jim. This proposed combination creates both scale and balance as laid out on slide 8. Based on 2024 proforma results, our combined company has revenue of $36.4 billion, EBITDA roughly $18 billion, and an operating ratio of 62.1%. This scale, combined with operational discipline, positions us to capture greater value as rail demand continues to grow. And specifically with the combined operating ratio, there is clearly room for continued improvement.

Together, UP and NS handle more than 14 million carloads a year across numerous business lines within our industrial, bulk, intermodal, and automotive segments. You've heard both companies talk separately about how this diversity helps us navigate the ups and downs of economic cycles. This merger only increases our combined company's ability to weather any storm. Importantly, this isn't just about being a bigger railroad. It's about being a better railroad, one that is more efficient and creates more value for our customers.

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Now, I'll turn it over to Jennifer to walk through the financial opportunity our proposed combination creates. Jennifer?

Jennifer Hamann
Chief Financial Officer | Union Pacific Corporation

Thank you, Jason, and good morning. Slide 9 provides a one-stop shop for the transaction details. Jim has already touched on a few of these points, but let me highlight that under the proposed terms, Norfolk Southern shareholders will receive one share of Union Pacific stock and $88.82 cash for each Norfolk Southern common share. This represents an $85 billion headline value based on Union Pacific's July 16th unaffected closing price and a 25% premium to Norfolk Southern's 30 trading day volume weighted average price.

In terms of the roughly $20 billion cash portion required for the transaction, I should point out that there will be no voting trust, so no funding will occur until the transaction closes. At close, we will fund that through a combination of cash we generate between now and closing, as well as issuance of debt. As part of that, both Union Pacific and Norfolk Southern have suspended share repurchases, but will maintain their respective dividends.

For that premium, we are creating a transcontinental railroad that unlocks $2.75 billion in synergies, as illustrated on slide 10. We see a clear path to achieving these annualized synergies in the third year post-close, represented by both revenue growth and productivity. On the revenue side, synergies of $1.75 billion will be heavily driven by modal conversion, as single line service makes rail more competitive versus truck. As Jim laid out, lanes such as the Pacific Northwest to the watershed and Southern California to the Ohio Valley provide great opportunities to win new business.

Beyond intermodal, we see opportunities such as finished vehicles moving nationwide, food and beverage shipments traveling west to east, industrial chemicals moving from the Gulf to eastern markets, and tires and steel rod moving east to west. As you saw on slide eight, both companies bring a diverse business mix to this transaction, which gives us a wide aperture to pursue growth opportunities.

Cost synergies of $1 billion will result from improved safety and efficiency through shared best practices, reduction of material costs, enhanced asset utilization, routing efficiencies, and rationalization of back office costs. For example, through just the optionality of single line service, we'll increase locomotive productivity and generate fuel savings through less idle time at gateways.

We'll gain workforce productivity through fewer car touches, as well as driving the culture of operational excellence across an expanded footprint. To support these cost synergies, we expect to spend roughly $2 billion in incremental capital to integrate the networks. Finally, the deployment of state-of-the-art technology from both rails will create a safer, more efficient overall network.

Looking then to slide 11, this transaction yields very compelling financial profile for the combined company, as the $2.75 billion in synergies achieved by year three represents more than $30 billion of value creation. We expect adjusted EPS to be accretive early in the second year post-close, with high single-digit accretion thereafter as the synergies are realized.

Annual free cash flow will grow from a 2024 pro forma combined $7 billion to an estimated $12 billion by 2029 with synergies, reflecting 10% annual growth. With this strong cash generation, we will rapidly deliver our balance sheet. In fact, we expect to close the transaction with a debt to EBITDA of around 3.3 times and be back to around 2.8 times by 2028, less than two years post-close.

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With our commitment to prioritizing the balance sheet and discussions with the rating agencies, we would expect to maintain our current A-rated status. The more than 60% increase in run-rate-free cash flow supports our balanced capital allocation policy, reinvesting in our combined network, rewarding our shareholders with a competitive dividend, and resuming share repurchases in 2028. By year three, we expect to be repurchasing more than 10 billion in shares annually. Bottom line, we are very pleased with what this deal represents for both Union Pacific and Norfolk Southern shareholders. We see it as a win today and a win for the future.

I'll now turn it back to Jim to discuss the next steps and wrap up.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Thank you, Jennifer. Obviously, this is a first major step in this process. I'm on slide 12. In terms of the timing and path to completion, the transaction is subject to review and approval by the Surface Transportation Board with its statutory timeframe.

We at Union Pacific do not take steps lightly. We think them through. We make sure we have a strong case. We make sure that the team is ready to move ahead. And we're very comfortable with where we are as we move ahead. As I mentioned earlier, our robust plans not only preserve but also enhance competition and will be filed with the Surface Transportation Board in due course. For all the reasons you've heard today, we're confident that transportation, The transaction serves the public interest and meets relevant requirements. The transaction is also subject to approval by both Union Pacific and Norfolk Southern shareholders.

I want to be very clear here. We are both deeply committed to making this a seamless and integration process as possible. We understand that we need to avoid distracting our organizations during this approval process in a way that impacts our customers. And once the transaction is complete, we need to move as quickly as possible to deliver the benefits our stakeholders expect.

Now, I'm turning to slide 13. A transaction of this size and scope won't be easy to execute. We understand that. Key is having the right strategy and the right team to execute it. At Union Pacific, our safety, service, and operational excellence strategy has propelled our company to industry best. We've made significant safety improvements, taken service to all-time best levels, and the operational efficiency and financial performance speaks for itself, as we reported just a short time ago. A big part of our strategy's success has been maintaining a buffer of resources to handle the fluctuations of railroading. As we implement this transcontinental railroad, that buffer strategy will remain imperative.

At Norfolk Southern, their thoroughbred culture has driven significant improvements over the past year plus. They have great momentum across those same key elements of safety, service and efficiency. It demonstrates that our companies are aligned on the fundamentals of running a great railroad. With the collective talent of both organizations combined with a winning strategy, I'm confident that we'll deliver for our stakeholders.

Mark, appreciate your thoughts on the cultural alignment before we wrap it up.

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Sure, Jim. You know, however you label the strategy, it comes down to the core fundamentals And from the start of the transaction, it was evident that the DNA of our companies were very similar. You know, we have our core NS spirit values, which

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represent safety, performance, integrity, respect, innovation, and teamwork. And those are very closely aligned with Union Pacific's. And we expect to combine the best of both companies' programs and technology to set a new bar for rail safety and performance, advancing our shared commitment to keeping rail the safest way to move freight over land.

And I just want to reiterate a point that Jim made earlier. Both companies are committed to a seamless integration. We understand that we need to continue to provide customers with a high level of service throughout this process, avoiding distraction and disruptions. We'll have plenty of time to do thorough integration planning while the transaction is under review and post-closing. And we commit, we're going to put the appropriate resources and time in place to assure that we do this the right way.

Both companies have an immense amount of pride in their histories and how they've shaped our great nation. And if we use that as a foundation while focusing on what we can control, I'm confident that these groups of railroaders will come together to win for our customers, our communities, our nation, and each other.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Jim? Thanks, Mark. Now, wrapping up on slide 14, it summarizes the unprecedented benefits of this merger. This is a historic milestone for the entire rail industry and for America. This transaction will unite the nation, connecting businesses, consumers, and communities. It will accelerate growth, enhance competition, spur economic development and employment, and unleash economic innovation.

Built on our safety service and operational excellence strategy, we will accelerate improvements in the safety, service, and efficiency of our combined network. And through significant synergies and free cash flow generation, we will deliver enhanced shareholder value. Our great companies have deep roots in spurring the industrial revolution of the past. With this combination, we take the next step in driving economic growth and prosperity of the future.

That concludes our prepared remarks. We will not open the lines to answer your questions. Thank you.

Questions and Answers

Operator

Thank you. Ladies and gentlemen, if you do have any questions at this time, please press star followed by one on your touchtone phone. You will then hear a prompt that your hand has been raised. Should you wish to decline from the polling process, please press star followed by two. And if you're using a speakerphone, you will need to lift the handset first before pressing any keys. Please go ahead and press star one now if you have any questions. And your first question will come from Scott Group at Wolfe Research.

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Scott Group
Analyst | Wolfe Research

Pretty historic day. I have a question on deal mechanics and then maybe just a bigger picture question. Why no voting trust? And then can you give us the break fee if there's a superior offer? That's sort of mechanic stuff. And then Jim, just bigger picture. I know you don't have an operating ratio target, but when you think about UP standalone and now this combination, in your mind, is the combined railroad, is this a better margin railroad? And as you think about like 2.75 billion of synergies, is that inclusive of any potential regulatory concessions?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Well, Scott, listen, thank you very much. I'll answer the second question in a minute, but I'll pass it over to Jennifer. And you can talk about the breakup fee and why no voting trust.

Jennifer Hamann
Chief Financial Officer | Union Pacific Corporation

Yes, I'll start with the voting trust, Scott. You know, we actually believe that a voting trust would complicate and potentially delay the transaction. So we want to go to the STB with a fully developed merger application that allows us to really lay out the fundamentals of this merger and provide all the necessary detail that supports our position that this will not only enhance competition but is absolutely in the public interest. And so, you know, again, with the timeframe relative to regulatory approval, we also think it's in the best interest to not fund it fully two years before we would have to, which would obviously be required as part of the voting trust. In terms of the deal and the breakup fee, it is $2.5 billion is what's set for that. Certainly we don't expect to be invoking that. We're very confident in this transaction.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

So Scott, listen, I'm going to broaden a little bit the question that you've asked, okay? Because I think this is real important to understand, and I've sort of said it a little bit in the prepared remarks. So when I came back to work at Union Pacific after I was away for a sabbatical for a short time, I came back with a list of things. I carry around a black folder that I put my thoughts in on the back of it. And before I showed up, I said to myself, you know, there's something missing in the United States of America, and that is truly a transcontinental railroad. And we limit the capability of customers and manufacturing and supply chains in the U.S. because of the handoffs and what we do.

The difficulty was always, could you ever get the deal and have a partner? And I tell you, it's a partner with Mark and his entire team. We spent all of yesterday together, just crossing T's and dotting I's. But at the end of the day, it was one of my goals. But of course, time and place is important, is do you have the right fundamentals? And what I like is, I like the fundamentals and what Norfolk Southern is doing. And I trust that they are going to deliver as we go through this timeframe to get to the STB. And the STB, if they look at it, which I think they will, in a very systematic, is it better for customers, is it better for the country, is it better to help people win in the marketplace, they'll approve this. We're very confident of that, or we wouldn't have taken the step.

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So you know, Mark and I had a little discussion, I always had it on the list of things to do, and we started the ball rolling. And when I look at how we got here, you need to make sure that the fundamentals of both railroads are in the right place. And I'm telling you, the fundamentals I know, and I spoke about in Fort Norfolk Southern are in the right place. The fundamentals for Union Pacific are also in a great place. We have a strong team right across the board and you need that and make sure that you have it.

I'm very comfortable with Jennifer who's sitting next to me, with Eric, with Kenny and Marcus absolutely and I'm going to ask him to jump in and give his view of this in a minute. So we have the right team, then at the end of it is where are we, time and place, does this makes sense. And we are absolutely sure that when everybody stops and thinks about this in a logical, fundamental pattern, it is compelling. It's a case that's compelling for us to move ahead.

Now, you asked me about OR. I don't give OR. All I'll tell you is my goal has always been the best in the industry. And you can go back to when I was at Canadian National, okay, as the Chief Operating Officer, and we had great operations, and we've continued that at Union Pacific. We expect to be the best in the industry, and that's what we're going to drive towards and make sure that we're still the best and be able to return the best service to our customers. In the last quarter, Union Pacific's service level was close to 100% on both the manifest and intermodal and that is service that we measure against what we delivered, what we agreed to with our customers. So high service, great efficiency, build on that for these combined companies.

I'm telling you, I'm very comfortable. I do not make decisions lightly and I gave it a lot of thought and the entire team did. And I'm absolutely, Mark, you did the same thing. Mark, any comments to add to what I just said?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

No, I mean we've spent, you know, So, quite a while talking about this, and I think the most important part was fit, whether the fit was there. And I do believe, like I mentioned in the prepared remarks, culture was very much aligned. I think our joint mission and vision for our country is 100% aligned. This is good for America to try to link our networks, independent networks. We can only go so far independently. And let's face it, this industry has faced contraction over the last couple decades in terms of volume growth. We've been losing share to truck, and this is one way to reverse that trend. So I'm supremely confident that we've got the right partnership, that we're culturally aligned, and that we're going to execute brilliantly on integration to ensure that there's no disruption.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Thanks, Scott. Appreciate it. Sorry for the long answer.

Operator

Next question will be from Jonathan Chappell at Evercore ISI.

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Jonathan Chappell
Analyst | Evercore ISI

Jim you're going to get a lot of questions that you had on Thursday that you couldn't answer. So let's start with the DC environment. You've said very clearly you're not going to take steps lightly. You've thought this through. I assume you've had some conversations with the administration, with the Department of Justice, with the STB. What can you tell us about the feedback you received from those initial conversations? What have you heard about adding the fifth member to the STB and how does that fit into the timeline that you've laid out?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Well as the largest railroad in the United States of America, we have continuous discussion and dialogue with all facets of government and regulatory agencies in Washington. We continue to do that. So we would not have taken the step if we don't feel comfortable that we can deal with any of the issues that come forward. And that's the best way to describe any discussions we've had. And we'll continue to make sure that everybody understands what we're doing and how we move ahead.

Jonathan Chappell
Analyst | Evercore ISI

Do you know anything about the fifth member, the timing there?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

No. You probably know more than me on that, so if you know something, let me know. I think there's quite a backlog of nominees, so it may take a little bit of time. That's kind of what we're hearing, but.

Operator

Next question will be from Brian Ossenbeck at JPMorgan.

Brian Ossenbeck
Analyst | JPMorgan

Congrats on the announcement today. I wanted to ask a little bit more about the strategy to grow and enhance competition. So I guess two parts. First one, do you have a view on intermodal service combining these two networks? Is this still something where you need IMCs? Will you provide more on your real owned boxes? And then, you know, the second one, I guess, is really thinking through the approval process. You know, how are you going to be able to come up and prove and quantify, you know, that these benefits are achievable through a merger and not through some other means?

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Jim Venna
Chief Executive Officer | Union Pacific Corporation

Well, listen, you know what, Mark, why don't you start on the Intermodal. You guys do a spectacular job of that, and you guys, you know, I'm always envious when I look at how well you guys have done on that, so why don't you talk about the Intermodal piece?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

You know look what here's an interesting thing with our interchange with UP today 95% of our interchange is over 2,000 miles Meaning only 5% is under 2,000 miles. We see an enormous opportunity to grow In lanes where we would be in that thousand mile or 1,500 mile range, so That's just one example and that kind of touches upon the entire water watershed story So again, you've got this interference in the center of the country with these interchanges That creates friction and you've got 500 mile moves a thousand mile moves on each side of the Mississippi And when you're going from west of it to east or east to west it Rail is never even contemplated because it's just too much hassle too much extended time and frankly too much cost So these are the areas where we see tremendous growth, and, you know, that's part of what you see in the revenue synergy numbers. So we're supremely confident as we look at the growth, and I think, Jim would tell you, the revenue synergies here we're supremely confident in.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

You bet. What I could add, Scott, if you had a case where we was not thought through and was not compelling, you'd have a hard time being able to get anything done. When we look at what this combination delivers, it delivers truly better service for our customers. Think about this. You've been following us, Brian, for a long time, and I could go on. This is one of those whiteboard exercises that we could be at for two hours. But just to give you a little snippet, you know, when a rail car moves non-intermodal and it needs to go from east to west or west to east, we can get across the country. We get across all the way from LA to Dallas in less than two days with an intermodal train. It's a little longer with a freight train. We will remove touchpoints. And every time there's a touchpoint, you add 24 to 36 hours, even at the best, while you're switching the rail car.

That's gone. On top of that, at the interchange points where we used to stop and hand off, those are removed. So every customer that today when we are finally approved, and that's what the STB is going to look at, is what's the advantage? How is service? Is it better for America? And what they'll look at is we're going to cut a day or two off of every transit time. That means less cost for our customers. have to have less cars, less leases, less, the congestion on the railroad will be less because there will be less rail cars that are needed to move the same amount of business. That's something we've done at UP already within our own network. The amount of car loads, okay, cars per car load that we operate is improved by 20%. The velocity has improved and this combination moves it. So given all that, I trust what the STB Chair has said, that he wants to live up to commitments and timeline and make sure that the process of anything that they look at is clean. And that's why we're very confident that we'll be in the timeline, unless we make a mistake in what information that they require to look at our transaction. But I'm very confident that we've done the homework and we're in the right place.

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Operator

Next question is from Brandon Oglenski at Barclays.

Brandon Oglenski
Analyst | Barclays

Jim or Mark, I mean, if we go back in the history of STB merger approval or unapproval, I think integration service risks come up quite a bit, especially with integrations that happened decades ago. Can you guys talk about some of your strategies to maybe mitigate those integration risks and what the service plan would be in the first year or two of the integration of the two networks?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Mark, you want to start?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Yeah, I think, like I mentioned in my prepared remarks, Brandon, we're very aware of what led to the merger moratorium back in 2000, 2001 timeframe. and it was just a bunch of bad integrations. And we are committed to make sure that doesn't happen in this case. And we're gonna use this two years of review process to start getting our teams together to talk and think and learn about the way our systems communicate, what platforms we want to be on to ensure that we have a running start when we close on this deal in two years time. And we're not gonna turn any switches on unless we're 100% confident that we're going to be disruption-free. So we're learning from the lessons of the past, and you have our commitments there.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

So I agree with Mark 100%. We're going to be very prudent in how we do things. But you know what? Words are easy, and people can talk about things and say this is what they're going to do. I'm not into talking about things. I'm into showing and then being able to replicate that. So, we shut down, everybody remembers, and we talked lots about our implementation of NetControl. That change, that is the fundamental system that runs our railroad, keeps track of every rail car movement, sets up for billing, and we shut it down, replaced the old one with NetControl, and it was a non-event. It was like nobody knew it actually happened. I was hoping I'd get more questions and give us a little pat on the back for Rahul and his entire IT team about how well Union Pacific did, but I never got any positive remarks from anybody. Rahul's still waiting for some.

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Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Welcome to the World.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

So at the end of it, I could go on the things, but fundamentally, the fundamental strategy that we are going to partake in this is having a buffer of resources so that we do not get ourselves in a place where we can't handle because you're always it's an outdoor sport you're always going to be confronted with something and you need to make sure that you have a buffer of locomotives and a buffer of assets and a buffer of people at the right level so that you can win so I'm very confident I really am that we will take it like Mark said take the right steps don't get too carried away don't think you I don't know Norfolk Southern like I no Union Pacific. And if anybody thinks first day we're going to go out there and start slashing and burning, that's not going to happen. We need to learn and get the team together to build the right plan that wins. I'm being very verbose this morning. I think we're going to have to cut off some of these. I'm going to try to do three-word answers from now on, Mark.

Operator

Next question is from Fadi Chamoun of BMO Capital Markets.

Fadi Chamoun
Analyst | BMO Capital Markets

So I want to say congrats on the deal first. And just a follow-up on an earlier question. Does the strategy numbers and the cash flow numbers that you've outlined in any way accounts for any potential concession in them. My main question, though, is, you know, there's two ways this could have gone kind of transcontinentally, and I understand what you outlined in terms of team alignment and culture, but are there other network synergy consideration and mix, commodity mix, or kind of business mix consideration, then went into why would And that's when you make the best transboundary combination versus potentially another one. And, you know, lastly, if Jennifer can give us, what's the gross revenue number underlying the 1.75 billion?

Jennifer Hamann
Chief Financial Officer | Union Pacific Corporation

So I'm probably not going to give you that gross number, Fadi. But I will tell you that the synergy numbers themselves are gross synergies. So 1.75 billion is what we're looking at for revenue. And as you heard Mark state and hearing the enthusiasm from the group, we think that there's more opportunity there. and then a billion dollars on the cost side. So that's that part. In terms of the returns and the cash flows that we talked about, we have taken into account the fact that there will likely need to be some concessions made. We're not going to size that. So when you hear us talk about the economics of the deal, know that's taken that into consideration, but the synergies that we're talking about are on a growth basis.

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Jim Venna
Chief Executive Officer | Union Pacific Corporation

And, Fadi, you know, you said NS, I think they're a great company. Mark, why Union Pacific?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

I think we've got the largest interchange, don't we?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

We do.

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

So a million carloads of interchange. You bet you. And we've got really strong cultural alignment. So it's a beautiful complementary fit.

Operator

Next question will be from Tom Waterwitz at UBS. go ahead.

Tom Wadewitz
Analyst | UBS

Let's see I wanted to ask if you could help frame a little bit more on the revenue synergies and then I don't know if you think like there's more likely to be upside on cost to revenue synergies but I think you know you mentioned Canadian opportunities and taking business from Canadian ports you mentioned the watershed markets. Can you give any more perspective, like how large are those pieces of the $1.75 billion? Is watershed the biggest piece? Is intermodal the biggest piece? How much is Canadian ports? Just any maybe high-level perspective on how you think about the bigger opportunities within that $1.75 billion number.

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Jim Venna
Chief Executive Officer | Union Pacific Corporation

You know what? You did a great job of sort of framing the opportunity. You really did. You covered it all. So let me just say this, is at Union Pacific, we have always been very prudent about what we put out for goals, OK? And Jennifer is not sitting close enough. She's worried that I'm going to say blow-by. So I'm not going to say blow-by. But what I will say is we're prudent on what we see for revenue synergies. And we've done a detailed study. and I'm very comfortable that we're going to deliver what we said because we're prudent people. Mark, anything you want to add?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Yeah. You know, I think, again, we talked about the watershed opportunities. You've got markets like we can really attack in the watershed, like, you know, Houston to Charlotte, for example, Dallas to Columbus, Laredo, Denver to Columbus. There's an awful lot of opportunity here where there's virtually no rail moves. It's all truck moves. And those are big markets. can start to exchange. So there's I think there's opportunity well in excess of the numbers there but we've made estimates and approximations that get us to the 1.75 but frankly like Jim's saying and I'm saying there's a lot of confidence in that number and most likely a lot of upside.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

And on the Canadian side it's just a detail a little bit about competition and why this is great for America and great for the industry and great for customers. Intermodal comes in at Halifax, comes in at Montreal, comes in at Vancouver, comes in at Prince Rupert, and single line haul they have, the Canadians, to be able to come into the U.S., deep into the U.S., and deliver. And we're going to be competitive on that. We're going to be able to come out of the East Coast ports and the West Coast ports and compete. That's what we want to do. All we care about is let whoever has the best service, best price, best model to win. And I think it's wonderful for us moving ahead. And then, you know, you have to look at the fact that you just can't really, our opportunity to take share against long haul truck is really amplified here when you start to eliminate the friction of interchanges. So eliminating a lot of those friction points and being able to build blocks and move traffic without an interchange is going to help us take share from truck on the long-haul side.

Tom Wadewitz
Analyst | UBS

One component within that, is it primarily intermodal that we're talking about, or is it a big mix of carload as well?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

It's carload as well.

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Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Yeah, it's carload as well. Absolutely. That's why we describe the touch points.

Operator

Next question will be from Jason Seidl at TD Cowen. Please go ahead.

Jason Seidl
Analyst | TD Cowen

Jim, Mark, and team, congratulations. I wanted to dive a little bit more into the Synergy side of things and talk about the conversions. Clearly, the rail industry has lost share to the truck market over the last couple of years. How much has been lost, at least in your estimation, in the longer length haul lanes? And then when you look at the Synergy numbers that you've given us, does that assume that there's no reaction by the other two to create another Transcontinental Railroad to compete with you? Or is that on a combined basis as well?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Listen, the truck market is huge. And we're not saying that we have the capability to take trucks out of everywhere. There's certain length of haul where the truck has an advantage. There's certain types of business that need a truck. And I think we're mutually we can work together to win and even more business and help with the transformation that's happening on the industrial side in the United States of America right now. So the way we look at it is the opportunity is there for us to be able to sell that model and end-to-end closer to what the customers have, extend the reach and not have that hand-off. I give the example for people that aren't railroaders. I know I've read a lot of your articles lately, so you're a railroader just like I am, okay? And at the end of the day is, I would like to have, in the United States of America, that if you cross the Mississippi and you were flying from one end of the country to the other, you'd have to get on the plane in New York, get off in Chicago at O'Hare, change planes, change carrier, and go to another airline to go to L.A. That's what we do.

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

And book two tickets to do it.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Book 2 tickets to do that.

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Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

With two different companies.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Exactly. So but that's how we treat freight in our country.

Jason Seidl
Analyst | TD Cowen

My interchange is Newark. So it's pretty bad.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Sorry about how I apologize. Mines Omaha, it's very simple to get to.

Operator

Next question will be from David Vernon at Bernstein. Please go ahead.

David Vernon
Analyst | Bernstein

First of all, congratulations, and Jim, for what it's worth, I'm a big fan of NetControl. So good job on that. So with the revenue synergy number of 1.75, I know, Jennifer, you said it's a mix of carload and Intermodal. Could you kind of put a finer point on what percentage is carload versus Intermodal? And should we be thinking about this as all sort of incremental industry, incremental revenue to the railroad industry, or there also some diversion contemplated in the revenue synergy number?

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Jennifer Hamann
Chief Financial Officer | Union Pacific Corporation

Yeah, I appreciate the question, but you know that I'm not going to give you that level of specificity. But you heard in Jim's remarks, I mean, we're expecting to convert traffic, certainly bring new business onto the rail. That's a very big part of this transaction, but we also think it will position us very well competitively against our peers as well.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Jason, anything to add? Like, we've kept you out of this discussion. Anything else?

Jason Zampi
Chief Financial Officer | Norfolk Southern Corporation

No, I think Jennifer hit it, you know, really well. lot of opportunities on the revenue side and I think, you know, we haven't talked much about the cost side, but there's, you know, great opportunities there. I think two of the biggest areas in our, you know, purchasing strategies as well as our technology and how we combine that.

Operator

Next question will be from Stephanie Moore at Jefferies. Please go ahead.

Stephanie Moore
Analyst | Jefferies

Maybe just continuing on that conversation in terms of the revenue synergies, if you could talk a little bit about any conversations that you've had with customers, either, you know, leading into the seal or you plan to have coming out of the seal and how you're maybe looking to just address, you know, any potential concerns around, you know, network issues, you know, post-close, but also to really, you know, come after and kind of take this incremental share from truck as well.

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Let me just start by saying I think we're both coming from a wonderful position of strength right now when it comes to our service product. I know on the NS side, you know, our net promoter score is as high as it's ever been. Our customers are quite pleased. And I know we hear the same thing on the UPE side with regard to customer satisfaction. So I think that customers generally are going to feel as though this is going to provide them more opportunity to leverage that good service product that they've been receiving and give us more share going forward. Jim?

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Jim Venna
Chief Executive Officer | Union Pacific Corporation

Mark, you know what? I think you've done a great job of summarizing it the way we're moving forward. So thank you very much for the question.

Operator

Next question will be from Bascome Majors at Susquehanna.

Bascome Majors
Analyst | Susquehanna

Can we go back to an earlier question? I know we'll get the detail from the lawyers on the origin story here when you file the proxy for the shareholder votes, but how long have you been talking beyond the sketches in your notebook, Jim, more seriously here? Did you speak to the other Eastern Rail and what ultimately pushed you into this one being the right one, the biggest one or two reasons?

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Well, I tried to clear this up at the very start about how all this started, but Baskin, we have been talking and our board, and I'm absolutely sure Mark can jump in here. Our board, when we started to talk about this internally and what we saw, the benefits for partners, benefits on service and benefits for America, my board really went through it in detail to make sure that we were doing the right thing for Union Pacific. And we wanted to also make sure that whoever our partner was the best partner for us that we saw the best capability moving forward. And that's what we've done. And it took months, not years, but it took months from when we first talked. And I give Mark credit. He came in for a top-to-top and he said, you know, growth and what do you think? And that sort of spurred something that we already had. So we're talking months away. And when we started to work through, I'm not going to get into any detail about any other conversations with anybody. That's just not the way a business should be handled. But we worked through this, Mark and I, hand in hand, and their boards and our board. And we've had a lot of discussions about this to get it to the finish line. It's amazing how much, even with a small team, well, I guess maybe a little larger team than I thought originally that we had on it, that it didn't matter as soon as we said something the last couple of weeks, something would come out. So we needed to move fast, which we did. Mark, anything you want to add?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

No, that's, you nailed it.

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Operator

Next question will be from Walter Spracklin at RBC Capital Markets. Please go ahead.

Walter Spracklin
Analyst | RBC Capital Markets

Congrats on the deal. I want to start with the CapEx question. I know you mentioned your run rate for free cash flow. Can you give your implied annual CapEx run rate that drives that free cash flow? And Jennifer, did you say $2 billion in one-time CapEx to achieve the 2.75 in Synergy? I guess my question there is, where are the pass-through points here and how much investment has to be made for you to avoid Chicago or push through within Chicago or not Chicago at all? Is there short lines that you're contemplating to make that more fluid? curious as to the level of project investment that would be required to increase the connectivity between the two companies?

Jennifer Hamann
Chief Financial Officer | Union Pacific Corporation

Well, thank you for that question. So, first of all, you know, we're spending about $5.6 billion this year. That's the combined between the two companies. I think you've seen us both be very disciplined in terms of our CapEx approach. We've, you know, going to invest for growth. We're going to invest for safety and service. And we will stick to those principles throughout the next 22 months or so that it takes to have this transaction approved and then go forward. That's always our first use of capital dollars, cash dollars, is to invest it back into the business. That's our best investment, as I think you know.

In terms of the $2 billion, we see that largely around tech integration, because that will be extremely important to connect this NetControl system that we've just been talking about with NS's system, leverage some of their systems with ours. Think about our progressive gate technology that you've heard us talk about. NS, I think, has 50 plus Intermodal ramps. That's a huge opportunity for us to deploy that system and gain productivity through that deployment. And then, of course, you think about sighting extensions. You think about the length of the trains that we run and how we want to seamlessly interchange and run those Intermodal trains and manifest trains east-west. will be an important part of that. Obviously, there's still a lot of details to work out there, but at a high level, that's really how we're thinking about it.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

I think sometimes people are mistaken about the discussion about Chicago and Memphis and New Orleans and interchange points. So, Chicago works for us. It really does. But you're interchanging and you're sitting there with rail cars having to sit. What we're talking about is, Walter, is you take a train and you run it between our combined network and it's just a crew change and you keep on going. That's the big benefit. We don't see a huge amount of business changing from Chicago to go to Memphis or go to New Orleans because the autoroute miles just don't add up, don't make a particle of sense. But if we can be smoother, cleaner, the way we interchange, Walter, that's what is the real important piece of it.

And on capital, everybody always thinks about capital and they think about it on what are we doing with locomotives, what are we doing with this. We have developed systems at Union Pacific and so has Norfolk Southern, some really good systems that

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improve productivity and how we handle ties, how we give track work time, how we move, how we replace rail and do that. Some of the things that you combine and put together and we've identified two billion that from technology and everything else that we think to be able to combine these two companies and make sure that it truly operates seamlessly as a one railroad when we're moving our products is in the best way possible. So we've done again a lot of work to get to that number. I'm hoping we can do it for 1.7.

Operator

At this time I would like to turn the call back over to Jim.

Jim Venna
Chief Executive Officer | Union Pacific Corporation

Okay well listen everyone thank you very much. We appreciate you all taking the time this morning to come in and join Mark and I. Mark, sorry for jumping in on your quarterly call, but at the end of the day, Mark, I'm very pleased with this combination, this merger. I'm really pleased to get through this in the next 22 months and get it done. And we will deliver a railroad that is like none other in North America that provides the best service for customers, best cost effective way to move products across the country, and I'm very excited. Mark, any last words?

Mark George
President and Chief Executive Officer | Norfolk Southern Corporation

Yeah, look, we're really excited to be combining two great railroads, the two greatest in the country, to create the first Intercon, transcontinental railroad, I should say, and, you know, I'm extremely proud of where we've come just in these past few months to arrive at a deal, and I think we're going to transform industry. So we're making history together here, and thanks for joining us on the call. Thank you very much, everyone. Have a good day. Take care. Thank you.

Operator

Ladies and gentlemen, this does indeed conclude your conference call for today. Once again, thank you for attending, and at this time, we ask that you please disconnect your lines.

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EXHIBIT 2

Union Pacific
Live Investor Roadshow

Thursday, 19th September 2024

Welcome & Safety Briefing

Brad Stock

Assistant Vice President, Investor Relations, Union Pacific

Introduction

Good morning, everybody. Thanks for coming.

Anyone standing in the back, we do have some seating, it looks like, available up front here, so please find an empty seat if you would.

My name is Brad Stock. I am the Assistant Vice President of Investor Relations. I think I know a good portion of you, but those that I have not would love to meet with you after the event.

We welcome those that have joined us here in Dallas as well as those online. So before we start today, I have got the task of going through a few housekeeping items to make sure that we are set for the day.

Safety Briefing

First, a quick safety briefing. As shown on the slide, you are currently in the Century Ballroom. Restrooms are out, these back doors and to the right.

If you would please make sure all cell phones have been silenced. And if you get up at any point today, please tuck in your chair and also watch. We got a lot of cords, so just want to make sure we do not have any tripping.

Should we experience any inclement weather, likely not to happen with the sun outside. However, if we do, hotel staff will direct us as well as UP folks to the basement. If there is an incident where we need to evacuate the hotel, we will go across the street towards the AT&T Discovery Centre.

And if there is a medical emergency, we have folks assigned to call 911, fetch the AD, and we have a number of CPR-qualified folks. If you have any special medical conditions, please write those on a piece of paper and stick those in your right shoe or jacket pocket. And finally, if we have an active shooter situation, we will assess the situation of all run, hide or fight.

Next, all the slides from today's presentation have been posted out to our website and a replay of this event will be posted soon after the conclusion. So if anyone missed it or if you need to leave early. Finally, I need to keep my good friend John Menicucci and the law team happy, so I have to read the safe harbour statement here.

Cautionary Information

Today's Investor Day presentations contain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 as amended, Section 21E of the Securities Exchange Act of 1934 as amended, and the Private Securities Litigation Reform Act of 1995.

In addition, management may make forward-looking statements orally or in other writing during and among today's management presentations and question-and-answer sessions. These statements contain a number of risks and uncertainties. Actual results could materially differ from those anticipated by such forward-looking statements as a result of a number of factors or combination of factors affecting the operation of the business, and other risks identified in today's presentation in Union Pacific's annual report on Form 10-K in the year ended 31 December 2023, and in other reports filed by Union Pacific within the Securities and Exchange Commission.'

Forward-looking statements reflect the information only as of the date on which they are made. Union Pacific does not undertake any obligation to update any forward-looking statements to reflect future events, developments or other information.

Okay, so with those housekeeping items covered, we will now kick off today's festivities. We will start with a video, and when the video is over, our CEO, Mr Jim Vena, will be on stage. Thank you.

[VIDEO]

When a bold team rises on machines of steel and gold, buffed and buffered with passion and pride, we become the fleet. We rise to defy all obstacles and to beat all odds, knowing winning is the pursuit of what is possible.

Building bridges and scaling mountains, we weather frost and fire, connecting at the intersection of imagination and innovation. We are Union Pacific. Our strategy, safety, service and operational excellence is our key to growth.

To be the best at safety, we look out for each other. We carry goods with courage and care for customers counting on us. Safeguarding communities depending on us, ensuring everyone makes it home.

To deliver the service, we sold our customers, we bring food and fuel to nourish the land, grow economies, heat homes and hearths. We energise industries, moving construction cargo, chemicals, petroleum and plastics.

We transport, transportation, hauling finished vehicles and their parts for all major manufacturers. We move the world, serving all six major gateways, leading service to and from Mexico, sustainably connecting our continent with commerce from across the globe. We do this with operational excellence, powered by predictable precision, speed, reliability and resilience.

We are thoughtful about asset utilisation, empowering those closest to the work to make the best decisions. We exercise cost control, spending resources wisely with a buffer for the unexpected. We know people make everything possible and engage our teams and stakeholders, listening to their needs and investing in their success.

We are legend and legacy, steam and dreams made of the engines that shaped our nation. We are one fleet borne from steel and powered by will. We carry the weight of the freight that fuels our world.

We are Union Pacific.

Pursuit of What is Possible

Jim Vena

Chief Executive Officer, Union Pacific

Introduction

Well, good morning, everyone. I am having my first cup of coffee, so I am going to keep it close. Okay, I am a little bit of a coffee snob, so guess what? It is not the best coffee in the world, but it will do. It's got caffeine.

So welcome to Dallas. I hope you enjoyed the video. It was put together and all those words were done by Clarissa, who is our Chief Communication Officer. I think she did a wonderful job of showing who we are and what we do every day. So I think it is a fantastic video. And you can see the employees this morning as we are sitting here.

We have 7,000 employees on trains handling the business. We have multiple thousands of people inspecting track, inspecting cars. They are the people that actually do the final delivery that moves everything.

Yes, none of that is on the slide. I do not like following the exact words they give me to say. So yesterday we moved 2.35 billion GTMs of product. Think about that number. So it is not a small enterprise and we have a responsibility to do that. Did we move it well? I look at things a little deeper inside than we give out to everybody on a daily basis. However, our car velocity was good. Could be better. Never happy with car velocity, but our business in some segments is up, especially the international, much more.

However, overall, if I look at how we are handling the trains through terminals, the cars, how we are switching them, we switched, had to handle over 100,000 cars yesterday. And that means you touched them. Not on a through train. We have spotted over 130,000 rail cars at customers ready to load. And that number is higher than what we would normally do. And some of that is because of the international.

So I am just giving you a feel of what I look at, when I get up at 06.00 in the morning.

Railroad is pretty good. Now, thanks for coming to Dallas, and hopefully yesterday you had a little bit of fun. I spent the entire time out in the sun, and I know a few of you did also. There was a few wimps on the management side, and I will remember them, like I think Kenny Rocker spent most of his time sitting inside one of those business cars. So, Kenny, if you thought I missed it, you are wrong, okay? And there were a few others.

However, at the end of the day, what we wanted to show you yesterday was a little bit of our history. And I think that big boy steam engine is really representative of where railroads were and where Union Pacific was. However, if you look at it, where we are, what is real important to me, yesterday was fun. Last evening was fun. Today it is business. I have got my tie on; I am dressed for business. And we are going to be serious and take you through what we are going to be like and what we think we can do as a company in the next three years.

We always are pragmatic about how we put targets out. We do not get too far ahead of ourselves. However, in this event, and why we are having this event, is so that we talk about what we see and what, we think, is possible for us in the next three years. And we are always pragmatic when we put stuff out. So the numbers are out for anybody to see, I think at 07.30 this morning, our guidance. However, hopefully, you all stay with us for the rest of the morning and listen to us as we take you through.

You are going to meet a number of great employees. And this was one of the reasons of having investor conference was for you to meet some of the talent that works with me every day at Union Pacific. And you are going to have them on the stage. You are going to have a chance to ask them questions. And I think it is a great way to get to know the team and see the kind of talent that we have.

Dallas, TX Metroplex Key to UP Franchise

Also, why in Dallas? And I joked around about it last night at supper, but seriously, Dallas is important to us. It is in the top ten fastest growing metro areas in the US. We also serve four of the other ten. Whether it is Phoenix, and we see the growth, and we are investing. So I could go through them, Denver, all the communities in the west and the big cities that we serve. And for us, that is real important.

What do we do in Dallas? We have two intermodal facilities. You saw one of them yesterday. Mesquite is another one. And it is placed because of the size. Normally, you would never have

two, but it is placed there because of the size of the Dallas Fort Worth metroplex. And we have a great classification yard.

This morning the dwell was 18.5 hours. That is a pretty good number. I know you will never hear me say fantastic number because there is more to give. However, it is a pretty good way to say that every car that went through there, and they humped close to 1800 cars yesterday.

You also notice that we want to use, and you will get more detail as you go with the team, we are talking about what are we going to do with some of the land that we own and how can we bolt-on businesses to give us to bring more products to the railroad, but also leverage that for ourselves if we think it helps us grow the business. And it is not just intermodal. We spent a lot of money, and you will hear that from some of our senior VPs, and I will leave it for them to explain. However, welcome to Dallas, thought it was great.

Redefining What's Possible for Union Pacific

So who are we? What kind of culture do we want to have in the company? And these three events in history tell you a little bit about who we want to be. Okay, so I already talked about I want you to meet the team and I think our strategy is clear. It is safety, service, operational excellence, and I will take you through that a little bit.

So let me take you back in time. By the time May of 1953 happened, there were 15 expeditions to try to get up to the top of Mount Everest, and they all failed.

The first one being in the 1920s with Mallory in 1924 disappearing until his body was found on the side of Mount Everest. However, if you think about it, those people, there was a lot of divergent point of view on whether it was a smart thing to do and whether you could survive at a mountain that is high enough that the jet stream hits it at the top at 29,000-plus feet. However, they were sure, and mankind pushes.

Now, are we trying to climb Mount Everest? No. However, on the 29 May, a sherpa and a New Zealander climbed to the top and opened up a different view of how the world could be, and mankind always pushes the envelope to see where they can get. And for us, we no longer look, I do not listen to people when they tell me, well, coal could be a problem. So what? What do we do to make sure we make that up? We do have a great railroad, and we should be able to use our railroad and our network to grow.

So it is all about what is possible. What is even crazier is there was an Italian from Northern Italy, Reinhold Messner. If anybody follows, it is a great book to read of his. And he talks about he wanted to go up to the top of Everest 29,000ft with no supplemental oxygen and everybody thought he was crazy. You can see one of my passions in life. That is why I have been to Mount Everest base camp three times. And I went up a little bit, and it is not a big deal.

That is not what we are here to talk about. However, at the end of the day is this guy decided he is going to go up to the top with no oxygen. And did he make it? Yes. Everybody, doctors that studied it said your brain is going to implode, you are going to have permanent brain damage, you are going to have a real problem. And Reinhold Messner is still alive in Northern Italy. And that is what we want to do.

We want to push the envelope, and that is who we are. It is what is possible.

Laying Foundation For Success

Year-over-year improvements for trailing 12 months ended 30 June 2024

So if you want success, you need to make sure that you lay the foundation, and you can see this on what we have been able to do in the last 12 months, 30 June. And we could have updated the slide. Nothing has changed and said it would as of yesterday. However, sometimes, you know, it is good to just hammer down a time frame and do it. It basically aligns with the time frame.

However, our injury rate is down 22%. Our freight car velocity is up. Our terminal dwell is better. Intermodal service performance exited up 11 points. So we are delivering better service. That is the foundation. Now below that is about another 100 numbers that I look at every morning on a quick summary, and that is important is that we are all aligned in the company.

Those numbers are available to everybody that operates the company. There is no secret. So when I tell somebody like Hunt Kari, who some of you were on the bus with yesterday, I do not like how fast your car velocity is on intermodal. I am sure he is looked at it before me. So we do not have a lot of discussion.

A Unique Opportunity to Lead Premier Rail Franchise

So what are we selling? What is our advantage? You heard me talking about coal and the way we should look at it is leverage. If you look at this map, what this map tells you is that looking at the 23 states, we have a cross-section of a business that is used in the industrial production and the consumer across the entire 23 states. And of course, we partner with Canadian National and Canadian Pacific, Kansas City to go into Canada. We partner with short lines, we partner with CSX and NS to go East. However, for us, our origination franchise is real important. And let me just take a minute to go around.

I think we have got a franchise that is the best when it comes to that crescent from New Orleans and the petrochemical industry from New Orleans all the way to Brownsville, and it continues to expand. And you will hear some of that, that people are putting in more products in there. You can see the grain business that we have in the American plains. We have plastics in places, we have coal that still operates a number of trains every day. The West Coast we have got. If you go to Los Angeles, not only are we handling a lot of consumer products, we have the big international ports of LA and Long Beach, plus our own domestic business in there. And I could keep on going. Lumber, steel, tin, so industrial products of all sorts.

And we put that 70 miles an hour up there on purpose. We actually do build our railroad, unless the curvature is too severe to be able to operate our freight trains at up to 70 miles an hour. And listen, they do not all operate at 70 miles an hour.

However, if anybody thinks that it is not the coolest site in the world to see a regular length 15,000-foot train flying through Tucson, Arizona. East of Tucson. And going 70 miles an hour as the interstate is running right next to it, and I am in my vehicle in the interstate. That is pretty cool. And we sell that. It gives us in some quarters truck-like speed.

Not everybody needs that speed, but the ones that do, we can go from LA to Dallas in around two days, and it is just under 2,000 miles. So that is what we are selling. And it is a great, diversified business. We are serving the fastest-growing centres. And our access into Mexico,

I cannot leave, that gives us multiple entryways into Mexico in all of them that go across, and you can see them listed on the slide.

Safety, Service & Operational Excellence Leads to Growth

So what is our strategy? Let us get back to it. You have heard me say it. You will probably hear me say it so often that you are sick of it.

It is safety, service, operational excellence. And why start with safety? Listen, I have been railroading for a long time. I think my first job was actually in 1975, but first time permanent was in 1977.

In 1986, on 8 February, there was a head-on collision at the railroad I used to work on where a passenger train ran in and a freight train collided. 23 people from my hometown of Jasper, Alberta. A lot of them were on that train and died. The head and crew, I still remember their names. We never sacrifice safety for what we have to do. We spend for training, we spend on technology, and we make sure that we have all the tools to be the best. I can name you the people on the train. There was Amo Miller. I will stop there.

So safety is the foundation of everything that we do. Now, are we safe as a railroad? Yes. You could take a train of ours and run it around the equator 49 times before you would have an incident, a main line or an incident in the siding. So we are safe. We are the safest ground transportation method of moving cars anywhere.

What is service? Service is what we sold the customer. Some of them want high speed, some of them want timeliness, some of them want consistency. Some of them want Monday to Friday service only. Some of them want two times a day service. So service for us is what we sold the customer. And that is important that we do not lose sight of it. Now, for the public, we have to tell everybody, and we do. We provide an index that says, how are we doing? However, at the end of the day, we look at that as a guide. More important to us is, what have we done to the individual customer? And if you want to grow the business, you need to be able to handle that piece and deliver at a high level.

The parcel we won with UPS last year, the carrier that had the best peak, and we did not win that by accident. We worked hard to do that. And we have the railroad to do that, and we want to win it again this year. And that during peak, UPS expects us to be just about at 100%. So we have that capability. However, listen, a customer that is shipping fertiliser to a storage facility in Portland that has 150,000 tonnes of capacity looks at timing a little differently than somebody like a UPS or FedEx or one of those. And that is what service is.

Asset utilisation, listen, every locomotive costs us a lot of money and every piece of equipment costs us a lot of money. So for us, we sweat the assets every day, but we keep a buffer. And if anybody was wondering, what is Vena talking about when he talks about what a buffer is? I think there was not a lot of people that expected the bump up in Western international intermodal that happened here in the last 90 days. And I think we have been able to show people how we have been able to use that buffer in our railroad infrastructure, our people, and our assets to be able to do that.

Cost control, I have a mantra that I tell everybody. Think about it as if you are spending your own money. And listen, I got to have a little bit of fun, okay? I am in work mode. I am serious. However, got to have a little bit of fun. So I forgot my ties, and I was going to wear

a tie for supper last night. So I unload my suitcase and I go, son of a gun, Vena, you idiot. Because I am a process guy. When I pack, I pack from my feet up, right? That way you do not make a mistake. However, something must have got to me, and I stopped at some point. And son of a gun, I open it up, I go, I do not have a tie.

Well, last night I was okay, but this morning I wanted a tie. So I asked some of the people that are here to help me. I said, would you guys mind going out to get a tie? So, I do not know, they are crazy. They went to Neiman Marcus. Now, it is a nice tie, but I do not usually spend that kind of money on a tie.

It comes back to my mantra about spend the money as if it was your own. They thought, I am sure Vena spends money and buys $350 ties. Son of a gun. Anybody want to buy it off of me after? I am willing to give it to you.

And on people, it is the development of people. And the reason I started with telling you how many people were out there working today is we are in an office environment. They are out there working. Some people did not like the heat yesterday. We have people out there operating at 100-plus degrees and at 20 below the weather. It is an outdoor sport. And we do everything we can to retain people, which our retention is real high across the board. We do not lose a lot of people once we hire them.

They are great jobs. The benefits we provided are top-notch, as good or better than anybody. So we need to continue to develop. And I look at the people not as unionised and management. There is a group that are covered by the union, but at the end of the day, they are employees of Union Pacific. So we want to pay them all well. We want to give them a good work environment. We want them to succeed. We want them to be shareholders at Union Pacific. And we have a programme out there that everybody can buy-in, and we match with 40%, up to $15,000. And I am proud to say that now we have over 40% of our people that work at this company that are owners of Union Pacific shares. And for me, that is really important because I want them to be part of the business. I want them to be successful, just as the company is.

So that is our vision and strategy.

Balancing Expectations & Results

I wanted to talk, this slide, and I purposely put this one here. I gave it a lot of thought, and I wanted this in. It is the balancing that we have to do every day at Union Pacific. The customer expectations are we live to what we have agreed, we deliver on that. And we have to do that.

And at times, that customer expectation and what we have promised that we are going to do is going to impact our operational performance a little bit, and our financial success. We want to price, but we want to price right. We want to do things that set ourselves into the right place of where we are. We think we have the capability to price, but you cannot do that across the whole board easily. And you have to be smart about what the market gives us.

On the operational performance, you do not want to be so lean that you cannot handle the normal variations of what happens in our business. Listen, our business drops. The amount of cars released on every weekend is normal to see a drop 15-25%. So think of the capacity we really have if everybody released on a flatline basis over seven days a week. However, that is customers. They are paying the bill. It is pretty hard for us to move them all to do that.

However, at the end of the day, that is the pressure you have, and expectation, and operational performance, and that drives the way. And we understand what our financial success is.

What is our financial success? You have seen the metrics we put out this morning, and the numbers that we think we can deliver. We are very prudent, but I am very comfortable that even with all the balancing of everything that we do on a daily basis as a company, as individuals, I am very comfortable that we are going to be able to deliver that.

Agenda

So what is the agenda today? So what are you going to see today? Eric Gehringer is going to come up, and I have known Eric since I joined the company last time in 2019, and before I went on sabbatical for a couple of years. And I think he is doing a heck of a job. He is a smart individual, understands the business. He is a little bit of an aerospace engineer kind of guy once in a while, so we have to get him back in line. However, overall, I think you will be impressed of his talent and what he has been able to deliver and what he can help with Union Pacific.

Rahul is going to come up here and talk about technology. However, listen, he is not going to talk about technology in the sense of there is technology out there. We look at it as what can it do for the railroad? How do we speed up the trucks going into our intermodal facilities? How do we handle it quicker? How do we make the UP experience for a customer better? And how do we have tools built, and he will take you through a piece so that we can make decisions quicker and better in the railroad and how we operate our terminals, our operating plan and what we are doing?

Kenny Rocker, I was joking around about him and it was the truth. He did not spend any time out in the sun. But at the end of the day, Kenny is a heck of a sales and marketing guy. He is a leader. Do not kid yourself with that giggle and that smile that he has every so often. He is got this killer instinct to go win, and that is what you want. So he is good with relationships, and you will see him take through in some of his team.

Beth, who is our President and pretty cool. She is the first female President of Union Pacific, and she comes up and is going to give you through a number of products. And Beth has had a great career across the company, from labour relations, to the finance side, to the customer side, to the human resource side. And listen, I think she has got a great presentation to show you what we are doing with some of the properties and everything else that we are doing, looking forward.

And then Jennifer. Listen, I would not trade Jennifer for anybody. She keeps me grounded. She makes sure that we are prudent about what we are doing, and the facts are the facts, and that is the way we are. And she does a fantastic job.

So I am looking forward to today. You will not see me again until the question-and-answer panel at the end. Because this day really is for you all to get a greater picture of the talent we have at Union Pacific, what our vision is of what we are going to go.

So with that, thank you very much. We are going to have a little video and then Eric is going to come up. Thank you very much.

[VIDEO]

At the heart of every journey lies a promise. At Union Pacific, we are stewards of that promise. Driven by the dedication of our people and backed by cutting-edge technology. Every day, we rise to the challenge of operating North America's largest railroad. We never lose sight of what matters most. Safety.

More than 7,000 wayside detectors monitor freight cars and locomotives in real-time, generating 16 million data points daily to proactively identify and mitigate risks. Our engineering team visually inspects 4.5 million miles of track every year. We inspect another 500,000 miles, enough to cover our network more than 15 times, using innovative equipment like our autonomous geometry fleet.

This technology and the data it provides puts investments and resources in the right place. Over the last ten years, we have reduced track-cause derailments by 28%, as we invest nearly $10 million a day to protect and enhance our infrastructure. Autonomous unloading and loading systems eliminate the need to physically handle track materials while driving efficiency.

What used to take a ten days to unload 33,000 ties will now take five to seven hours. Now we are exploring how we can design and build equipment that leverages similar technology to more efficiently unload rail. We are building safer trains with Physics Train Builder, enabling us to safely increase train length and deliver our customers' goods even faster.

And as those trains traverse our network, energy management systems automatically adjusts locomotive throttle and dynamic braking to improve train handling and optimise fuel consumption. Our entire fleet will be equipped with this intelligent cruise control by 2026.

Delivering superior service grounded in operational excellence is our promise to the customers and Americans who rely on us for the goods they use every day. We are harnessing technology to drive efficiency within our terminals and across our mainline track throughout 23 states. UP vision is our eye in the sky. This all-in-one network surveillance tool displays the real-time status of every train on the system, providing information to effectively manage the overall health of our network.

Railcars are moving faster through 19 key terminals with automation tools like SwitchPro NX. This technology integrates field equipment, back office systems, handheld devices, and digital displays, enabling a single operator to safely and efficiently switch cars. Before SwitchPro NX, employees physically threw switches to route rail cars into the correct tracks to be assembled into trains, a daily task involving hundreds of switches and walking up to 6 miles. We continue to explore opportunities to expand SwitchPro NX to locations that will most benefit our customers and employees.

Remote control locomotives used in and around rail terminals boost safety and productivity by putting one person in control of a train's movement. By integrating that technology into our hump process control systems, we have increased the throughput capability of our hump operations by over 20% without adding resources.

At our major intermodal terminals, Precision Gating Technology (PGT) automates check-ins, so truck drivers can quickly get in and out. In most cases, eliminating wait times. And outside Chicago, five wide-span cranes integrate AI to semi-autonomously load and unload intermodal containers on trucks. While we have come a long way since diesel locomotives replaced steam, innovation continues to unlock unlimited possibilities.

We are testing a first of its kind hybrid battery-electric locomotive designed to cut fuel consumption by up to 80%. And we are the first Class 1 railroad to modernise the big three core operating platforms: positive train control, computer-aided dispatch and most recently, NetControl, our new transportation management system. NetControl opens the doors to leveraging real-time data and the power of AI to build new decision support tools like Terminal Command Center, which provides real-time insight into terminal performance to drive smarter decision-making, and our network planning platform and optimization tools which enable us to quickly integrate transportation plan changes while removing car stops from our manifest network.

When we are safe, we lay the foundation to deliver our customers a consistent and reliable service that sets the stage for us to compete and opens the door to strong growth potential. We are on a journey to be the best, powered by the right plan, innovative technology and the best people in the industry.

Pursuit of Safety, Service & Operational Excellence

Eric Gehringer

Executive Vice President, Operations, Union Pacific

Safety, Service & Operational Excellence Leads to Growth

Well, good morning. It is an exceptional video. It really captures on the technology side when we say we are pursuing what is possible. That actually captures many examples of us doing that today.

Now, as I think about Union Pacific, I focus on the fact that we are a truly exceptional company. It is actually what attracted me to UP 19 years ago. And as I think back over those 19 years, whether it was the ten years I spent in field operations as our Chief Engineer, as our Chief Mechanical Officer, leading our transportation to team, or the role I have now, the same two things have always driven me.

The first one is our mission. We fundamentally build America. I believe at my very core the prosperity of our country is tied Union Pacific. And it is the greatest calling professionally that we can answer. The other thing that drives me on a very consistent basis, day in and day out, is I always believe there is a better way to do things, even things we are doing well today. If you talk to some of the people in the room that I work with on a daily basis, they will talk to you about the fact that I always ask them, okay, even when we are doing good, what does great look like, and really reinforcing to our team, that is the culture we want to have. It is almost a perpetual dissatisfaction with our results because it pushes us to always accept the fact that we can do better.

World-Class Safety

So let us start on how we think about safety. Already this year we are making tremendous progress in our safety results.

We are clearly on the path to become the safest railroad. We are doing it with the strategy that you see here on this slide. It has four specific pillars. On the left hand-side, it starts with our work to prevent serious injuries. This is a programme in which we target a specific set of our rules. Rules that we know that any form of non-compliance can result in a serious injury.

We spend more time in the classroom, more time in the field with our employees, helping to ensure they understand how to execute against those rules. You just saw at least half a dozen examples of the leveraging technology pillar of the strategy.

On the commit side, we talk about this as it is a hearts and minds programme. It is us being in the field. To Jim's point, no titles, just people out with those that have done the work before and those that are doing the work now. We do that for two reasons.

We want to provide education, coaching and training while we are out in the field actually doing the activities that run this railroad. However, at the same time, we want our craft professionals, who are those closest to the work, to have an avenue to talk to managers about how did they think we should do the work, and then using that feedback to continue to evolve how we think about safety.

And then finally peer-to-peer. Peer-to-peer is about a family culture. We are a family at Union Pacific, but also like a family, you have to be able to care for yourself when it comes to safety and those around you. And that manifests itself in having the courage, no matter how few years you have on the railroad, how many years, what title you have, you are willing to take on the conversations where if you see something unsafe, you talk about it, you mitigate that risk.

The proof that we have already that this is working is serious injuries year-to-date down 25% versus same time last year. Our derailments are down 15%, and our personal injuries are down 22%.

We are not the safest yet, but we are going to be there.

Managing Variables to Deliver Strong Service Product

So let us talk about the railroad itself. And really, no matter what type of audience I am talking to, this slide always usually shows up because I believe one of the responsibilities of my job is to deepen the understanding of any person I come into contact with on how do we fundamentally execute operational excellence.

Because for us, what that really means is how do you operate our complex, 32,000 miles outdoor factory, and what you see on the screen are all the building blocks to accomplish that. And my hope here is that I am going to deepen your understanding of how we do that on a daily basis because it feeds everything else you are going to see.

So we start in our blues. This is the literal foundation of the Union Pacific because it is our infrastructure. We talk about 32,000 miles, but did you know that we have 110 million ties that we have to maintain and renew across our railroad. That is enough ties to go from here to the moon.

We also have 89,000 miles of rail. We could wrap that around the equator of the earth three and a half times. And of course, we have 16,000 bridges, enough that if you actually stack them end to end, you can walk from Omaha, Nebraska, and never touch the ground until you get to Colorado.

We then, of course, have 273 terminals. Those collectively form the foundation of our service product. However, when you think about our service product, you then have to get into the purples because this is really where the volume comes from and where the volume goes to.

If we think about our ports as an example, PNW, LA and Houston, on average, 1.6 million carloads come from those ports every year. If you then expand a little bit beyond that, and you look at the interchange points that Jim mentioned, two in Canada, six in Mexico, hands down the best interchange franchise of any railroad. And as a result of that, we get about a million carloads every year that come across those eight interchange points. And we do not only interchange with Canada and Mexico. Inside our 32,000 miles, 600 different locations where we interchange traffic on a daily basis. And we do that with 260 different entities that range from short lines to other Class 1 railroads.

And then, finally, we have approximately 10,000 customer facilities that we serve. It starts to give you a better feel for when we talk about operational excellence, what do you actually have to do to accomplish that?

Then you move to the reds. And the reds are some of the most important because they are fundamentally how we move freight. You start with our locomotive fleet. We have talked to you before, we have about 3500 locomotives in our mainline fleet. Each one of those locomotives has about 200,000 parts. Each one of those locomotives, on average, will go 81,000 miles in a year. As a result of that, we perform 3 million inspections per year on our locomotive fleet. That generates 6.3 million specific maintenance tasks that have to be done to ensure that they are reliable to deliver our service product.

On the car side, a fleet of 343,000 cars in our inventory, 2000 parts per car, 81,000 to 84,000 miles travelled every single year, 13 million inspections are performed and 1.6 million repairs performed every year, just so we can ensure that we have the cars our customers need, and they are reliable.

Then you move to the oranges. And this is what ties it all together, specifically, our transportation plan and our locomotive plan. Up to this point, we have talked about asset classes, tracks, signals, bridges, terminals, locomotives and cars. The "T plan" and the "L plan", which is what we call them, that is what actually connects everything. That is what dictates, on a daily basis, the trains we run, how long are they, how many locomotives they have, where are the locomotives in the train? How many mechanical repairs do we have to do?

And then, of course, you have the yellow, crews and dispatching. On an daily basis, we are dispatching 2500-plus trains across our system. And of course, we wrap our safety systems around all of that. So when you hear us talking about building America with operational excellence, this is how we do it. And these are the results of that work.

Service – What We Sold Our Customers

When we think about service, it is what we sold our customers. Operational excellence is how we deliver that service. And king among the way we do that is terminal dwelling car velocity. You can see the results over the last eight quarters in the top two charts. You can see the trend of continuous improvement through all eight quarters. That is critical to our service product. The faster we can move cars into a terminal and back out of a terminal, first, we generate capacity. Second, we generate car velocity.

Car velocity drives fluidity. Fluidity is what drives our service product. When we get bogged down in parts of our railroad, that is a massive headwind for our service product. It is not what our customers paid us to do. So our job every single day is to look for opportunities.

And you can see the results on the service side. Again, same trend. As our terminal dwells come down, car velocity has gone up. To Jim's point, it is never good enough. I am not happy with the 214 we had this morning on the seven day, it should be more like 220. However, you can see the results on the service side. And we hear that feedback from our customers that they are satisfied with our service across the system.

Productivity = Resource & Fuel Efficiency

So now, when you think about inside of that, how do we think about productivity? And I always talk about the fact that I think some people, not all people, they have a misunderstanding about productivity.

When they hear the word productivity, they think just dollars and cents. That is actually not why we focus on productivity at UP. Productivity is about growth. We know from all of our history and current state right now that the more productive we are, the better we put Kenny and the team in positions to compete, not only for the markets of today, but for the markets of the future as well. And you can see we are doing that.

On train length, a continuous improvement. Second quarter of this year, best quarter in the history of Union Pacific. That included the best month in the history of Union Pacific, which was June.

However, the thousands of people that are out on the railroad today, they said that was not good enough. So in July, they beat the best ever, and then in August, they beat that. Train length will continue to be a very important productivity initiative for us from a capacity perspective, a dollars and cents perspective and a service perspective.

Top-right, locomotive productivity. Lots of things go into locomotive productivity, but two are far bigger than everything else. One is our fleet size.

All the work that we have done over the years to ensure that we keep that fleet as lean as possible while still maintaining a buffer. That we will talk about in a minute. The other big item is locomotive dwell in our terminals. And it is a simple measure. We do not complicate things for our teams. It is the time between when the locomotive arrives in the terminal and when it leaves the terminal. If you go back and look four-ish years ago compared to now, we are down about 35% in our locomotive dwell. Six of those 35 points have been delivered in just this year alone. That is a testament to all of you that we still see opportunities on a daily basis today, even in something that we have improved 35% on.

Workforce productivity, large increase in 2024. However, most people think about workforce productivity for transportation. And while clearly there is transportation productivity in there, do not forget the mechanical team. Best record ever year-to-date on their headcount per asset, asset being either a locomotive or a car.

The engineering team, you just saw examples of their continued work to automate operations, which dramatically reduce the number of people that we need while improving the safety of how we do the work.

And then fuel consumption. Good trend. You see it levelling out a little bit here over the last 18 months. There are people in this room specifically that have the best list of our portfolio of initiatives for reducing our fuel consumption. In fact, it is the best that I think we have ever

delivered. It focuses on things that start with fleet size, but then it focuses on EMS, which we have talked to this group about before.

EMS is one of those systems like PTC. You can keep bolting on improvements, even going all the way down to the anti-idling technology that we are working to be able to get on our locomotives. So we have got opportunities in all four of these, and that is one of the most important messages I would ask you to take away.

Capacity to Grow

So now, do we have the actual capacity to grow? Definitively, yes. Because you need these five things to do it. And we have them.

On our mainline capacity, we have invested, over the last five years more than $900 million. Those investments are usually in three things. It is either the construction of a new siding, the extension of an existing siding, or the adding of double track. And we will talk in a minute about where we are doing that over the next three years.

Terminal capacity, I want to be really clear here. Terminal capacity starts with process improvement. It is the work of thousands of people every single day to once again look at how do we do it today? Where do we see the opportunities? Get them on the railroad, and let us keep moving that metric in the right direction. In addition to that, we have invested nearly $600 million over the last five years. And most of our manifest terminals and some of it are intermodal terminals.

I say most from the perspective of when you think about a project like Englewood, at nearly $125 million that we have spent in a phased approach, those are big investments for us, and they have big returns because the commercial team continues to drive growth out of the Gulf Coast region.

Locomotives, we still maintain a fleet of about 500 that are buffers staged across the system in certain locations, and you can see us actually using them. When we had the hurricane that most recently hit down in the Gulf Coast area, we pulled some locomotives out of that fleet so that we could pick that car velocity back up. With the international intermodal that Jim mentioned, we are using some of those. That is why they are there. They are there to deal with variability. They are there to deal with seasonality and our volume. And most exciting of all, they are there to deal with the business development wins that Kenny and the team are bringing to the railroad.

From a people perspective, it is the same thing. We have got extra crews surgically and thoughtfully placed around the system that we can call upon for growth. And then, of course, for freight cars. Not only do we have cars stored across the system, we are still investing hundreds of millions of dollars in our fleet. Some of that investment is to replace cars that have aged out. Some of that, once again, is the business development wins that Kenny and the team are bringing to the railroad. And there is no better reason to buy cars than that.

Investing for Future Growth

2025 – 2027

So let us talk about those investments on our main line and our terminals over the next three years. And I am going to underline that this is over the next three years.

Some of these projects have actually already started to be constructed. We start with our dots that show us green. These are those mainline projects, siding extension, siding construction, double track.

Some of them that have my highest attention are the green dots that you see up in the Pacific Northwest. Siding extensions and siding construction that will allow us to continue to drive growth into the PNW. What I am equally excited about is on the sunset, you can see some green dots on that.

In 2025, we are going to recommence with doing additional double track on our Sunset Route. We have got about 127 miles of still signal main track down there. That is a direct result of the growth that Kenny and the team have in our long-range plan.

The yellow dots are our manifest terminals. You are going to see us continue to invest even more in our manifest terminals, and that is a direct result of ensuring that we have the capacity to handle the growth over the next three years. Those investments take two forms.

At the most basic, fundamental level, it is going into a yard, extending tracks, adding new tracks, or as we will talk about in a minute, implementing new technology, some of which you saw in the video, all with an eye towards generating capacity. The other form that it takes is where we actually put what we would call as a bypass track. So if you have a single main running through a terminal, it is adding another track next to it, say, for about three to five miles, so that you can circumnavigate that terminal and promote fluidity in the terminal.

And then finally the intermodal. Kari and Kenny are going to talk about this at length. However, in addition to the million lifts that we have added of capacity over the last four to five years, we still have investments that we are making, and they are investments that are all tied to growth that is on the railroad and coming to the railroad.

Speed to Market Captures Growth

And then finally, as you think about that growth, it is one thing to say we are building things, but we do not want to just be that company. We want to be the company that takes great pride in the manner in which we build things and the service product offerings that we put on the Union Pacific. These are four examples of many examples where we are demonstrating better than we ever have before, agility and speed. Up on the top-left, the La Basin, the Inland Empire, an area in which it is just inundated with warehousing. We have created an approach in which we have repurposed part of a yard, which is our West Colton Yard, and through a phased, which means judicious investment strategy, we build some, Kari and the team fill it up. We build more, Kari and the team filled it up. And that is exactly what they have done there. We started at 25,000 loads per year, and now we have got 140,000 loads, and we are building to nearly a quarter million loads.

Same thing with Phoenix from the perspective of speed. Old UP, four or five years ago, if we had said we want to have a new intermodal terminal in Phoenix, it might have taken us two years to do that. As Kari will talk about later today, it was a fraction of that time.

On the right-hand side, you see our service products that are new to the railroad once again, not spending weeks, months, and quarters developing these. Rather it is Kenny and the team saying there is demand there. What service product do our customers need? And coming to us, helping us understand that, and getting it on the railroad. The one that is LA to Chicago,

that was about actually bypassing G4 to go to G2, which gets you closer to the heart of Chicago. That train is out there and it is running. Falcon and Eagle Premium, this is all about the service that we have established coming out of Mexico, going into Chicago and then eventually Canada, some of the best performance intermodal-wise that we have on the entire system.

So the bottom line for the Operating department is, as we think about operational excellence, we are demonstrating that on a daily basis. However, that mentality, that perpetual dissatisfaction with our results, that is our culture. Because it is in that perpetual dissatisfaction, we continue to challenge ourselves from going from good to great. Thank you.

The next person up is going to be our CIO, Rahul Jalali.

Pursuit of Smarter Operations Through Innovation

Rahul Jalali

Executive Vice President & Chief Information Officer, Union Pacific

Technology Results Advanced By Strong Foundation

Good morning. I am excited to talk with all of you today.

I have been at the railroad for nearly four years, and prior to that spent 24 years at Walmart. And these experiences really defined my world view, which is focused on being customer-centric, be operationally efficient and running safe, secure tech.

At Union Pacific, we always start with safety. And in my world that includes cybersecurity. We are excited about setting industry standards and regularly collaborate with best-in-class partners as well as the government to keep us secure. We have built a strong foundation of platforms across our business, starting with the Salesforce CRM for marketing and sales to the industry-leading platforms for operating. And we are in the process of implementing SAP for our back office systems refresh.

What excites me is that we are beginning to thread these platforms with free-flowing, rich, real-time data that enables the development for features driving operating efficiency and customer-centricity.

As you saw in the video, we take pride in being the first railroad to deliver the next generation of core operating systems, with the completion of our NetControl transportation management system. It is built with an advanced microservices architecture that is generating 6 billion API calls a day. This volume rivals what you may see from some of the most admired companies in Silicon Valley. Yes, that is coming from Union Pacific.

Combining Real-Time Data With AI Drives Productivity

Productivity of $100+ million over next three years

Combined with AI and machine learning, we see an opportunity for the next generation of productivity.

Eric and I have set an aggressive goal to deliver $100 million in productivity over the next three years from these efforts. You saw an example of this in the video, but let me tell you about a few more. First, let us start with the agile transportation plan. Again, you saw that in the video.

It is an initiative where we are focused on developing a better-quality transportation plan, and enabling the capability to re-plant on demand as things change. In our large outdoor factory, things evolve rapidly, and our transportation plan should also evolve to optimise the millions of car connections we execute each year.

In turn, that optimization improves network fluidity. You heard Eric talk about five critical resources required to grow, and we are leveraging our rich data layer to optimise those resources for maximum efficiency. An example of this is using our data to expand the footprint of remote control operations performed across our network.

We also see this opportunity to help our frontline employees, and one way is through decision support tools. Terminal Command Center, which you saw in the video, provides a real-time view of terminal performance, advancing our ability to drive productivity. In future, we will enhance Terminal Command Center to equip those frontline employees with turn-by-turn direction for consistent execution. That consistent execution will drive improved service.

Finally, we have several initiatives around automation in play to help drive productivity as well as capacity. One example is the semi-autonomous crew repositioning in our yards. In this pilot, a vehicle capable of driving itself will position to pick up a crew, and then the crew then drives themselves back or simply vice versa. We are piloting the tech at a location right here in Texas this year, with an opportunity to expand thereafter. If you think about the scale of van rides we use annually, which is more than 100,000 in our yards, you can begin to see what this innovation will mean for efficiency and cost.

I again want to emphasise that we are beginning to use AI pervasively in all these efforts and continuously train our AI models on the real-time data. And our technologists are now deeply embedded, partnering with the operating expertise of Eric and his team to redefine operations.

Simplifying the Customer Experience Empowers Growth

Now, equally as important is the customer experience, and I heard a lot about that at the dinner last night. So let us talk about that, how our platforms will enable growth with our customers.

Customers have told us loud and clear that they would like to see an accelerated shopping journey, whether they are new customers or existing ones, with new business opportunities. Using this real-time data integration, we have reduced the time to onboard for the new customers already by 20-25%. Now, my friend Kenny and I never are happy with that number. We want to get that onboarding process even better. So we will go back to Jim's challenge of what possible. We are continually evolving to reduce the friction across the entire customer journey.

We are also getting very sophisticated in connecting directly with customer supply chain systems, which in turn reduces calls into our customer care and support teams. And one thing that excites me about these interactions, that we are now developing bidirectional pathways with our key customers. In addition to the information that they request, we are also pushing the data to the customers that will help them make more agile supply chain decisions.

Finally, customers have told us when it comes to visibility again, I heard that a lot at the dinner table last night, they would like to see three things. Where is my stuff? Can you be exceptional

in exception management? And when an exception happens, notify us in real-time. And we agree wholeheartedly with that.

In response, we are actually developing a new product that will arrive later this year called Customer Vision. And we are not doing that in a vacuum. We have a pilot group of more than 100 customers who have started to provide feedback from the very first line of code that we are writing. That is customer-centricity to me. Ladies and gentlemen, we have a very talented tech team at Union Pacific, and I am excited by the tech-powered era of railroading that is getting unleashed at UP.

Thank you. Next, we have a panel with Brad.

Operating & Technology Panel Discussion

Eric Gehringer

Executive Vice President, Operations, Union Pacific

Rahul Jalali

Executive Vice President & Chief Information Officer, Union Pacific

John Turner

Senior Vice President, Northern Region, Union Pacific

Steven Bybee

Senior Vice President, Southern Region, Union Pacific

Carl Garrison

Vice President, Network Planning & Operations

Brad Stock: Yes, here I am. Okay, so, as some new faces get situated here with Eric and Rahul, before we take questions from the audience, I do want to allow these new speakers to get involved in the conversation. And so before they answer a question, I am going to ask of each of them to introduce themselves and give you a little bit about their background.

So, starting here first with John and Steven, we have heard from both Eric and Rahul and saw in the video how technology is evolving to drive productivity. So, can you help us understand how on a day-to-day, in your world, how you see that playing out, and how you see productivity being driven? Well, let us start with John.

John Turner: Good morning. A little bit about myself. I began my railroad career 27 years ago on the ground. What that means is I switched cars and classification yards, and I moved trains from terminal to terminal to begin my career. One of the things you have heard Rahul talk about it, you saw it in Eric's video, I was one of the first few people on the Union Pacific to ever have an RCL licence to operate in a classification yard.

Running remote control operations is something I am very familiar with. Throughout my career, I have had various field operating roles, leading teams that operated terminals and line-of-road facilities across our network, becoming a general manager of two of our service units. I have had a number of what I would call network roles as the head of our service design team, who is responsible for building the transportation plans for our customers, as well as been the head of a group that was responsible for the strategic plan of our five critical resources.

And then my most previous role was as the head of the Harriman Dispatch Center, our network operations centre, who is responsible for dispatching and distributing locomotives and crews across their network. All of those experiences inform and build my decision-making on a day-to-day basis in my current role. However, to answer Brad's question, there are two really notable things that stand out.

For those who had the opportunity yesterday to go to Dallas Intermodal Terminal, you saw our autonomous tie loading machine. And for those that are maybe less familiar, distributing ties across our network is a critical step into actually doing the tie replacement work that needs to be done every year.

If you think about it in terms of yesterday, today and tomorrow, tomorrow is the machine. However, yesterday that work was done by hand, by people literally in a car, lifting 200 pound ties and throwing them out along the right of way. A very laborious, very hard work. If you can imagine doing that yesterday in the Texas heat, all day long, for hours upon hours. Today, we use a backhoe that is attached to a gondola car, and we pick those cars out, and we do it.

While it is a major step forward, it is certainly a very laborious and time-intensive operation. So today, to do that same work with that backhoe, it takes multiple days worth of track time to do that. Call it, sometimes those projects are around ten days just to get the ties distributed out there. Tomorrow, at the push of a button, you will be able to do that in just a handful of hours.

What does that mean? That generates latent capacity on the railroad that we can use to grow into the future without the need for added capital. In addition to that, obviously there is workforce productivity associated with that. So, something we are very excited about.

In addition to that, the second thing that comes to mind is a new tool. Working with Rahul's team and the network planning team is an integrated transportation planning tool. And that tool really takes the planning of our transportation plan, minimises it to maybe just a few hours. So you can use that both in a tactical sense and in a strategic sense.

In the tactical sense, when we have majority service interruptions, being able to come up with a plan that will minimise the impact to our customers is paramount. If you are going to have a multiple day outage to try to serve our customers well, we can use that tool to speed up that process and reduce the iterations that it takes to get the plan right for those circumstances.

On a strategic level, you hear Jim and others talk about reducing touches in our yard, or reducing car connections in our yard. So Jim started off the day talking about the number of cars that we handle. If we can reduce those touches across our network, we can speed up the cars, improve the reliability, and compete for business that we might not have been able to compete for in the past.

Brad Stock: Thanks, John. I will turn it over to Steven.

Steven Bybee: Thank you, John.

So I started my career about a little over 19 years ago, kind of a similar path that John had. I started out on the ground and worked various switchman, brakeman, conductor, as well, was an RCL operator as well, and then moved into my management career and had the opportunity to work various field positions.

I too had two general manager positions in the field with our South Texas service unit in our mid-America. From there, I moved into a few different AVP roles, two of them being network-level type positions. The first one was over our network design, designing the transportation plan for the network. And the other one was over asset distribution, which was managing and distributing the entire fleet that we have on the railroad on top of our crew management services. And I also had a third AVP role, which was our operations for the Northern region. So to present now, I am the Senior Vice President of the South.

And so, to get to the question, when I really think about technology, I am thinking about productivity in our terminals, and productivity specifically around how many cars that we are processing per minute. So there is two applications that I will cover as well, one of them being the Mobile NX. And Mobile NX has already, as you saw in the video, produced over 20% of productivity in those terminals that we cut it over so far. And if you recall, there was a gentleman standing next to a large monitor processing cars. That is Mobile NX. That is what I will be referring to.

So when you think about it, think about it in a sense of an assembly line. So Mobile NX in the essence of an assembly line, there is ten people on an assembly line producing X amount of widgets in a shift. Now re-look at that assembly line and think about now four to five people doing it versus the ten, but producing more widgets in their shift. So that is Mobile NX inside of a railroad, inside of our rail yard. So what used to take us two to three people to process now takes one to two altogether, processing more cars per minute.

So the next application I would like to cover is the hump computer systems that you saw in the video as well. Specifically, though, the application of variable speed.

So if you think about how we used to process cars historically inside of a hump yard, it was a stagnant speed. Call it 1.6 miles an hour. So with variable speed based on a lot of different inputs, based on the cut that we are processing, that now will fluctuate anywhere from, call it 1.6 to 3-plus miles an hour, again allowing us to process more cars per minute.

So when you think of it in terms of productivity, there are a lot of benefits there from the growth standpoint, but you have also got to think of it from a drives consistent, reliable service through the ability to be better on our connection performance, but also recoverability. And recoverability becomes really important when we deal with variability, kind of like what we have had in the south just last week with Hurricane Francine. So having that recoverability and be able to process more cars per minute speeds up the service that our customers expect from us on the recovery side.

So really excited about the technology and what it is doing for our terminals, and we are really just getting started with these cutovers. So looking forward to the future and the additional productivity gains that we are going to get from that.

Brad Stock: Cool, thank you. Thanks, Steven. Carl, your team is responsible for the company's operating metrics. Where do you see the most opportunity across the network to drive better freight car velocity and improve SPI?

Carl Garrison: Thanks, Brad. First, I will say I started with Union Pacific about 18 years ago, a little over 18 years ago as a management trainee in Denver, Colorado. I spent the majority of my career in field transportation roles at different terminals, working in ten different locations,

some of those multiple times, including three General Manager positions before I moved to a Chief Mechanical Officer role at our Headquarters for a few years.

And now I have transitioned into the Head of Network Planning and Operations, where we design the transportation plan, we do capital and resource planning, and we run our measurement systems as well as our joint facilities in terms of how we work with our interchange partners.

To answer your question, Brad, I will start by saying delivering the service that we sold our customers is really all about executing on our fundamentals and leveraging technology to help us do so.

In our manifest network, car velocity opportunity is all about making car connections at our terminals. We have to execute on our switching plan, our train build plan, and we have to effectively manage our assets to make those connections. We are using technology like NetControl and Terminal Command Center to improve our decision-making and to be more predictive in planning. And at the same time, we are giving real-time information. We are putting it directly into the hands of the employees doing the work through the use of those software tools and our mobile devices.

Now, in our intermodal network car velocity opportunity comes down to two words, and that is train speed. To improve on our train speed, we have to execute effectively in our dispatching, we have to execute effectively at every train stop along a route. You can think of every train stop, whether it is planned or unplanned, like a pit stop in a Formula One race. Every employee involved has a role to play, whether it is the engineer, the conductor, the train dispatcher or the terminal manager. If they understand their role, if they work as a team, if they execute at a high level, the train stop time is minimised. We stay ahead of schedule, and we have a chance to win the race.

At the same time, we are using tools like John mentioned to reduce the number of times that trains need to stop along the route, doing intelligent blocking at our terminals and with our customers to make sure that cars can move as far into the network as possible, with as few stops at terminals along the way as possible. This minimises the transit time, it minimises variability.

It is really the combination of execution and technological improvements that will improve our car velocity and ultimately drive our service performance index.

Brad Stock: Thanks, Carl.

So we will now open up if anyone from the audience would like to ask a question. We will start here with Tom. If you can, please limit to one question, you got to get that in there, as well as introduce yourself. Just give your name, if you would, before you ask your question.

Thomas Wadewitz (UBS): Sure. Great. Thanks. So, Tom Wadewitz with UBS. Wanted to get your thoughts on the opportunity to speed up certain services on the network and how that creates more volume with customers.

I think one example, I think you sped up your LA to Chicago service, took out some days. So which parts of the network or customer segments would be responsive to speeding up the

network, and where in the network can you do that, where you just run the trains faster and generate more volume? Thank you.

Eric Gehringer: It is an outstanding question. In fact, we were talking about that last night at our table. I think I am going to have John answer that question.

John Turner: The way I would think about it is twofold. One is there has to be a need for it from the customer's perspective. You have heard us talk about, we do what we say, we sold the customer. So to the extent that that is real, I think there are opportunities really across the board.

We have two levels of service on the intermodal side. One of them is what we would call our premium service, which is our 'Z' trains. And those are very challenging schedules to meet with the things that we do every day. Jim mentioned that. However, at the same time, if there was a need commercially from Kenny and Kari's team to come to us to speed those up, we have the second-level product, and if it was commercially viable, we could speed up those trains as well, largely broadly across the network.

Eric Gehringer: You saw an example when I went through the example for the Falcon and the Eagle. Those were both 'I' trains before we converted one to a 'Z' train. And we are running that performance better than we ever have before. So to John's point, if it is there, we want to bring it to the railroad if it drives growth.

Brad Stock: Thanks, Eric. I think Chris Wetherbee, then we will go ahead.

Chris Wetherbee (Wells Fargo): Thanks. Chris Wetherbee from Wells Fargo. I guess I want to think about capacity that you might have on the network today, and how you sort of stay ahead of what the potential volume growth opportunity might be. In particular, thinking about the two regions, so Northern and Southern, I think the growth profile might be different, as we look out over the next couple of years. How do you think about the capacity you have now? Is there a way to measure that?

Eric Gehringer: Oh, Bybee is ready to answer that question because it is a very consistent conversation we have because of the Gulf Coast and so much growth that we have coming to the Gulf Coast.

Steven Bybee: Okay. So when I think through generating capacity, I will tell you when it comes to investments of steel in the ground, that is one of the last things I will look at. So I will break it down in three different portions.

One of them is, I think you have heard someone earlier today talk about execution, right? So if you think about what a terminal is capable of, are we actually meeting those deliverables inside of a terminal? And if not, what are we doing to close that gap? And then we do not stop there because we are never satisfied. Just because if we are setting new records inside of a terminal, where do we find additional minutes to reduce our tag times to be able to process more cars? And the more effective we are at that processing, we are improving our connection performance, and we are organically creating capacity inside the terminals. So that is where we spend a lot of time with our work on a day-to-day basis.

The second aspect, and John mentioned it earlier about eliminating touches, that is the work that we have been knee-deep in here all year in the south, looking for opportunities to run a

more efficient transportation plan and eliminate the touches in the cycle of a car. So instead of staying with the status quo of having an average of, let us just say, five touches per trip, how do we eliminate that and reduce one of the connections, which can ultimately almost save a day in the transit as well? That is how I think about from an efficient transportation plan, generating capacity in the terminals. The last thing that we will go to is actually on the investment side because there are productivity gains that we have been able to realise inside these terminals, and we have the capacity to grow now.

Eric Gehringer: And I would remind people that one of the strategies we have had in place now for the last four years is even when we do get to the point of that last resort and making the investments, it is almost always a phased investment. Ensure that we get the volume. Once we start to receive the volume, we make the next investment.

Brad Stock: Thank you. Ravi?

Ravi Shanker (Morgan Stanley): Thank you, Ravi Shanker from Morgan Stanley. Rahul, a question for you.

You spoke about customer visibility tools. What is the timeline for rolling that out? And second, does that help get customers on the same page as you guys in sharing the improvement in service that you are having? Because I think there has been some friction in the past about the railroad saying we are improving service, but customers saying we do not see it. Thank you.

Rahul Jalali: Yes, the first phase, Ravi, on that is coming later this year, and then will continually evolve. So I said, we have actually formed a group of over 100 customers from across our network that has given us feedback. So we want to make it what they would desire it to be, in conjunction with visibility. Where is my stuff? Any exceptions? And we are going to start with the first and inform our development process based on the feedback that we get. However, the first phase is coming in December.

Ultimately, when customers have, as the service improves, they are having to get to, when they deal with railroads, to a disparate set of places within our systems to get to the information. This is one single pane of glass where they will start, and they can drill down, they can reach out, they can actually create tickets from the same place. So, first phase coming in December with a very robust plan to kind of keep scaling it up over the course of next year.

Tony Hatch: Hi, it is Tony Hatch. Rahul, where does RailPulse fit into your customer visibility lens for the future?

Rahul Jalali: Yes, so we are early into the RailPulse coalition out there. So we are very supportive as a company around RailPulse, but it is just not RailPulse. We. Let me take a broader view, Tony, around our ability to develop IoT.

So for our container fleet, we have over 80% of our own container fleet now equipped with IoT. And on the RailPulse side, as an industry, there is 5,000 cars that have been equipped with the IoT devices. Now, on the railcar side, the number is pretty enormous. At the UPSIDE, we have about 500. It is just a very small fraction. However, what we are developing is use cases both on the container as well as the RailPulse on the railcar side on what is it that the customers want? Where is my car? Can we give turn-by-turn directions or any other data that can be

acquired from those IoT devices? We are in the process of developing those use cases a little bit more advanced on the container side, but applicable very much on the other side.

So the speed of implementation will depend on how fast, really, the shippers get IoT devices put on these railcars.

David Vernon (Bernstein Research): Thank you. David Vernon, from Bernstein. So Eric and team, you are running a model now with 9,600-foot trains, getting closer to that 10,0000-foot level. Several years ago, was shorter. All the infrastructure is built for some of those shorter trains. I am just wondering if there are still points in the system where you are maybe not running at the right level of productivity, or you are having to do workarounds to accommodate some of the infrastructure that has not been adjusted for the longer train lengths? And as you think about that investment programme for the next couple years, how should we be thinking about those bottlenecks coming away and opening up some further opportunities for productivity or efficiency? Thanks.

Eric Gehringer: Sure. So, Carl's group is actually the tip of the spear of our train length initiative. So, Carl, you want to respond to that initially?

Carl Garrison: Yes. So when we think about train length, we really think about it in terms of an opportunity to generate mainline capacity and give us a platform for growth.

So we do not think about it in terms of just how do we make the number higher. We think about it in terms of what do our customers need, what service have we sold them? Are we utilising any latent capacity on a given train symbol, whether it be tonnage capacity, with the number of locomotives that are on the train, maximising that, or leveraging the routes that you mentioned, that have previous investments into double track or siding extensions?

So the way we look at the network today, there is latent capacity in a number of places. We have terminal capacity, we have mainline capacity, and we are continuing to leverage the latent capacity on the individual trains.

We will continue to do that. You saw on Eric's slide the number of run-through projects and mainline project that are still yet to come in places like the PNW, and then more of a terminal focus on places like the Southeast and around the soda ash patch area in Wyoming.

So you will see us continue to implement the strategy we have been working on. The proof is in the results where we have set record train length over the last few months, and we have had a 30-plus percent gain over the last five or six years. That will continue as we move forward.

Customer-Driven Pursuit of Growth

Kenny Rocker

Executive Vice President, Marketing & Sales, Union Pacific

Introduction

[VIDEO]

Kenny Rocker: We are committed to safety, service and operational excellence as we stretch to achieve what is possible across our railroad. The commercial team is being bold. We are

hyper focused on engaging customers proactively, and we are driven to be the first to act on new opportunities, invest to grow and find innovative solutions to help our customers win.

Jason Hess: The emerging renewable biofuels market is providing the Bulk team a vast array of opportunities, not only for the outbound finished product, but also for the inbound feedstock. We are proactively collaborating with our existing customers and new market entrants, working to develop and enhance an entire supply chain. Union Pacific has the premier franchise for feedstock origination, with access to nearly all the soy processing facilities in the Western US.

This includes the new crush facilities opening this fall, Norfolk Crush in Norfolk, Nebraska and Bartlett Grain in Cherryvale, Kansas. They will each have the capability to crush over 38 million bushels of soybeans annually. These are just two of the 12 new customer facilities or expansions that have come online in the last couple of years to support the biofuels market. We are actively working with several other facilities that are either under construction or plan to be completed in the next few years.

Over the past several years, we have seen the grain market landscape change. Beyond the increase in domestic processing of soybeans, we are also seeing geographical shifts in domestic feed markets.

To continue maximising our participation in our growing market share, it is critical we expand both origin and destination capabilities. Origin facilities give us capacity to extend our reach for bushels of grain, while destination facilities assure our participation in expanding markets. For example, Viterra recently announced they are building a new grain facility in Dalhart, Texas that will be served by Union Pacific. Anticipated to be completed in mid-2025, this facility will increase Union Pacific's access to animal feed markets, expected to grow by 18,000 railcar equivalents by 2026.

Union Pacific also has seen strength in grain moving into Mexico. We have a strong network, with our North-South line providing access to all six border gateways into and out of Mexico. Our network is well-aligned to serve their growing demand for animal feed and penetration opportunities for incremental wheat used in flour production. These are just a couple of examples of how we are growing our grain portfolio.

Over the last two years, Union Pacific has secured new business from over 20 facilities that are either new to the Union Pacific network or have recently expanded, giving us access to over 190 million bushels of additional origination and destination capacity.

New assets like these are long-term growth engines for Union Pacific and will generate revenue for more than 50 years. The Bulk team remains focused on growth and our future is bright.

Jacque Bendon: Our Industrial team is intensely focused on delivering highly profitable car load growth for Union Pacific.

One area where we are achieving that growth, both now and in the future, is with our petrochemicals business. The feedstock and infrastructure advantage in the US Gulf Coast has attracted a hotbed of investment, and we recognised early on that our customers would need supply chain solutions to get their products to the global markets. That foresight has helped us win. Since 2017, when the first plastic expansion came online, we have grown our plastics business, adding over 100,000 annual units.

And here is how we did it. First, we leveraged our unrivalled Gulf Coast franchise with our efficient service products to our interline partners in the East, and our industry-best access to nearby Mexico markets. Second, we built products to deliver export optionality with customers like KTN at Prime Pointe in Dallas.

And third, we created the largest storage and transit network in the industry, with more capacity than both of our competitors combined. It has been exciting to work with our petrochemical customers to help get their products to the market, and the future continues to look bright. The US Gulf Coast plastics production continues to expand. Over the next two years, five more expansions are coming online and that could generate more than 25,000 annual carloads for UP.

We continue to be well-positioned to win by investing in our modernised and highly efficient Houston Englewood yard and adding capacity as needed throughout our Gulf Coast region to provide a safe, reliable service product to our Petrochem customers. Beyond petrochemicals, we are focused on outperforming the market by locating rock, forest products and metals customers on our railroad.

Since 2021, we have worked with industrial customers on over 100 track construction projects with production capacity greater than 85,000 annual carloads. These projects will generate long-term car load growth. For example, we have seen our steel volumes grow nearly 15% since 2021, and that is a direct result of locating new mills on Union Pacific.

We have a proven track record of working with customers to build sites, and we are ready to win.

Another industrial US commodity expanding to supply the global market is soda ash. We are seeing exciting developments in that market, similar to plastics. The largest natural deposit of soda ash is in Green River, Wyoming, and it is served by Union Pacific Railroad. Using natural soda ash has enabled US producers to lower their cost with new technology and have a much smaller carbon footprint than synthetic production, which is energy-intensive.

As global demand for soda ash continues growing, it puts US producers in a great position to supply the demand. Soda ash producers in Green River have announced 6.6 million tonnes of expansion that are slated to come online over the next five years. That is over 60,000 carloads per year.

The key to winning is having an efficient export product to get all this additional tonnage to the global market. For us, that means working closely with customers to improve both loading and export capabilities, investing in sidings that enable longer trains and reduce bottlenecks. Our efficient soda export product is already delivering results. By running longer trains, we are handling record tonnage with the fewest trains in our history.

In industrial, this is how we win, by working collaboratively with our customers, imagining what is possible and developing winning products and solutions.

Kari Kirchhoefer: We are committed to providing premium customers with fast, reliable service to key markets and investing in infrastructure that benefits both international and domestic markets, taking trucks off the road. Our Inland Empire Intermodal Terminal (IEIT) has been a tremendous success since we launched it as a pop-up ramp in June of 2021. We

have done multiple expansions since then, including the most recent one in April that doubled the facility's capacity to 140,000 lifts.

We plan to continue expanding this ramp as the market is still untapped, with 85-90% moving over the road. We also introduced a new market out of Inland Empire, offering three-day service between Southern California and the heart of Chicago, competing directly with truck.

Technology has been a key enabler for growth across our intermodal network. In 2021, we rolled out Precision Gating Technology, or PGT, that allows truck drivers to bypass the check-in kiosks when entering our intermodal terminals. We are nearing completion of PGT installations at our high-volume terminals, which we call Fast Gate. It is used in tandem with another new technology called UPGo, our mobile app device designed to expedite the intermodal terminal experience. In addition, we have now taken visibility to the street with GPS-equipped containers. This offers customers real-time visibility, event-based alerts and much more.

In Phoenix, we opened a brand-new pop-up intermodal terminal this year, competing with truck freight moving between the Southern California ports and Phoenix. Our initial focus is on imports and exports, converting short-haul truck to rail.

Closer to Omaha, I am excited to announce we are developing a new and larger Kansas City Intermodal Terminal that once completed, we will have 250,000 lifts to address this ever-growing market. Port Houston has seen explosive growth and Union Pacific is ideally situated to connect imports and exports from on-dock to door. We have launched our new on-dock service, providing a direct connection from container ships to rail, linking Port Houston to 11 major US markets.

With nearshoring on the rise, Union Pacific's Falcon and Eagle premium services offers the fastest service from border to border, to every major market in the US and Canada, bypassing the congested border crossings with a seven-day-a-week market delivery. We are just scratching the surface with our new product and expect significant growth as nearshoring expands.

And finally, linking Mexico's auto industry with the US and Canada, Union Pacific's automotive network is number one in the transportation of finished vehicles and automotive parts. We offer extensive coverage, cross-border efficiency and a commitment to safety, security and sustainability. Union Pacific's premium business team is dedicated to delivering reliable, innovative solutions that will enable market growth now and well into the future.

Kenny Rocker: The team is energised and so am I. We have a passion for growth. We are delivering innovative product offerings, creating new services for our customers, extending our reach to serve new markets, and leveraging technology to make it easier to do business with us. The table is set to meet the needs of our customers.

Kenny Rocker: All right, good morning. So, before we start, I have got to clear up some things, this whole thing about me on a train, drinking tea and stuff on the air conditioner. So, yes, normally I like to go on offence when Jim comes after me, but I got to tell you, I had a lot of fun in that steam engine. There were a few people with me. I took a few videos, I took several pictures, I was in there for about 15 minutes and yes, I was hot. So I went to the train to have some good conversations. So I do resemble that Jim, but I am telling you, I am going to come after you if I can, next time.

So again, my name is Kenny Rocker. I am the Executive Vice President of Marketing and Sales. I grew up in the company in the late 1990s. By the mid-2000s, as we were going through the pricing renaissance, I really learned the importance of maximising price and the impact that it has on margins. Ten years later, after a few more increased responsibilities, I got an opportunity to lead a large team and really got to understand the importance of culture and setting high expectations and being very responsive to our customers.

2018, 2019, I got promoted into this role. It was around this time that I also met Jim and got to understand the importance of a lower cost structure and what productivity meant, which really puts us to today and putting it all together with safety, service and operational excellence for growth.

And I will tell you, on a personal level, I have a passion for growth. Our commercial team has a passion for growth. And as a company, you do not want to get on the wrong side if we are trying to grow.

Driving Revenue Growth – Rethinking What's Possible

So I want to talk to you about how we plan on growing today. And I want to keep this simple. There is three ways you can grow your revenue.

The first is business development. And you can do that a few ways. And I will talk to you about the few ways we are going to do that. The other part of it is product development. And I look at product development hand-in-hand to business development because you get to product development by listening to your customers. And the other piece, and the last piece that I talked a little bit earlier about is maximising price.

And as I mentioned, we have always been very price disciplined. Meaning, you know, the last to lower, the first to increase here. Recently, we have just taken a lot more risks as Eric and the team have really given us a good value product to put in front of our customers. And I know Jennifer also has a slide she will be sharing on price a little bit later.

Empowering the Commercial Team

Unleashing what is possible through our hustle

So let us jump into things. First of all, it starts with culture to me.

What kind of culture do you have, you know, selling the product out there and delivering to customers what you sold to them. And so from a culture perspective, we look at it, and we say we want to be very nimble, and we want to be very responsive. As you can imagine, if you have got a whole bunch of hunters on your team, the last thing they want to do is go to some committee meeting or a second committee meeting, or have to go talk to ten people about a deal.

So delayering, cutting out the layers has made us very responsive. That is the way we win with our customers because we can respond first with products and solutions.

The second part of that is also making sure that we touch more customers in the supply chain. Let me just simplify that. We do not just call on the folks that pay the freight or the large shippers. We get into the weeds, and we go to the plants of the receivers, we talk to the receivers, we are there looking at both sides of the supply chain. So we are talking to more customers now than any other time in our career.

Rahul talked about it a little bit earlier. We are leveraging technology. Let me just tell you what that means on a real pragmatic level as a commercial leader. Our commercial sales teams do not want to do a lot of administrative things. They do not want to worry about managing through contracts. And you would not want them to, either. We want them doing less administrative things and learning more about the markets. Technology has allowed us to do that.

We can respond very quickly, same day, real-time, through a phone or through an iPad on a rate. We can get a contract out much quicker. We can see real-time where the cars are as we are working with our customers to really talk through the service product.

The other part of it is our commercial incentive plan. And that is just compensation. I am motivated by compensation. I do not deny that. I want to get paid, and our commercial team leaders want to too. And we want them to. We want them to obliterate the goal. And part of that comp plan, just in case somebody is concerned, and I am also saying this for Jim and Jennifer while they are here, is a price component to it. So it is not just the volume growth, it is also maximising the price to achieve that comp plan.

So again, that comp plan helps us go on offence, build up campaigns to learn more about the business. However, culturally, I want you to know that we are fired up and very responsive and very hard charging here.

Adding Business to UP

Attracting customers to rail-served facilities

The other part of business development, and you saw a little bit of it with Chick-fil-A and McKinley and being here at Prime Pointe, is literally just landing customers onto our network.

How do you get customers onto the network? And you can see over the last couple years, over 180 different construction or expansion. How do we do that quickly? Someone asked me over dinner to quantify. Well, you got it now. You can see the $700 million that is there, that is added in terms of revenue.

We are proactively going out there, working with customers. And let me talk about that a little bit because we talked about Prime Pointe. There are three different ways we approach the landing with customers.

One is a deep understanding of what our customers are trying to do. So there is not a day that goes by, our team has a saying, where are your major hubs? Where are your major distribution centres? Where do you see a gap? We want to fill it in. The second thing we do is, as you would expect, we talk to a lot of the large commercial developers.

So we talk to CBRE to say, we have got a facility in Phoenix, we have got a facility in Kansas City, we have got two facilities in Utah. Because a lot of times the way everything goes down, the customer will go to one of these commercial developers. It will come to us as Project Jennifer. We will never know who it is. It will be anonymous. However, if we are proactive in our engagement strategy there, we are able to make sure that Union Pacific is front and centre.

And then the last piece is the Chamber of Commerce, the economic development centres. We are also engaging them. We have got a great relationship with the city of Houston, with the city of Dallas, with the city of LA, with the city of Phoenix and so forth and so on.

These are very attractive pieces of business for us. Higher ROI, great margin for us. And we are very ferocious about attacking that part of our business. You can see the pipeline that we have there. It is a very robust pipeline, and I am excited about it, I am proud of it, and bullish about the future based on that pipeline.

Delivering What Customers Need

New products and innovation

The other part of it is product development.

So we are listening to our customers. If we have got a deep understanding of the markets, then we can put products up against them. And products can be broad. And so I just want to talk about them in a very pragmatic way in how we look at the products.

Eric talked about it, and kudos to the Operating folks about some of the products that they have set up in a very short time. Minneapolis, Southern California, Inland Empire and I will talk about that a little bit later. Phoenix is one. However, also what discreetly was talked about when Kari was on the video, are other products. We have had 11 different new services coming out of the Port of Houston.

We have added on nine different new services on our intermodal network outside of the Port of Houston. On the carload side, and Jackie and Jason will be up here a little bit later. We purchased transloads. In our Phoenix site, since we purchased that facility, we have had 40 new customers that are at that Phoenix site that were not there. Since we purchased the West Colton site, it has doubled in terms of the volume. So we feel very good about going to our customers and providing optionality for them.

On that customer experience side, I heard a question about visibility and what it gets you. What I like about visibility is it takes away any data wars – customer has their data, and they want to tell you where the car is. We have got our data. GPS is undisputed and very clear, and we have been sharing that. The other part of that value on the GPS side is that for those containers, the containers, that 80% Rahul mentioned that has GPS, the productivity is better, the dwell is less. That makes sense.

Same thing on RailPulse. I heard a question about it. We get to find out, where are those cars? When are they unloaded? And let us get them back to us. Rahul talked about the 6 million API hits. Well, guess what, 3 million of those API hits are from customers. We have got 65 different unique products out there. We have got close to 300 customers that are on APIs. And humbly, we lead the league on the API creation.

So adding all that value to make it sticky and also go on offence.

Key Growth Markets

So how? A lot of folks are, well, how are you going to grow? How are you going to win? Which of the markets? We have got a whole bunch of markets that we could lay out how we are going to grow and where they are going to win. However, for the sake of time, I am going to walk you through four of them.

One is just over the road, and you can see the data. That is the largest long-term pie that is out there, with the annual truckloads. Second is Mexico. And you can see the investments that are going on there in Mexico, and some of that has already been iron in the ground, and

we are talking to those customers. However, tremendous opportunity for us coming out of Mexico. The Petrochem markets, and I will talk a little bit about it a little bit later. And then finally, the renewable fuels and grain and grain products, and I will get into the weeds on that.

Grain & Grain Products Opportunities

UP's network supports the growing agricultural landscape

First, let us just go into grain and grain products and let us just talk about a few things. Now, I am going to say 30% three times. It is not a verbal typo, I am not mumbling or something, but I am going to say it 30 times because there is three different unique parts of this.

Back when Jason did the Investor Day a few years ago, we gave a number for where we thought renewable fuels would go. Since that time, that amount has jumped up by 30%. The announced expansions, the announced production has jumped up 30%.

During that same time, we have grown over 30% as a company with that product. And then the last 30% is that over the next ten years it has being forecasted that it will grow by 30%. To have this many, 18-plus facilities on our line or coming on our line announced is just a tremendous feat, and it gives us physical capacity to ship that product.

Here is where I think this product is really underappreciated. Now, Jason and I went to Europe over the spring to talk to traders about the soybean mill. So when you create the oils that go into these renewable fuels, it creates a by-product. You all probably know it. If I am bringing it up and boring you, just do not go to sleep while I am here. Go to sleep a little bit later.

However, it gives you a by-product. And that by-product, the way you should think about the by-product, is anywhere from three and a half to four more rail cars. So you make one carload of oil, you get the soybean mill. It is got to go somewhere. That is why we were in Europe because it is got to go somewhere. It is got to be exported because it is not enough US consumption. We do not talk about that enough.

The other thing we do not talk about enough is pitching and catching. Now, I am more of a football fan, but I will use a baseball analogy. And the pitching and catching means those oils, we move it to the processors, they process it, and in some cases, we get to move that finished product, the fuels, into an end market. So we may send the oils into Nevada or somewhere like that, and then we will capture those fuels going into the West Coast, in the California.

Switching gears on the grain, a lot of folks tend to think about grain as a mature market. We do not do that at all. We do not think of it as mature at all. And you can see, based on the data we have down there, that we are growing it out. We are building it out not just in the States, but also in places like Mexico. So I am foreshadowing some things.

20 plus facilities. I think we called out Dalhart, Texas, but it is really all over our network that we are growing, and we see that growth that is coming online.

Petrochemical Market Wins

Unmatched Gulf Coast franchise

The petrochemical markets, and you can see the stats. We have had some really solid growth, Jackie, over the last five years that we lay up there. And humbly speaking, we are the market leader when it comes to the Petrochem market.

Petrochem is not just plastics. There is just a lot of other feedstocks that go into it that we move. It is caustic, it is VCM. Those are all things that we move on our network. And Eric and the team have just done a great job of making sure that we are investing to be able to support that product.

We have got the fastest, most reliable service product to the East over our competitors. We use that when we are talking to our customers. Because we have storage in transit, sitting at work more than twice, closer to two and a half than two. We got two up there. We talk to our customers about that, and they like that optionality. For us, remember, it is two moves. You move from the plant and the sit, waits there. That is value proposition for us, and then we move it out. Customers appreciate that. That is a competitive advantage for us. Again, a lot more investing that will take place. And we have got more expansions coming on. Five more expansions over the next couple years. Again, a good margin product that we like.

Mexico Advantage

Mexico, here is where I think I want to make sure we are not being underappreciated on Mexico. Yes, I have got to hit it hard. We have got the shortest route. We have got the fastest service. We are shorter by 300 miles. In the video, you heard Kari. We got it daily. We move out of Mexico daily. You can catch a ride with us daily. That is a big difference than everybody else.

However, here is where we are underappreciated in Mexico. We can go throughout the US. We can go to the West Coast. We have got an EV OEM. We are moving parts going to the West Coast. That is optionality that we have. We talked about the grain network. Those six gateways give us optionality, and we build upon that.

Truck Conversion Opportunities

Winning and poised for growth

Truck conversions and over the road conversions is something that we talked about. And again, if you can look over the last few years, you can see what we have done. And it is like you hear people say, follow the money. You can see where some of the money has been and some of the investment, and it has allowed us to win new business.

The Swift business that we won, the Schneider business, we won. And what makes me so mad about winning Swift and Schneider is that the market has been so crappy, you cannot even tell it was a great win. However, that is going to change.

The market will come back. It is going to be two parts of that. One is going to be the volume, and the other part is that as the truck rates go up, that is also going to be more value that we will be able to provide the corporation from a price perspective once the truck markets go up.

Again, along the way, we have strategically filled in where we thought there were opportunities, where we thought that there were gaps. And we have done it in a very productive manner. And it has been great to see Eric and the team, and Jim and our management team be very deliberate in that. After it is all said and done, you know, call it around a million lifts, that is going to be there.

Win = Revenue Growth

Okay. So just to land the plane here, as a management team, as a leadership team, we are very cohesive, and we talk a lot about safety, service and operational excellence. And we also

talk about what is possible. We do not mash our hands, no mashing of teeth, wringing our hands. We go out there and put those products together.

The team has a hustle mentality, and we are very ferocious about business development. We will maximise price. And I am very bullish about where we are now. I am very bullish. So with that, I think I will turn it over to Beth Whited, who is our president. Beth?

Pursuit of Tomorrow, Today

Beth Whited

President, Union Pacific

Introduction

All right, good morning. I also am wearing a suit, no tie, scarf. I am serious. I am going to start off with some fun because I do not know who Kenny thinks he is, international man of mystery with this whole, I came up in the late 1990s. What does that even mean? Yes, he is just trying to fudge his age. I will not tell you what it is. I will be honest, though, and say I started at the Union Pacific in 1987.

So, yes, if you do the maths, that is 37 years. I have had the really great good fortune to have a fantastic career. Spent about 15 years in finance, about a dozen in marketing and sales. Have had strategy, HR, labour relations, customer service centre, you name it. I think they made me President because they could not figure out what to do. Like she is done everything else, maybe we will let her have a shot at that. However, anyway, it is my honour to be the President of Union Pacific, and it is wonderful to be here with all of you today.

One of the last jobs that I had, or part of my responsibilities was human resources and labour relations. I am guessing that some of you might have noticed that some of the other railroads have started to enter into labour agreements with their unions. We, like them, agree that our employees are our most important resource and that they deserve very competitive pay and benefits.

And as a matter of fact, we think our employees are among some of the highest compensated in the industry. However, we are so focused on our strategy of safety, service and operational efficiency, we think it behoves us to spend some time with our unions in this negotiating cycle, to talk about ways that we can work together as part of our agreements to improve availability and modernise work rules. So that as we emerge from this negotiating cycle, we are able to really ramp up our ability to provide that consistent and reliable service that our customers want and need from us.

So that is the focus that we have at UP. There is a lot of time left even before we serve notice, another six weeks or so. And so we will be engaging in that bargaining with our unions, as we have done over the past many years. So you may have more questions about that later, but I just wanted to address that.

Pursuing New Ways to Drive Long-Term Growth

So part of my job is strategic planning, and that is really what I am going to talk about now, what we do in strategic planning and corporate development to support the growth initiatives at Union Pacific. What you see here are kind the five areas where we play.

I am going to talk about the three on this slide, and then I am going to dive a little deeper into emerging growth markets and leveraging the real estate assets. However, first off, expanding our network through acquisitions and partnerships. We really want to look at opportunities out there to help us either close gaps in our service territory, reach new markets that way, find ways that we can improve our operational efficiency or reach and grow.

So that could be partnerships with transloads, it could be purchase of transload. You have seen us do some of that. It could be different kinds of collaborations with short lines and other rail providers. We have a number of things in the hopper that we are doing there, and we are excited about the opportunities.

You have heard a lot about culture today. I will talk to you about one thing that we are doing to really try to drive strategic understanding through the entire employee base.

We developed a training called "How We Win Together", and it really is explaining safety, service and operational excellence in an interactive manner all the way down to the very frontline person, working at Union Pacific. We have put, I think, nearly 25,000 of our employees through the training this year with overwhelmingly positive feedback because it is the first time in our history that we have ever said understanding the strategy and the "why" of the decisions that we make is so important that everybody needs to be a part of it. And we want them all in that conversation because we are relying on all of them to bring their opinions, their best ideas and thoughts to us. And if they do not understand what we are doing across the network, they will not be as good at it as we want them to be.

Because of its wild popularity and the results that we have seen from it, we are actually doing a 2.0 that will dive a little deeper in 2025, and it will be combined with our safety training as we roll out through the year. We are pretty excited about that.

And then delivering sustainable advantage versus trucks. We already have a sustainable advantage. You saw some of the things we are doing to become more sustainable. We believe that for some customers, that is a decision point, and we are going to sell it.

Carbon by Rail Unlocks Supply Chain Opportunities

Moving on to talking about emerging markets.

We work really closely with Kenny's team on this, but their job is in the here and now. Of course, they are always helping customers land new facilities and things like this. However, our team is trying to look out over the horizon and say what market are coming that could really represent potential for the rail industry.

And I have got two here that really talk a bit towards sustainability and net-zero aspirations for customers. So as people try to drive more of their greenhouse gas production emissions out of their environment, carbon by rail or the sequestration of carbon is emerging as an opportunity area. And for us, this green circle represents the core ethanol production.

They are a really big focus area for us because as you produce ethanol, every car load of ethanol produces about another car load of CO2. So that capture for those, and it is relatively easy for them to capture in their manufacturing process. Some of it is served by pipeline, a lot of it is not.

Pipeline approvals are difficult. So we are offering rail opportunities to those customers. And you can see, by the God's grace of the Union Pacific franchise in blue, those areas are prime sequestration points. And we are working closely with a site under development with a company called Frontier Carbon Solutions in Wyoming, where they are permitted, and we are actively sourcing with them and partnership customers to use this facility that we hope to see go under construction very soon.

New Growth on Horizon – Sustainable Aviation Fuel (SAF)

Another one, and this really builds on the biodiesel and bio and the renewable story you heard in the video from Jason as well as from Kenny, sustainable aviation fuel is really starting to emerge as a next country, if you will, in the bio renewable space.

Today, airlines are using less than 1% sustainable aviation fuel, but they have made commitments to be at about 10% by 2030 and up to 35 billion gallons by 2050. Again, there will be a huge opportunity for us to move that by biodiesel, I mean that biofuel for the aviation industry by rail. And we are working with both the producers as they either convert old facilities to be for sustainable aviation fuel, or they build new. And as well as the destination markets where the airlines want to use it. So it is an exciting opportunity for us.

Developing Land for Growth

Current projects have alignment with top metro areas

I will not spend a lot of time on this because Kenny did hit it a bit. In strategic planning, we take a slightly different take on the developing of land for growth, though, so I will spend just a second on it. We own roughly 1 million acres of land in the United States, the vast majority of majority of which, of course, is used for rail operations. However, there are, call it 10% or something like that of those acres that are available for us to do other things.

And the best thing that we can do with that land, if it is close or adjacent to our network, is to develop it so that we can land customers on it who will then ship by rail. And in the past, we were a little bit, I am going to use the word lazy, and we would say, we have this land, and it would be great if you wanted to build something on it. And what we have discovered through relationships with real estate developers, who we are now partnering with, is we have to be further along than that.

We have to know about how much power we can get there, we have to know more about the environmental impact, we have to know more about water resources, etc. And so we have identified a number of locations along our network, about 60, where we are actively saying, what can we do to develop this, like what we have done at Prime Pointe, and how can we accelerate that process? And we are pretty far along with about 11 of them. And I think we decided that we were kind of grandiose, and we called Omaha, the Omaha metro, as opposed to Los Angeles and Chicago, which certainly are not metros, right? However, anyway, we did that because it said council bluffs, and we were worried you would not know where that was. And then we made Omaha sound like it was super fancy and called it a metro area.

However, anyway, these are the locations where we are pretty advanced with our process, with those developers, and we are excited about the opportunity that that going to bring us in terms of growth. So all of those things that we are doing are trying to really leverage up all the things that you have heard from everybody else about improving the service, making ourselves

efficient, holding ourselves accountable for how we spend the money and being able to grow on top of that. With that, I think we are going to bring up a panel so that you all can ask questions.

Growth & Strategy Panel Discussion

Beth Whited

President, Union Pacific

Kenny Rocker

Executive Vice President, Marketing & Sales, Union Pacific

Jacqueline Bendon

Senior Vice President, Industrial, Union Pacific

Jason Hess

Senior Vice President, Bulk, Union Pacific

Kari Kirchhoefer

Senior Vice President, Premium, Union Pacific

Brad Stock: Okay. As folks get situated, like the last panel, I have got a question for each of the new, the new faces up here. And so that we can kind of get them in the conversation. I will also ask them to kind of introduce themselves before they answer my question. So we are going to start with Jackie.

So Jackie, your Industrial business team covers a wide range of products. And in the video you highlighted several areas that you could see significant growth over the next three years that included areas like rock, forest products and metals. Can you go into a little bit more in depth on some of these opportunities?

Jacqueline Bendon: Sure. So hi everybody, I am Jackie Bendon. I started in Union Pacific in our Corporate Audit department. And then after a couple years in finance, I wanted to go work with our customers. So I went to our subsidiary company, and then in 2009, came back to the railroad to work with our plastics customers.

And at that time, plastics was a very mature market. It was going to be, I thought, a boring job. We were talking about maybe importing plastics into this country. And of course fracking took off in the rest of this history, as you saw in the video. And so it is with that lens, I want my team to be really focused on knowing the markets, understanding where there is opportunity and growing revenue and carload for UP.

So on the video I talked about rock, metals, forest. So, a little bit about rock. Rock is a market that you cannot be complacent in. And that is what I love about it. It is project-based, projects start and they end. And we have to constantly be working with our customers to understand the projects that they are trying to supply rock to.

And I am really excited and pleased with the ability that our team has done to grow our rock franchise. We have the largest rock franchise in Texas. We moved last year, over 1,000 cartloads of rock a day for construction projects. It was a record year. We are not going to have a record year in rock this year because of the weather challenges, but the order books

are strong. So looking forward, I am really excited about the opportunities to move as much rock as possible.

Metals, metals what we are seeing in the metals market is a shift from the integrated steel producers to EAF. EAF is more regional. And what I love about that is it takes scrap inbound, and then we get to move the outbound bar and rod and coils. So it is a great use of our assets. So we want to locate those new mills that SDI, CMC, new car or is investing in on UP.

And then lastly, forest. So look, the forest housing market is not very strong right now, but fundamentally in this country, we need more housing. Housing market will eventually improve. And when you see the capacity that has been taken out this year, it has been in Canada, in the Southeast. So that puts our producers in a great spot to provide the fastest-growing markets in the US that we serve, California, Texas, Denver, Utah, that puts us in a great position. So when I look at my market, while it is a challenging economy right now, I think we are just poised for growth.

Brad Stock: Thanks, Jackie. So, Jason, you highlighted pretty heavily in the video, and Kenny talked about it with renewable and then the grain markets. Highlight some other areas within your team, within the Bulk team, that you are excited about.

Jason Hess: Yes. Thank you. I am Jason Hess. I started my career right out of college. Apparently, the cool thing to say is I grew up in the 1990s as well. So I have had various roles, leadership roles in all of our business teams, Industrial as well as Premium. I was the Vice President of our Customer Care and Support, Vice President of AG Products, Vice President of Premium, and now currently on my role.

Yes, renewable diesel is getting a ton of attention, and rightly so. As Kenny mentioned, 30% growth, and you have 30% growth coming in the future. The really cool thing about that, and I am really proud of our team, is this business did not just show up. You are kind of hearing about an emerging market. However, my team had to go out, spend a lot of time with customers, learn their business, understand what they needed, and help bring them to the railroad. And that was a great model. And I think that is why we have had some success. We are going to have success in the future.

Now, that same model we can take and use for other emerging markets or other businesses. One you do not hear as much about is diesel exhaust fluid. Diesel exhaust fluid is an additive that it goes into diesel engines that helps with emissions and global emission reduction. That is in a market prior to 2016, we did not handle a single carload of it. And in the last three years, we have seen about 60% growth in this market.

And going forward, when you look at it, there is about 60-80% more growth projected by 2030. So we can take that same model of making sure we are out in front of the customers, helping them locate facilities or blending facilities for the DEF that eventually ends up in truck stops that can blend into the trucks, but take that same model to make sure that customers are locating on Union Pacific.

In other areas, our strong service product and our efficient service product has allowed us to take business away from trucks.

A couple of areas we have done that. One is in fertiliser. Fertiliser, traditionally, there was some business that was fairly short hauls, fertiliser being produced, like in Kansas and

Oklahoma, and it needed to get to co-ops in Iowa and Nebraska. You would not even think that that would even be a rail opportunity, right? It could be trucked. It is way less than 500 miles. We have been able to work with those retail fertiliser folks, and we have got 20 new opportunities just here in the last couple years of actual locating and putting in rail facilities in some cases, or expanding or even rejuvenating old rail facilities to move fertiliser a fairly short haul. And that is because we are more efficient, and we can compete on some of those shorter hauls.

The last one I will bring up is we hear a lot about our import beer business, but we have a large domestic beer producer who has traditionally shipped all their outbound beer via truck. And some of that is because of regional focus. However, this particular shipper is seeing the value of rail, so being cost-effective, being efficient. They also see it as part of just their goals in terms of sustainability. And that particular large beer producer is now even going out and acquiring new rail cars and assets and working with their distributors to convert to rail. And a lot of that is the same thing, being more efficient, having a good service product, and showing the value for that customer so they can switch to rail.

So lots of great opportunities. I know we mentioned grain a little bit. Kenny did a great job of mentioning that. We do not want to think of grain as just a stagnant market that is not growing. There are shifts happening, and we are getting out in front of those, too. So just lots of great opportunities for us to grow in the bulk area.

Brad Stock: Awesome. Thanks. Kari, intermodal within your group gets a lot of attention. We do not want to forget about autos. So, can you remind investors about our strong autos franchise?

Kari Kirchhoefer: Sure. Good morning, everybody. I am Kari Kirchhoffer. Next month, I will have 32 years at Union Pacific. I have worked in all of our commercial areas, and I have had the opportunity to lead our Industrial team, our Customer Care and Support, our subsidiary loop. And now my most recent position is leading the Premium team.

Turning to the question, our automotive business represents 21% of the Premium team portfolio. We are the largest finished vehicle carrier west of the Mississippi. We own, we operate or access 40 vehicle distribution centres, and we serve six vehicle assembly plants. In addition to the movement of finished vehicles, we also provide the expedited handling of automotive parts to Mexico, the US and Canada.

As mentioned at some of our previous earnings calls, we have talked about some of our significant business development wins with General Motors and Volkswagen that will fuel growth for years to come. General Motors is also a great example of us taking advantage of nearshoring opportunities. In addition, Union Pacific is also the largest railroad moving electric vehicles in all of North America today, and we are ready for growth moving forward as that market continues to expand.

Let us talk a little bit more about some short-term opportunities. This year, we worked closely with our OEMs to develop land bridge opportunities. For those of you in the room, historically, this would be business that would land on the US East Coast port and then truck locally into their markets. And because of capacity issues on the vessels, they came to us and said, can you find us space on your West Coast ports, and could you move this business long-haul East

via rail? We have been very successful in doing that for them this year, and it is brought on nice incremental growth.

Overall, for us, it is all about a strong service product, which we have for both finished vehicles and parts. So we are poised and ready for growth, both now and well into the future.

Brad Stock: Awesome. Thanks, Kari. Okay, we will open it up to some questions. We are going to start with Brandon Oglenski, and then we will go to Brian Osenbeck and I will make a note on the next.

Brandon Oglenski (Barclays Capital): Good morning. Brandon Oglenski from Barclays.

Kenny, can you talk more about this delayering process and how that is helping unlock potential in your organisation in going to market with your customers? Because if we go back in prior UNP Investor Days, there has always been a pretty positive volume outlook. However, I think in hindsight, you know, we never really saw that achieved in the past. So what has changed now?

Kenny Rocker: Why don't I start and some you all jump in.

Jim has the vision of pushing the work down to the lower level, to the frontline users. That is not just on the Commercial team, that is across the company. How it works here on the Commercial team, look, if you are a Commercial leader, and you have got a deal that you want to work on, and you are trying to get approval for it, if you have less layers, that is less approvals. That is just one part of it.

The other part of it is just from a culture standpoint. One of the great things that I like about Jim being so involved in the Commercial team is that he knows the business and I can go to him and say, there is a need in Phoenix for Kari and I that we want to have a ramp there. That is just a discussion with Eric and I and a few other folks on the management team, and it happens. That is a cultural change, that is a responsiveness change. We talked about it from the time we made a decision to put Phoenix up to several weeks later. We stood up a ramp. That is a huge difference. And that is what we mean by how delayering has helped us.

Anybody?

Jason Hess: Maybe I would add to that. When we are building, I mentioned all these new facilities, and we are trying to get them on our railroad. You know, we have processes. Obviously, you want to make sure you locate them in the right spot. However, sometimes that process you drag on. The customer has to submit a 10% drawing. Then more time goes by, and you will do a 30% drawing, which eventually some of those, we have streamlined that. Fewer layers, fewer approvals, as Kenny mentioned.

However, now we go to the customer with fewer layers, fewer approval. I will call up my counterparts, John Turner in the North, if it is in the Northern region, get this going really quick. He understands, his team understands it, and we can get that approval much faster than we have in the past. And that is what customers need. They need to make decisions because they may be looking at different options.

Brian Ossenbeck (JP Morgan): All right, thanks. Brian Ossenbeck with JP Morgan.

Beth, a question for you on labour and why have we seen the other railroads go ahead early and individually with these negotiations? What is UNP looking to accomplish here? Work rest

rules have changed across the industry. You are working with something on the engineers right now, maybe. Is that fully implemented? And what are you looking to negotiate in this next round of bargaining? Thanks.

Beth Whited: I cannot really speak for why others decided to go early. Maybe they did not see as much opportunity in their labour agreements to modernise and find efficiencies and availability opportunities with their workforce. So I do not know why they chose that.

We look at it, when we step back, and we look at our agreements and some of the things that are pain points in terms of being able to use crews more fluidly in certain terminal operations, we think it has value, and we think it improves service, and we want to address it and talk about it at the same time as we are talking about the whole package.

I think you asked about the work rest rules. We are partially implemented with the BLET. I am sorry, off the top of my head, I cannot remember the number of locations, but we are partway through that process. We are still negotiating in some locations over different makeup of what the crew pools would look like.

We would hope to have that behind us and move forward with the rest of that implementation, and then we still have that work rest process to do with the SMART-TD conductors.

Jeff Kaufman (Vertical Research Partners): Thank you very much. Jeff Kaufman from Vertical Research Partners.

Kenny, I have a question for you. So over the course of the last decade, there is a lot of traffic that should be on rail that is not. And some of it used to go on rail, but service and consistency force people to make a different decision. You got every reason to believe it should be on rail. It is cheaper, it is more sustainable, etc., etc.

Outside of the growth objectives that you highlighted today, can you address how big this market could be, how much opportunity it theoretically could be, and what is required, in your opinion, to bring some of these customers that had to move away from rail, or would like to use rail but are hesitant to do so, what would it take to bring them over the transom?

Kenny Rocker: So let me start off with the last part of the question on what it requires, and that is part of our customer engagement strategy of just sitting down with the customers, spending time with them face to face, going over data that shows where our service product is. That is the first thing.

As we do that, as we are able to do that, we can also ask them some very important questions. How much is going via truck versus how much is going via rail? What customers do is if we are not as consistent and reliable, they will hedge truck versus rail, meaning they are going to have an insurance policy. If rail is at 60%, they will say, well, we are not sure we are going to have truck at a certain percentage as an insurance policy. As we are more consistent, we are able to ask for more business. We are able to build that confidence so that they can move more.

That is on the carload side, on the, I will call it bulk or unit train side, as we are able to have a more consistent, reliable network like we have today, you are going to naturally get a little bit more tonnage out. You are going to pull ahead more trains of soda ash, you are going to pull ahead more trains of rock. The rock network that Jackie talked about, it is a very truck-

competitive market. As we are able to pull more of that ahead, we are going to get more tonnage.

For Kari's product, the same thing. We have some customers that we, candidly, that maybe in the parcel place, we charge them for it. We are able to have a more reliable product. On the other hand, some of the customers that maybe are just using our baseline domestic product, as that service is reliable, yes, we are going to ask for more business.

When I look at that and how I size that, I look at that in terms of just outperforming the markets. You are not going to hear me say it is going to be X percent more, or 1% more or 10% more. I look at it as good growth and just trying to outperform the market.

Bascome Majors (Susquehanna): Yes, Bascome Majors, Susquehanna.

Kenny and maybe Beth, if I look at the second quarter, your business was just under a third of revenues from Bulk, just under a third from Premium and a bit over a third from Industrial. If we walk your views on the markets out three to five years, do you see that mix changing markedly? Where are the biggest opportunities and why in the midterm here?

Kenny Rocker: Yes, I will start off. Look, nobody is going to get me to go out and forecast this. That is a mix. That is a pretty dangerous thing to do.

What you will hear me say is you heard us size up the markets and how large they were and the opportunities in front of us, we would expect them to grow out. However, to get in the forecast in the mix, that is probably not something you will hear me do. However, you see the size of the market, you know where the service is today, and you see what we are trying to accomplish.

Jordan Alliger (Goldman Sachs): Yes. Hi, Jordan Alliger of Goldman. You talked about Mexico as being one of the growth areas, $140 billion of announced investments. Is a way to maybe translate how that could relate to the revenue opportunity, volume opportunity for UNP and others, you had mentioned $1.6 billion of revenue potentials out there. Is there a way to get a sense or size up that opportunity specifically? Thank you.

Kenny Rocker: Yes. You know, the way we look at the business, we put it into different categories, and it starts us off as a conceptual and then as we get into the negotiation phase, and we feel a little bit better about it, we have good visibility to it. Right now, all of that expansion that has been announced has not been put in the ground. And so as that gets put into the ground, we will feel a little bit better about having a size on those pieces of business.

I think the encouraging thing about the $140 billion is it is across the board, and it touches all of our commodities. It touches Jason's commodities, it touches Jackie's and for sure it touches a lot of Kari's products. So cannot size what that will show up like. We need to see a little bit more of those investments put into the ground, but our strong service product has us prepared.

Ken Hoexter (Bank of America Securities): So Ken Hoexter from BofA. Kenny, I think I might need to change the title into Kenny, multiple pages instead of one, two pages. However, that font size was small. Okay. And it was single space. I heard the margins were big.

So I guess bring near-term for a second, intermodal or Kari, I guess maybe, intermodal is really on fire kind of out of the West Coast now seeing these volumes. We heard early it was pre-shipping out of tariffs or what was going on in Canada or East Coast port strikes. Can you just

give us a minute, maybe a little more near-term in terms of what is going on? Is demand starting to rebuild? Is that ahead of the rate cut we saw? Is it inventories are going up? Can you provide some perspective? I know a little bit near term.

And then, Kenny, just because we have heard so much going on in Mexico with the grains, I do not know if so, Jason, you want to address that, just what is going on in terms of the grain crop just as we start this process, is that going to be an issue moving forward? Thanks.

Kenny Rocker: So first of all, and Kari will get into the details, remember, we came into the year with a contract loss on the international intermodal side. So we were really expecting not to have a great year on the international intermodal side. And this really talks to the agility and the cultural change that we talked about with Eric and the team, quickly jumping in and handling all of that business, having a buffer. And you can see where we are quarter-to-date, the double-digit growth. So that just shows how the network can flex to capture all of that tonnage.

Kari Kirchhoefer: Yes, I think that is a great question about international, and many of you in the room have been asked me that over the course of the last day. I will say this, the key to us keeping the growth that has shifted to the US West Coast is making sure that we have a strong service product. And I can tell you this, in the month of August, we moved a record amount of tonnage off the US West Coast.

We are going to beat that this month, thanks to our operating team and Jim and their focus on that, and working closely with the port of Long Beach and the Port of LA, has us set up to not expect a large transition to move back. So we are anticipating that the shift that has occurred from the East to the West, a large portion of that will stay. In the PNW, I think it is a little bit more up in the air. They have already, the Canadian labour negotiations are done, as you know. We have been notified by one customer that they are reopening the Vancouver port of call. However, the really good news is the customer customers have been so pleased with the UP service coming out of Tacoma that they are going to continue a port of call there as well.

So while I think a portion of that will shift back, we also expect to be able to keep a portion of that coming out of the PNW as well. So long term, for at least the next quarter, we are looking at strong volumes continuing to hit the West Coast.

Kenny Rocker: So Ken, you heard my answer in DC, so you do not need to hear it again. Jason, do you want to?

Jason Hess: Just to follow up the grain quickly. It has been a strong year on grain going to Mexico. Part of that is driven by crops, conditions, but a lot of it is also driven by being efficient, productive trains. We get to six different gateways to get into Mexico, not just one. So we are able to leverage those gateways to actually do more business and have more flexibility.

We have had a lot of business development efforts, too, to capture more of the Mexico business going forward. Those things are paying off, and if we keep offering a good product, we get the border fluid again. I still see Mexico as a great growth product for us going forward.

Brad Stock: Thank you. Good discussion. As we exit, our CFO Jennifer Hammond will take the stage.

Pursuit of Industry Leadership

Jennifer Hamann

Executive Vice President & Chief Financial Officer, Union Pacific

Introduction

All right. Well, good morning, everyone. I am Jennifer Hamann. I am the CFO of Union Pacific. I was going to say I grew up here, but that seems to be a common theme around folks. So maybe I just need to say I was a child prodigy maybe, I started when I was 12. No, like many others, I started at UP right out of college. I have been here almost 33 years. I have worked through a number of different roles, started on our corporate audit staff, worked a number of roles in finance. Where I know many of you from is my time in Investor Relations when I had Brad's job. I also spent a little bit of time in Marketing and Sales and Workforce Resources.

It is great to have you all here today, both in-person and those that are joining us online. And I know what you are all here for is to see what is new and hear what is new at Union Pacific. Now, many of the things that we have talked about today are familiar themes, but I do believe that the approach, the conviction and this pursuit of what is possible within our company is really quite different. The team has walked you through our strategy that we want to be the safest railroad, one that meets our customer commitments by delivering the service product that we sold them and doing so in a very operationally efficient manner.

Track Record of Strong Returns

Now, before I connect that strategic imperatives to our financial performance, let us first look back at what Union Pacific has been able to deliver to our shareholders over the last five years.

We have returned over $38 billion to our shareholders in the form of dividends and share repurchases. That equates to nearly 40% of our market capitalization returned to our owners, which is near industry-leading levels. And we did that during a period that featured a global pandemic, severe supply chain challenges, as well as a freight recession. So, a pretty challenging business environment.

Another measure of our long-term performance is return on invested capital, or ROIC. Last year we led the industry at 15.5%, and our expectation in 2024 and going forward is that we will continue to maintain that position of industry leadership through effective capital deployment.

Goal: Industry Leading Operating Ratio

Another area where we expect to be an industry leader is through our rail operating efficiency. And the best way to measure that and compare us against our peers is operating ratio.

If you look back on the line chart, in the second quarter of 2023, we reported a 61.9% operating ratio. That was basically middle of the pack, and we had unfortunately been trending the wrong direction. In the second quarter of this year, we reported a 60% operating ratio. It was our third sequential quarter of improvement and placed us now in the position of leadership in terms of both the first quarter, second quarter and year-to-date with our operating ratio.

Now, you are not hearing me stand here and declare victory over that number. We know, and you have heard from the teams today, there are additional opportunities for us to improve.

However, I very much believe that this early progress is proof statement that our strategy is the right one and that it is working.

And I also want to point out that we at Union Pacific do not do any, what I will call, fancy maths around our operating ratio. It is straight up, it does not include any real estate, and it does not have any other adjustments. I also want to make sure that everybody understands that operating ratio is an outcome. Having an industry-leading operations ratio is the outcome of our ability to successfully execute on our strategy.

Connecting the Strategy to Profit Drivers

So let us get into that. If you look at our industry, we essentially have three ways to drive profitability. It is productivity, its price and its volume. When you hear the team talk about industry-best safety, operational excellence, those are absolutely the right things for us to do as a company, for our employees, for our customers, for the communities that we operate in. It is also productivity.

Now, Eric and the team and Rahul gave you a number of different examples of how we are driving better productivity, which will ultimately lower our operating costs. I am going to give you one more example, and this one is with our Strategic Sourcing team. That team has worked cross-functionally and come up with a process that they are calling a "first call strategy".

So through a competitive bid process, they are identifying, across a number of different spend categories, vendors that can be the best performer at the best total cost of ownership. That vendor then earns what we call the first call distinction. We then give that information to our frontline managers, the people who are empowered to make the decision about who they engage with to do work for Union Pacific. It is a tool in their toolkit to help them be operationally excellent. And it is driving savings for us today to the tune of about $10 million annually.

Now, I share this story because I now have responsibility for the supply chain team. As Jim likes to tell me, I am no longer just the scorekeeper. I am also in charge of driving operational savings.

Now, you heard Eric, Kenny and Rahul all talk about the things that we are doing to make our service product better and to distinguish it from others. And that is critical to our ability to attract and win new business. It is also critical to our ability to support core price. And I am going to come back to price in a minute.

However, we deliver tremendous value to our customers. When you think about our labour efficiency, our fuel efficiency and our greenhouse gas efficiency, as well as the billions that we invest in our network annually to support that service product, but achieving long-term growth really is what I am going to call the holy grail for the rail industry. It is something that we have all been pursuing, but not consistently attaining.

Now, you could blame coal or other commodities, but at the end of it we have to have a different approach to pursuing long-term growth. And I believe what the team has articulated for you today is that different approach. And you have also heard one of the great proof statements today about why we believe that approach is winning. It is in that international intermodal space. That business volume that has come to us was unexpected. And not only have we handled it well, at the same time we have improved our operating performance. That is critical

to be able to flex like that with our customers and to give them the confidence that they can award more business to us, and we will successfully handle it for them.

Pricing Opportunities to Recapture Inflation

Now let us go back to price. So, as many of you know, I have been in the investor space a while and price has always been a hot topic. In fact, I have been around long enough to remember the conversations around legacy price. So it is in the spirit of legacy price that I want to talk to you about UP's repricing opportunities against the higher inflationary costs that we have seen.

So let us start with inflation. Inflation really started to move above historic levels in 2021, and then it really accelerated the last few years, primarily driven by a hot labour market. However, within the rail space in particular, we settled some expensive labour contracts, plus had the added cost of the work rest agreements and paid sick leave.

We are committed, though, to be able to offset inflation through our pricing activities. And even though that inflation picked up for us over the last few years, we were still able to yield price dollars that exceeded the inflation dollars these last several years. Unfortunately, just not quite to the level that it was actually accretive to our operating ratio. And when you look at 2025 and beyond, we do expect inflation will stay somewhat elevated, but probably a little bit lower in the 3.5% range.

So how do we attack that? Well, if you look at the pie charts, you see that annually we are able to reprice about 50% of our book of business. The other 50% is covered by long-term contracts. Between 2022 and 2024, we have repriced about 75% of that long-term book of business, which means we still have 25% that we have not yet priced yet. So there is upside there.

I would also say we have upside in a couple other areas. Kenny mentioned one already, and that is the domestic intermodal side. Since we instituted the dynamic contracts, we have not experienced pricing upside. As that market comes back, so will our price. And I think it is absolutely fair to say that for that part of our business that we repriced in 2022, and even in early 2023, there is still price upside there. Because at that time, we really did not fully appreciate the stickiness of the current inflationary environment.

Achieving Volume Growth

You heard Kenny and Beth both talk about our different approach to the growth. You heard the team talk about it. It was listed on the video. So there is a lot of activity, obviously, all coalescing around one theme. We do think that this strategy supports the growth story here at Union Pacific. And again, I think this gives you a bit of an early proof statement that we think it is working.

In the second quarter, against a 23% decline in our coal volumes, we actually improved and saw a slight growth in our volumes overall. Third quarter-to-date, our volumes are up about 5% against an 18% decline in coal. So again, an early proof statement. However, we are going to take that win.

Now as we look long term, or at least over the next three years, we think what we are doing to go after our customers' business through our investments, through our differentiated service product and business development efforts, that is going to enable us to grow volumes that

exceed the markets that we serve and that our revenue will exceed the volumes. And that is supported obviously by that differentiated service that we are going to price into the marketplace.

Now, with that long-term view about revenue exceeding volume, I do need to make one small caveat, and it is actually quite relevant to today's environment. Again, going back to international intermodal, which you have heard a lot talked about today, it is great business for us. It is a big driver of our third quarter volume growth. In fact, if you look at our international intermodal volumes, it is up over 30% here in the third quarter. That business comes with an average revenue per car that is 40% to 45% of our company average. So the related revenue that comes with that volume growth is maybe less than what you might otherwise think or expect it to be.

Efficient Capital Deployment Supporting Growth & Returns

Now, when I started out today, I talked to you about and gave you a proof statement about the success of our strategy when it comes to capital deployment. As we look out over the next three years, we intend to follow that same formula for success, but with a couple of important changes.

First of all, unchanged is the fact that we are going to continue to invest in our franchise. UP's best returning asset is the UP franchise. So we will continue to invest for growth and for productivity. Over the next three years, we expect that to total between $3.5-3.7 billion. That will be below our historic benchmark of roughly 15% of revenue.

So what has changed there? Well, you heard Eric and his team talk about the fact that they have created capacity through their efforts at operational excellence and they have capacity to grow across their critical assets. And in addition, as you all know, we have also continued to invest for growth post-pandemic, even though volumes in many cases have not got back to those pre-COVID levels.

Now, when you think about capital too, and you heard Beth mention this in her section, we are also looking at other areas where we can deploy capital. Not included in that $3.5-3.7 billion dollars range is if we see a discrete opportunity to invest in something that will drive productivity, a one-off acquisition, or anything that could support further car load growth to our network. You should know that we are going to make those investments, but only if they are going to drive shareholder value.

Another part of our capital allocation strategy that is unchanged is with our dividend. Union Pacific is very committed to its dividend. We have paid it for 125 consecutive years. We also are committed to the fact that we have a 45% dividend payout ratio. That is industry leading. You saw actually in the third quarter, though, that even though we are trending a little bit above that 45% dividend payout ratio, that we did in fact increase our dividend by 3%. That marks the 18th consecutive year of dividend increases. This also marks a slight change in our capital allocation strategy relative to dividends. We understand that shareholders value consistency.

So within that construct, as well as the fact that we want the 45% dividend payout ratio, we are committed to annual increases. Now, some years those annual increases may be more nominal, like in 2024, but in other years where we have greater earnings growth, we would expect to see greater growth in our dividend as well.

We also are remaining very committed to our share buyback programme. Since we instituted share repurchases as a company back in 2007, we have generated an internal rate of return of almost 15%, while at the same time avoiding $17 billion worth of dividends. In 2024, we expect to buy back about $1.5 billion worth of shares, and over the next three years we expect to buy back between $4-5 billion worth of our shares on an annual basis. We will fund much of that through the cash flows that we generate as a company. However, we will also use our balance sheet capacity.

Strong Balance Sheet & Capital Access

And let us talk about the balance sheet because our balance sheet is also a priority for Union Pacific.

You heard Jim mention both last night and this morning that it is the job of this management team to build on the legacy of those who came before us. One way we do that is through the management and optimization of our balance sheet. Union Pacific has a strong investment-grade credit rating. We have excellent access to the credit markets and good demand for our paper. We also have the best combination in the industry between our weighted average debt maturity at 20 years and the low cost of debt below 4%.

We also have been very prudent or pragmatic in how we have managed the annual debt towers. And in no year do we have more than $2 billion that comes due in any given year, which gives us great ability to pay that off with cash if we ever decide to do that. And we actually did do that here in 2024.

So when you think about our approach to the business as a management team, what you have heard us talk about today, maybe not using these exact words, but it has all been about controlling the controllables. Whether it is the management of our balance sheet or whether it is the execution of our strategy.

Economic Indicators – Growth Prospects Improving

The one thing we cannot control is the economy.

The economy is really, call that market for us. You have heard us reference market before, and that essentially sets the floor to which we then are tasked with outperforming that. So what I am showing you here is S&P Global's latest outlook of the economy over the next three years.

And it is showing growth over that period. Although I would call that growth somewhat muted and you know, somewhat back half loaded as well. Now the one thing that I think is important to note here is that when you think about that economic outlook, that with those muted prospects, it is also assuming that you have or excuse me, it is not assuming, but it is in the face of the fact that you have a truckload market that has just kind of bounced along the bottom for the last couple of years. And of course we all know the Fed after four years just made its first rate cut. So I do think there is the potential for upside here, but that is just something that we are going to have to watch.

Industry-Leading Financials – Driving Shareholder Returns

Now as I have walked you through this strategy, I have already laid out the majority of UP's targets over the next three years.

So let me just give you a pretty quick summarisation of where we are at. So we will start on the top-line. And again, that is rooted in market or S&P Global's outlook. However, within that, we expect our volumes to grow faster than the market and the revenues to grow faster than the volumes. When we make that statement, we are not including any impact up or down from fluctuating fuel prices or from what happens with coal demand. So we are setting that aside.

We are also committing to the fact that our pricing will become accretive starting in 2025. So pricing will begin to help our operating ratio. And over the three-year period, we will continue to maintain an industry-leading operating ratio. And the combination of revenue, accretive pricing and productivity will enable us to produce over the three-year period, an earnings CAGR that ranges from high-single-digit to low-double-digit. When you think about that range, at the low end of that range is the economy forecast that S&P Global has. At the high end of that range is more robust growth.

Again, over the three year-period, we will invest in our franchise for growth and productivity. We will maintain a strong investment-grade credit rating. We will deliver value to our shareholders through dividends and share repurchases, and we will maintain an industry-leading return on invested capital.

To say that our team is excited and motivated to deliver on this service performance, this financial performance over the next three years, I think is an understatement. We are very confident in our ability to execute on the fundamentals of railroading. We have the strategy that is going to set us up for success and the UP team is ready to deliver.

So with that, I am going to bring the panel on.

Executive Team Q&A

Scott Group (Wolfe Research): Thanks. It is Scott Group from Wolfe.

So I want to try and unpack some of the pieces here. You have talked about 3.5% cost inflation going forward. Is there any way to think about, maybe Jennifer or Eric, how much of that we can offset with productivity? And then on the pricing side, Jennifer, your comment about price becoming accretive to the OR. Is that simply a view of inflation slowing, osr do you actually see an opportunity for the price to improve given some of this legacy pricing contract opportunity, if that is the term you want to use?

Jennifer Hamann: Yes. So maybe hit the last part of your question first. Absolutely, we believe that we have further pricing upside from where we are at today. And that comes across a number of different things. It is a better service product. It is continuing to touch parts of our business that have not been touched. It is market recovery on the truckload side. And then it is just also getting back and retouching some of that business that we maybe while we priced and we got increasing price from it, it maybe was not quite the level that we needed relative to what is happened with inflation. So it is kind of D, all of the above, is really what it is there, Scott.

On the inflation side, we do see it coming down a little bit. Anyway, the inflation side, that really is something that we always task the team, is to offset some of that with productivity. So that is not a new thing. However, that is where we see the inflation coming in, is at around 3.5%.

Eric Gehringer: I think you covered exactly it with the closing comment. That is what you heard from the team today and me today. When you think about that portfolio of initiatives, especially that particular quad chart that talked about workforce productivity, locomotive productivity, that is at the forefront of those opportunities. And Scott, to your point, with volume growth as we plan, that is important for us to be able to capture even more productivity in all four of those fronts.

Jonathan Chappell (Evercore ISI): John Chappell, Evercore ISI. Jim, maybe Eric as well, there has been a lot of talk about labour. We have talked about you going on your own, and we have like, the work rest, and we have the paid sick leave, etc. However, in some side conversations, you have talked about other things that you are looking for in the negotiation. So there is so much focus on this. 3.5%. It may end up being a ceiling, it may end up being a floor, whatever the case may be. Can you just go into a little bit more detail on what you are looking for in these negotiations, the optionality you get, the flexibility you could potentially win despite the number, and what that means for you with capacity, with growth, and with margin?

Jim Vena: Okay, listen, it is pretty simple. It could be a 20-minute answer if you wanted to get into all the detail of what we are looking at, but if we want to frame it, is we congratulate the other railroads that have signed contracts and they feel comfortable with what they have, and they are going through the ratification process, and hopefully it all works out for them. For us at Union Pacific, we understand where the increase is going to be in wages. Some of that has already been agreed to by others. However, at the end of the day, we are very, very set that we need to improve our service product. And you only do that with some changes in the collective agreements with all of them, not just the locomotive engineers and conductors.

So the SMART-TD, the BLET, but the rest of them. And we think it is best for us to negotiate with the entire package to be able to sit down and do that. And we are very, very focused on how do we do that in a cost-effective manner moving ahead, so that the wage increases are reflective of what is happening to the inflation in the economy and how we move ahead?

And remember, we are not late in this game. As Beth explained, notice goes out for the start of the negotiations in weeks, so not in days. And the last increase that we just put in at 4.5% last July is in place until 30 June of next year. So that is the way we think about it. And always everything that we do, we look at how we make Union Pacific better. And better is better service that drives increase in business and capability to price better. And making sure that our employees, who are the highest paid employees in the industry, so they get more money already that are properly compensated. So we draw in the right people and we are able to recruit, which we have not had a problem with.

So that is the answer, John. Sorry for the long answer.

Jairam Nathan (Daiwa Capital Markets): Hi, Jairam, I am from Daiwa. So Jennifer, you talked about a 15% IRR on buybacks. At the same time, Kenny, it looks like the payback periods on the investments that you made to get new business is pretty good as well. So just trying to understand, and it looks also that there is a lot of opportunities in terms of soda ash. You talked about renewable diesel. So how do we kind of balance these two as far as capital allocation goes? Would you need more investments going forward, and especially given that you kind of kept the CAPEX pretty much flat?

Jennifer Hamann: Yes. I mean, within the growth prospects that we see in the long term, that was all included in that capital range that we gave you of the $3.5-3.7 billion. And the reason maybe that feels a little low for some people is that you are maybe not fully grasping the additional capacity that we have on the network that we have created today.

So, no, I mean, we have created capacity, and obviously $3.5 billion, call it 25-30% of that is growth capacity that we are going to be putting in. So I feel very comfortable with the combination of being able to support the growth projects with the capital allocation strategy that we laid out and the buybacks.

However, as I also said, if there is a discrete opportunity that we have to take that is going to drive more business to the bottom line, UP is our best-returning asset, and we will invest in it.

Fadi Chamoun (BMO Capital Markets): Okay, thank you. Fadi Chamoun from BMO.

A couple of quick ones. One, on the revenue guidance side, you laid out a lot of interesting and details about the self-help opportunities on the commercial side. However, then when we look at the revenue kind of growth of the overall guidance, if we are assuming inflation is 3.5%, so pricing at or above that, and with the economic data that you put out, that revenue growth could be in the mid-single-digit easily, just based on those two metrics with high-single-digit.

What I am trying to understand is really what is the self-help contribution in here? Where is the growth in volume that is above the market being assumed? Because it feels like guidance is really driven more by the economy. And maybe the other piece of it, what is the incremental margin contribution you are assuming? I think in the past you talked about something in the 65%. I am not sure if anything changes here as far as mix goes, or as far as kind of inflation goes, if that ratio still is the right assumption moving forward.

Jennifer Hamann: So a couple of things there. So on the incremental margins, we have not put an exact number on at this go round, but we do think have the ability to grow with very strong incrementals. That is, that is part of the whole strategy that the team has in terms of growing train length, reducing our train starts and just being overall more efficient with how we move the business.

In terms of maybe if you are feeling like there is a disconnect there, I think there is maybe a couple things to consider.

Our guidance about revenue greater than volumes, I set aside any impact from fuel, and I also set aside coal. So if you are then trying to get to a gross revenue number, you do need to take into account that coal is a declining business for us, and that is likely not going to change over the next three years.

The other thing is mix. Kenny declined to answer the mix question earlier, but I will. We do see some of our strongest growth opportunities in the intermodal side of the world. And I just gave you some very specific information relative to international intermodal and the average revenue per car difference it has with the company average. Domestic intermodal is better than that, but it is still towards the lower end of the range. So I would say those are maybe a couple things that we need to factor in.

Chris Wetherbee (Wells Fargo): Thanks. Chris Wetherbee from Wells Fargo.

I guess maybe coming back to the self-help question there for a second, so I guess when you think about the potential macro implications, if we end up seeing below the range, I know you talked about $100 million of productivity. I think that was on a slide earlier in the presentation. What are the other levers that maybe you can pull to sort of improve that or maybe add to that?

And I guess maybe a separate question would just be back on the pricing piece, I guess. If you think about the pricing opportunity ex-truck, can you give us a sense, outside of the intermodal business, sort of what the types of improvements you are getting now, and if you can potentially get that acceleration in price, even if the truck market does not recover, say, in 2025?

Kenny Rocker: Yes, I will take the price. You know, as it stands today, and I said this explicitly, we are taking more risks, and the team feels more than comfortable with the amount of price that we are able to capture today, especially with the service product that Eric and the team have put out in front of us, especially with the investments that we were making. And you have heard me say this before on the earnings calls. Our customers also, they are experiencing the same inflationary pressures that are there, too.

So there is nothing that, you know, concerns me about our ability, our fortitude to go out there, setting aside the domestic truck market, to go out there and get the price over the next few years.

Jennifer Hamann: So then going back to your self-help question, I think I should clarify that $100 million plus, that was on the slide was just around technology. So that does not encompass all the process things that we are doing or other things that we are working on to drive productivity. So I think there is a lot of self-help opportunities that we are looking to explore across the board. And Eric, I know you laid out several, but maybe you might want to highlight a couple more.

Eric Gehringer: Yes, let us build on a couple more of them. So when you start thinking about cost per car handled in our terminal, that is one of our greatest productivities that our teams look at locally. When you hear us talking about things like level loading or moving touches, that is where you start to able to eke out that cost out of the system.

When you also look at it, and I mentioned it today, but I have got to mention it again because it is so important. I am not satisfied at 15.5 hours on our locomotive dwell. There are still opportunities on that front. Yes, opportunities in some areas may be bigger than others. That is still an opportunity for us as we continue. And then we push our teams, whether it is in the mechanical team, the engineering team, we want them to continue to get more and more efficient in how they repair our infrastructure, our locomotives, our cars. That is going to continue to be an opportunity for us with or without technology.

Walter Spracklin (RBC Capital Markets): Yes, thanks very much. Good afternoon or good morning. It is Walter Spracklin, RBC Capital Markets. My question is on your labour force growth over the three year period that you have outlined, is with your productivity improvements that you are achieving, do you expect to get labour growth to come in below the volume growth that you are expecting? And perhaps give us some indication around that, that cadence of growth in your labour force over the next few years.

Jim Vena: Our position, Walter, is pretty straightforward and you have seen it with our results over the last year. I think we are doing a good job of right-sizing with where the business is, and we will continue to do that.

We do not see ourselves growing anywhere near the amount of business that comes on the railroad and have a one-for-one increase in the number of people that we need. In fact, we see a substantial decrease as we move ahead. And that is our focus.

And I think we have shown that we can deliver that already with us now being under 29,000 employees. We need the right number of employees to operate the railroad. This is not about chasing a number. This is about doing those thousand things that we look at. Can we use different processes in the management team? How do we look at billing? How do we look at customer contact? How do we look at real estate? How do we look at operating our trains every day, our yards every day? How do our locomotives turn? Can we do them faster and still get the same quality? Can we use other rail cars? I could keep on going here for 15 minutes. So we look at that every day to see how we can be more productive. And that is why I am very comfortable with what we have done, and we will continue to do that as we move ahead.

Thanks, Walter. I love that question. I was ready for it, Walter.

Ravi Shanker (Morgan Stanley): Thank you, Ravi Shanker, Morgan Stanley. Jennifer, if I may follow up on the pricing question.

You said that you have not, or customers have not given you enough pricing to offset the inflation you have seen so far, but is there a risk that as inflation starts to come down, you may get some pushback from customers saying, inflation is coming down, so why should we give you that pricing back?

And maybe, Jim, very quickly to you as well. If macro in the next three years is weaker than you think, how do you think about balancing your commitment to industry-leading OR versus growth? Thank you.

Kenny Rocker: Let me jump in on this price first. So, Ravi, we do not lead with cost when we are talking price with our customers. We have never done that. We will not do that in the future. Yes, we can talk about inflationary pressures, but we do not lead with that.

The fact that we have got a solid, consistent, reliable service product out there, the fact that we can point to them and show them the investments we are making and to be reinvestable, we have those conversations with our customers. So, no, I do not see as the inflationary pressures change or move a little bit, that is stopping us from going out there and achieving what we need to do to maximise price.

Jim Vena: The only thing I would add, Ravi, on price is, I think, the value we provide our customers in a lot of segments, when we look at how they are doing themselves in those segments, allows us to be very bullish that we can price because of the value of the product that we are moving and the service that we are providing. That is why if we are not providing the service, it makes it way harder for us to talk. So I am very comfortable with that.

And the question about the economy, it would be easy if you could set the world and say, the economy is going to grow at 2.9%, inflation is running at 2.01%, and the world is flat. Well,

we operate the railroad. It is not flat. We have some big grades. We need locomotives, and it is in the world, we do not know.

However, the way Jennifer laid it out was very important in that we want to structure the company financially, so we can go through the ups and downs. And our peaks, we want higher and our lows, we want not as low. And that is the way we look at it. And I think we have the company and the talent. The reason I did not spend 2 hours up here, which I could have, people have heard me go in the company and they go, you going to get off the stage? So this because I wanted you to meet the talent of the people that are supporting that work with me every day to do that.

And OR, yes, OR is important to us. Yes, we want to be the leaders, but it truly is a result of what you do. If you focus too much on driving to a specific number, like if you came out and said UP is going to be a 55 or a 56 OR, you can make bad decisions inside the company trying to drive towards that number instead of looking about what we are.

This is what we want to do. We want to deliver to our shareholders like we have in the last year. The last year, our shareholders have been able to get a return of 16% if they invested to us one year ago today. I just looked it up before I came up on stage. And that is what you want.

You want a good return for our shareholders. You want to be sustainable. You want to be able to pay that dividend, and you want people to say they can go up and down and deliver us a good value. And I am very comfortable with where we are.

Now let us not fool around on OR, Ravi. We are going to be the best. Like, I am not playing this game to sit in the dugout. I want to get up on the 9th inning, bases are loaded, we are down three, and I want to hit the home run. Other people want to do whatever. That is not my world. And this team is the same. Otherwise they would not be up here with me. Thanks for the question. I like that.

Thomas Wadewitz (UBS): Yes, great. Thanks. Tom Wadewitz from UBS. So you gave us the guidance, and what is the right underlying assumption we should have on volume? Is it like 1-2%? Or are you thinking a bit better than that?

And then I guess the second question, Jim, for you. You started off with talking about redefining possibilities, and you talked about Mount Everest. What is the Mount Everest for UNP? Is it we are going to just defy the industry's low-volume growth and grow volume better? What would you say is something that would be new possibilities that you try to achieve at UNP that is the Mount Everest? Thank you.

Jennifer Hamann: So on your volume question, Tom, I specifically did not give a number to that, just like we did not give a number coming into 2024 because our crystal ball is not quite that refined. Because I could have given you a number and I would have been dead wrong. I mean, the best example is international intermodal.

We thought our international intermodal volumes were going to be down maybe double-digit this year, and they are up double-digit. So we just have to be flexible and nimble to handle whatever comes our way. You see the base case assumptions, but, you know, put a point or so on top of that, whatever you want to do, but we are going to handle it, and we are going to turn it into profitable growth.

Jim Vena: You want me to answer that last piece? All right. Oh, yes, sorry. I love it. He does not want me to answer. I am going to the next question. This it is like a political forum, you can talk about something completely different.

Why did I have that slide up? Is, yes, I talked and I spent a little too much time in the very first opening. And I do, even though it went to zero, I want to try to get us on time. And we are stopping at 11.30. Because some of you have to go. So we are going to finish the questions, and I want to tie up for a couple of minutes.

What we look at when I put that up is what is possible. And if you think about the history, it is not Roger Bannister was up there when he ran the sub-four-minute mile. And humans, for the longest time, thought it was physically impossible to do things. So the win for me at Union Pacific is when I walk out the door and I came in with one box of things, I am going to maybe walk out with two boxes. I am not one of these guys that wants a bunch of trinkets on the walls. Okay, so I am going to walk out with my two boxes. And if we have a team that optimises what is given to the railroad, that is a win.

That is what we want. A team that can handle the adversity that happens in this business. Things happen like, who the heck thought we would have a hurricane hit us in July? It is a little early. So at the end of the day, the resiliency and how fast we recover and we can show our customers and the country that we are doing our part to grow and be part of the US economy. That is a win. And having the right-sized company with the right amount of people talented that we can win.

I am going to go on my sunset and I will drive around the UP mainline there when I am going to hike up in the park outside of Tucson, not that far from my house. And I will watch those trains. And do not worry about it. I will count the number of cars, I will count the locomotives, and I will time it to see how fast it is going, or I am going to the next Board meeting. That is a win for me, Tom. Okay. Thank you.

Ken Hoexter (Bank of America Securities): It is Ken Hoexter from BofA, again. Thanks for the presentation. And Kenny, I will take it. Thanks for the AC.

The greatest growth on your lower or average-yielding product, as you were highlighting international and modal, but yet you still see revenues outpacing volumes. So I guess we are talking about the legacy contracts catching up. You are talking about improving productivity, the best OR in the industry.

So maybe, I do not know, Jen, can you talk about thoughts on incremental margin targets? Is that something you are comfortable addressing here? And then near term, I just want to understand your messaging. Just given the international intermodal growth, is that bad for margins near term? Is that the signal you were trying to talk to?

Jennifer Hamann: For the international intermodal piece, it is a couple things. It is the revenue and it is the margins. And where I specifically made my comment was the fact that the view that we have that long term, we should be able to grow our revenues in excess of our volumes. When you have international intermodal up 30% in the quarter and being the main driver of your growth, it is hard to achieve that target. So that is where I made that comment and that is what I was getting at with that.

In terms of incrementals, we are not going to give you a specific number, but I think what you should be able to see us do is return to maybe more historical incrementals, maybe a little bit better than that, as we are driving growth efficiently across the network. That is the expectation that we have for ourselves.

Closing Remarks

Jim Vena

Chief Executive Officer, Union Pacific

Introduction

So, listen, I said I was going to get you all out on time, and we will do that 11.30.

First of all, thank you for coming. Second is there was a lot of people that put together, you think about getting that steam engine down in place. That crew worked until very late in the evening and after midnight to make sure that thing, that big steam engine looked positive. I cannot believe so many of you, when I went around last night, talked about what was the best part of the day, and you said, the steam engine. For me, if something is sitting, I do not love it. So the only time I like it is when it is moving. However, that is fine. And it was a lot of hard work, and you could see the quality of the team we have that put this event together.

I think the team did a great job of trying to show you who we are, because that is very important. And I am going to get some feedback, talking to some people that I know, and one is my wife, and she will give me feedback on whether we are doing the good job for investors, because that is the way she looks at it. She is looking purely at the result.

Key Investor Takeaways

If we look at what we did and what we laid out today, we laid out a very reasonable plan that we want to lead the industry in returns. We laid out some detail which we do not normally do on an annual basis. And we talked about the $4-5 billion in share buyback.

We talked about industry-leading OR. We talked about earnings per share, high-single digits, the low-double digits. I am very comfortable that we can spend right and make sure that on the cost side we will improve. And I am very comfortable with how the service levels are running and what is possible for this company. We can beat in the marketplace anybody else that is playing against us. That is the challenge.

However, do not kid yourself. I understand we have to look at the regulatory environment. We have to look at the governmental environment. We look at how we deal with communities that we operate through, and we handle those things on a daily basis because it is very important to do the right thing.

And we also understand that we are owned by shareholders, so I think we have covered every one of those. We have a company that is going to deliver good, strong value for our shareholders. We are going to be very prudent in how we do things as far as the length of trains and how we operate, so that we lessen the impact about what is happening in the communities.

And we have to manage what is happening and make sure that the goals are very similar. The FRA goal is very similar. We want to be the best. The STB goal, we want to provide service at

a reasonable price, and I think we do that. So if we do all that, success in the next three years. And I am looking forward to doing this again in another three or four years. I do not think we will do them every year. Maybe we will do it before the guidance comes up.

However, I really appreciate you all coming in here. Thanks for all the questions. The questions were great. Hopefully, you have met the team. This is quite the team. I am very proud to work with all of them.

Thank you very much. Have a good, safe trip home. Thank you.

[END OF TRANSCRIPT]

EXHIBIT 3

PUBLIC VERSION - REDACTED
DOCUMENT PRODUCED NATIVELY

EXHIBIT 4

Corrected Transcript

22-Oct-2026

Union Pacific Corp. (UNP)

Q3 2026 Earnings Call

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MANAGEMENT DISCUSSION SECTION

Operator: Greetings and welcome to Union Pacific's Third Quarter 2026 Earnings Call. At this time, all participants are in listen-only mode. A brief question-and-answer session will follow the formal presentation. [Operator Instructions] As a reminder, this conference is being recorded, and the slides for today's presentation are available on Union Pacific's website.

It is now my pleasure to introduce your host, Mr. Jim Vena, Chief Executive Officer for Union Pacific. Thank you, Mr. Vena. You may begin.

V. James Vena

Chief Executive Officer & Director, Union Pacific Corp.

Thanks, Rob. Sorry, I'm rather fast this morning. I'm ready to go. I overstepped you, so hopefully I don't do that to everybody today.

Operator: No.

V. James Vena

Chief Executive Officer & Director, Union Pacific Corp.

I hope I am. We're ready to go here. So why don't we take a step back and think about where we are as a company and what we're doing?

So this morning, my wife, for whatever reason, got me up a little early, okay? So I had a little more time to look at the railroad real close. And the first thing I look at is, what's happening to the railroad weather-wise. And bottom line is, this is my favorite time of the year to railroad.

And Eric will tell you the same thing. You know, engineering programs are in a different place. The railroad is well setup. You don't have the extremes. Too much of an extreme of weather. And it is a beautiful morning here in Omaha. Absolutely gorgeous. I'll tell you, it's a great place to live and a wonderful spot. But so the railroad is good.

Now, the range of temperature we have is from the low-30s to the high-80s. But that's who we are. And we have thousands of employees out there right now, okay? Yesterday, we had 2.31 billion GTMs of product that we moved in this railroad. And all the people out there. And I got to congratulate them on the quarter that we had. So very excited to share with all of you, who we are, what we're doing?

And one thing we're not changing is the key pillars that we have. Safety for us is the foundation. And Eric will take you through some of the detail. But where we are this year on an injury rate improvement from last year, where we are in the derailment rate? Significant improvement from last year. That continues. All the work we've done is very exciting as a foundation of everything that we do.

And listen, safety for us is more than just a number. It's about people going home exactly the same way as they showed up when they came to work. And it's the movement of the goods that we have for America. We are moving products across the western states, and pretty soon, across the entire country. That just helps the economy and helps businesses move ahead.

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So I love where we are, safety. And I know Eric's got some more detail on that as we move ahead. And service, absolutely, I love where our service is, we're delivering what we sold the customer and what we agreed to. And operational excellence, I see numbers in detail that I had a chance this morning to spend probably a half an hour. Usually, it's five minutes on that show me that the number of cars that missed their plan, that we call 32-hour cars is like 15% lower with business up, the number of locomotives we have out there running and operating. Don't match the amount of business increase, meaning we have way less locomotives operating.

So much more efficient with them. The way the cars are turning, the car velocity is exactly the same as it was last year at this time, with increase in business to show the resiliency of our buffer and how we handle traffic. So I guess, if I don't stop there, I might as well just tell everybody to keep quiet and we'll just go to question and answers. But let me real quick tell you who's here with me.

Our Chief Financial Officer, of course, Jennifer's with me all – with me every quarter. Love having her here. She's next to me. Kenny Rocker, our Executive VP of Marketing and Sales, always in the right spot, right there to my right. And across the table, Eric Gehringer, our Executive Vice President of Operations. And I can't be prouder of what the team has done.

If we can turn to slide 4 and quickly review. So this morning, Union Pacific reported record financial results as net income totaled $2.1 billion and our adjusted earnings per share grew 15% to $3.53. Union Pacific's third quarter results demonstrate our ability to safely deliver the service we sold our customers, while efficiently handling 6% volume growth. Higher fuel prices were a big cost driver. But when we take out the impact of fuel price and merger costs, our core operating ratio improved 110 basis points from last year.

Now I'll let the team walk you through the results in more detail, and then I'll come back to talk about the Q&A, and maybe a quick wrap-up before we get into the – before we finish the call.

And Jennifer, all yours with some of the details on the financials, please.

Jennifer L. Hamann

Chief Financial Officer & Executive Vice President, Union Pacific Corp.

All right. Thank you, Jim, and good morning, everyone. I'll begin with our third quarter income statement on slide 6, where operating revenue of $7.2 billion increased 15% versus last year. Digging into the components of our growth further, freight revenue totaled $6.8 billion, up 15% on 6% volume growth. In addition, higher year-over-year fuel prices and the related fuel surcharge added 900 basis points to freight revenue.

Although our quarterly pricing gains continue to exceed our inflation dollars, that contribution from price was masked by business mix as nearly 75% of our quarterly volume growth was from domestic and international intermodal traffic. Wrapping up the top line, other revenue increased 21% to $384 million as higher intermodal volume contributed to increases in both accessorial and subsidiary revenue.

Turning to expense, our appendix slides will provide more detail as our total operating expense increased 15% to $4.3 billion, primarily from the higher diesel fuel prices. Compensation and benefits expense increased 4%, as cost per employee was up 5%, driven by higher wages, incentive compensation and training costs. Offsetting some of that cost pressure was a 1% decrease in head count, against that 6% volume growth, enabling us to generate our ninth consecutive quarter of record workforce productivity.

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Fuel expense grew 69% on a 64% increase in average fuel price and 4% higher gross ton miles. Year-over-year, our price per gallon increased from $2.56 to $4.21, and added 140 basis points to our operating ratio. Purchased services and material expense increased 9% as a result of inflation. Intermodal-related costs for our Loup subsidiary and the railroad, as well as costs to add surge locomotives to the active fleet. These increases were partially offset by lower year-over-year merger costs. Equipment and other rents declined 3% versus 2025, as we more than offset the impact of volume growth with lower car hire and operating lease expense.

Putting it all together, we had a record quarter with reported earnings per share of $3.49. Adjusted for merger costs, earnings per share totaled $3.53, and our operating ratio was 58.8%.

Turning to cash returns in the balance sheet on slide 7, our record financial results translated into 18% growth in cash from operations to $8.3 billion. Free cash flow totaled $2.4 billion after we reinvested in our network and increased our third quarter dividend 3%, the 20th consecutive year providing our shareholders with an annual dividend raise. We finished the quarter holding $3.1 billion between cash and short-term investments, and with an adjusted debt-to-EBITDA ratio of 2.4 times. We will continue growing our cash reserves in anticipation of closing the Norfolk Southern merger in the second half of 2027.

Looking out to the remainder of 2026 on slide 8, we are affirming our outlook of reported EPS growth in the high-single digit range versus 2025's reported EPS of $11.98. And as a quick reminder, that $11.98 included $0.30 from a fourth quarter land sale. We are also affirming our ability to continue improving our core operating ratio in 2026 and leading the industry.

Our 2026 reported operating ratio remains challenged by higher fuel prices, as we are currently expecting prices to average around $4.85 per gallon in the fourth quarter. We're also updating our capital spend to $3.5 billion for 2026, as we invest for growth and pull ahead some of the capital work planned for 2027. Overall, we're delivering strong financial results in 2026, as we consistently execute on the three key levers for our railroad success: volume, pricing and productivity.

I'll now turn it over to Kenny to provide an update on the markets.

Kenyatta G. Rocker

Executive Vice President-Marketing & Sales, Union Pacific Corp.

All right. Thank you, Jennifer, and good morning. We delivered a record revenue quarter with freight revenue increasing 15% to $6.8 billion. Excluding fuel surcharge, freight revenue grew 6% to a record $5.6 billion. That's a result of our team at Union Pacific winning in the marketplace, pricing to the value of our service product and executing for our customers every single day.

Moving to slide 10, let's talk about the key drivers for each of our business groups. Starting with our Bulk segment, revenue was up 10% compared to last year on flat volume. Grain and grain products was driven by strong export grain demand and continued growth in renewable fuels, ethanol and feedstocks. These gains were partially offset by lower wheat shipments resulting from a softer harvest. Coal and renewables volume declined 3%, as lower natural gas prices and elevated inventories weighed on demand.

Moving to Industrial. Revenue was up 14% on 6% higher volume. Our strong service product and business development efforts led to record industrial carloads and freight revenue, excluding fuel. We saw growth in all of our major commodity segments.

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Metals and minerals growth was driven by our construction project wins located in Louisiana and Texas. We also benefited from sustained strength in our domestic steel production. Energy and specialized markets growth was driven by business development wins across petroleum, non-metallic minerals, government and waste markets.

Petroleum products benefited from refinery utilization [ph] that remained (00:11:21) at near record level. Premium revenue for the quarter increased 21% on a 9% increase in volume and set a record for freight revenue and freight revenue, excluding fuel. Domestic intermodal delivered its fifth consecutive record quarter in both volume and revenue.

Our foundation of service, combined with strong business development and a deployment of buffer resources, enabled 13% volume growth. International intermodal volumes improved 8% versus last year, driven by strong West Coast import volumes and business wins.

In automotive, business wins offset continued market softness. We saw strength in auto parts driven by growth with our current OEMs, as well as over-the-road conversions with parts suppliers.

Looking ahead to slide 11. Grain and grain products is positioned for further growth driven by strong export grain demand and our ongoing business development efforts. We're also seeing a positive impact from new facilities, including Bunge and 5V, both in Dalhart, Texas.

Our industrial development pipeline in this market remained strong. In fact, I recently took part in the groundbreaking of a CHS's new crush facility in Evansville, Wisconsin, which we will serve. We also see continued upside from renewable fuels and feedstocks, supported by further policy certainty.

In coal, lower natural gas prices and elevated inventories will continue to be a challenge. Our pricing discipline and business wins are helping to offset some of the market driven declines.

Moving to Industrial. We are focused on winning new business and outperforming industrial production. In metals, we expect continued strength from our construction projects and domestic steel production.

In petrochemicals, we are excited to see the Golden Triangle Polymers plant in Texas, continue their commissioning and start up activities towards full operation. Concurrently, export demand for plastics is strong as customers respond to disruptions in global supply. Overall, we expect continued momentum supported by our strong service product and the investments we've made in the Gulf.

And wrapping up with Premium. Domestic intermodal is on track to deliver its third consecutive record volume year supported by over-the-road conversions and our service product. International intermodal has fully lapped last year's tariff volatility, and we expect volume to grow double-digits in the fourth quarter.

And for automotive, we expect business wins to continue to offset market weakness. While we delivered a record third quarter, our focus is to build upon that success. We remain committed to pricing to the value of our service product and capturing new opportunities across the network.

And with that, I'll turn it over to Eric.

Eric J. Gehringer

Executive Vice President-Operations, Union Pacific Corp.

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Thank you, Kenny, and good morning. The team operated at a consistently high level, safely supporting 6% volume growth, while providing strong service for our customers. By remaining agile and strategically deploying resources, we overcame weather-related and seasonal network challenges and improved network fluidity.

Importantly, we continue to be disciplined and committed to personal injury and derailment prevention efforts, as our employee safety and derailment rates both improved against our three-year rolling average.

Moving to slide 13. The majority of our key operating metrics improved in the quarter of 2026, even as carload volume increased 6%, reinforcing the importance of maintaining surge resources and highlighting the resiliency of our network. Freight car velocity increased 1% to 228 miles per day, driven by a 2% improvement in terminal dwell. This marks our fourth straight quarter of terminal dwell below 20 hours, demonstrating our ability to run an efficient network while handling higher demand.

We delivered the service we sold to our customers. Intermodal Service Performance Index finished at 92%, as intermodal volume grew 11%. We responded quickly to capitalize on the improving freight market by unstacking containers and utilizing our buffer of resources.

Manifest Service Performance Index finished at 93%, against best ever industrial carloads. While these results reflect solid execution, we continue to see opportunities to perform even better. We know what is possible, which is why our Service Performance Index is set to continually challenge the team by setting the threshold at our best monthly performance.

Moving to slide 14. Operating discipline and consistent execution of the fundamentals drove another quarter of record workforce productivity, record train length and record fuel consumption. Locomotive productivity of a 140 gross ton miles per horsepower day was even with last year's record third quarter. The active locomotive fleet increased 2% to handle 4% higher gross ton miles, demonstrating strong asset efficiency.

Additionally, we continue to benefit from our ongoing locomotive modernization investments and fuel conservation initiatives, as our fuel consumption rate decreased 2% and set a new quarterly record. Workforce productivity improved 5%, as our active train engine and yard workforce increased 1%, against 6% higher carloads. We remain diligent in our hiring approach, aligning resources with demand while delivering for our customers. And finally, we continue to safely increase train length, which improved 2% to nearly 10,000 ft.

This remarkable progress is supported by technology improvements and mainline capacity infrastructure investments that enhance network efficiency. These results are a testament of our unwavering focus on safety, service and operational excellence. The team is well-positioned to serve our customers and empowered to raise the bar in what's possible.

With that, I'll turn it back over to Jim.

V. James Vena

Chief Executive Officer & Director, Union Pacific Corp.

Thank you, Eric. Thanks, everybody. Great presentation on who we are and what we're doing. So listen, before I tidy this up and get to the questions, which is the part I'm looking forward to is the real smart questions we're going to get this morning. I'd like to talk about Jennifer or my favorite CFO and the person that's been by my side since I came back as CEO.

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I've known Jennifer and I met her first in 2019, and then when she took over as CFO in 2020. And she is grounded, tough, sweet – tough, delivers, listens and tough. So I find that to be a perfect mix. And she has delivered for this company for many years. And I have to thank her for extending her stay a year longer than when I came back to work. She was going to stay for a couple of years and then depart. And she's been with me for three years, and we'll finish off early next year. So I can't be more pleased that she's going to go enjoy herself and do things with her and [ph] Kippy (00:18:51) and enjoy life a little bit. I know she's going to miss me and she's going to miss this railroad. And who knows? You know, it's just October. So we'll leave it at that. But Jennifer, thank you very much for everything you've done.

Jennifer L. Hamann

Chief Financial Officer & Executive Vice President, Union Pacific Corp.

Thank you, Jim, for the very kind words.

V. James Vena

Chief Executive Officer & Director, Union Pacific Corp.

No, no, I speak truth. If you were awful, I would have just said thank you very much. Where you go? Go enjoy yourself and don't come, watch the door as it hits you in the back.

Jennifer L. Hamann

Chief Financial Officer & Executive Vice President, Union Pacific Corp.

I'd be gone by now is what I'm saying you know.

V. James Vena

Chief Executive Officer & Director, Union Pacific Corp.

So listen, Jennifer, in all seriousness, you've done a spectacular job for this company. Seeing all the things that it's been through, and you've been very helpful on the merger and everything else we've done, so congratulations to you.

But I wouldn't mind real quick, just, before I get to questions, summarize what you've heard and make sure that everybody's clear on and provide a quick update on the merger with Norfolk Southern.

Our third quarter results reflect the strength of our franchise and our ability to execute at a consistently high level. 6% volume growth and 110 basis points of core operating ratio improvement don't just happen. It's the result of a long-term execution of our strategy, and that is enabled record financials and reinforcing our position as industry leader.

Year-to-date in 2026, we delivered reported earnings per share growth of 9%, exactly in line with our outlook of reported high-single digit growth. We are focused on what's possible, delivered at the highest level and winning even more business.

As to the status of our merger with Norfolk Southern, the Surface Transportation Board published a procedural schedule. Based on the schedule, we should be reporting our first earnings as a merged company a year from now. We also have requested for the second time, ex parte communications. That's the lawyer talk.

Jim Vena talk is, we are more than willing to have open discussion with the STB for any information they need, or if anybody at the STB or others want us to take through all the detail in those 8,000 pages, because there is a lot

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of benefits for the country, for our customers, for our employees, and for the movement of goods seamlessly at a faster rate that's in that 8,000-page detail that we've given.

So we're hoping that they accept the ex parte and we're able to stop any of this that we're trying to hold back any information. This is the second time we've done that. And it's real important to think that we have always been open and willing to talk about. And we can hardly wait to see the November 18th openness from anybody that wants to put comments in about who we are and what we've been doing with the merger.

Now, we're very confident, the merger application and the information we provided are the most extensive and transparent merger record ever submitted, and it demonstrates through fact and analysis that the best way to enhance the US freight supply chain is through the UP-NS combination.

Our merger, as I said before, but I love to repeat myself on this, will deliver substantial, measurable benefits by strengthening the supply chain. It will lower transportation costs and provide faster, more seamless rail service options that enable our customers to compete and help keep goods affordable for American customers – consumers.

And you can see it every day, even with the latest announcements from some of our competitors, they know they have to up their game and be better to be able to compete against this railroad when we get the merger approved.

And with that, Rob, let's go to question and answers. Thank you very much.

QUESTION AND ANSWER SECTION

Operator: Thank you, Mr. Vena, and best wishes, Jennifer. Thank you. We'll now be conducting our question-and-answer session. [Operator Instructions] Thank you. And our first question is from the line of Chris Wetherbee with Wells Fargo. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good morning, Chris.

Chris Wetherbee
Analyst, Wells Fargo Securities LLC

Q

Good morning, Jim, and congrats, Jennifer. I don't want to imply we're getting old, but I think you and I have been talking for a very long time. So well deserved in your retirement. So wish you all the best.

I think, I wanted to start maybe big picture on the M&A side, Jim, just where you kind of left off, I guess. You know, how do you think about sort of the receptivity. I know in mid-November, we'll get some commentary from all the folks who want to sort of weigh in on the merger. And it'll probably be incremental to some of the stuff we've heard already from some of the other railroads. You obviously were very successful getting an agreement with CN. How do you think about potentially sort of staving off some of the other potential asks by further agreements? I don't know if there's any receptivity that you're sort of seeing out there from competitors or other folks in the industry. Want to get a sense of how you're thinking about sort of discussions that may be going on in the background with other folks in the industry?

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V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah. Chris, listen, I appreciate the question, and I can't believe you and Jennifer think you might be old, okay? I don't know, I woke up this morning. I was ready to run over anybody that was in my way coming into the office. And I'm a lot older than all of you guys, but that's okay.

But let's get to the whole M&A. So I think sometimes we have to make sure that we understand what it is that we're doing. This is an end-to-end attachment between the two companies that give the extent of a possibility of how people want to move. This is not a big overlap. We knew we had to fix some of the areas, a very small piece, the St. Louis, Kansas City and with Canadian National.

Listen, we have a deal that should be announced, finalized completely right away with all the t's crossed and the i's dotted, and the Tracy Robinson and her team have done a spectacular job of protecting Canadian National. And we've done a good job of protecting Union Pacific, and that deal is just about done. So I love it. But given that, really, there isn't a lot of opportunity to say, what do we trade? Are we willing to trade benefits for the industry? Sure. But there is not a lot of competitive benefit that we can – that we need to fix within the merger. And what we're going to deliver.

And listen, I've seen what people have asked for the very first one without the detail. And hopefully, there's nobody has their kids on this. I hate to tell people there is no Santa Claus, okay? So it's not a freebie. That you get to go in front of Santa Claus and wish for something that's going to happen, on December 25, okay, in the morning. And you get it delivered down the chute, okay? The fireplace – most places don't have real fireplaces anymore. So, it's fake. So what they're putting in, if they – if their dream is off, it needs to be fact based on what the impact is.

And it's pretty hard for anybody, anybody in this industry other than being selfish for themselves or trying to get something for free. And this is going to be a long answer. Even some of the unions that are against us, that are part of the coalition. I would ask the unions that are in the coalition if they've asked their partners, the railroads to guarantee a job for life for every employee like we have, okay?

So the benefits of what we're doing is across the board for consumers, for the nation, for our employees. And I don't think we're going to have a lot that we have to move. The STB was pretty clear when they approved the Canadian Pacific and Kansas City merger. They handed out no concessions to other railroads because there was no big overlap and movement. The pattern is set, and that's why I'm looking forward to go through this process. Chris, sorry for the long answer. Hopefully, I answered it.

Chris Wetherbee
Analyst, Wells Fargo Securities LLC

Q

Always appreciate the perspective, and best wishes, Jennifer. Take care.

Jennifer L. Hamann
Chief Financial Officer & Executive Vice President, Union Pacific Corp.

A

Thanks, Chris.

Operator: Our next question is from the line of Jonathan Chappell with Evercore ISI. Please proceed with your question.

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V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good morning, Jonathan.

Operator: Jonathan, perhaps your line is on mute. Okay. Mr. Vena, appears he may have lost his line. I'll move on. Our next question will be from Ken Hoexter with Bank of America.

Ken Hoexter
Analyst, BofA Securities, Inc.

Q

Hey, great. Good morning. Jen, congrats. It's definitely been a long time since we met back in 2002. So, thanks for all your help along the way. And best of luck in your next phase. You know, I guess, if I jump into – I guess looking forward, right, volumes are trending at double-digits quarter-to-date. So it looks like you've accelerated a bit, kind of a good job there, but maybe, Jen, dig into the outlook a bit for upper-single digit growth. You're raising your CapEx $200 million. You noted you used your surge resources. So, if that growth sustains, maybe thoughts on investments or capital going forward, ability to beat the targets and sustain, given your need to increase the investment and keep pace. And if you're using surge resources, do you have some left on the side, if you continue to get this strong growth?

Jennifer L. Hamann
Chief Financial Officer & Executive Vice President, Union Pacific Corp.

A

Yeah, Ken, thanks for the question and thanks for the well wishes. Yeah, we feel very confident that we have sufficient resources that we can deploy and continue to handle the growth seamlessly and continue to put up the great numbers, the record results that we have done so far. But we're wanting to make sure we maintain that surge buffer. And so that's what I was referencing in the comments around purchase services is we've put more locomotives into service to handle the growth, still hitting record locomotive productivity. But we want to maintain that buffer because if we get another leg up on the growth, we want to be ready for it.

Same with hiring. I think we've got, call it, 300-plus folks in training right now because we want to make sure we have those crew resources available. But we are getting to your point, great volume leverage. And that's what gives us confidence that we're going to be able to finish the year in a very strong manner, putting up high-single digit earnings per share growth. It's just been a great year. The thing that's been the variable that we weren't anticipating coming into the year is the high fuel prices. And certainly, that has an impact on our results, weighs on our margins.

But the team is doing a great job in working with that. When you think about our fuel conservation efforts and really the fact that rails are so much more fuel efficient than truck, that's actually enabling us to win even more business and bring it on to the railroad.

In terms of the capital, we look at capital over a multi-year period and some projects you can accelerate, some projects stall a little bit depending on permitting and all the variables that go into it. We had an opportunity, and I'll let Eric weigh in here to pull some things forward. And certainly, we had the cash resources to do it. And it just made sense to do that this year.

Eric J. Gehringer
Executive Vice President-Operations, Union Pacific Corp.

A

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Yeah. When you think about Ken, where we made those adjustments, Jennifer mentioned the locomotives. That's an important one. You know that we've been in multi-year contracts in our modernization overhaul of locomotives. And we saw some opportunity because of how well the railroad continues to operate to pull some of that forward.

And that's a down payment in the future growth that Kenny is bringing to the railroad. And then the others were some infrastructure related opportunities that, again, because the railroad is running so well, we saw the opportunity to pull some of those projects ahead. So – and I'm just going to reiterate Jennifer's point. When we said used, we didn't say used up. We utilized some of our buffer of resources of which we have many buffer resources still left across the board.

V. James Vena A
Chief Executive Officer & Director, Union Pacific Corp.

Yeah, I think you had 589 locomotives accessed this morning.

Eric J. Gehringer A
Executive Vice President-Operations, Union Pacific Corp.

That is correct.

V. James Vena A
Chief Executive Officer & Director, Union Pacific Corp.

289 stores sitting there wondering what the heck you're going to do with them. And the other one's ready to go, if we had bulk go up or AGRs or we had an issue. So Ken, I like where we are. It gets pretty exciting right now. Good question though, I love it.

Ken Hoexter Q
Analyst, BofA Securities, Inc.

Appreciate it. Thank you.

V. James Vena A
Chief Executive Officer & Director, Union Pacific Corp.

Thank you.

Operator: The next question is from the line of Scott Group with Wolfe Research. Please proceed with your question.

V. James Vena A
Chief Executive Officer & Director, Union Pacific Corp.

Morning, Scott. How are you?

Scott H. Group Q
Analyst, Wolfe Research LLC

Hey, thanks. Good morning. I echo those comments to Jennifer. Jim, do the comments from coaster change your view at all of deal approval? What do you need to do to get deal approval? And then just separately, Kenny, just the yield ex-fuel were flat and I know there's mix, but I think there's an expectation that with better volume, rising trucking rates, the rail pricing is going to accelerate. Is that a reasonable expectation? When do you think we start to see that? Thank you.

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V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah. Listen, I think you were asking me about the one of the four STB members that put out the separate note after they accepted the application and moved it forward. Is that right? Is that what you were asking, Scott? Sorry.

Scott H. Group
Analyst, Wolfe Research LLC

Q

Correct. Yes.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Okay. Bottom line is, if you take a look at what's in the application, there is benefits across the board and far of how we enhance competition, how we enhance the product for our customers, how we're going to be able to make it less expensive. If we're faster, if we remove touch points, every customer that uses our railroad that used to have to hand it off to somebody else is going to have a reduction in supply chain costs.

It is like automatic, it's basic business. We see that every day. And we see that every day, even today when we go hand off to a short line or hand off to somebody else versus the mileage and what we charge to be able to handle it on our own railroad. So that's a given. So listen, I always take people's position and I read it and I said to myself, I wonder if he used AI to summarize the 8,000 pages and all the detail or what. But he's a smart guy. So he has the position and we're clear, and we'd love to have the ex parte discussion with the board to take them through what the benefits are. It's up to them if they want to have that or not. But we're clear on what our case is, Scott. It is a benefit for this country.

And I don't know how many times I have to say it, and I'm not trying to say it to make sure people hear me, other than to say it's fact. Canada has two railroads that go across the entire nation. There's a reason for that, and they're not split up, even though some of them don't like it. One of them doesn't like us to have the same thing here. And at the end of the day, it's a benefit. And we are able to provide a better product to our customers. And that's what it's all about. And that's why this is going to be approved. I'm 99.999 sure that it's going to be approved.

Kenny, do you want to take the second half? You ready to go?

Kenyatta G. Rocker
Executive Vice President-Marketing & Sales, Union Pacific Corp.

A

Yeah. So, first of all, I mean, we don't want to lose sight of the fact that we had a record revenue year ex-fuel for Union Pacific. And we've done that in not just one area and a couple places that you heard in my comments. You know, it's a dynamic market when we're going out there to price, every day, we're competing against barge. We're competing against sourcing options. We're competing against truck.

There's a lot of competition out there that we have to compete against. And Eric and the team have provided us an excellent service product. And that's what we stand on. And so we're going to price to what the market can support. We want our customers to win. We want to win too, but we want our customers to go out there and win with the excellent service product that we have. So as the service product supports it, we're going to keep pricing to what the market can support.

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V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Thank you very much, Scott.

Operator: Thank you. Our next question is from the line of Jason Seidl with TD Cowen. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good morning, Jason.

Jason H. Seidl
Analyst, TD Cowen

Q

Hey. Thank you. Hey, good morning, Jim, and, I'll jump on the train for saying congratulations to Jennifer and thanks for putting up with guys like me for the past almost 25 years. I wanted to talk a little bit, sort of, about now that we're in the merits phase and we're coming up along the comments period.

Jim, can you talk to maybe some of the ongoing discussions to get more people on the side of supporting the mergers, whether they be customers or some of the unions that may not be supporting right now? Is this something that's ongoing? And could we expect some more, sort of, letters of support, or is this something that we're just going to have to wait for the comments and we're going to look forward from there?

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Well, I think it's important that we wait for the comments and see what everybody puts forward. And let's talk about the Union piece, because you raised it. Bottom line is no one has given a guaranteed job for life for any employee, unionized employee in the railroad industry, ever. Every employee. And it's amazing. So, what are we supposed to give? What else is there to give? We're going to grow the business. So, there's more employees that work because we're going to have a much more efficient railroad.

So – and the rail unions that understand that benefit signed up real quick. And I don't need them to sign up, because for me, it's more important on our employees. And sometimes I wonder whether the Union at the highest level is worried about their employees or worried about the employees. They're our employees that are unionized or they're worried about their union. You know, the teamsters. Listen, trucking is real important to them. And it's truly amazing that we have them part of the against coalition with railroads that have not guaranteed jobs. And in fact, some of them have been cutting people left and right over the last few months. And they still think that's a better model than being.

So I don't know how you make a deal there. And the merits will show that we have a great plan for our employees. We care about our employees, and we want them to win. So that's where I'm at with it. So I don't see us making a deal with anybody. Now, if it gets reasonable, if people want to talk, I'm good. On the customer side, we have over 500 customers that have written letters of support across the spectrum of. And we don't have very many, if any, just a little number of people that have actually gone into the STB and said, we're against it.

We have a lot of customers that we've met that say we want to go through and understand through the process, and I'm good with that. That's a smart move for some of them. But we also just had, in the last two weeks,

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customers that are in the chemical industry that put a letter of support for us, and they're actually single origination with us in Texas because they see the benefit of that handoff of not happening when we closed the deal with Norfolk Southern.

So sorry for the long answer, but I think from the customer side, big support. From the union side, our employees understand it. We just finished a survey of our employees and the feedback is about as good as it's ever been because they understand what providing. Think about it. We hire an 18-year-old because that's who we like to hire to be one of our people on repairing locomotives on the track, operating locomotives, tech people, everything else. And we say to them, you're unionized. You've been with us for one day. You have a job for life. And the average pay at Union Pacific all in with benefits is $160,000. I'm not sure about anybody else, but the – unless it's a rich cats, that might be all on this call. Okay. There's a lot of benefit for that, for everybody that works for Union Pacific. I'm not ready to hurt that.

Kenny, you got your hand up before you go, you get. Kenny's excited. He wants to correct something I said or what, Kenny?

Kenyatta G. Rocker
Executive Vice President-Marketing & Sales, Union Pacific Corp.

A

Hey, look, we had about 30 of our customers that are excited about the merger. They're going to be helping us with the integration process and the feedback is that they're looking forward to this happening.

Jennifer L. Hamann
Chief Financial Officer & Executive Vice President, Union Pacific Corp.

A

Yeah, I forgot that, Kenny. That's why I got Kenny and Eric and okay, Jennifer with me. I go on and I forget, so I'll try to shorten the answers because otherwise we're going to be here till lunchtime, okay? The way we go.

Jason H. Seidl
Analyst, TD Cowen

Q

I appreciate it, Jen. Thank you.

Operator: The next question is from the line of Walter Spracklin with RBC Capital Markets. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Walter, [indiscernible] (00:40:16).

Walter Spracklin
Analyst, RBC Capital Markets

Q

Yeah, thanks very much. Good morning, everyone. Yeah. Jennifer, echo as well. Congrats on the retirement. Wish you all the best. Perhaps, this is for Kenny. When we look at your intermodal volumes, they've been very good. We're focused a little bit here on some of the items that both you and Jennifer have mentioned on truck to rail conversion opportunity.

Can you, well, maybe trifurcate here between how that volume growth is coming in, whether you're seeing it mostly in economic – general economic, coming out of the freight recession type of driver, is it business wins or is

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it that truck to rail conversion? Just if you could size it for us, you know, an order of magnitude in those three buckets or if there's other buckets, I'm not mentioning here, but I appreciate if you give that kind of color.

Kenyatta G. Rocker
Executive Vice President-Marketing & Sales, Union Pacific Corp.

A

Well, this is great. I appreciate that question. I'm getting excited that I get to trifurcate the volume growth. Just take a step back. Remember, this volume growth has happened before. We saw the inflection and the acceleration of these diesel prices. So – and I said it in my comments, it's our fifth quarter of record growth. Over the last couple quarters, we've seen some things happen with the fuel. So yes, that has helped us go out and win some business. But before, like I mentioned, the service product is what has helped us go out and win that business five quarters ago.

And then lastly, you look at some of the investments that we made over the last couple three few years. They are paying off, as we thought, twin cities, Phoenix, modernizing Kansas City, Inland Empire. Having that capacity to grow the product with a strong service product has helped. We talked a little bit about resources. And Jim and I debate this all the time, what's the right buffer for our UP rail fleet? We have it. We're 100% on our mutual commitment program for customers on our rail box. But then on the boxcar side, Eric, you know, we're 100% – near 100% on car orders. So you put it all together, it's all of it. But it starts with the foundation of a strong service product. The investments we've made in the network.

Walter Spracklin
Analyst, RBC Capital Markets

Q

Appreciate that.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

[ph] Well, you keep that up, why don't you (00:42:44) just tell everybody what our strategy is completely, Kenny, okay? Just like. Thanks, Walter.

Walter Spracklin
Analyst, RBC Capital Markets

Q

You bet.

Operator: Next question is from the line of David Vernon with Bernstein. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Morning, David.

David Vernon
Analyst, Bernstein Institutional Services LLC

Q

Hey. Good morning, guys. Thanks for taking the question. And, Jennifer, congratulations and best of luck on the next chapter here. Kenny, I wonder if you could help us understand what's going on around – going on with the intermodal business in terms of profitability? It looks like the RPUs came in maybe a little bit lighter than we would have expected, just given where – what's happening in the truck market. I'm not sure if that's mix on an underlying basis. And also looks like accessorials are elevated and purchased services is a little bit up.

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So if you could kind of give us a sense for, you know, how the business is performing from a profitability standpoint and how you expect it to perform into 2027 as you get around to, maybe the contracts resetting some of the index-based pricing, starting to respond to what we're seeing in the truck market, catch up on fuel, that kind of thing? Thank you.

Kenyatta G. Rocker
Executive Vice President-Marketing & Sales, Union Pacific Corp.

A

Yeah. So remember, David, we saw a transition in what's going on with the truck rates and truck capacity, really over, call it, spring to summer, when much of the bid season was pretty much baked. Now we're going to have an opportunity as we move forward here end of the year for several months of 2027 to have a better opportunity with our service products that we have to support the inflection that occurred in the summer. So, looking forward, you would expect a better position, a better environment for stronger pricing.

Jennifer L. Hamann
Chief Financial Officer & Executive Vice President, Union Pacific Corp.

A

Yeah. And then, David, just on your questionnaire tying in the purchased services, I did reference intermodal volumes. So we've got our Loup subsidiary. So as intermodal volumes grow with them, we tend to see an increase in some of the drayage costs. That was part of it. You – certainly when you think about our intermodal ramps, they're primarily operated by third-party contractors.

As we're putting more volume through those ramps, you see some elevation there. But I think it's also important to point out that on the other revenue line, you saw a 21% increase growth year-over-year there. That really is intermodal driven as well, because that's the revenue that you're seeing come through on that subsidiary side, as well as some of the accessorials associated with our containers.

And one thing to recall for everybody is that what I think is a big differentiator for UP is not only do we have strong relationships with asset-based IMCs, we also work with the non-asset-based guys because we have our own intermodal box fleet. And that's what Kenny was referring to when he said, we've got all the players on the field, but that's been a big plus for us this year.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah, listen, thank you very much. Good question.

Operator: The next question is from the line of Stephanie Moore with Jefferies. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Morning, Stephanie.

Stephanie Moore
Analyst, Jefferies LLC

Q

Good morning. Thank you. Appreciate it. Maybe taking this into a different conversation. And first, Jennifer, thank you very much for all the help and working with you over the years. So, I guess maybe starting out, investors, I

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think are obviously slicing and dicing a lot of the freight data right now. And I think they're trying to form a broader view on the economy. You've obviously called out some pretty broad-based strengths across industrials. And I think, maybe beyond data centers, what are you hearing from customers about demand through the rest of the year.

And then on the other side of this, given what we've seen this as of late in the food and beverage side, maybe being a little bit softer, do you think that's idiosyncratic or do you think that, maybe you're seeing something early on in terms of just the broader consumer? So any color on the volume environment would be great. Thank you.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Stephanie, so let me start and then pass it off to all three of you that want to comment. Bottom line is, it's nice that we see strength in the industrial market. And industrial for us goes across products that Americans use to build things, to move things, to tidy things up, whether it's steel, you name it, is there, including our Premium business and our Bulk business is pretty good, right, so the movement of all that.

So all that, it goes across the section and we have not seen or any indicator of the consumer slowing down that the consumer spends. Is there parts of the economy that are probably facing the higher inflationary pressure? Absolutely, there is, but there's a big piece still that are spending money and going out and buying. And, that's what we see. And Kenny, do you want to or any of the rest of you get more detail?

Kenyatta G. Rocker
Executive Vice President-Marketing & Sales, Union Pacific Corp.

A

I just want to really more or less talk mindset and the results. I mean, we don't come in and say, hey, the economy is tracking that one way and, oh, well, as we want to outperform the macroeconomic indicators. Industrial production up 1%, industrial team up 6%; automotive down 1%. You've seen the finished vehicles and parts up in the positive. Same thing with the housing starts. They haven't been where they want, where we like them to be, but we're going to outperform the macroeconomic indicators. So yeah, we want to pay attention to it, but our goal is to outperform it.

Stephanie Moore
Analyst, Jefferies LLC

Q

Great question. Thank you very much.

Operator: The next question is from the line of Jordan Alliger with Goldman Sachs. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good morning, Jordan.

Jordan Alliger
Analyst, Goldman Sachs & Co. LLC

Q

Yeah, good morning. Hi. I just wanted to come back to fuel in light of the energy volatility. Maybe talk a little bit more about what you can do around fuel efficiency, ability to improve on that. And then in light of the volatility, any

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impact on the third quarter drag, can you maybe talk to how you're thinking about the fourth quarter and the fuel impact? Thanks.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Let me make one point and then Eric and Jennifer or Kenny, but especially the two of you get through this. Bottom line is, this is the way we are. Railroads are much more efficient. It costs us way less per ton to move product across the US. So when fuel prices go up, it's naturally an advantage. What we need to do is show all those customers that are trying us now or deciding they're going to do this that our service level is high enough that they should stay with us and not all of them will as they drop.

But bottom line is, we see a time for us to show what a high level of service is, what consistency is in movement and the cost structure can be better for them, and it's better at the end of the day for the final consumer. So I like where we are, and we'll deal with fuel – with the fuel surcharge. We've got long-term programs that we go in and out with. And I think it's good and it's clear and our customers understand where it is. Eric?

Eric J. Gehringer
Executive Vice President-Operations, Union Pacific Corp.

A

[indiscernible] (00:49:42). Building on Jim's foundation, so then you start thinking about the specific initiatives we have. Now we're a little bit different than other railroads where other railroads start by talking about initiatives, we start by talking about the fundamentals, because when you're trying to conserve fuel or generate productivity or generate capacity, it's not about initiatives first. It's about the fundamentals.

So when you see us increased the fleet by 2%, but we're handling 4% higher GTMs in the quarter, that's us executing on the fundamentals. When you see us grow train length 2% to nearly 10,000 feet, that's us executing on the fundamentals, that also saves us fuel. Then on top of that, we've got our technology portfolio from our energy management system to our precision train builder that dictates the use of locomotives and route to even when we think about how we manage the locomotives inside the terminals at 14-hour dwell, which was also a 2% improvement in the quarter versus previous quarter – same quarter previous year. We're doing all the things you would expect us to, Jordan.

And then we wrap around that as one last layer, our perpetual dissatisfaction with our performance, always challenging ourselves to look for what's the next thing, whether the next thing is new or doing more of the thing that's already making us successful. And in the quarter, it netted out a 2% improvement in our fuel conservation, but we're not done.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

So you're actually doing something out there. I appreciate that, okay? Listen, great results, and I love the detail on what we're doing specifically to – if you stay the same, you burn fuel at a certain level, even if your locomotive is more efficient with the money we're spending on them. But if you can operate the same amount of business with the same amount of locomotives and a larger train size, we end up winning less cost, more efficiency. Love the story. Well done, Eric.

Jennifer L. Hamann
Chief Financial Officer & Executive Vice President, Union Pacific Corp.

A

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Yeah. Just the last point of your question there, Jordan, in terms of how do we see that impacting the fourth quarter. So, you heard me say that we're looking at pricing right now in terms of fuel prices for the fourth quarter to be around $4.85 a gallon. That compares to $4.21 that we averaged in the third quarter. So, at this point, I would say we're probably going to see a little bit greater impact to fourth quarter.

And we said it had about 140 basis point drag to us in the third quarter. So, that's how I would look at it sitting here today. Obviously, if we see a change in fuel prices, we'll update folks, but that's the current lay of that land.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah. Listen, thank you very much for the question. Great question. Thank you.

Operator: The next question is from the line of Ari Rosa with Citi. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Ari, how are you this morning?

Ariel Rosa
Analyst, Citigroup Global Markets, Inc.

Q

Hey, how are you, Jim? Good morning. And congrats to Jennifer. Echo everyone else in appreciating her contributions.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Ari, can I stop you there? This congratulations for somebody retiring, I don't understand, okay? Like, it's much more fun to work than to be retired. I thought if anybody should be, congratulation Kenny, Eric, and Jim that we're still going to work. Like this idea of congratulations to retirement, I have no idea. But go ahead, ask the question. I'm good. Retirement, thank you.

Ariel Rosa
Analyst, Citigroup Global Markets, Inc.

Q

Fair enough. Well, Jim, I know you're signed up for many more years ahead. So, it's good to hear. I'm sure a lot of folks will be encouraged by that. Jim, just going back to the merger, I'm curious what you say to customers who say, look, I understand the benefits – the efficiency benefits that come from – from not having to switch between railroads, but are concerned about the downstream merger effects and what happens with kind of that wave of further consolidation that could follow? If that's the big concern that customers have, what do you say in response to that?

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

I'll tell you. When – and I've sat down with a lot of customers, okay? Top 50 customers, I've written them a letter, specifically to their CEOs, ask me any question you want and I won't get into the detail with everything. I have met, Kenny, I could probably pretty fairly say between you and me, hundreds of customers. And we talked through.

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And actually, once we go through the detail, they go, son of a gun, okay? This sounds pretty good. They understand that every commodity that we move for them is competitive against another shipper. And it's driven by what the market is or even they understand that it's competitive against the world, whether it's soybeans going to Mexico, whether it's corn being exported, whether it's steel products. So, when they see the efficiency that we can give, they understand it and they see it.

Now let's talk about the next step. It's pretty straightforward. You can see what we're going through with the STB. It doesn't matter what people think. First of all, the Berkshire who actually is the company that owns the subsidiary, Burlington Northern, has been pretty black and white that they don't want that merger.

I don't know how they change, okay? They've been spending a lot of money. I just got a seven-hour deposition with their lawyers, okay, talking about every freaking question in the world. And they say they're against it. So I don't – in my lifetime, if they're against it, it sure won't be with BNSF, it's going to be with somebody else.

But let's say, they get religion. They still have to go through the process and prove that they're not – they're going to improve. I'll be honest, I have no problem with them if they merged. If CSX and BNSF merged, I think the customers and the US would get a better product and they – you would win against the world.

So, that's where I'm at with it, Ari. And I tell you, when I go through that and I'm not nervous and we give them the facts of what we're in that application and what we're doing. I hate to tell you, most of them go – well, we'll still go through it, but we see the benefits of what – Kenny, maybe you can add something that I'm missing there.

Kenyatta G. Rocker
Executive Vice President-Marketing & Sales, Union Pacific Corp.

A

Yeah. I mean, I believe we do a good job of personalizing the discussion with the customers. You got some customers, that, boy, they've got 10,000 railcars, and then you have that conversation about the fleet savings and that matters to them. You have some customers that have to pay dray costs at the interchange, and you have a conversation with them and they understand the benefits. You have other customers that want to compete, as you mentioned, globally and have optionality, whether it's PNW, the Gulf, competing with barge. So, I know the customers see the value that's there.

Ariel Rosa
Analyst, Citigroup Global Markets, Inc.

Q

Yeah. You bet.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good question, Ari. Appreciate it.

Operator: The next question is from the line of Brian Ossenbeck with JPMorgan. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Brian, how are you?

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Brian P. Ossenbeck
Analyst, JPMorgan Securities LLC

Q

Hey. Good morning, Jim. Good morning, Jennifer. Jennifer, I'll give you also congrats, but also, I know you like talking about the quarterly. Well, wait for a second here, Jim. I know you like talking about the quarterly OR cadence. So, I know you're going to miss that. So maybe you can walk us through that for the fourth quarter, some of the puts and takes and give us a little bit on fuel.

And then Jim, for all the other stakeholders that we've talked about here, one thing we haven't heard too much about it, I don't really know your level of interaction, but would just be like the DOJ and maybe the DOT, but they're on a little bit of a different track obviously, different entities. It's a lot of history there. So, we'd love to hear any context you can provide with your interactions with them, because their comments are due, I think, sometime in early December. So, thank you.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah. Listen, Brian, you're a smart guy. You work for one of the biggest bank in the world, if not for sure pretty close. So, you guys have a lot of history of how the regulatory environment works. Pretty simple. The STB is the regulatory agency that will review and decide how we move ahead. The DOJ has the right to put comments.

In one sense, I would have liked the DOJ process, because it would have been done already, okay? But we go through the STB process. So, their comments are going to come forward. Have we had meetings with them? Yeah, they want to learn about the railroad industry and what we're doing. And when they put their comments on, which we have sat down with them, and we'll continue to answer questions of anybody, Department of Transportation or DOJ so that people can get facts, because there's a lot of miss facts out there, or people just don't understand what the true facts are. So, at the end of it, that's what we've done. The rest, Jennifer?

Jennifer L. Hamann
Chief Financial Officer & Executive Vice President, Union Pacific Corp.

A

Yeah. Brian, in terms of fourth quarter OR, so you heard my comments relative to fuel. Obviously, when you think about seasonality, you do tend to have some seasonal changes going with second and third quarter where you tend to have your highest volumes of the year. That's where you tend to have your greatest ORs. We'll likely see, well, very strong growth here continuing on in the fourth quarter.

Just on an absolute basis, probably a little bit of a seasonal step back when you consider the holidays and everything that happens in the fourth quarter. So, you obviously need to take that into consideration. But I think the important point is on a core operating basis, you have seen us make year-over-year improvements to our core OR, and that's going to continue. We have a great line of sight to being able to continue to very efficiently move this volume growth, and that will enable us to continue to improve.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

You bet. Thank you very much, Brian.

Brian P. Ossenbeck
Analyst, JPMorgan Securities LLC

Q

All right. Thanks, Jim. Thanks, Jennifer.

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Operator: Next question is from the line of Tom Wadewitz with UBS. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good morning, Tom.

Thomas Wadewitz
Analyst, UBS Securities LLC

Q

Yes. Good morning. And Jennifer, I'd just say thank you and wish you well. Pleasure interacting with you and benefiting from your insights over the years. Jim, I just got to say I'm a little more optimistic on Santa Claus than you are. But anyways, a little more of a fan. But maybe...

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah, but you know who Santa Claus is, right? It's not real.

Thomas Wadewitz
Analyst, UBS Securities LLC

Q

Yes, yes, I guess so. All right. So let's see. I understand.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Sorry about that, ask the question, I apologize.

Thomas Wadewitz
Analyst, UBS Securities LLC

Q

No, no, no. I'm trying to add a little here. I think your position is pretty clear. Your single-line service is a strong benefit. That's a compelling driver for the merger, and you got some other elements in there. But let's say that there are potential elements of consideration for the constituencies, kind of labor shippers, railroads. How do you think short lining is a component of what you would want to do in the future? Is that important to say, hey, there's some branch lines inefficient and we'd like to have flexibility? Or is that something that's not really important? I'm just thinking that's a point of potential negotiation.

And then with respect to the CN deal, does that preclude you from giving access to another railroad on that St. Louis to Kansas City? Or is it like if you wanted to do that, you really could?

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Well, we can do anything that we can control, Tom. But at the end of the day, the Canadian National deal fixes that issue of a little concentration and overlap on that piece. And listen, Canadian National is a very good railroad goes across Canada, goes all the way to the Gulf and it's going to give a lot of opportunity for customers in there when they serve them to compete against us, and we're looking forward to that.

So we're pretty comfortable with where we are, but we always are willing to listen. And you said something about short lines, and it sort of sounded like you thought maybe we would short line more. No, we are not going to sell

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off pieces of our railroad, large pieces to anybody, okay? I've always found that – in fact, I found that short lines are really good at some things. But listen, if you take a look at the way short lines work and what they do, we should be able to do that ourselves, and we do that every day on our railroad. So we're pretty good at dealing with customers.

We're pretty good at growing the business and a lot of the business that's being given, and we see the short lines that we have attached to the Union Pacific and Norfolk Southern will grow because of the business that we're going to grow on the railroad. But listen, it's a bigger picture. If you step back, short lines in the United States of America do receive a lot of funding from the federal government per mile and tax breaks that put them in a different place in how they operate. But that's not enough for me to think – and if you think about it, they get $3,400 a mile for every railroad. And some of them are not small mom-and-pop railroads anymore.

I think Genesee & Wyoming bought – was bought out by a couple of foreign investment funds for $8.5 billion. So even though they own over a 100 short lines, they're the – okay, that's really not a short line. It's a big railroad, a big piece of business. So I'm not into selling to somebody else our railroad unless it allows us to grow more business and to be able to deliver a better product for our customers. And I think Union Pacific, with where we are operational efficiency, where we are with assets, where we've invested in our railroad, most of the time we want to keep everything internal and grow and be able to manage it ourselves, Tom. So hopefully, I answered the question.

Thomas Wadewitz
Analyst, UBS Securities LLC

Q

Yeah, maybe just another component. Any thoughts on like, are there active discussions with the parties? Is there a phase when you might expect them to become more active with, you know, what you might offer, whether it's shippers labor, other railroads?

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Listen, I'm willing to talk to anybody, but at the end of the day, it has to be a good reason. It can't be just because I want it, okay? So let's go back to the Santa Claus piece. Right now, they've put a piece of paper out that says what they want from Santa Claus. Santa Claus is not real. So, we're going to look at it. But I have to wait to see what factually they can put in on the November 18th deadline to see if there's an issue there that we've missed. I don't think we've missed anything, but if there is, more than willing to talk.

And I'll be honest, you know, even though I've known some of the CEOs at the other railroads and some of the people below them for a long time, for some reason they don't talk to me very often anymore, right now. I don't know, I'm still a nice guy, right, Jennifer. But, you know, they've got this coalition against making America better. They have a coalition that won't give the employees a guaranteed job for life. It's truly interesting, Tom. Truly interesting. I love where we are.

Thomas Wadewitz
Analyst, UBS Securities LLC

Q

Okay, great. Thanks for the time, Jim.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Thank you.

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Operator: Our next question is from the line of Jonathan Chappell with Evercore ISI. Please proceed with your question.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good morning, Jonathan.

Jonathan Chappell
Analyst, Evercore ISI

Q

Good morning. Can you hear me? [indiscernible] (01:05:00), Jim.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Hear you. Perfect.

Jonathan Chappell
Analyst, Evercore ISI

Q

All right. Great. Sorry. I don't know what happened before, but I was doing some damage control with my two young kids explaining to them about, Mr. Vena, just lying about that Santa.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

[indiscernible] (01:05:09), I apologize. Are you serious? I apologize.

Jonathan Chappell
Analyst, Evercore ISI

Q

No, I'm not serious. They're at school. They do believe, but they're at school. And that was all [indiscernible] (01:05:18).

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah, good. So don't let them hear me, okay? I'm worried about my grandkids. If my wife was listening, I'm going – after I said that. I said, holy cow, I could get myself big trouble at home. That's not the place I want to be in trouble, okay? Go ahead.

Jonathan Chappell
Analyst, Evercore ISI

Q

No, I'm not going to let – I'm not going to let my nine-year-old read the transcript tonight, like, he typically does. But anyway, I don't know who wants to take this, maybe Eric, but nine consecutive quarters of workforce productivity. You're investing more now with your capital envelope. Kenny talked about intermodal, basically going from strength to strength. It seems like the West Coast ports are setup really well. At a certain point, do you reach a hurdle where ringing out more workforce productivity becomes more difficult as you shift more top line volume growth? Or is this just kind of an evergreen opportunity that may ebb and flow, depending on where we are in the cycle?

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Eric J. Gehringer
Executive Vice President-Operations, Union Pacific Corp.

A

Yeah, thank you for that question, Jonathan. You know, I don't think it's either one of those, because when you think about the way that we think about productivity, you know, the driver behind why we focus on it is to ensure that we're putting Kenny in the team and the best possible position to compete in the market. And no matter what the markets are giving us, no matter what the railroads like, that's always going to be with us. There's always going to be a drive and a strong commitment to put Kenny and the team in the best possible position.

Now, if you think then within that and you say, okay, now what do we think about workforce productivity as we look out? I still see opportunities. Hell, before I came to this call, I had two phone calls this morning. We were talking about things that are related to workforce productivity. So even on a daily basis, we see opportunities. And then what you've seen us do and you'll continue to see us do is, as I mentioned with Jordan's question, focusing on the fundamentals, that's perpetual, we will never stop doing that and then the technology side.

Jonathan Chappell
Analyst, Evercore ISI

Q

Keep on going.

Eric J. Gehringer
Executive Vice President-Operations, Union Pacific Corp.

A

Yeah, the technology part, you know, we don't – we talk a lot about it. We don't necessarily always talk a lot in detail. But when you think about the technology side, right, it's first designed to improve the decision making of our frontline leaders. And we've talked about a lot of results here today.

All right, well, all the four of us are part of it. The reality is the 29,000 people out in the field that are switching boxcars, fixing track, fixing cars, they're the ones that actually made the results happen. And so if you can give them, which we have and you can continue to empower them to make even better decisions, you're going to drive workforce productivity that way.

And then when you think of some of our work around semi-autonomous operations and our terminals and our engineering gangs inside our locomotive facilities, you're just adding layer of layer and layer of success that we've delivered on. And I don't see an end to it.

Jonathan Chappell
Analyst, Evercore ISI

Q

Yeah, right on, Eric.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Listen, great question. Thank you very much. What time is NS supposed to start? 9:00? What, eight minutes? Okay. Lightning round, let's go. Okay. We'll be fast.

Operator: Next question is from the line of Richa Harnain with Deutsche Bank.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

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Morning. How are you?

Richa Harnain
Analyst, Deutsche Bank Securities, Inc.

Q

Hey. Good morning. Jim, you can chuckle, but I have to tell Jennifer how, we've been really impressed by the quality and consistency of Union Pacific's execution over the past few years. And Jennifer, obviously, you played a major role in that success. So, congratulations. And I'm sure you're proud of what you've helped build.

So for my question, it's for Eric and maybe just following up on that last question, actually. From a technology standpoint, are there capabilities, tools or operating systems at NS that you don't have today or vice versa that make you particularly excited about the merger opportunity?

And on a related note, and maybe more broadly for the team, for Kenny or Jim, what do you make of autonomous trucking as sort of a competitive offering to railroads, as that technology matures? Do you see it as a meaningful competitive threat, or do you think investors are sort of overestimating its impact to rail? I would love to hear, what structural advantages rail retains that it can't replicate. I'm sure fuel efficiency is top of the list, but I'd love to hear that from you. Thanks.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Let me answer that last one real quick. I want to try to get the off. I don't want to overlap with NS. Bottom line is, you always have to look at how you move forward, not backwards. So autonomous is going to happen. We need to be ready for it to be the most efficient railroad in North America, which we are today. And we will continue to find ways to be better. We will use technology every way to be able to move it ahead.

So that's the challenge. And it's exciting. It would be boring to get up in the morning and say, well, guess what? We're railroading, I love it. We have a lot of plans on how we move this railroad forward to make it. And part of it is this merger that will help us be able to give much more seamless operation. Eric, real quick on the tech.

Eric J. Gehringer
Executive Vice President-Operations, Union Pacific Corp.

A

I love the way you framed that question because oftentimes the question we get asked is, what can you bring to the NS? But you're right, there are things on the NS that we will look forward to bringing to the Union Pacific, and we're talking about those because we can talk about integration. So like, one example, just briefly, there, wayside technology for the inspection of rolling stock, whether that's locomotives or railcars, is really impressive, so yes.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

And the technology behind it, the software, right?

Eric J. Gehringer
Executive Vice President-Operations, Union Pacific Corp.

A

Absolutely, identifies defects, even better than our system. So yeah, we're looking forward to taking the best of Union Pacific to NS and the best of NS to bring it to Union Pacific.

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V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Thank you very much. Okay. Next question.

Operator: Our next question is from the line of – final question from Brandon Oglenski with Barclays.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Good morning, Brandon.

Brandon R. Oglenski
Analyst, Barclays Capital, Inc.

Q

Thanks for getting me in here. Yes. Good morning, Jim. And Jennifer, condolences that you had to go drink margaritas now.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Now, Brandon, you could take – ask any question you want. Take your time.

Brandon R. Oglenski
Analyst, Barclays Capital, Inc.

Q

Well, Jim, maybe you. We'll be a little critical here. I know you have a majority of the unions, but obviously, the BLET here is against the merger, so maybe if you can speak to that. And then in the response of requests from a number of your competitors, they've called out this vertical competition issue that the STB could be incrementally concerned about with this merger. And obviously, given the closer comments as well, I guess, is there like a medium ground on some of these responsive requests where you could see potentially more deals happening to get this across what could be really arbitrary issues approving competitive enhancement in the future? Thank you.

V. James Vena
Chief Executive Officer & Director, Union Pacific Corp.

A

Yeah. Listen, I would be remiss not to say, and I get it, I'm aggressive against the side that says, like what are we going to give? But there's always deals to be made, okay? But let's listen, let's wait, because time is real important. If you're playing poker, you don't put everything down before you see the last card or the third card coming out. So bottom line is, I'm waiting to see what they put in on November 18th that has to be factual, has to show what their concerns are and how we move ahead. So – and then at that point, we'll re-examine. I think we've done a good job so far. I said it before, I was surprised at the comments that we got from one of the STB members, especially when we were the ones that said we'd be open for discussion.

So it is what it is. That's part of the process, and that's why we applied again. With the unions, the BLET, let's get serious. People don't understand this. Again, there's a deal to be made. But every locomotive engineer that's covered under the BLET, the Brotherhood of Locomotive Engineers and Trainmen actually gather and increase their seniority with Smart-TD, who's a proponent for this, who's accepted it and sees the benefit. If somebody from the BLET gets cut back and they can't hold as an engineer, they become a conductor and guess what? So they're all protected already. I have no idea what – I've already got a deal that covers every one of our locomotive engineers at both railroads.

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So I have no idea what the BLET is doing. They want to get something like job protection for life. I'm not into that. I'm not setting this company. So I'm not going to do things that are going to hurt this company. And I know I'm going longer than I should. At the end of the day, if anybody thinks we're going to make a bad deal for Union Pacific, we're not. We will walk away from this. We're pretty strong as we've just shown this quarter, and we will move ahead. But it's so good and compelling for the country that it's crazy for us not to push this to the final piece. Anybody else want to comment? But good question. Thank you very much.

Brandon R. Oglenski

Analyst, Barclays Capital, Inc.

Q

Thank you.

V. James Vena

Chief Executive Officer & Director, Union Pacific Corp.

We have time for one more. I think that's it, right? Thank you very much. Okay. Appreciate it. Listen, all I have to say is this is, I'm real proud of the team. I really am. And everybody, the management team, the unionized employees, everybody at Union Pacific, heck of a quarter. And it's about who we are, what we want to do and how we win and move ahead. And I love our competitors getting better. I love our competitors getting more efficient because we make up such a small amount, these railroads of the total products that are moved in the US that we could all grow and win. And we work together so many places together to win. And I think this merger has driven people to get – merger discussion has driven people to get better, and I love it. A little more competition, movement of products more by rail than by truck, decongesting highway systems, decongesting city roads. I'm telling you it's a win-win, and I love it, and we'll talk to you all next quarter.

And Jennifer, in all seriousness, congratulations, okay? Even though I don't understand retirement, but congratulations, enjoy yourself and all the best, and thanks for everything you've done. Thank you very much, everyone.

Jennifer L. Hamann

Chief Financial Officer & Executive Vice President, Union Pacific Corp.

Thank you, Jim.

Operator: Thank you. Ladies and gentlemen, thank you for your participation. This does conclude today's teleconference. You may disconnect your lines at this time, and have a wonderful day.

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EXHIBIT 5

RAIL INDUSTRY OVERVIEW

RIO is a free monthly publication that provides insights from our economists into what rail traffic says about today's economy and where the data suggests it could be headed. As part of RIO, the Freight Rail Index (FRI) tracks movement across the most economically sensitive rail traffic commodities. You can find the full report each month on this webpage, with past editions available as PDFs at the bottom of the page. Find past edition PDFs at the bottom of this page.

THIS MONTH'S PDF | SIGN UP FOR EMAIL | DEEPER ANALYSIS

November 2026 Key Takeaways

- **Yet another intermodal record.** The past three months have been the top three U.S. intermodal months ever, including a new all-time high in October.
- **Solid carload gains.** Total carloads were up 3.4% year-over-year in October, the best percentage gain in eight months. Excluding coal, carloads rose 4.5% in October. Year-to-date total carloads are the most since 2019.
- **Manufacturing expansion continues.** Rail volumes are benefiting from a manufacturing expansion that shows no signs of an imminent slowdown.
- **Significant economic challenges remain.** Too-high inflation, rising interest rates, and weak consumer confidence are being countered by resilient consumer spending, an expanding service sector, industrial growth, and a still-low unemployment rate.

Rail traffic says the economy is stronger than it feels.

October was a standout month for U.S. railroads. Intermodal rose 9.6% over last year and set an all-time monthly volume record. Total carloads rose 3.4%, their biggest percentage increase in eight months. Excluding coal, carloads rose 4.5%, above average for the year and far higher than the 2021-2025 average of 1.7%.

Just as important as the size of the gains is their breadth. For months now, growth has spanned most traffic categories. That is the signature of broad industrial resilience, not a one-off and not just market share gains from trucks, and it points to further growth in the months ahead.

To be sure, the economy faces serious challenges: high inflation and interest rates, spillovers from conflicts abroad, an uncertain labor market, and low consumer confidence, to name a few. Still, despite the pressures many households are facing, data continue to show an economy with underlying resilience, especially in the industrial and consumer goods sectors that matter most to railroads.

Another rail intermodal record was reached.

U.S. railroads averaged more than 298,000 intermodal units per week in October 2026, the highest weekly average ever for a month. Historically, October is the best intermodal month of the year, reflecting “peak season” when higher-than-normal shipments of goods move through supply chains in preparation for the holidays.

October was especially strong this year: it had the first, third, and fifth-best intermodal weeks ever. Year-to-date intermodal volume was up 4.7% through October, and this year will set a new annual record.

The factors that have led to higher intermodal volume in recent months were largely unchanged in October: high diesel, insurance, and maintenance costs for truckers; fewer available truck drivers; and solid rail service performance. In addition, consumer spending is holding up well and some retailers have begun to restock inventories that have fallen too low, providing more impetus for additional intermodal movements.

Broad carload growth continued.

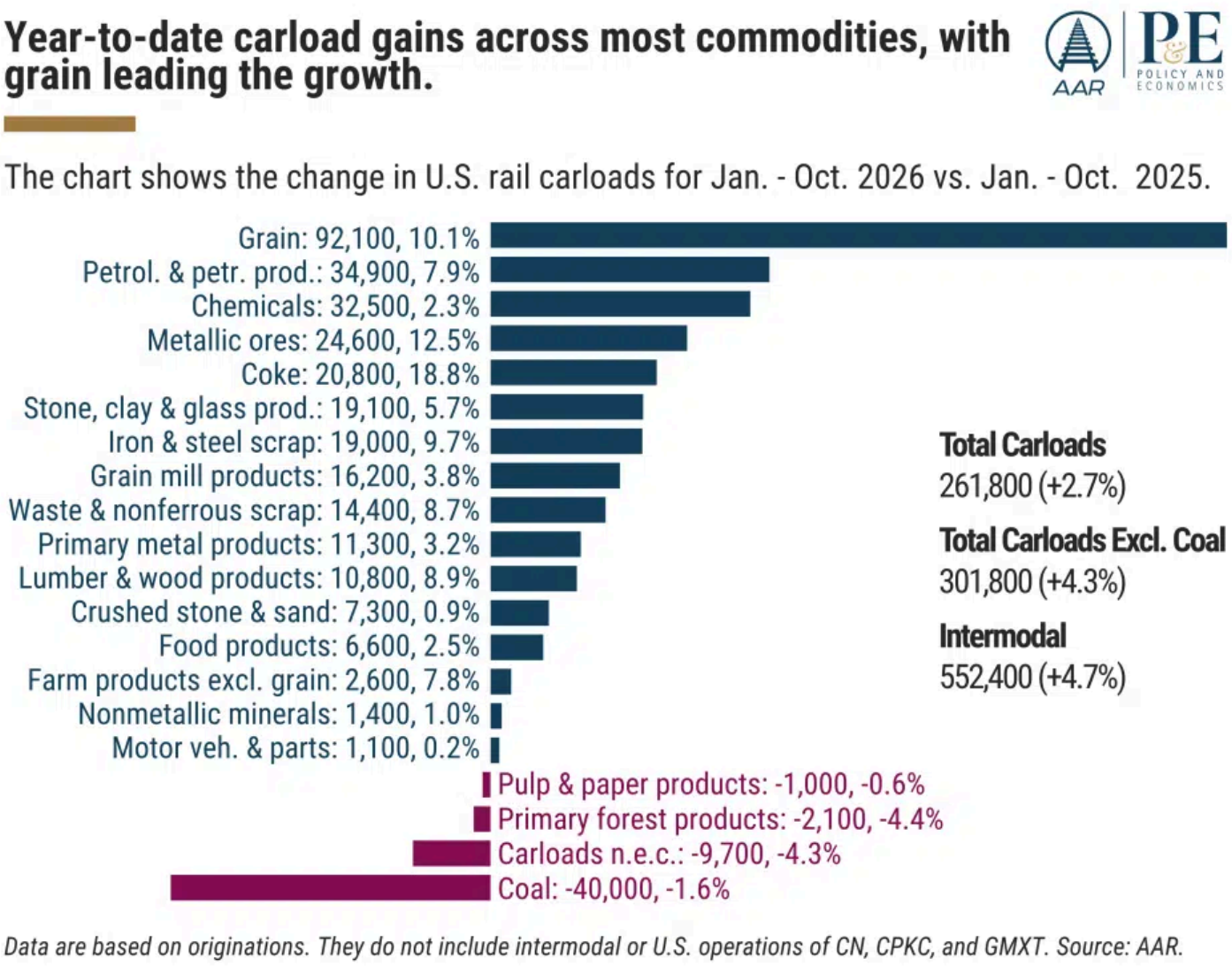
Of the 20 carload categories the AAR tracks, 15 saw year-over-year gains in October. For the year to date, 16 of the 20 categories are up. This broad growth shows demand is solid across much of the industrial economy, not just in a handful of sectors.

Motor vehicles led the way for U.S. railroads in October, with carloads up nearly 10%, or 5,900 carloads, over last year in response to strong buyer demand. Adding in Canadian and Mexican railroads brings October’s gain to more than 8,000 carloads, or 9% — their biggest percentage gain since December 2023. Year-to-date carloads of motor vehicles are up slightly over last year.

Several other carload categories also had standout October results. Carloads of petroleum products were the most since February 2020; carloads of iron and steel scrap were the most since September 2008. October 2026 was the best October for carloads of steel products since 2018; October 2026 set a new October record for carloads of grain mill products.

The key point is that rail volumes are not just outperforming last year or the year before. Across many categories, they are reaching multi-year highs, suggesting that strength in rail traffic today reflects genuine momentum in freight markets and the broader economy.

For the first 10 months of 2026, U.S. grain carloads were up 10% (92,000 carloads) to lead all carload categories. However, grain carloads in October were down for the first time in a year. Most variability in grain carloads is associated with grain exports. In the first half of 2026, grain exports were up 13% by volume over last year, but they were down in the third quarter. Railroads account for around 40% of U.S. grain exports, according to USDA data.

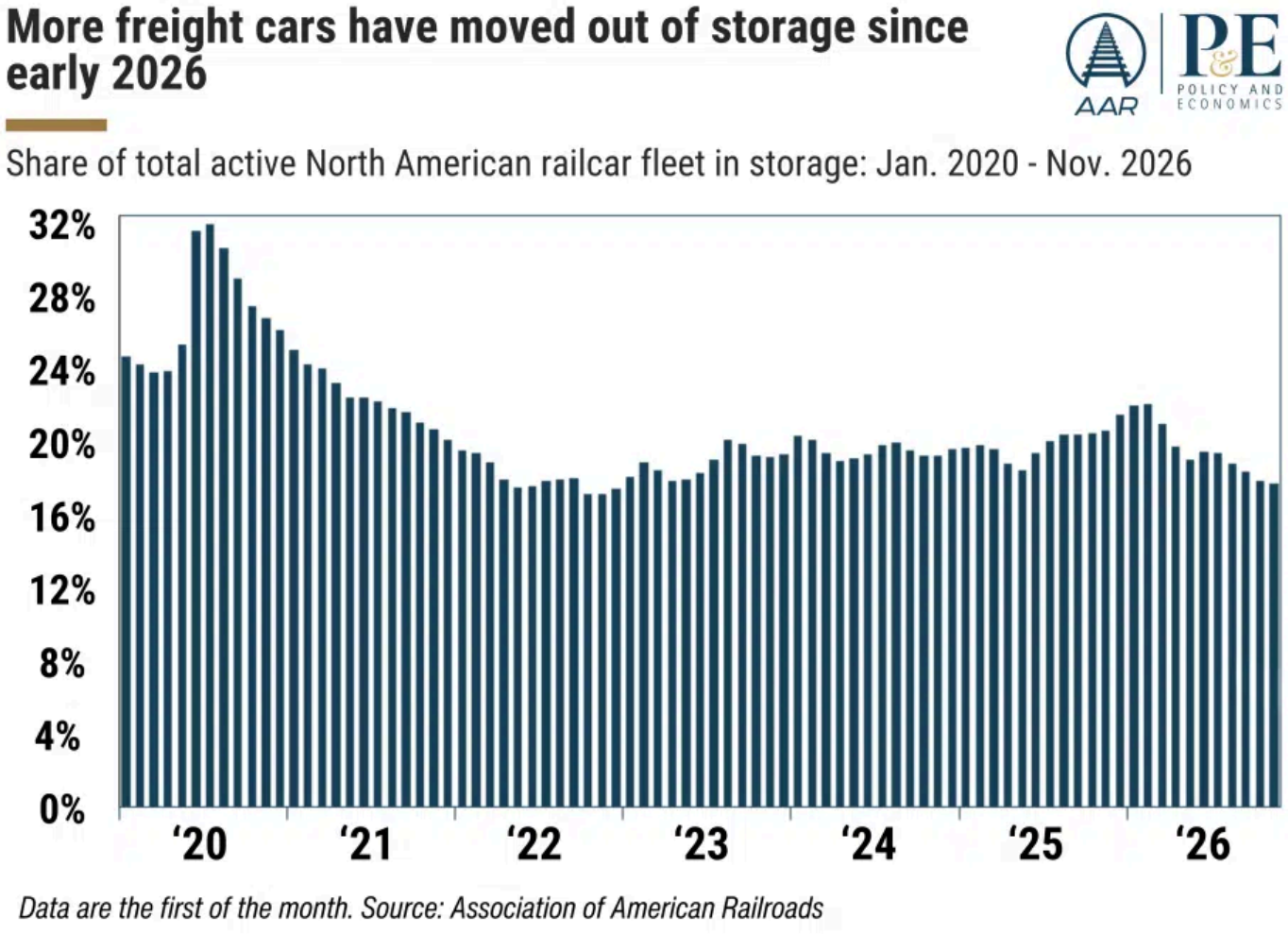


Today, only intermodal generates more rail revenue than chemicals. Carloads of chemicals rose in October at their fastest pace in seven months and are virtually certain to set a new annual record this year. Thank the resurgence in manufacturing this year. Chemicals' persistent gains have quietly made it a top performer for U.S. railroads over the past couple of years.

Coal remains the soft spot, though October offered a glimmer: carloads rose fractionally year-over-year after seven straight declines. Year to date, they are down 1.6%. U.S. electricity generation from coal is down in 2026, though higher coal exports (which mostly move by rail) are countering that decline to some extent.

Adjusted for inflation, U.S. natural gas prices over the last six months have averaged about 25% less than their average over the last decade. This has made electricity generated from natural gas more competitive vis-à-vis coal-fired electricity, creating a headwind against rail coal volumes.

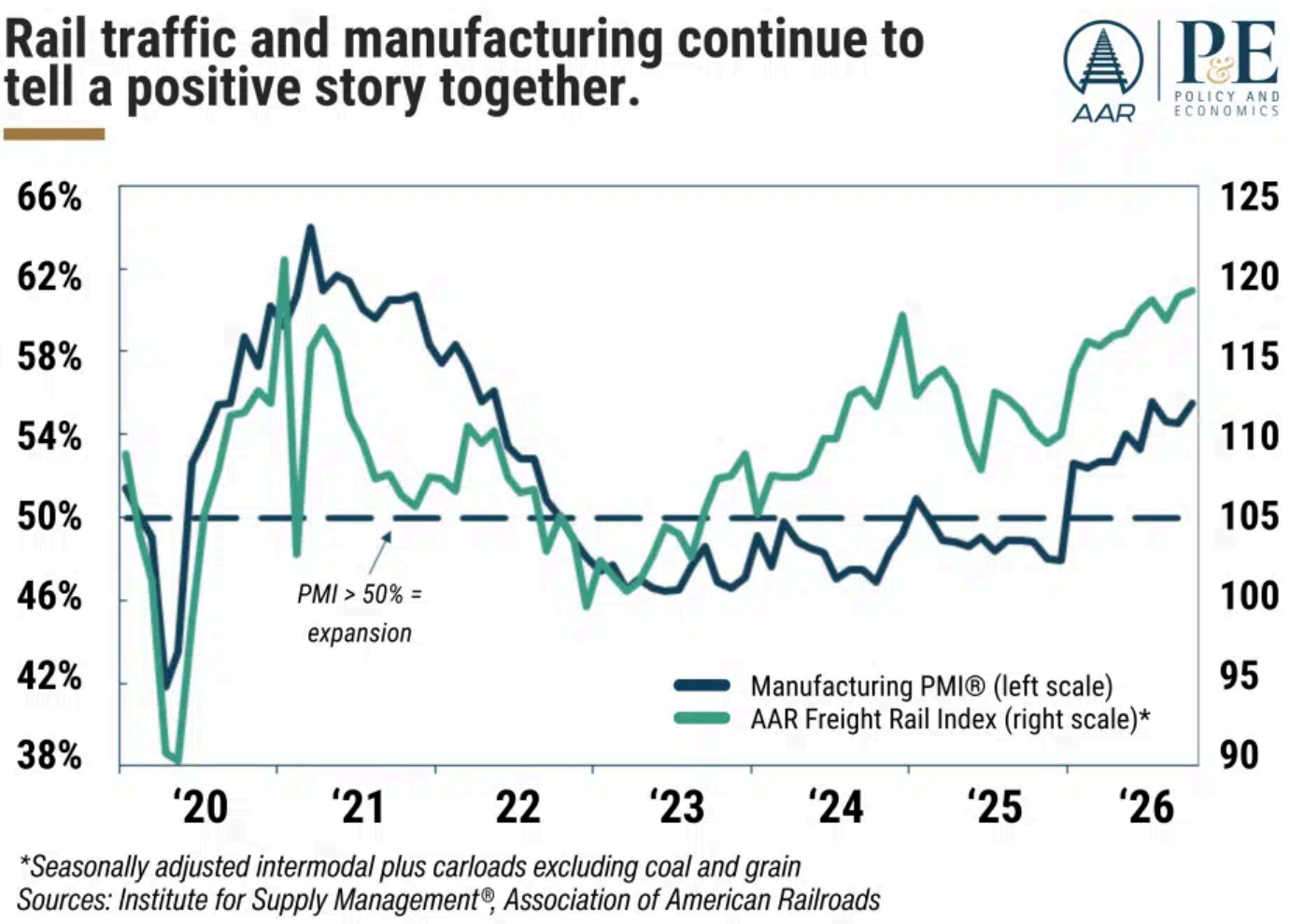
The AAR Freight Rail Index (FRI) strips out coal and grain and seasonally adjusts the rest, giving a clean read on economically sensitive rail traffic. The index has trended steadily higher this year. In October, it hit its second highest level on record, pointing to healthy demand across a wide range of industrial and consumer markets.



Rail cars in storage tell the same story: when demand for rail service rises, railroads and other railcar owners pull idle cars back into service. In October, the number of cars in storage fell for the eighth time in the past 9 months and now equals 17.5% of the North American railcar fleet — the lowest share since December 2022.

There were real headwinds, but also more bright spots than the mood suggests.

If the recent election is any indication, Americans have lost patience with inflation. It's easy to see why: average consumer prices were 23% higher in September 2026 than five years earlier, and the five-year inflation rate has topped 20% each month since mid-2022, something that hadn't happened since early 1994. Other economic caution flags today include rising interest rates (including mortgage rates that are at three-year highs), weak consumer confidence, and housing affordability issues.



But sentiment is only part of the story, and much of the hard data looks considerably better. Preliminary data show U.S. GDP grew 3.4% in Q3 2026, while a measure that excludes trade and inventories rose 4.9%, indicating solid domestic demand. The unemployment rate, at 4.1%, remains well below its historical norm, and layoffs are relatively low.

A preliminary 165,000 net new jobs were created in October, bringing the average gain over the past three months to a more than respectable 137,000. The services sector is expanding, and manufacturing is as well: the Manufacturing PMI® was in expansion territory in October for the 10th consecutive month, while manufacturing output in recent months has been the highest since early 2022. Consumer spending also continues to grow at a healthy pace.

Economic indicators never all point in the same direction, and policy shifts after the election could add uncertainty in the months ahead. But on balance, the data suggest the economy is still expanding at a solid pace. Rail volumes have been signaling that strength all year, and we expect them to keep growing into 2027.

Past Editions

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EXHIBIT 6

Financial Omaha, Neb. | January 27, 2026

Share

Union Pacific Reports Fourth Quarter and Full Year 2025 Results

- Fourth quarter diluted earnings per share (EPS) of $3.11 and adjusted diluted EPS* of $2.86
- Fourth quarter operating ratio (OR) of 60.5% and adjusted OR* of 60.0%
- Full year diluted EPS of $11.98 and adjusted diluted EPS* of $11.66
- Full year OR of 59.8% and adjusted OR* of 59.3%
- Full year return on invested capital* of 16.3%

Union Pacific Corporation (NYSE: UNP) today reported 2025 fourth quarter and full year results. "We had a record-breaking year and delivered best-ever safety, service, and operating results in 2025," said Jim Vena, Union Pacific Chief Executive Officer. "Our 2025 reported net income grew 6%, earnings per share increased 8%, and we improved our operating ratio. While we work through the regulatory process to create America's first transcontinental railroad, our team is focused on driving further safety, service, and operating improvements to support growth."

Reported 2025 fourth quarter net income was $1.8 billion and diluted EPS was $3.11. Results include industrial park land sales of $234 million, increasing diluted EPS $0.30, and $30 million of merger costs, reducing diluted EPS $0.05. Adjusted fourth quarter 2025 net income* of $1.7 billion, or adjusted diluted EPS* of $2.86, compares to adjusted fourth quarter 2024 net income* of $1.8 billion, or adjusted diluted EPS* of $2.96.

Reported full year 2025 net income of $7.1 billion, or diluted EPS of $11.98, compares to full year 2024 net income of $6.7 billion, or diluted EPS of $11.09. Reported full year net income grew 6% and full year diluted EPS improved 8%. Adjusted full year 2025 net income* of $6.9 billion, or adjusted diluted EPS* of $11.66, compares to adjusted full year 2024 net income* of $6.8 billion, or adjusted diluted EPS* of $11.11. Adjusted full year net income* grew 3% and adjusted diluted EPS* improved 5%.

Fourth Quarter Summary: 2025 vs. 2024

Financial Results: Record Fourth Quarter Net Income

- Net income of $1.8 billion includes industrial park land sales of $234 million.
- Operating revenue of $6.1 billion declined 1% driven by lower volume, partially offset by core pricing gains and fuel surcharge revenue.
- Revenue carloads declined 4%.
- Reported operating ratio was 60.5%, 180 basis points worse. Adjusted operating ratio* was 60.0%, 190 basis points worse.

Operating Results: Best Ever Quarterly Records for Freight Car Velocity and Terminal Dwell and Record Fourth Quarter for Train Length and Workforce Productivity

- Reportable personal injury rate and reportable derailment rate both improved.
- Freight car velocity was 239 daily miles per car, a 9% increase.
- Average terminal dwell was 19.8 hours, a 9% improvement.
- Average train length was 9,729 feet, a 3% increase.
- Workforce productivity was 1,151 car miles per employee, a 3% improvement.

Full Year Summary: 2025 vs. 2024

Financial Results: Best Ever Full Year for Freight Revenue Excluding Fuel Surcharge, Other Income, and Net Income

- Operating revenue of $24.5 billion was up 1% driven by core pricing gains and higher volume, partially offset by business mix, reduced fuel surcharge revenue, and lower other revenue.
- Freight revenue excluding fuel surcharge grew 3%.
- Revenue carloads increased 1%.
- Reported operating ratio of 59.8% improved 10 basis points. Adjusted operating ratio* of 59.3% improved 60 basis points.

Operating Results: Best Ever Full Year for Safety, Freight Car Velocity, Locomotive Productivity, Terminal Dwell, Train Length, Workforce Productivity, and Fuel Consumption Rate

- Union Pacific's reportable personal injury and reportable derailment rates both improved, and the personal injury rate was industry-leading.
- Freight car velocity was 225 daily miles per car, an 8% increase.
- Locomotive productivity was 139 gross ton-miles per horsepower day, up 3%.
- Average terminal dwell was 20.9 hours, an 8% improvement.
- Workforce productivity was 1,132 car miles per employee, a 7% increase.

On Track with Investor Day Targets

- 2026 Outlook:
  - Meeting customer demand with strong service; muted economic forecast.
  - Pricing dollars in excess of inflation dollars.
  - Earnings per share growth of mid-single digit; consistent with attaining 3-year CAGR target of high-single digit to low-double digit through 2027.
  - Operating ratio improvement; industry-leading operating ratio and return on invested capital.
  - Continued strong cash generation.
  - Capital allocation:
    - Capital plan of $3.3 billion.

- Consistent annual dividend increases.

* See attached supplemental schedule of non-GAAP measures for a reconciliation to GAAP.

Fourth Quarter 2025 Earnings Conference Call

Union Pacific will webcast its fourth quarter 2025 earnings release presentation live at **www.up.com/investor** and via teleconference on Tuesday, January 27, 2026, at 8:45 a.m. Eastern Time. Participants may join the conference call by dialing 877-407-8293 (or for international participants, 201-689-8349).

About Union Pacific

Union Pacific (NYSE: UNP) delivers the goods families and businesses use every day with safe, reliable, and efficient service. Operating in 23 western states, the company connects its customers and communities to the global economy. Trains are the most environmentally responsible way to move freight, helping Union Pacific protect future generations. More information about Union Pacific is available at **www.up.com**.

Union Pacific Investor contact: Diana Prauner at 402-544-4227 or **dprauner@up.com**

- **Supplemental financial information is attached**

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Certain statements in this communication are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause the Company's (or, as it relates to the Transaction (as defined below), the combined company of Norfolk Southern and Union Pacific (referred to hereinafter as the combined company) actual results, levels of activity, performance, or achievements or those of the railroad industry to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements may be identified by the use of words like "may," "will," "could," "would," "should," "expect," "anticipate," "believe," "project," "estimate," "intend," "plan," "pro forma," or any variations or other comparable terminology.

While the Company has based these forward-looking statements on those expectations, assumptions, estimates, beliefs and projections they view as reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond the Company's, including but not limited to, in addition to factors disclosed in the Company's, as well as Norfolk Southern's (as it relates to the proposed combination of it with the Company) respective filings with the U.S. Securities and Exchange Commission (the "SEC"): the occurrence of any event, change or other circumstance that could give rise to the right of one or both of the parties to terminate the definitive merger agreement between the Company and Norfolk Southern providing for

the acquisition of Norfolk Southern by Union Pacific (the "Transaction"); the risk that potential legal proceedings may be instituted against the Company or Norfolk Southern and result in significant costs of defense, indemnification or liability; the possibility that the Transaction does not close when expected or at all because required Surface Transportation Board or other approvals and other conditions to closing are not received or satisfied on a timely basis or at all (and the risk that such approvals may result in the imposition of conditions that could adversely affect the combined company or the expected benefits of the Transaction); the risk that the combined company will not realize expected benefits, cost savings, accretion, synergies and/or growth from the Transaction, or that such benefits may take longer to realize or be more costly to achieve than expected, including as a result of changes in, or problems arising from, general economic and market conditions, tariffs, interest and exchange rates, monetary policy, laws and regulations and their enforcement, and the degree of competition in the geographic and business areas in which the Company and Norfolk Southern operate; disruption to the parties' businesses as a result of the announcement and pendency of the Transaction; the costs associated with the anticipated length of time of the pendency of the Transaction, including the restrictions contained in the definitive merger agreement on the ability of the Company and Norfolk Southern, respectively, to operate their respective businesses outside the ordinary course during the pendency of the Transaction; the diversion of the Company's and Norfolk Southern's management's attention and time from ongoing business operations and opportunities on merger-related matters; the risk that the integration of each party's operations will be materially delayed or will be more costly or difficult than expected or that the parties are otherwise unable to successfully integrate each party's businesses into the other's businesses; the possibility that the Transaction may be more expensive to complete than anticipated, including as a result of unexpected factors or events; reputational risk and potential adverse reactions of the Company's or Norfolk Southern's customers, suppliers, employees, labor unions or other business partners, including those resulting from the announcement or completion of the Transaction; the dilution caused by the Company's issuance of additional shares of its common stock in connection with the consummation of the Transaction; the risk of a downgrade of the credit rating of the Company's indebtedness, which could give rise to an obligation to redeem existing indebtedness; a material adverse change in the financial condition of the Company, Norfolk Southern or the combined company; changes in domestic or international economic, political or business conditions, including those impacting the transportation industry (including customers, employees and supply chains); the Company's, Norfolk Southern's and the combined company's ability to successfully implement its respective operational, productivity, and strategic initiatives; a significant adverse event on the Company's or Norfolk Southern's network, including, but not limited to, a mainline accident, discharge of hazardous materials, or climate-related or other network outage; the outcome of claims, litigation, governmental proceedings and investigations involving the Company or Norfolk Southern, including, in the case of Norfolk Southern, those with respect to the Eastern Ohio incident; the nature and extent of Norfolk Southern's environmental remediation obligations with respect to the Eastern Ohio incident; new or additional governmental regulation and/or operational changes resulting from or related to the Eastern Ohio incident; and a cybersecurity incident or other disruption to our technology infrastructure.

*This list of important factors is not intended to be exhaustive. These and other important factors, including those discussed under "Risk Factors" in Norfolk Southern's Annual Report on Form 10-K for the year ended December 31, 2024 (available at **https://www.sec.gov/ix?doc=/Archives/edgar/data/0000702165/000070216525000008/nsc-20241231.htm**) and Norfolk Southern's subsequent filings with the SEC, the Company's most recent Annual Report on Form 10-K for the year ended December 31, 2024, as filed with the SEC on February 7, 2025 (available at **https://www.sec.gov/ix?doc=/Archives/edgar/data/0000100885/000010088525000042/unp-20241231.htm**) and the Company's subsequent filings with the SEC, as well as the risks described in the Company's registration statement on Form S-4 (No. 290282), as filed with the SEC on September 16, 2025, as amended on September 30, 2025 (available at **https://www.sec.gov/Archives/edgar/data/100885/000119312525224307/d908896ds4a.htm**), may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. References to the Company's and Norfolk Southern's website are provided for convenience and, therefore, information on or available through the website is not, and should not be deemed to be, incorporated by reference herein. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, the Company and Norfolk Southern disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise, except as may be required by applicable law or regulation.*

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The statements and information contained in the news releases provided by Union Pacific speak only as of the date issued. Such information by its nature may become outdated, and investors should not assume that the statements and information contained in Union Pacific's news releases remain current after the date issued. Union Pacific makes no commitment, and disclaims any duty, to update any of this information.

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EXHIBIT 7

Union Pacific Reports Third Quarter 2026 Results

October 22, 2026

- *Diluted EPS of $3.49, up 16%, and adjusted diluted EPS* of $3.53, up 15%*
- *Operating ratio (OR) of 59.1% and adjusted OR* of 58.8%*
- *Revenue carloads grew 6%*

OMAHA, Neb.--(BUSINESS WIRE)--Oct. 22, 2026-- Union Pacific Corporation (NYSE: UNP) today reported third quarter 2026 net income of $2.1 billion, up 16%, and diluted earnings per share (EPS) of $3.49, up 16%, compared to reported third quarter 2025 net income of $1.8 billion and diluted EPS of $3.01. Adjusted third quarter 2026 net income* of $2.1 billion increased 15%, and adjusted diluted EPS* of $3.53 increased 15%, compared to adjusted third quarter 2025 net income* of $1.8 billion and adjusted diluted EPS* of $3.08.

"Union Pacific's third quarter results demonstrate our ability to safely deliver the service we sold to our customers while efficiently handling six percent volume growth," said Jim Vena, Union Pacific Chief Executive Officer. "We executed at a consistently high level, enabling record financial results and further reinforcing our position as the industry leader. We look forward to the upcoming steps of the Surface Transportation Board's merger review process and to delivering the benefits of America's first transcontinental railroad for our customers."

Third Quarter Summary: 2026 vs. 2025

Financial Results: Record Financial Results Driven by Volume Growth, Pricing Strength and Operational Execution; Record Freight Revenue, Freight Revenue excluding Fuel Surcharge, Operating Revenue, Operating Income, and Net Income

- Operating revenue of $7.2 billion grew 15% driven by higher fuel surcharge, 6% volume growth, core pricing gains and increased other revenue partially offset by business mix.
- Freight revenue excluding fuel surcharge increased 6%.
- Reported operating ratio improved 10 basis points to 59.1%. Adjusted operating ratio* increased 30 basis points to 58.8%. Higher fuel price unfavorably impacted operating ratio 140 basis points.

Operating Results: Operational Excellence Supports Volume Growth; Record Workforce Productivity, Train Length, and Fuel Consumption Rate

- Reportable personal injury rate improved.
- Freight car velocity was 228 daily miles per car, a 1% increase.
- Average terminal dwell was 19.9 hours, a 2% improvement.
- Fuel consumption rate was 1.034, measured in gallons of fuel per thousand gross ton-miles, a 2% improvement.
- Workforce productivity was 1,219 car miles per employee, a 5% increase.

* See attached supplemental schedule of non-GAAP measures for a reconciliation to GAAP.

2026 Outlook - On Track with Investor Day Targets

Affirmed:

- Meeting increased customer demand with strong service; mixed economic forecast.
- Reported earnings per share growth of high-single digit; consistent with attaining 3-year CAGR target of high-single to low-double digit through 2027.
- Pricing dollars in excess of inflation dollars.
- Industry-leading operating ratio and return on invested capital.
- Continued strong cash generation and consistent annual dividend increases.

Updated:

- Operating ratio improvement from core business; reported operating ratio challenged by high fuel prices.
- Capital plan of $3.5 billion.

Third Quarter 2026 Earnings Conference Call

Union Pacific will webcast its third quarter 2026 earnings release presentation live at www.up.com/investor and via teleconference on Thursday, October 22, 2026, at 8:45 a.m. Eastern Time. Participants may join the conference call by dialing 877-407-8293 (or for international participants, 201-689-8349).

ABOUT UNION PACIFIC

Union Pacific (NYSE: UNP) delivers the goods families and businesses use every day with safe, reliable, and efficient service. Operating in 23 western states, the company connects its customers and communities to the global economy. Trains are the most environmentally responsible way to move freight, helping Union Pacific protect future generations. More information about Union Pacific is available at www.up.com.

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UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Condensed Consolidated Statements of Income (unaudited)

Millions, except per share amounts and percentages, for the periods ended September 30,	***3rd quarter***			***Year-to-date***		
	2026	*2025*	*%*	***2026***	*2025*	*%*
Operating revenues						
Freight revenues	**$ 6,813**	$ 5,927	15%	**$ 19,224**	$ 17,461	10%
Other revenues	**384**	317	21	**1,054**	964	9
Total operating revenues	**7,197**	6,244	15	**20,278**	18,425	10
Operating expenses						
Compensation and benefits	**1,264**	1,214	4	**3,731**	3,675	2
Fuel	**1,040**	616	69	**2,621**	1,795	46
Purchased services and materials	**746**	683	9	**2,128**	1,956	9
Depreciation	**643**	618	4	**1,914**	1,841	4
Equipment and other rents	**206**	212	(3)	**639**	683	(6)
Other	**355**	352	1	**1,081**	1,030	5
Total operating expenses	**4,254**	3,695	15	**12,114**	10,980	10
Operating income	**2,943**	2,549	15	**8,164**	7,445	10
Other income, net	**95**	96	(1)	**291**	297	(2)
Interest expense	**(312)**	(327)	(5)	**(945)**	(984)	(4)
Income before income taxes	**2,726**	2,318	18	**7,510**	6,758	11
Income tax expense	**(650)**	(530)	23	**(1,740)**	(1,468)	19
Net income	**$ 2,076**	$ 1,788	16%	**$ 5,770**	$ 5,290	9%
Share and per share						
Earnings per share - basic	**$ 3.50**	$ 3.02	16%	**$ 9.72**	$ 8.88	9%
Earnings per share - diluted	**$ 3.49**	$ 3.01	16	**$ 9.71**	$ 8.87	9
Weighted average number of shares - basic	**593.7**	592.4	-	**593.4**	595.8	-
Weighted average number of shares - diluted	**594.5**	593.2	-	**594.0**	596.7	-
Dividends declared per share	**$ 1.42**	$ 1.38	3	**$ 4.18**	$ 4.06	3
Operating ratio	**59.1%**	59.2%	(0.1)pts	**59.7%**	59.6%	0.1pts
Effective tax rate	**23.8%**	22.9%	0.9pts	**23.2%**	21.7%	1.5pts

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Freight Revenues Statistics (unaudited)

For the periods ended September 30,	***3rd quarter***			***Year-to-date***		
	2026	*2025*	*%*	***2026***	*2025*	*%*
Freight revenues (millions)						
Grain & grain products	**$ 1,085**	$ 975	11%	**$ 3,248**	$ 2,889	12%
Fertilizer	**234**	227	3	**687**	638	8
Food & refrigerated	**272**	258	5	**791**	785	1
Coal & renewables	**525**	470	12	**1,459**	1,355	8
Bulk	**2,116**	1,930	10	**6,185**	5,667	9

Industrial chemicals & plastics	**701**	647	8	**2,041**	1,900	7
Metals & minerals	**666**	568	17	**1,842**	1,650	12
Forest products	**371**	327	13	**1,045**	988	6
Energy & specialized markets	**771**	652	18	**2,158**	1,950	11
Industrial	**2,509**	2,194	14	**7,086**	6,488	9
Automotive	**671**	604	11	**1,934**	1,817	6
Intermodal	**1,517**	1,199	27	**4,019**	3,489	15
Premium	**2,188**	1,803	21	**5,953**	5,306	12
Total	**$ 6,813**	$ 5,927	15%	**$ 19,224**	$ 17,461	10%
Revenue carloads (thousands)						
Grain & grain products	**225**	215	5%	**710**	645	10%
Fertilizer	**55**	58	(5)	**161**	162	(1)
Food & refrigerated	**40**	41	(2)	**121**	127	(5)
Coal & renewables	**209**	216	(3)	**599**	606	(1)
Bulk	**529**	530	-	**1,591**	1,540	3
Industrial chemicals & plastics	**185**	182	2	**549**	528	4
Metals & minerals	**209**	193	8	**588**	558	5
Forest products	**54**	52	4	**156**	155	1
Energy & specialized markets	**158**	147	7	**459**	439	5
Industrial	**606**	574	6	**1,752**	1,680	4
Automotive	**202**	199	2	**595**	603	(1)
Intermodal [a]	**956**	860	11	**2,601**	2,551	2
Premium	**1,158**	1,059	9	**3,196**	3,154	1
Total	**2,293**	2,163	6%	**6,539**	6,374	3%
Average revenue per car						
Grain & grain products	**$ 4,837**	$ 4,532	7%	**$ 4,577**	$ 4,478	2%
Fertilizer	**4,256**	3,875	10	**4,267**	3,929	9
Food & refrigerated	**6,678**	6,306	6	**6,524**	6,199	5
Coal & renewables	**2,516**	2,181	15	**2,437**	2,237	9
Bulk	**4,004**	3,641	10	**3,889**	3,680	6
Industrial chemicals & plastics	**3,789**	3,548	7	**3,717**	3,598	3
Metals & minerals	**3,185**	2,944	8	**3,134**	2,959	6
Forest products	**6,911**	6,315	9	**6,706**	6,363	5
Energy & specialized markets	**4,857**	4,462	9	**4,695**	4,445	6
Industrial	**4,136**	3,828	8	**4,044**	3,863	5
Automotive	**3,324**	3,027	10	**3,251**	3,011	8
Intermodal [a]	**1,586**	1,393	14	**1,545**	1,368	13
Premium	**1,889**	1,701	11	**1,862**	1,682	11
Average	**$ 2,971**	$ 2,740	8%	**$ 2,940**	$ 2,740	7%

[a] For intermodal shipments each container or trailer equals one carload.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Condensed Consolidated Statements of Financial Position (unaudited)

Millions	***Sep. 30, 2026***	*Dec. 31, 2025*
Assets		
Cash and cash equivalents	**$ 2,211**	$ 1,266
Short-term investments	**875**	250
Other current assets	**3,431**	3,039
Investments	**3,030**	2,885
Properties, net	**60,626**	59,645

Other assets		**2,436**		2,613
Total assets	**$**	**72,609**	$	69,698
Liabilities and common shareholders' equity				
Debt due within one year	**$**	**1,289**	$	1,520
Other current liabilities		**4,316**		3,494
Debt due after one year		**29,035**		30,294
Deferred income taxes		**13,640**		13,421
Other long-term liabilities		**2,311**		2,502
Total liabilities		**50,591**		51,231
Total common shareholders' equity		**22,018**		18,467
Total liabilities and common shareholders' equity	**$**	**72,609**	$	69,698

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Condensed Consolidated Statements of Cash Flows (unaudited)

		Year-to-date		
Millions, for the periods ended September 30,		***2026***		*2025*
Operating activities				
Net income	**$**	**5,770**	$	5,290
Depreciation		**1,914**		1,841
Deferred and other income taxes		**207**		172
Other - net		**411**		(238)
Cash provided by operating activities		**8,302**		7,065
Investing activities				
Capital investments*		**(2,834)**		(2,792)
Purchases of short-term investments		**(975)**		-
Maturities of short-term investments		**350**		-
Other - net		**3**		1
Cash used in investing activities		**(3,456)**		(2,791)
Financing activities				
Dividends paid		**(2,484)**		(2,418)
Debt repaid		**(1,519)**		(1,424)
Share repurchase programs		**(26)**		(2,679)
Debt issued		**-**		1,995
Other - net		**121**		54
Cash used in financing activities		**(3,908)**		(4,472)
Net change in cash, cash equivalents, and restricted cash		**938**		(198)
Cash, cash equivalents, and restricted cash at beginning of year		**1,280**		1,028
Cash, cash equivalents, and restricted cash at end of period	**$**	**2,218**	$	830
Free cash flow**				
Cash provided by operating activities	**$**	**8,302**	$	7,065
Cash used in investing activities		**(3,456)**		(2,791)
Dividends paid		**(2,484)**		(2,418)
Free cash flow	**$**	**2,362**	$	1,856

* Capital investments include locomotive and freight car early lease buyouts of $320 million in 2026 and $311 million in 2025.

** Free cash flow is defined as cash provided by operating activities less cash used in investing activities and dividends paid. Free cash flow is considered a non-GAAP financial measure by SEC Regulation G and Item 10(e) of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe free cash flow is important to management and investors in evaluating our financial performance and measures our ability to generate cash without additional external financing. Free cash flow should be considered in addition to, rather than as a substitute for, cash provided by operating activities.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Operating and Performance Statistics (unaudited)

	3rd quarter			Year-to-date		
For the periods ended September 30,	**2026**	2025	%	**2026**	2025	%
Operating/performance statistics						
Freight car velocity (daily miles per car)	**228**	226	1%	**231**	220	5%
Average train speed (miles per hour)*	**24.3**	24.2	-	**24.8**	23.9	4
Average terminal dwell time (hours)*	**19.9**	20.4	(2)	**19.8**	21.3	(7)
Locomotive productivity (GTMs per horsepower day)	**140**	140	-	**142**	139	2
Gross ton-miles (GTMs) (millions)	**232,506**	223,029	4	**678,251**	656,079	3
Train length (feet)	**9,969**	9,801	2	**9,871**	9,661	2
Intermodal service performance index (%)	**92**	98	(6) pts	**95**	97	(2) pts
Manifest service performance index (%)	**93**	100	(7) pts	**95**	98	(3) pts
Workforce productivity (car miles per employee)	**1,219**	1,165	5	**1,186**	1,126	5
Total employees (average)	**28,540**	28,871	(1)	**28,658**	29,576	(3)
Locomotive fuel statistics						
Average fuel price per gallon consumed	**$ 4.21**	$ 2.56	64%	**$ 3.59**	$ 2.49	44%
Fuel consumed in gallons (millions)	**240**	235	2	**712**	703	1
Fuel consumption rate**	**1.034**	1.052	(2)	**1.049**	1.072	(2)
Revenue ton-miles (millions)						
Grain & grain products	**22,985**	21,646	6%	**71,199**	64,276	11%
Fertilizer	**3,264**	3,501	(7)	**10,465**	10,278	2
Food & refrigerated	**4,503**	4,559	(1)	**13,425**	13,808	(3)
Coal & renewables	**23,482**	24,013	(2)	**69,417**	67,344	3
Bulk	**54,234**	53,719	1	**164,506**	155,706	6
Industrial chemicals & plastics	**8,443**	8,087	4	**24,929**	23,828	5
Metals & minerals	**9,898**	8,666	14	**27,776**	25,328	10
Forest products	**5,455**	5,336	2	**15,876**	16,138	(2)
Energy & specialized markets	**11,223**	10,032	12	**31,864**	29,762	7
Industrial	**35,019**	32,121	9	**100,445**	95,056	6
Automotive	**4,514**	4,495	-	**13,476**	13,695	(2)
Intermodal	**20,314**	18,520	10	**57,100**	55,959	2
Premium	**24,828**	23,015	8	**70,576**	69,654	1
Total	**114,081**	108,855	5%	**335,527**	320,416	5%

* Surface Transportation Board (STB) reported performance measures.
** Fuel consumption is computed as follows: gallons of fuel consumed divided by gross ton-miles in thousands.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Condensed Consolidated Statements of Income (unaudited)

Millions, except per share amounts and percentages,	2026			
	1st qtr	**2nd qtr**	**3rd qtr**	**Year-to-date**
Operating revenues				
Freight revenues	$ 5,893	$ 6,518	$ 6,813	$ 19,224
Other revenues	324	346	384	1,054
Total operating revenues	6,217	6,864	7,197	20,278
Operating expenses				
Compensation and benefits	1,227	1,240	1,264	3,731
Fuel	643	938	1,040	2,621

Purchased services and materials	673	709	746	2,128
Depreciation	633	638	643	1,914
Equipment and other rents	219	214	206	639
Other	364	362	355	1,081
Total operating expenses	3,759	4,101	4,254	12,114
Operating income	2,458	2,763	2,943	8,164
Other income, net	91	105	95	291
Interest expense	(320)	(313)	(312)	(945)
Income before income taxes	2,229	2,555	2,726	7,510
Income tax expense	(528)	(562)	(650)	(1,740)
Net income	$ 1,701	$ 1,993	$ 2,076	$ 5,770
Share and per share				
Earnings per share - basic	$ 2.87	$ 3.36	$ 3.50	$ 9.72
Earnings per share - diluted	$ 2.87	$ 3.36	$ 3.49	$ 9.71
Weighted average number of shares - basic	593.0	593.4	593.7	593.4
Weighted average number of shares - diluted	593.6	594.0	594.5	594.0
Dividends declared per share	$ 1.38	$ 1.38	$ 1.42	$ 4.18
Operating ratio	60.5%	59.7%	59.1%	59.7%
Effective tax rate	23.7%	22.0%	23.8%	23.2%

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Freight Revenue Statistics (unaudited)

	2026			
	1st qtr	***2nd qtr***	***3rd qtr***	***Year-to-date***
Freight revenues (millions)				
Grain & grain products	$ 1,057	$ 1,106	$ 1,085	$ 3,248
Fertilizer	236	217	234	687
Food & refrigerated	247	272	272	791
Coal & renewables	486	448	525	1,459
Bulk	2,026	2,043	2,116	6,185
Industrial chemicals & plastics	655	685	701	2,041
Metals & minerals	555	621	666	1,842
Forest products	318	356	371	1,045
Energy & specialized markets	663	724	771	2,158
Industrial	2,191	2,386	2,509	7,086
Automotive	560	703	671	1,934
Intermodal	1,116	1,386	1,517	4,019
Premium	1,676	2,089	2,188	5,953
Total	$ 5,893	$ 6,518	$ 6,813	$ 19,224
Revenue carloads (thousands)				
Grain & grain products	243	242	225	710
Fertilizer	52	54	55	161
Food & refrigerated	39	42	40	121
Coal & renewables	214	176	209	599
Bulk	548	514	529	1,591
Industrial chemicals & plastics	181	183	185	549
Metals & minerals	183	196	209	588
Forest products	49	53	54	156
Energy & specialized markets	147	154	158	459
Industrial	560	586	606	1,752

Automotive	183	210	202	595
Intermodal [a]	792	853	956	2,601
Premium	975	1,063	1,158	3,196
Total	2,083	2,163	2,293	6,539
Average revenue per car				
Grain & grain products	$ 4,345	$ 4,568	$ 4,837	$ 4,577
Fertilizer	4,564	3,995	4,256	4,267
Food & refrigerated	6,414	6,474	6,678	6,524
Coal & renewables	2,270	2,546	2,516	2,437
Bulk	3,700	3,971	4,004	3,889
Industrial chemicals & plastics	3,620	3,739	3,789	3,717
Metals & minerals	3,028	3,179	3,185	3,134
Forest products	6,505	6,686	6,911	6,706
Energy & specialized markets	4,505	4,711	4,857	4,695
Industrial	3,911	4,075	4,136	4,044
Automotive	3,058	3,350	3,324	3,251
Intermodal [a]	1,408	1,626	1,586	1,545
Premium	1,718	1,966	1,889	1,862
Average	$ 2,829	$ 3,014	$ 2,971	$ 2,940

[a] For intermodal shipments each container or trailer equals one carload.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Non-GAAP Measures Reconciliation to GAAP (unaudited)

Financial Performance*

Millions, except per share amounts and percentages, for the three months ended September 30, 2026	*Reported results (GAAP)*	*Acquisition-related expense*	*Adjusted results (non-GAAP)*
Operating expenses	$ 4,254	$ (22)	$ 4,232
Operating income	2,943	22	2,965
Income tax expense [a]	(650)	-	(650)
Net income	2,076	22	2,098
Earnings per share - diluted	$ 3.49	$ 0.04	$ 3.53
Operating ratio	59.1%	(0.3)%	58.8%

Millions, except per share amounts and percentages, for the three months ended September 30, 2025	*Reported results (GAAP)*	*Acquisition-related expense*	*Adjusted results (non-GAAP)*
Operating expenses	$ 3,695	$ (41)	$ 3,654
Operating income	2,549	41	2,590
Income tax expense [a]	(530)	-	(530)
Net income	1,788	41	1,829
Earnings per share - diluted	$ 3.01	$ 0.07	$ 3.08
Operating ratio	59.2%	(0.7)%	58.5%

[a] Certain acquisition-related costs are non-deductible for income tax purposes.

* The above tables reconcile our results for the three months ended September 30, 2026 and 2025, to adjusted results that exclude the impact of certain items identified as affecting comparability. We use adjusted operating expenses, adjusted operating income, adjusted income tax expense, adjusted net income, adjusted diluted earnings per share (EPS), and adjusted operating ratio, as applicable, among other measures, to evaluate our actual operating performance. The measures listed in the above table are considered non-GAAP by SEC Regulation G and Item 10(e) of SEC Regulation S-K. We believe these non-GAAP financial measures provide valuable information regarding earnings and business trends by excluding specific items that we believe are not indicative of our ongoing operating results of our business, providing a useful way for investors to make a comparison of our performance over time and against other companies in our industry. Since these are not measures of performance calculated in accordance with GAAP, they should be considered in addition to, rather than as a substitute for, operating expenses, operating

income, income tax expense, net income, diluted EPS, and operating ratio as indicators of operating performance.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Non-GAAP Measures Reconciliation to GAAP (unaudited)

Financial Performance*

Millions, except per share amounts and percentages, for the nine months ended September 30, 2026	*Reported results (GAAP)*	*Acquisition-related expense*	*Adjusted results (non-GAAP)*
Operating expenses	$ 12,114	$ (93)	$ 12,021
Operating income	8,164	93	8,257
Income tax expense [a]	(1,740)	-	(1,740)
Net income	5,770	93	5,863
Earnings per share - diluted	$ 9.71	$ 0.16	$ 9.87
Operating ratio	59.7%	(0.4)%	59.3%

Millions, except per share amounts and percentages, for the nine months ended September 30, 2025	*Reported results (GAAP)*	*Acquisition-related expense*	*Deferred tax adjustment*	*Crew staffing agreement*	*Adjusted results (non-GAAP)*
Operating expenses	$ 10,980	$ (42)	$ -	$ (55)	$ 10,883
Operating income	7,445	42	-	55	7,542
Income tax expense [a]	(1,468)	-	(115)	(13)	(1,596)
Net income	5,290	42	(115)	42	5,259
Earnings per share - diluted	$ 8.87	$ 0.07	$ (0.19)	$ 0.07	$ 8.82
Operating ratio	59.6%	(0.2)%	-%	(0.3)%	59.1%

[a] Certain acquisition-related costs are non-deductible for income tax purposes.

* The above tables reconcile our results for the nine months ended September 30, 2026 and 2025, to adjusted results that exclude the impact of certain items identified as affecting comparability. We use adjusted operating expenses, adjusted operating income, adjusted income tax expense, adjusted net income, adjusted diluted EPS, and adjusted operating ratio, as applicable, among other measures, to evaluate our actual operating performance. The measures listed in the above table are considered non-GAAP by SEC Regulation G and Item 10(e) of SEC Regulation S-K. We believe these non-GAAP financial measures provide valuable information regarding earnings and business trends by excluding specific items that we believe are not indicative of our ongoing operating results of our business, providing a useful way for investors to make a comparison of our performance over time and against other companies in our industry. Since these are not measures of performance calculated in accordance with GAAP, they should be considered in addition to, rather than as a substitute for, operating expenses, operating income, income tax expense, net income, diluted EPS, and operating ratio as indicators of operating performance.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Non-GAAP Measures Reconciliation to GAAP (unaudited)

Debt / net income

Millions, except ratios for the trailing twelve months ended [1]	***Sep. 30, 2026***	*Dec. 31, 2025*
Debt	**$ 30,324**	$ 31,814
Net income	**7,618**	7,138
Debt / net income	**4.0**	4.5

Adjusted debt / adjusted EBITDA*

Millions, except ratios for the trailing twelve months ended [1]	***Sep. 30, 2026***	*Dec. 31, 2025*
Net income	**$ 7,618**	$ 7,138
Add:		
Income tax expense	**2,300**	2,028
Depreciation	**2,538**	2,465
Interest expense	**1,270**	1,309
EBITDA	**$ 13,726**	$ 12,940
Adjustments:		
Other income, net	**(623)**	(629)

Interest on operating lease liabilities [2]		**33**		40
Adjusted EBITDA (a)	**$**	**13,136**	$	12,351
Debt	**$**	**30,324**	$	31,814
Operating lease liabilities		**788**		1,008
Adjusted debt (b)	**$**	**31,112**	$	32,822
Adjusted debt / adjusted EBITDA (b/a)		**2.4**		2.7

[1] The trailing twelve months income statement information ended September 30, 2026, is recalculated by taking the twelve months ended December 31, 2025, subtracting the nine months ended September 30, 2025, and adding the nine months ended September 30, 2026.

[2] Represents the hypothetical interest expense we would incur (using the incremental borrowing rate) if the property under our operating leases were owned or accounted for as finance leases.

* Adjusted debt (total debt plus operating lease liabilities plus after-tax unfunded pension and OPEB (other post-retirement benefit) obligations) to adjusted EBITDA (earnings before interest, taxes, depreciation, amortization, and adjustments for other income and interest on present value of operating leases) is considered a non-GAAP financial measure by SEC Regulation G and Item 10(e) of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe this measure is important to management and investors in evaluating the Company's ability to sustain given debt levels (including leases) with the cash generated from operations. In addition, a comparable measure is used by rating agencies when reviewing the Company's credit rating. Adjusted debt to adjusted EBITDA should be considered in addition to, rather than as a substitute for, other information provided in accordance with GAAP. The most comparable GAAP measure is debt to net income ratio. The tables above provide reconciliations from net income to adjusted EBITDA, debt to adjusted debt, and debt to net income to adjusted debt to adjusted EBITDA. At September 30, 2026, and December 31, 2025, the incremental borrowing rate on operating leases was 4.2% and 4.0%, respectively. Pension and OPEB were funded at September 30, 2026, and December 31, 2025.

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Source: Union Pacific Corporation

EXHIBIT 8

Corrected Transcript

22-Oct-2026

Norfolk Southern Corp. (NSC)

Q3 2026 Earnings Call

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MANAGEMENT DISCUSSION SECTION

Operator: Good morning, ladies and gentlemen, and welcome to the Norfolk Southern Corporation Third Quarter 2026 Earnings Conference Call. At this time, note that all participant lines are in a listen-only mode, but following the presentation, we will conduct a question-and-answer session. [Operator Instructions] Also note that this call is being recorded on Thursday, October 22, 2026.

And I would like to turn the conference over to Luke Nichols. Please go ahead.

Luke Nichols

Assistant Vice President-Investor Relations, Norfolk Southern Corp.

Thank you and good morning, everyone. Please note that during today's call we will make certain forward-looking statements within the meaning of the Safe Harbor provision of the Private Securities Litigation Reform Act of 1995. These statements relate to future events or future performance of Norfolk Southern Corporation, which are subject to risks and uncertainties and may differ materially from actual results. Please refer to our annual and quarterly reports filed with the SEC for a full discussion of those risks and uncertainties we view as most important.

Our presentation slides are available at norfolksouthern.com in the Investors section along with a reconciliation of any non-GAAP measures used today to the comparable GAAP measures, including adjusted or non-GAAP operating ratio. Please note that all references to our prospective operating ratio during today's call are being provided on an adjusted basis.

Turning to slide 3, I'll now turn the call over to Norfolk Southern's President and Chief Executive officer, Mark George.

Mark R. George

President, Chief Executive Officer & Director, Norfolk Southern Corp.

Well, good morning, everyone, and thank you for joining us. We are here in Atlanta and I'm joined by Brian Barr, our Chief Operating Officer; Ed Elkins, our Chief Commercial Officer; and Jason Zampi, our Chief Financial Officer.

Our third quarter was strong with steady execution making notable improvements to our network while delivering solid results. We have an outstanding team of thoroughbreds who remained focused on the fundamentals, operating a safe, reliable railroad, serving our customers, growing the business and improving productivity across the network. So, a big thanks to all our team. Collectively, we delivered very strong revenue and operating income growth while we continued to advance productivity. While we absorbed higher fuel costs this quarter, our team executed well on the controllables, maintaining cost discipline while improving the efficiency of the operations.

Overall, we were pleased with how the business performed in a dynamic operating environment, and believe that the underlying fundamentals of the franchise remained strong. Demand for rail service is growing with encouraging trends in the areas such as domestic intermodal and chemicals, which Ed will discuss in more detail. The current macro environment is tightening the truck market, and that helps rail be more competitive, and what you saw in the quarter is us capturing the increased customer demand.

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Operationally, we continue to make progress. Under Brian's leadership, we've made targeted adjustments across the network and key service metrics are improving even as we handle higher volumes. Brian will detail some of the changes that helped us achieve record productivity performance in the quarter, and we are making other operational improvements while adding resources that will improve network performance going forward and you should expect to see these efforts show up more clearly as we close out 2026, and continue into next year.

Bottom line, we're handling the volume today and we expect stronger results as the resources come online and our demand pipeline continues to fill out. While we are encouraged by the meaningful progress we're making we know there's more work to do and we've consistently said that we hold ourselves to a higher standard. We're accelerating some targeted capital investments into this year to accommodate continued volume growth, so that we can deliver the level of service our customers expect. Meantime, we've identified opportunities to build more sustainable processes across our network, so we can create a more resilient railroad for the long term.

And with that, let me hand it off to Brian.

Brian Barr

Chief Operating Officer, Norfolk Southern Corp.

Appreciate it, Mark, and good morning, everyone. I want to begin by thanking the men and women of Norfolk Southern. As I spend time in the field, it is clear our team is putting in the work. Our railroaders managed another demanding quarter overcoming significant weather and operating disruptions while remaining focused on serving our customers and operating safely.

As I said on this call last quarter, and say it to our teams frequently, successful railroading comes down to doing the fundamentals exceptionally well. Originate trains on time, reduce terminal dwell, run the plan and align resources with demand. During the third quarter, our focus on those fundamentals drove clear sequential improvements across the network.

Turning to slide 5, the most important part of railroading is ensuring our employees and the communities we serve remain safe. Our preliminary year-to-date FRA Personal Injury Index is 1.08. Our train accident rate is 1.74, a historical best for Norfolk Southern. Our accident performance continues to show step function improvement and it's a clear sign of our railroaders' commitment to safety. We recognize the progress, but we are not satisfied. We will never stop pushing ourselves to be the safest in the industry.

Turning to slide 6, we entered the quarter with a clear plan to recover network fluidity by improving originations, reducing dwell, increasing velocity and getting the railroad back on schedule. We delivered sequential improvement across those foundational measures. These are results our customers can see and feel. This quarter-over-quarter improvement demonstrates that our operating actions are producing results.

Moving to slide 7, our progress came despite significant August weather across the north. On our network's high-speed corridor, the team quickly restored infrastructure, removing hundreds of downed trees, repairing multiple washouts and handling widespread power outages by activating strategic reroutes and repositioning resources. While the historic wind and rain interrupted some of our July momentum, it did not derail our progress. We made meaningful improvements versus the prior quarter, as you can see by the metrics on the slide. We also drove substantial year-over-year progress operating 5% more gross ton miles in quarter three 2025 (sic) [2026] (00:07:04). The network absorbed this growth almost entirely through our existing infrastructure driving a 4% increase in both train length and weight compared to the same period last year.

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Turning to slide 8, we generated strong productivity in a higher volume environment. Our on-time origin performance increased by 12 percentage points, and we continue to see progress here daily. Running an on-time network is essential to driving cost out. Workforce productivity was a quarter three record. We have begun localized hiring to support growth and targeted train plan consolidations will reduce labor intensity where demand is strongest allowing us to continue capturing truck-to-rail conversions.

In the third quarter, the team made improvements by redesigning car connections at terminals, and removing costly handlings to reduce dwell. In the quarter, we eliminated 95 crew starts per week, and took 200 cars offline per day. These adjustments allowed the network to accommodate 3% carload growth in the quarter.

Let me give you a couple examples of our recent plan improvements. First, we consolidated smaller trains between Birmingham and Macon. This saves 14 crew starts per week, reduces the number of locomotives needed and delivers cars faster to the customer. In another example, we shifted 50 daily switch cars from Enola Terminal to Allentown Yard. That change freed up manpower for road service in Enola and moves the switching work to a lower cost per car location. It also removes six blocks at Enola creating additional yard capacity. Adjustments like these are keeping our network fluid and agile.

When trains originate on time and move faster, re-crews decline, locomotives turn more efficiently, cars spend less time in terminals and crews spend more time moving freight. That is how service and productivity reinforce one another.

I'm proud of the way our operating team continues to improve the railroad. That work has us on track to deliver at least $650 million in cumulative cost savings. We made meaningful progress during the quarter, but there is more work ahead. Our standard is a railroad that operates safely, executes consistently and delivers service our customers can plan around every day. We will keep leading from the front, running the plan and delivering results.

I will now turn the call over to Ed.

Claude E. Elkins

Chief Commercial Officer & Executive Vice President, Norfolk Southern Corp.

Thanks a lot, Brian and good morning, everyone. Our commercial results this quarter reflect a strong macro backdrop, and a tightening truck market, which has allowed NS to drive growth across our network. Volume grew in every one of our business groups and we set an all-time record for revenue less fuel.

Let's move to slide 10. We achieved 14% overall revenue growth for the third quarter, which is inclusive of fuel surcharge. And when we look at revenue on a less fuel basis, we delivered a 6% increase to set an all-time record. We finished the quarter with broad-based strength achieving 3% volume growth in each of our business verticals. These gains were supported by elevated global energy [indiscernible] (00:10:35) and favorable truck market dynamics. RPU less fuel increased by 3% as our teams focused on pricing to the market.

Looking within merchandise, volumes increased 3% and revenue less fuel achieved another record increasing 5% from a year ago, driven by strength in our metals and construction franchise, and by strong energy demand in our chemicals markets. RPU less fuel grew 2% year-over-year as strong core pricing was partially offset by some mix.

Let's shift our focus to our intermodal business. Volumes there increased 3% reflecting strong freight demand and a tighter truck market conditions that favorably positioned our intermodal partners to succeed with particular strength in our domestic and premium segments, which was partially offset by international. Overall, intermodal

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revenue less fuel increased by 7% as positive mix and a positive price environment pushed RPU less fuel up by 4%.

Looking at our coal franchise, volumes grew 3%, largely due to increased export volumes, which includes the new customer that we announced earlier this year. And despite strong demand, utility volumes were relatively flat versus 2025 due to plant outages along with some localized service challenges that limited our ability to capture upside. RPU less fuel increased by 2% lifted primarily by tailwinds from favorable seaborne pricing.

Let's go to slide 11 and here we highlight several dynamic factors that continue to influence our market outlook. The inflection of fuel price has generated opportunities across energy-related commodities, which could carry forward for the duration of the conflict in the Middle East. However, if energy prices remain elevated in the longer term, it could begin to impact overall customer demand. We're keeping a close eye on this interplay. The tightening truck market bodes well for highway-to-rail conversions across markets such as forest products and consumer products.

And lastly, new project activity and industrial development remains ahead of last year although the pace has normalized following an exceptionally strong second quarter. And as we look forward, we remain positive on the outlook for new industrial development activity as tariff-related concerns ease. Additionally, we have a subdued, but positive outlook for vehicle production.

Industrial activity has maintained its momentum, with manufacturing continuing its expansion for the ninth consecutive month. We're maintaining an optimistic outlook for the industrial sector despite ongoing volatility in the broader economic landscape. Global energy prices, while a significant wild card, could continue to support near term opportunities in markets like natural gas liquids, sand and crude oil.

Looking specifically at our intermodal markets, truck market conditions continue to trend positively. Rising rates reflect tighter capacity against a steady demand backdrop and we expect resilient consumer demand to support our domestic and premium segments in the near term as new orders increase and retail sales have shown modest growth and on the other hand, war and trade uncertainty will continue to weigh negatively on international volumes on our network. And overall, we stand poised to take share from the highway as elevated fuel prices make conversion from truck-to-intermodal more attractive to our customers.

As we turn to coal, the outlook is positive for the remainder of 2026, and we expect growth to be led primarily by our export franchise, but will also be supported by favorable market conditions within our utility business.

Let's go to slide 12. Throughout the third quarter, we continued to build momentum across the business. Stronger service performance is enhancing customer confidence and their confidence is supporting market share growth and at the same time, new digital and operating capabilities are enabling us to grow more efficiently.

Our digital investments are delivering tangible benefits for both customers and our operations through greater automation, visibility and better ease of doing business. Whether customers are requesting a rate or seeking information on an active shipments, we're delivering tools that help deliver faster and more consistent answers. We're streamlining the end-to-end rate request process through a single, intuitive platform that allows customers to submit, manage and track their requests in one place. This reduces manual touchpoints, it increases transparency and accelerates decision-making. We're focused on delivering an increasingly seamless customer experience. At the same time, we're also enhancing shipment visibility by combining real-time network data, historical trends and machine learning and superintelligence to adapt to changing network conditions. The result

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is a more accurate and more actionable shipment information enabling customers to plan more effectively, operate more efficiently and ultimately make decisions with greater confidence.

As these capabilities continue to scale, our goal is simple, make Norfolk Southern the easiest railroad to do business with so that we win more freight in competitive markets and as always, we want to thank all of our customers for their continued partnership and business. The entire NS team is aligned around delivering the service that our customers need every day, building trust as a vital partner for them in their supply chains.

And with that, I'll turn it over to Jason to review our financial results.

Jason A. Zampi

Chief Financial Officer & Executive Vice President, Norfolk Southern Corp.

Thanks, Ed. I'll start on slide 14 with the reconciliation of our GAAP results to the adjusted numbers that I will discuss today. During the quarter, we incurred $42 million in merger-related expenses and $28 million of net costs related to the Eastern Ohio incident. Adjusting for these items, the operating ratio for the quarter was 65.4% and earnings per share was $3.62.

Slide 15 details the comparison of these adjusted results versus last year. As expected, higher fuel prices were a significant driver of both the revenue and expense increases, accounting for about half of the variance in both line items. Last quarter, we were expecting fuel to be a tailwind to our third quarter operating ratio. However, as I previewed a couple of weeks ago, fuel prices actually increased as we progressed through the quarter and that negatively impacted our operating ratio by about 250 basis points from where we thought we would be. That said, higher volumes and RPU in the quarter helped drive a 10% improvement in earnings.

Drilling further into the expense line items on slide 16, costs were up 17% for the quarter. As I just discussed, over half of that increase was driven by the rise in fuel expense. I'll also remind you of last year's significant land sale that impacts the comparison to prior year as well. Setting aside those items, continued inflationary pressures and volumetric cost increases are the primary drivers in our other P&L line items, including comp and ben, purchased services and materials.

Summarizing our financial results on slide 17, despite the inflationary headwinds we faced, we drove an increase of 7% in operating income and delivered a 10% increase in both net income and earnings per share. As we move into the fourth quarter, we continue to manage through the volatility of fuel prices that will influence the trajectory of the operating ratio. That said, we're optimistic about the current demand environment and our ability to grow volumes, revenue and earnings.

Mark, I'll turn it back over to you.

Mark R. George

President, Chief Executive Officer & Director, Norfolk Southern Corp.

Okay. Let's turn to slide 19. Looking ahead, our priorities remain clear. Most importantly, we will continue to operate a safe and reliable railroad. Safety remains the foundation of everything we do and we remain fixated on that. Network velocity increased from Q2 despite the higher load on the network and some disruptive events that Brian talked about. Our team is actively recruiting and training new T&E employees to augment our resource base to accommodate growth while we still drive smart productivity and efficiency actions. Accelerating and maintaining a fast network is essential to provide the consistent, high-quality service that our customers depend on to grow their businesses.

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Now turning to guidance, the fuel environment has remained elevated. As a result, our updated adjusted OpEx guidance for the full year is to be just north of $9 billion, which includes approximately $700 million of incremental fuel expense compared to our view at the beginning of the year. While higher fuel prices continue to pressure our cost structure, our team remains disciplined on managing controllable costs and delivering productivity improvements across the network.

I'm exceptionally proud of this team as they've managed through the volatile environment this year while managing to keep core operating costs within the original guide we set forth at the beginning of the year, despite stronger volumes. The underlying business remains healthy and we're committed to balancing growth with operational efficiency. Now, we are increasing our capital expenditure outlook and expect 2026 CapEx to be roughly $2.1 billion, which is up from $1.9 billion originally. The incremental reinvestment in the franchise is geared toward positioning us to capture growth opportunities that we see on the horizon as well as to enhance network resilience and efficiencies.

We're encouraged by the growth we're seeing across parts of our business, but we also recognize that today's environment won't persist indefinitely. We view most of the macroeconomic factors that are driving the recent truck-to-rail conversions as temporary. But what the freight market today is showing us is that when shippers are given a rail product that offers better value than the highway, they move freight to rail quickly and the Union Pacific-Norfolk Southern combination is designed to create those conditions permanently.

Okay. With that, we will now open the call to questions. Operator?

QUESTION AND ANSWER SECTION

Operator: Thank you. [Operator Instructions] Thank you. And your first question will be from Scott Group at Wolfe Research. Please go ahead, Scott.

Scott H. Group

Analyst, Wolfe Research LLC

Q

Hey, thanks. Good morning. Just a couple things. Mark, your comment about the truck-to-rail conversion being temporary, just add some color there. Is your thought that like when fuel goes down that we lose this share back to truck or are you saying like incremental share gains will get tougher whenever fuel goes down or [ph] maybe I thought may we have (00:22:51) another thought on that. So, I'm just curious about that. And then, Mark, you've also just like in recent quarters like been talking about the competitive dynamic, and I'm just wondering how that's evolving and how we should be thinking about pricing going forward in a world of higher truck rates and better rail volumes?

Mark R. George

President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Hey, good morning, Scott, and thank you very much. Okay, so, yeah, look, the competitive environment it's definitely pretty robust right now. I think you see all the competitors offering new products coming together in the wake of the announcement of the merger. We've definitely seen a more enhanced competitive environment. So, for sure, we're seeing more competition. The good news is, and I think that's all good by the way for the rail industry as a whole, because we are now finally getting some share back from the highway, certainly aided by the

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rising fuel prices, but still, nevertheless, I think the rails cooperating together is really a good thing even if it creates a tougher situation for us.

So, definitely that – I would confirm that dynamic exists and look, when I talk about temporary, what I mean here, Scott, is obviously the rail – I'm sorry, the fuel pricing has pushed freight to the highway. We're seeing a large part of our intermodal growth has been driven exactly by highway-to-rail conversion. No doubt about it. Now that is having an impact on the trucking market, and certainly, there's some capacity limitations now in trucking. But over time, when fuel goes back to where it was, you can expect that some will revert back to – a large portion of what we've gained will eventually, and it might take a year or two, but it will eventually go back to the highway unless this industry does some very structurally different things, which is really what I was alluding to there at the end. So, that's why I think the merger is the real difference-maker here in trying to make permanent some upward inflection on share recapture. So, hopefully that clarifies it. Thanks, again.

Operator: [audio gap] (00:25:17) question will be from Jonathan Chappell at Evercore ISI. Please go ahead, Jonathan.

Jonathan Chappell

Analyst, Evercore ISI

Q

Thank you. Good morning. Ed, every single rail call, every single quarter, asked about pricing, can we get some broad-based answer, but if we look at your RPU ex-fuel across all three segments, they're all really strong. So, I understand that intermodal you have some truck benefits, coal's kind of the benchmarks which is out of your control, but merchandise continues to set a record. So, can you kind of help us frame out kind of what was controllable versus what wasn't, and kind of where you are in kind of recapturing price as the service continues to improve?

Claude E. Elkins

Chief Commercial Officer & Executive Vice President, Norfolk Southern Corp.

A

Sure. Yeah. Thanks for the question. I'll try not to be high level and generic even though it might be unavoidable in some cases. But look we've had a strong history of price over a long period of time, and having a service product that is recovering has allowed us to exhibit additional value for our customers and that includes our industrial customers. Now, it also helps that what we see is a pretty robust industrial backdrop when it comes to the macro, that nine months of expansion now in terms of manufacturing and new orders continue to sort of propel what's going on out there.

We see a strong industrial development pipeline of our own, which we think is indicative also of a strong macro. So, it's – it is a growth environment right now on the industrial side of our business, which is where, of course, our merchandise business mostly lives, and we've been able to take advantage of the service that we've offered with that value to really try to price to the value of that product. I know other people say that and we all aspire to it, but it's been a key part for us and that really in the merchandise segment, you think about it, we've got some mix headwinds on that side of the business as well, which kind of waters down our efforts when it comes to RPU, which of course is not really price. So, we're proud of that.

On the intermodal side, certainly, mix plays a role there as well, but I will tell you that we've spent – and I know I've told you this before, we've spent a lot of time renegotiating our contracts and reconfiguring how we adapt to changing market conditions. So, I think we're in the really early innings of seeing that happen, and I really expect that we'll continue to see that happen as this environment persists. Thanks again for the question.

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Operator: Next question will be from Jason Seidl at TD Cowen. Please go ahead, Jason.

Jason H. Seidl
Analyst, TD Cowen

Q

Hey. Thank you, operator. Hey, Mark and team. Mark, you sort of mentioned if the industry doesn't take a few steps that you fear that some of this stuff that you've gained – the traffic that you've gained can be lost over the next two years, I guess when you look at that assumption are you assuming that capacity comes back to the trucking market as it has historically, because it does appear to be some structural changes in at least some of the regulatory regime here? And also, aside from sort of creating that transcontinental option that you and the UP are proposing, what are other things that you think the industry can do to retain this traffic?

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Great questions, Jason. Thank you. Look, yes, I think eventually capacity does come back into trucking when the prices – the barriers of entry – barriers to entry are very low. So, capacity will come back when fuel prices go back down and I think that presents a competitive challenge for rail. I think don't forget the threat of autonomy with trucking and what that also will do to make the product more attractive and appealing. Just aside from the cost benefit for the truckers, they're going to also have lack of rest hour requirements when trucks are driving.

So, they're going to also deliver products faster than they currently do today, which is already faster than the railroads. So, those are the things that I'm talking about we have to structurally change. So, what we can do aside from the merger is we still have to be consistent and reliable with our delivery. And the challenge is that railroads can't always flex to sharp inflections and volume. We saw that post-COVID, and I think you see a little bit of that now even. When you start to see volumes hit beyond a couple few points, it starts to stress your crew capacities.

So railroads have to be much more nimble. The challenge we all have as an industry is to bring on T&E resources. It's a grind. These are hard jobs to fill. You have considerable attrition through a six-month training process. So, you have to basically hire double what you think you need, because you're going to end up losing half by the time you get to the end of a six-month training process. And that means you have to predict six months in the future what the volumes are going to be.

And if you get that wrong, you might be either short or you could be long on resources. And, there's this area called Wall Street that thinks that you can be perfectly volume variable, but it's a challenge. So, we have to somehow crack that nut and figure out how to ensure that we've got adequate buffer in our resources to be able to accommodate a little bit more volume when we don't expect it. And let's just talk about recent history. In Q4 of last year, we were all feeling really terrible about the volume environment, and we weren't feeling very optimistic looking into 2027 about the volume environment. But it was exactly then you had to have the conviction to go and really augment your T&E resources and significantly increase for what eventually became a volume inflection in the middle part of 2026 or really the second quarter of 2026. And if you get that wrong, you saw challenges in your service product. So that's a real-time recent example of the challenge railroads have and we have to crack that nut. Thank you.

Operator: Next question will be from Chris Wetherbee at Wells Fargo. Please go ahead, Chris.

Chris Wetherbee
Analyst, Wells Fargo Securities LLC

Q

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Hey, thanks. Good morning. And maybe I can pick up on that last answer. So, I guess as we think about service and your capacity for growth and maybe take into context with the bump up in the CapEx guide, can you talk about how much capacity that you have? I mean, it seems like service in the last couple of weeks has gotten a little bit slower. Maybe that's from volume growth. Obviously, there's a lot going on out there from the demand perspective. So maybe you can just talk about big picture how much capacity you have to growth and sort of where you'd be deploying the capital that you're raising?

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Yeah, I'll start off and we'll tag team this answer. But look, we have capacity and I think even in this quarter, you'll see that we've taken on volume. We haven't really added a ton of train starts. A lot of this is through filling out existing trains. So it hasn't really had too big of an impact. That said, there are – there have been some more asset-intensive volume that's come on the unit train side. So, certainly those are areas where when you have more bulk traffic and more unit traffic that you've got to move that's where you end up feeling a little bit more of the pinch on the capacity side, but otherwise in our regularly scheduled merchandise product and our intermodal products, we've got capacity. But Brian, why don't you jump in with your views?

Brian Barr
Chief Operating Officer, Norfolk Southern Corp.

A

Yeah. So I mean, we're walking through the service there regularly and as I mentioned here earlier in the call with some of the operational changes we make, we're creating capacity with train consolidations, with removing touches on existing cars. As we mentioned, we are hiring here at some strategic locations that'll build resiliency into the plan. And we're on path with it in a few strategic locations and also with the locomotives, we have 420 that are in storage currently that are there for capability as volume increases as we grow. We've already been able to take on 3% more shipments this quarter and absorb that into the existing network. Although we're 4% bigger on length and weight, we still have a lot of capacity there on existing service.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Okay. Thank you very much.

Operator: Next question comes from Brian Ossenbeck at JPMorgan Chase. Please go ahead, Brian.

Brian P. Ossenbeck
Analyst, JPMorgan Securities LLC

Q

Hey. Good morning. Thanks for taking the question. Just a quick follow-up for Brian and a broader one about resourcing. Brian, we're hearing a lot about dray driver challenges and availability and that's not necessarily something you guys cover directly or manage directly, but it's clearly part of the whole supply chain on the intermodal side. So wanted to see if there's anything along those lines, if you're feeling any constraints or if there's any opportunities to work with your channel partners in there as this volume growth continues to be pretty significant, especially the conversion?

And then, Mark, maybe just big picture is anything from a technology perspective or maybe even a work contract negotiating perspective to get more flexibility to help out with some of that variability of hiring with that long lead time item, which is obviously labor? Thank you.

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Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Thanks, Brian. Yeah, I'll start here and Brian can kick in as well. Look, we're investing at the terminal level to make sure that our drayage community is as fluid and as efficient as it possibly can be. They're a key component to what we do. Specifically, not only in markets where they're doing end deliveries, but we also do a lot of cross-towns in the current environment and they're really important there too. Is there stress? Yes, there's stress across the entire supply chain, particularly for trucks and drivers. And I think that that's really been a part of the story here that people have talked about but not sure how much attention that they've paid to it, but the supply of drivers and the capability there has been drawn down some. But we're investing to make sure that the drivers that come to our terminals are being efficient with their time and that we are delivering value for them too. And, Brian, I don't know if you want to talk about specific investments or where we're doing that, but I know you're looking at a number of places across the network.

Brian Barr
Chief Operating Officer, Norfolk Southern Corp.

A

Yeah, so with growth – I mean, we have locations right now that are hitting lift records here currently. So, we have five locations that are going to hit a quarterly lift record within the intermodal ramps. We have 10 that'll hit annual. But we've been doing ongoing expansions and improvements in several of the terminals with the growth mindset and with increasing our capability, and we're hitting a few locations there and Chicago, Harrisburg are a few key corridors specifically.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Yeah – yeah and I think technology in general is something we're investing in. I think in the intermodal terminals we're looking at a fair amount of autonomy opportunities there that will help us with moving boxes and scanning and hustling and things like that. So, those will help with our terminal fluidity, but on top of it, Brian, you're doing a lot of investments in some of the yards, automating switches and doing some other things that will help alleviate some of the manual work requirements that we have, correct?

Brian Barr
Chief Operating Officer, Norfolk Southern Corp.

A

Correct.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

So those are – Jason, do you want to add anything else on some of the – where the CapEx is, the incremental CapEx?

Jason A. Zampi
Chief Financial Officer & Executive Vice President, Norfolk Southern Corp.

A

Yeah, I mean, our priorities with respect to capital allocation has always been first and foremost to invest in the business and no change there. I think what you're really seeing here in this increase that we talked about the end of the year is really preparing for growth and that's really important. A lot of this takes some time to get in the ground or to purchase these assets. So, it's important to get ahead of that. The only other thing I would just add from a technology perspective is really what we've done on the portals and the benefits that we get out of that from efficiency and safety. So, I think that's another key thing that's been important for us.

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Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

It sure has been. And I think the key thing here is when you look at our accident rates, they have been consistently declining for three years. And we are really at the envy of the industry levels of accidents. And that just means more fluidity on line of road, which means less resources required. When you have breakdowns, when you have accidents, it really congests you, you need a lot more human resources to move things, it creates a lot more recruits. We are more fluid because we are better on line of road thanks to the portal investments we've made. So, let's move on to the next question.

Operator: Which comes from Bascome Majors at Stephens. Please go ahead, Bascome.

Bascome Majors
Analyst, Stephens, Inc.

Q

Thanks for taking my questions. When you originally framed the cost to run the business this time last year, I think that was a helpful framework and it certainly played out where you've had the capacity to grow and largely maintain service levels and the network. And I appreciate the comments earlier about the buffer and how you're managing through that and capacity. As we look to next year, it looks like 4Q the cost guidance is call it $2.4 billion. There's obviously lot of volume variability to serve the business into next year, but can you talk through the inflationary components and sort of the expectations that you're setting so we can get our own expectations for what that number looks like for 2027 versus 2026? Thank you.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Thanks a lot, Bascome. Yeah, so, I'll let Jason talk to that. I mean, we're not going to give 2027 guidance now, but certainly inflation has been a challenge for this industry in the past couple few years. Obviously, the labor contracts are at the root of it. But on top of it, all the inflation we've seen elsewhere in materials and vendor costs have really hit us. We offset as much of that as we can with productivity and we've had a couple great years with productivity and we'll continue to drive cost out of the business there. But Jason, do you have some first looks at inflation?

Jason A. Zampi
Chief Financial Officer & Executive Vice President, Norfolk Southern Corp.

A

Yeah, I think just from a kind of early perspective here, I mean, we signed wage agreements with the unions year and a half, two years ago now and so we have a good line of sight to that. So, we've got a 3.75% increase that just went into effect in July and another 3.5% next July. So, we know what the headwinds are there from a wage rate perspective. The other two things I'd call out and I'm putting fuel aside here obviously as a bit of a wild card. But the other thing is health and welfare benefits. Those have been very significant, double digit percentage increases in that. And we see that continuing as we move into next year. And then the other thing that I would just call out is insurance. Our cost to receive insurance coverage continues to go up. And I don't see that abating at all as we move into next year. So, I think those are some big drivers that you should expect as we move into 2027.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

And I'd imagine, Bascome, we'll do similar type of guide next year and give you a cost envelope. Okay, next question.

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Operator: Comes from Richa Harnain at Deutsche Bank. Please go ahead, Richa.

Richa Harnain
Analyst, Deutsche Bank Securities, Inc.

Q

Hey, thanks for the guys – the time guys. So, I wanted to ask maybe a more bigger picture one. One of the key strategic attractions of the merger is obviously the opportunity to convert more over-the-road freight to rail; however, we're seeing more and more evidence that conversion potential in western and transcontinental corridors maybe is more limited than in the east. Of course, that makes sense. But your largest IMC partner, for instance, reported a stark difference in growth for east versus transcon. So, given your strong eastern franchise, how are you thinking about that difference and is it primarily structural given like shorter haul lanes being more competitive or does it largely just reflect the absence of maybe a sufficiently reliable and competitive rail service offering in transcon, which the proposed merger is trying to fix? I'm just trying to understand like what the structural sort of impediments are and how those get corrected from this merger?

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Okay. Thanks, Richa. Why don't – Ed, why don't you take a shot at that, please?

Claude E. Elkins
Chief Commercial Officer & Executive Vice President, Norfolk Southern Corp.

A

Sure. Yeah, look, we think that there are opportunities to convert truckload business to the railroad no matter what the length of the haul, whether it's long or short. Certainly, the transcon lanes have had more attention paid to them over the past 30 years with a variety of services, and so the penetration in those lanes is naturally higher than it is in the, what I would call the east, which is for us east of Mississippi. The results that you're seeing from a variety of our partners, I think, reflect that reality that there's a tremendous amount of opportunity in the east to convert truckload to the railroad with the right kind of service and value. And I think we've become pretty good at that over time. We can always get better.

What I think the merger is going to help us do is increase our penetration opportunity in those transcon lanes, because we will have a better service and it will be a permanent change. It will not be an interline product. It will be a local product that is durable across not only months but years and decades. And so it is a – we view that as a perpetual opportunity for a share shift in those transcon lanes. And at the same time, the new company will have what I would consider to be a prime opportunity to convert a lot of the freight that still rides the highway in the east that would much rather save money, save fuel and deliver value to their customers using the intermodal.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Thank you. Next question.

Operator: Next question comes from Brandon Oglenski at Barclays. Please go ahead, Brandon.

Eric Morgan
Analyst, Barclays Capital, Inc.

Q

Hey. Good morning. This is Eric Morgan on for Brandon. Thanks for taking the question. I guess, I'll just ask one on the coal outlook. It turned positive. I think you mentioned driven by export, but also the favorable conditions in

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utility business. So can you just help square that with the relatively low natural gas prices and how much line of sight you'd say you have on that business and just any thoughts on how that shakes out for RPU? Appreciate it.

Claude E. Elkins
Chief Commercial Officer & Executive Vice President, Norfolk Southern Corp.

A

Yeah, sure. Sure. The – on the domestic side, we saw our plants burn exceed the amount of tons that we delivered to them really for most of the year here. So we think that there's some replenishment that's going to happen. I agree with you that the low natural gas prices are going to be a strong competitor, but we do think that there'll be some restocking going on for the remainder of the year and who knows, maybe in the next year, but we'll see about that. On the export side, it's a pretty favorable environment when I think about pricing.

You look at the third quarter, US low vol ended up somewhere around [ph] $200. And API2 was at $126 (00:46:02). And right now we're at – or recently I should say, we're at [ph] $210 and $145 (00:46:10). So those are constructive levels we think going into the fourth quarter. So yeah, our outlook is I would call it level. We're trying to be realistic with what the market can deliver on the utility side, but we think there's still some opportunity, particularly with the good partners that we have in the east here to deliver export tons.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Thank you.

Operator: Next question comes from David Vernon at Bernstein. Please go ahead, David.

David Vernon
Analyst, Bernstein Institutional Services LLC

Q

Hey, good morning, guys. So, Ed, I wanted to talk a little bit about the intermodal. When you think about the trials and tribulations of the last 12 months, obviously losing some volume on the repositioning of some J.B. Hunt volume. How should we be thinking about the volume ex that headwind? And then as you think about your ability to not only touch on price next year, but also to think about new service introductions, things like that, what are you thinking about on the product side? I know you're in this sort of merger waiting game, but you guys doing more work to think about where you can expand the network or add some services that could kind of tap into this elevated highway [ph] truck (00:47:25) market? Thanks.

Claude E. Elkins
Chief Commercial Officer & Executive Vice President, Norfolk Southern Corp.

A

Well, yeah, we are, of course. And there's an old saying my dad used, which is you make hay while the sun shines. And so we're exploring every opportunity to deliver new value to our customers and we'll see what emerges from that over the next few weeks and months, but I'm very bullish on that. When I think about our capability and what we've done, think about the third quarter, we had the best domestic non-premium third quarter in history for volume and that is a – that's saying something. Given where we were a year ago, right?

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

And the business we had a year ago.

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Claude E. Elkins
Chief Commercial Officer & Executive Vice President, Norfolk Southern Corp.

A

And the business we had a year ago. We had a really good quarter on the truckload side of our business and I'm very, very encouraged by that in a couple ways. One, we have great partners that are continuing to drive conversion out there on the Street, which is incredibly important. And number two, we have a network that can deliver value very ably for those customers. And I'm going to speak right past you and talk to our customer base and say, I really want everyone to be confident that we can continue to deliver that value. We've got the capability, we've got capacity and we're building more capacity and I think we're in a really good shape there. Thanks for the question.

Operator: Next question comes from Tom Wadewitz at UBS. Please go ahead, Tom.

Thomas Wadewitz
Analyst, UBS Securities LLC

Q

Yeah. Good morning. So, wanted to ask a bit, I guess, you'll see this, but it's merger related. I think one of your primary competitor has pointed out that you have a really attractive intermodal network and access in Eastern Pennsylvania and I think they'd like to get some access to some of it. How do you think about the capacity utilization of Harrisburg, Allentown, some of those key intermodal hubs and just the kind of operational complexity of potentially having trackage rights or something where another railroad would get access to it and not obviously that you can do that, but just kind of at high level is that something that's operationally doable and where do you sit in terms of capacity of eastern intermodal network that I think kind of fairly presented is a nice advantage for you.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Look, I mean, we have a very attractive franchise in Eastern Pennsylvania, no doubt the envy of others. And no surprise people are going to take moonshots to ask for access for it. Heck, I'd love to have access to Bone Valley in Florida, and I'd love to have access to South Dakota. There's all these other areas on the network everyone wants access to, but guess what, the tracks on the ground, we're going to live with our – we're going to defend our franchise and we're going to defend our network and we're going to trust that the STB will view things like this through sober eyes and pretty – pretty firmly rejected like they rejected a lot of the asks during the CPKC – every ask during the CPKC merger application. So, it's not really worth answering the rest of that question Tom, because it's not going to happen. We're not giving up that franchise. I can't see a scenario where the STB would even entertain it. That's it. Thank you.

Operator: Next question comes from Ari Rosa at Citigroup. Please go ahead, Ari.

Ariel Rosa
Analyst, Citigroup Global Markets, Inc.

Q

Hey. Good morning. So it sounds like you've detailed an attractive opportunity set here from a volume standpoint, but I was hoping you could talk about kind of how you see the attractiveness of the business that's available and just how discerning you have to be in terms of freight selectivity and expectations around that business kind of sticking around? I understand there's obviously a service component on your end, but as we think about just kind of apples to apples is that business that you want and how do you have to price that appropriately to ensure you get attractive returns? Thanks.

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Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Sure. Thanks for the question. We have a team of folks that are out on the Street every day, including right now, looking for new business. And that team is very well trained and really capable smart folks. They're going to bring opportunities back that are attractive and accretive to the business. And that's the first mission they have. And I'm very, very confident that they're doing a great job of that and they're going to continue to. You think about what business sticks around – or here's the business that will stick around no matter what happens and that is if we can deliver value in such a way that a customer can realize that value quickly and demonstrate that value for their customers, then we're going to be in great shape. And that means service, service, service and that's what we're focused on. It means capacity, capacity, capacity and that's what we're focused on. And I'm very confident that as we move forward, our portfolio is only going to get more attractive in the current environment. Thank you.

Operator: Next question comes from Walter Spracklin at RBC Capital Markets. Please go ahead, Walter.

James McGarragle
Analyst, RBC Capital Markets

Q

Hey, this is James McGarragle on for Walter this morning. I just wanted to ask on the volume outlook. Last quarter, you flagged an update on your industrial customer investment activity. You mentioned this normalized a bit after a strong H1, so I guess, was that a surprise to you that that normalized and any specific numbers you can give us surrounding that opportunity just to help us think about the opportunity in terms of carload growth there into next year?

Claude E. Elkins
Chief Commercial Officer & Executive Vice President, Norfolk Southern Corp.

A

Yeah. Thanks for the question. We have over 50 industrial products that have moved into that design and construction phase, and that's the sort of the demarcation line, we think, between a opportunity that is theoretical versus one that's actually going to be executed. So we're encouraged by that. Yes, the first half of the year, we saw some acceleration and actually outperformance of that pipeline and it has not decelerated, but receded to the what I would call a normalized run rate and that's okay. A normalized run rate is very sustainable for us over a long period of time. Probably the more surprising thing was the acceleration in the first half. And so I feel like we're on track. We always have a budget every year for what we think is going to happen and we're back sort of on that run right now and that's a very healthy thing. And frankly very encouraging. In terms of carloads, really can't define that here, but we're encouraged.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

A

Okay. Thank you.

Operator: This time we have no other questions registered. I would like to turn the conference over to Mark George.

Mark R. George
President, Chief Executive Officer & Director, Norfolk Southern Corp.

Okay. Thank you operator and thank you everybody for participating in the call. Look, I think I'll just wrap by saying, look, we've put an application forward for a merger. It's been – it's more thorough than any merger

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proposal ever presented by an American railroad, and it includes a first ever use of a complete dataset as opposed to sampled data. We now have greater visibility to the board's timeline. And we believe that the case for our merger is going to become clearer as the evidentiary record continues to build, and it is no doubt in my mind that we are very much in the public interest with this merger application.

A unified network's going to provide customers with more opportunities to grow and compete, placing new markets within reach as Ed talked about, at a lower cost. And that enhances affordability for the US consumer and the broader economy. I think second, reducing handoffs, improving network fluidity and delivering more consistent service outcome. That's what's going to matter to the STB when they look at this, that service reliability, resilience and broader supply chain performance and a more fluid network also means it's going to help the communities. We'll have fewer interchanges, fewer stoppages and that's going to translate into fewer block crossings. That's in the public interest, for sure.

The freight conversion from the highway goes without saying. We're going to save on overall diesel fuel consumption as a nation, because we're up to 5 times more fuel efficient than trucks. On top of that, we're going to make the highways safer by having fewer trucks on it. When you remove 3.6 billion truck miles, that translates to about 1,750 fewer accidents and injuries, which you can do math and estimate. That's about 65 fewer fatalities. Not to mention for our employees being part of a larger company we are going to have more opportunities for employees and we're actually going to start growing again, well-paid [indiscernible] (00:56:52) jobs.

So we're excited about the progress we're making on the merger application and the STB has put out this timeline. And we'll move on and continue to focus on running the business in the meantime. So thank you all for participating and take care.

Operator: Thank you, sir. Ladies and gentlemen, this does indeed conclude your conference call for today. Once again, thank you for attending and at this time, we ask that you please disconnect your lines.

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EXHIBIT 9

PUBLIC VERSION - REDACTED

BNSF to Build New Integrated Rail Complex in Barstow to Increase Supply Chain Efficiency Nationwide



First-of-its kind integrated facility will create 20,000 direct and indirect jobs, and reduce port and freeway congestion around the Ports of Los Angeles and Long Beach

BARSTOW, Calif., Oct. 1, 2022 – BNSF Railway today announced plans to invest more than $1.5 billion to construct a state-of-the-art master-planned rail facility in Southern California – and the first being developed by a Class 1 railroad.

PUBLIC VERSION - REDACTED

The Barstow International Gateway will be an approximately 4,500-acre new integrated rail facility on the west side of Barstow, consisting of a rail yard, intermodal facility and warehouses for transloading freight from international containers to domestic containers. The facility will allow the direct transfer of containers from ships at the Ports of Los Angeles and Long Beach to trains for transport through the Alameda Corridor onto the BNSF mainline up to Barstow. Once the containers reach the Barstow International Gateway, they will be processed at the facility using clean-energy powered cargo-handling equipment, and then staged and built into trains moving east via BNSF's network across the nation. Westbound freight will similarly be processed at the facility to more efficiently bring trains to the ports and other California terminals.

"By allowing for more efficient transfer of cargo directly between ships and rail, the Barstow International Gateway will maximize rail and distribution efficiency regionally and across the U.S. supply chain and reduce truck traffic and freeway congestion in the Los Angeles Basin and the Inland Empire," said Katie Farmer, President and CEO of BNSF. "This will play a critical role in improving fluidity throughout our rail network, moving containers off the ports quicker, and facilitating improved efficiency at our existing intermodal hubs, including those in the Midwest and Texas. The facility will also have an important positive economic impact, including the creation of new, local railroad jobs." said Farmer.

"The significance of BNSF's investment to improve the supply chain here in California cannot be overstated. Rail plays a critical role in moving goods safely and efficiently, while reducing emissions due to congestion in many of our high-traffic corridors," said Trelynd Bradley, Deputy Director of Sustainable Freight and Supply Chain Development at the Governor's Office of Business and Economic Development. He added, "Projects like BNSF's will work to strengthen our inland local economies, such as that of Barstow in San Bernardino County. We look forward to continuing to work with projects like these, as well as others, to drive transformative investments that will enhance and elevate California's supply chain ecosystem for a more efficient and resilient tomorrow."

"BNSF's planned Barstow International Gateway will improve cargo velocity through our port and reduce truck traffic on our freeways," said Port of Los Angeles Executive Director Gene Seroka. "This project will help ensure that goods moving through the San Pedro Bay will get to consumers, businesses and manufacturers with speed and reliability."

"The Port of Long Beach welcomes BNSF's planned Barstow International Gateway in the high desert. This project will help improve supply chain fluidity, reduce environmental impacts and enhance the competitiveness of California and the nation's largest port complex," said Mario Cordero, Port of Long Beach Executive Director.

PUBLIC VERSION - REDACTED

Dawn Rowe, San Bernardino County Supervisor for the Third District, added, “The County of San Bernardino plays a critical role in supporting the movement of goods to the rest of the country. Barstow International Gateway will be essential for modeling new and efficient ways to address supply chain issues that have impacted everyone over the past several years.”

Willie A. Hopkins, Jr., Barstow City Manager emphasized, “This facility will bring thousands of jobs to Barstow, while increasing equity, opportunity and the economic competitiveness of the high desert.” He continued, “BNSF has been an important part of our city since its inception and on this 75th anniversary, we are proud to partner with them to ensure our success in the future.”

“We appreciate the support from leaders at the state, regional and city level and look forward to building on our 140-year history in the High Desert to open the Barstow International Gateway as soon as possible,” affirmed BNSF’s Farmer.

For more information, please visit Barstow International Gateway Project.

About BNSF

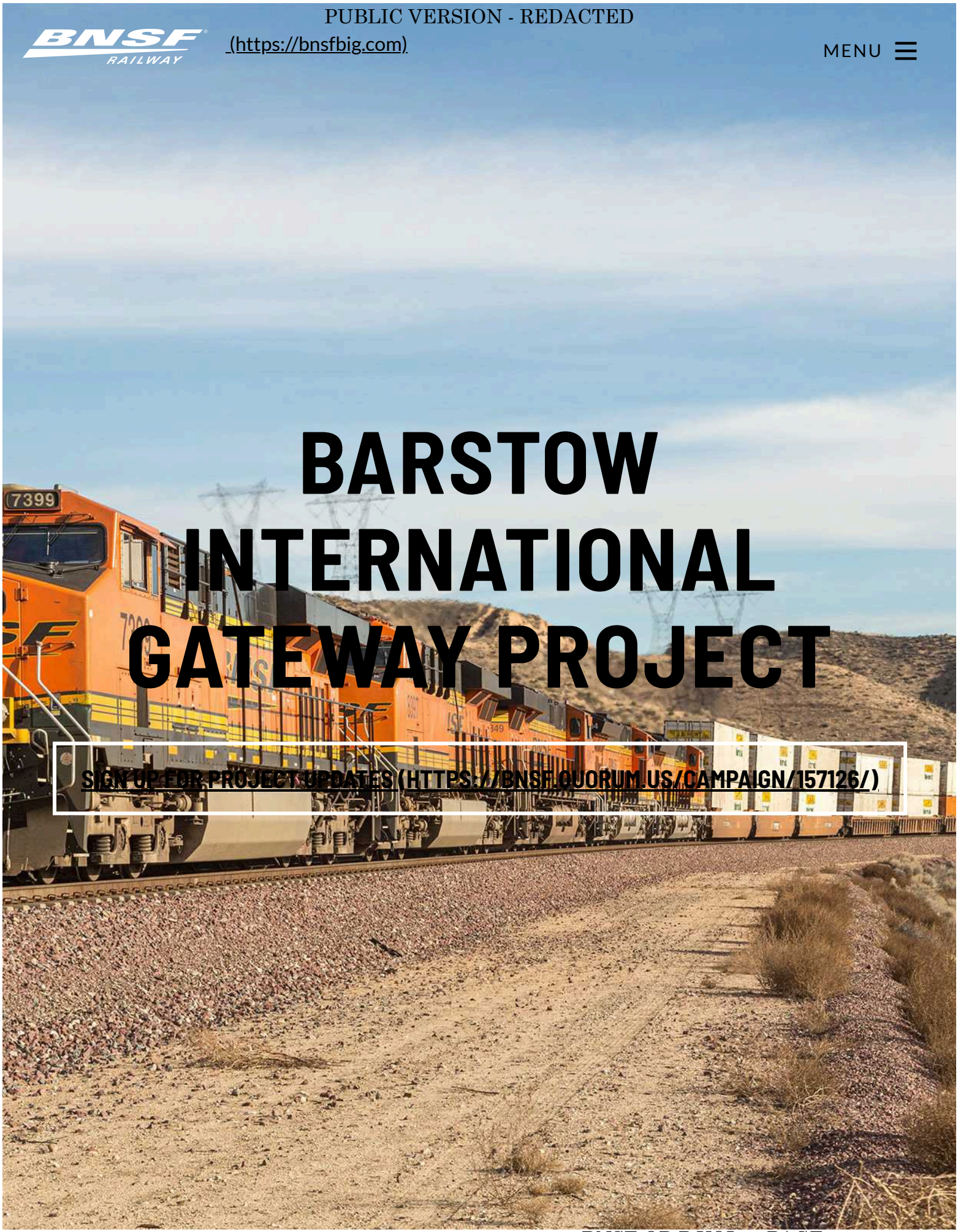
BNSF Railway is one of North America’s leading freight transportation companies. BNSF operates approximately 32,500 route miles of track in 28 states and also operates in three Canadian provinces. BNSF is one of the top transporters of consumer goods, grain and agricultural products, low-sulfur coal, and industrial goods such as petroleum, chemicals, housing materials, food and beverages. BNSF’s shipments help feed, clothe, supply, and power American homes and businesses every day. BNSF and its employees have developed one of the most technologically advanced, and efficient railroads in the industry. We work continuously to improve the value of the safety, service, energy, and environmental benefits we provide to our customers and the communities we serve. You can learn more about BNSF at www.BNSF.com.

BNSF-OP-P VOL. 3 PAGE 169

EXHIBIT 10

BNSF RAILWAY (https://bnsfbig.com)

MENU



BARSTOW INTERNATIONAL GATEWAY PROJECT

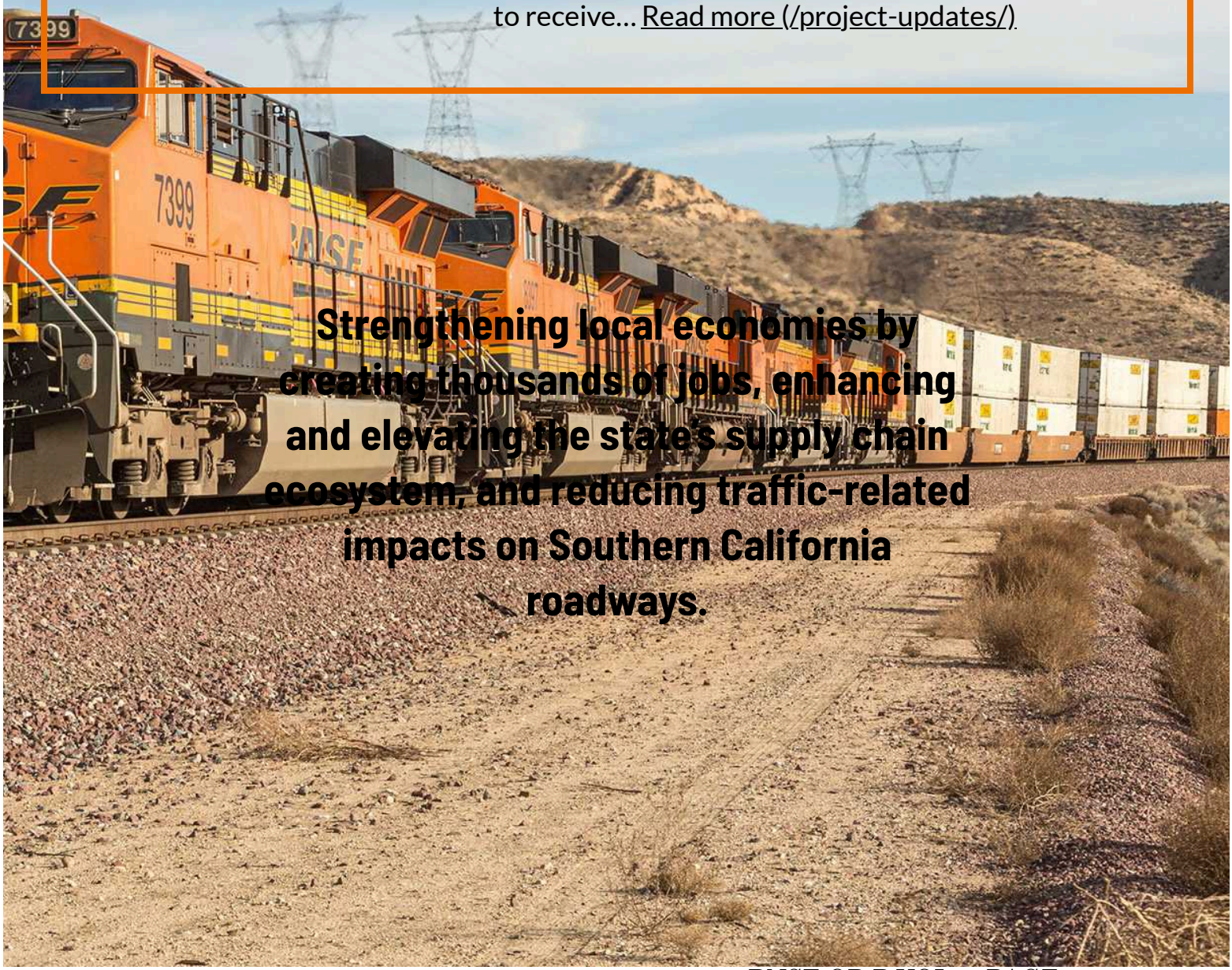
SIGN UP FOR PROJECT UPDATES (HTTPS://BNSF.QUORUM.US/CAMPAIGN/157126/)

PROJECT UPDATES

VIEW ALL UPDATES

June 2026

The Barstow City Council approved the Barstow International Gateway (BIG) project, marking a major milestone for one of the most significant freight infrastructure investments in California history. The project was also certified by Governor Gavin Newsom under California's landmark SB 149 legislation, which accelerates critical infrastructure projects. It is the first transportation-related project to receive... Read more (/project-updates/)



Strengthening local economies by creating thousands of jobs, enhancing and elevating the state's supply chain ecosystem, and reducing traffic-related impacts on Southern California roadways.

BNSF BIG - Barstow International Gateway

BNSF Railway



SUPPORTERS

PROJECT OVERVIEW

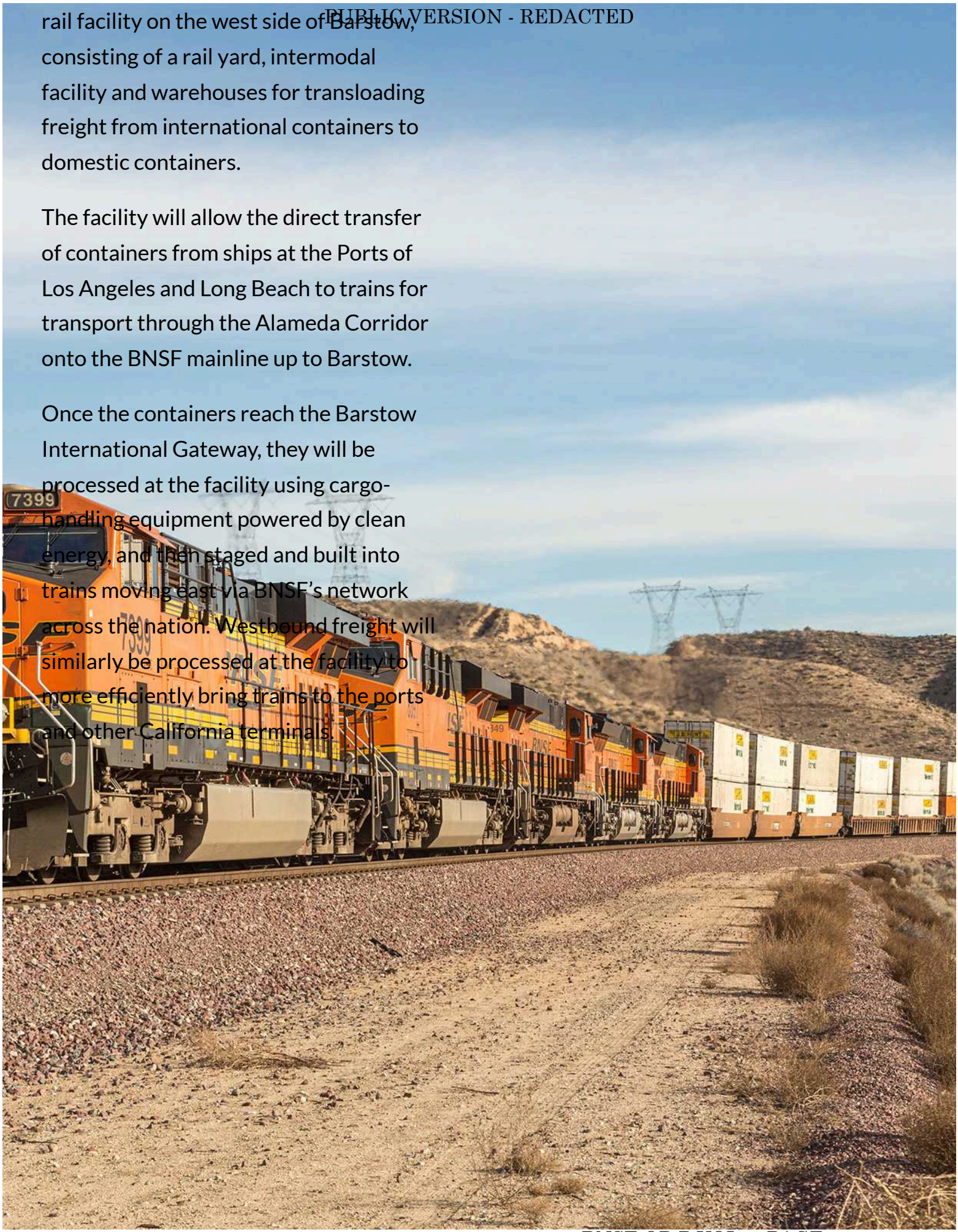
BNSF Railway plans to invest more than $4 billion to construct a state-of-the-art master-planned rail facility in Southern California—and the first being developed by a Class 1 railroad. The Barstow International Gateway will be an approximately 4,500-acre new integrated



rail facility on the west side of Barstow, consisting of a rail yard, intermodal facility and warehouses for transloading freight from international containers to domestic containers.

The facility will allow the direct transfer of containers from ships at the Ports of Los Angeles and Long Beach to trains for transport through the Alameda Corridor onto the BNSF mainline up to Barstow.

Once the containers reach the Barstow International Gateway, they will be processed at the facility using cargo-handling equipment powered by clean energy, and then staged and built into trains moving east via BNSF's network across the nation. Westbound freight will similarly be processed at the facility to more efficiently bring trains to the ports and other California terminals.



KEY BENEFITS

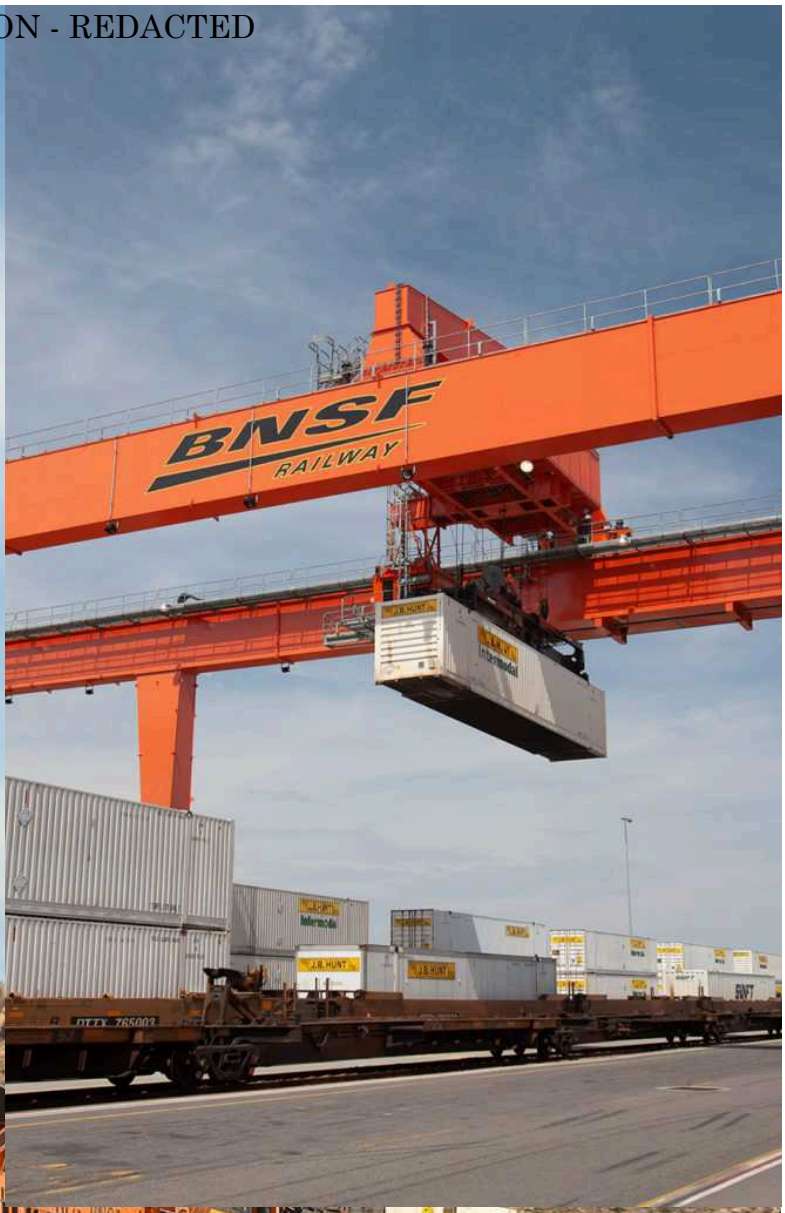


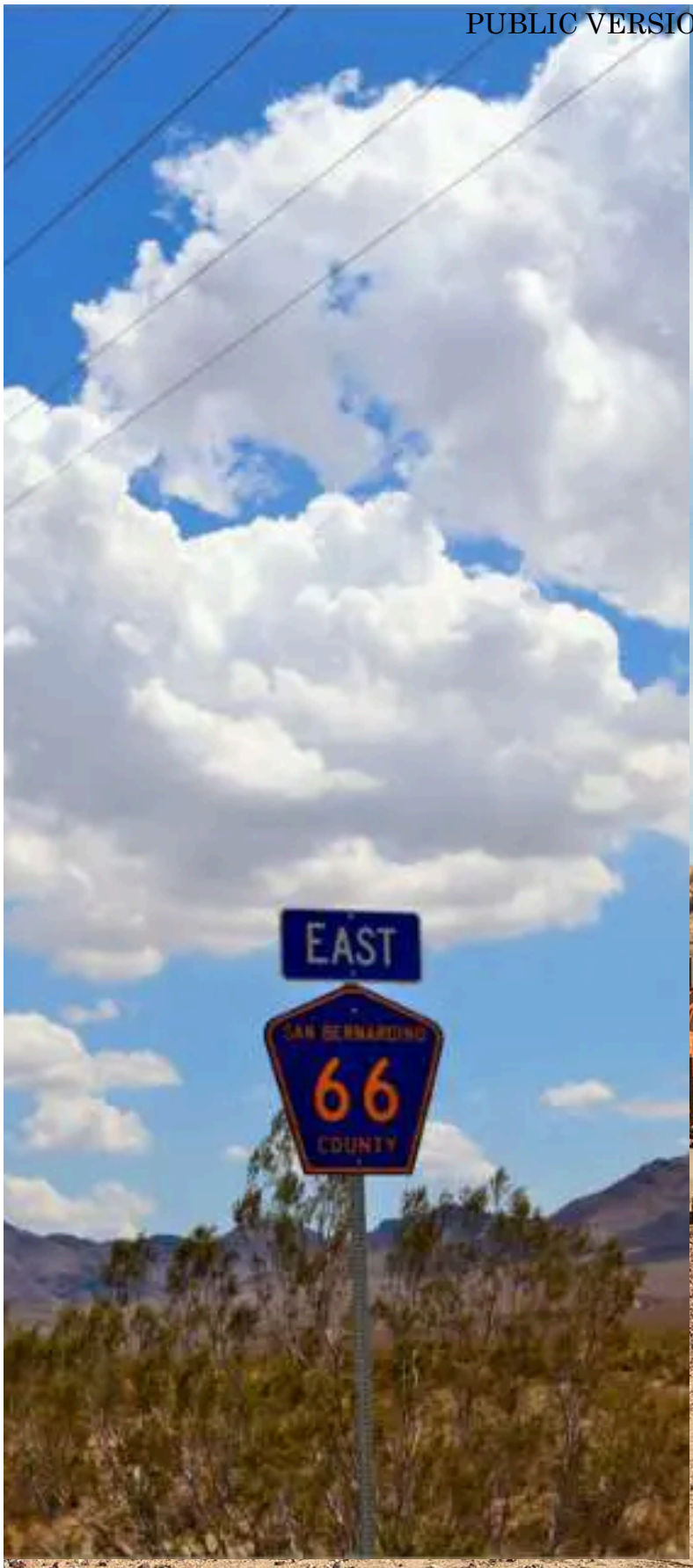
ECONOMY

- Will bring thousands of direct and indirect jobs to High Desert communities
- Will keep the Ports of Los Angeles and Long Beach competitive
- Will support a robust, reliable, and efficient supply chain
- BNSF signed Project Labor Agreements to ensure union labor for construction

SUPPLY CHAIN

- Will allow for more efficient transfer of cargo directly between ships and rail and maximize rail and distribution efficiency regionally and across the U.S. supply chain
- Will improve fluidity throughout BNSF's rail network, moving containers off the ports more quickly and facilitating improved efficiency in operations at existing intermodal hubs, including in the Midwest and Texas



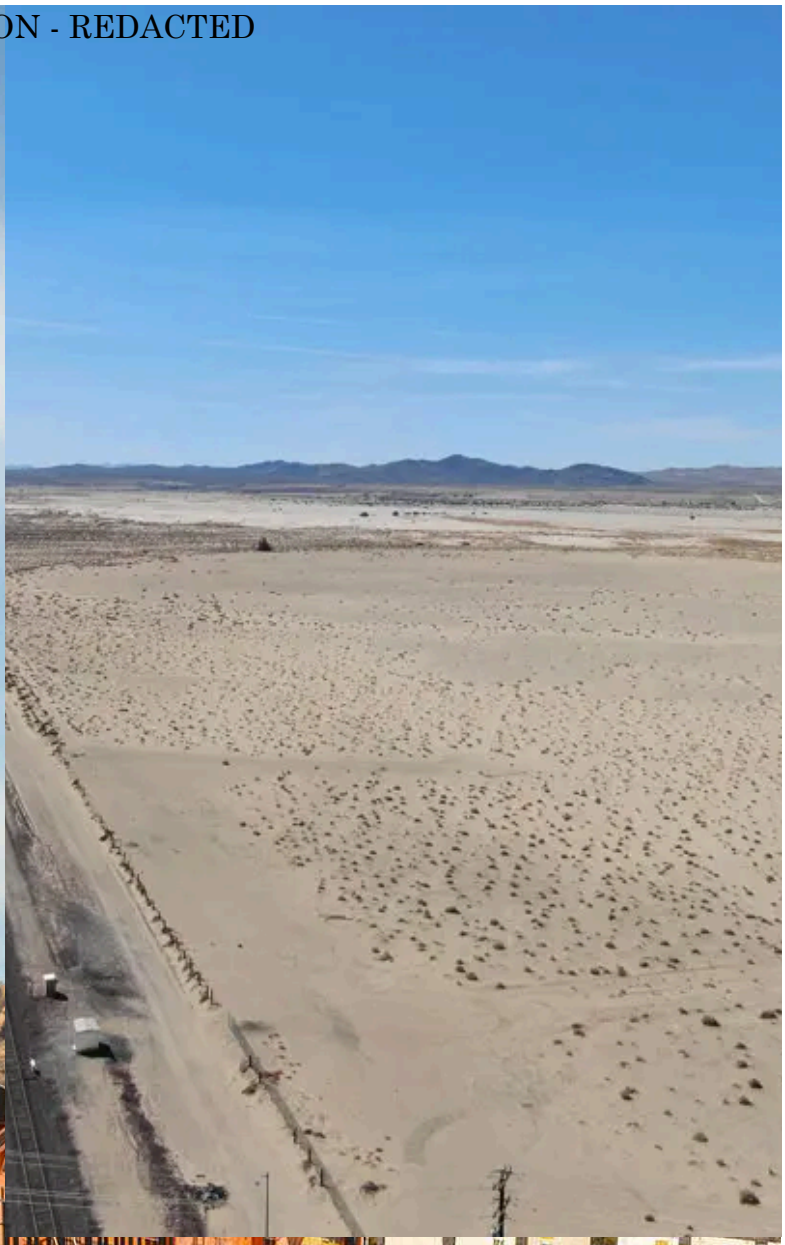


ENVIRONMENT

- Truck traffic at the ports and on freeways throughout the Los Angeles Basin and Inland Empire will be significantly reduced
- Rail and distribution efficiency will be maximized regionally and across the U.S. supply chain by allowing more efficient transfer of cargo directly between ships and rail
- Will run a dedicated Tier 4 locomotive fleet between the Ports and BIG, and partner with regional air quality regulators to test Tier 4 hybrid linehaul locomotives
- Will use zero-emission equipment, such as electric cranes and cargo handling equipment
- The project will be powered by a 140-acre solar farm, rooftop solar on warehouses, and solar canopies

LOW COMMUNITY IMPACTS

- Will minimize potential community impacts in Barstow since the facility will be located near primarily undeveloped land that's not adjacent to urbanized areas
- Will move freight off the roads and onto rails, alleviating traffic congestion on Southern California roadways and freeways and reducing the costs taxpayers incur for road maintenance





THE NEED

Currently, most international cargo at the Ports of Los Angeles and Long Beach arrives in 40-foot containers that are then trucked from the ports to warehouses in Los Angeles or the Inland Empire. Once the containers arrive at the warehouses, they are unloaded, sorted, and reloaded onto 53-foot domestic containers that are either transported by truck to a rail yard in Los Angeles, where they are transferred onto trains or simply trucked across the country. This process creates inefficiencies and

unnecessary truck trips within the Los Angeles Basin and Inland Empire that can impact supply chain distribution, the environment, and communities surrounding ports and warehouses.

The Barstow International Gateway will allow cargo to be transported by rail directly from the ports through the Alameda Corridor to Barstow and processed efficiently between the intermodal rail facility and the on-site transload warehouse facilities, without generating additional on-road truck trips. The transload warehouses will expedite repackaging and processing of goods into domestic containers for further transport via rail across the country.



California is the linchpin of the BNSF Railway network. It's also home to 3,000+ BNSF employees who share our commitment to protecting the environment while safely and efficiently transporting our region's products to the world.

BNSF RAILWAY

SIGN UP FOR PROJECT UPDATES (HTTPS://BNSF.QUORUM.US/CAMPAIGN/157126/)

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EXHIBIT 11

Intermodal | Domestic Products | August 7, 2025

Share

New Truck Competitive Intermodal Service to Kansas City and Chicago

Announcement Number: PR2025-61

Dear Premium Intermodal Customers,

Union Pacific is excited to announce the launch of a new expedited Z train service connecting the Inland Empire in Southern California to the heart of Chicago. This exciting addition brings unparalleled intermodal capacity, enhancing the seamless service from the Los Angeles Basin's most active warehouse district through our Inland Empire Intermodal Terminal (IEIT) directly to Chicago's metroplex through our Global 2 Intermodal Terminal (G2). Customers will experience up to 20% faster intermodal service, with three days' transit, versus current industry options between these key locations. The service will start at five days per week with the ability to increase with growth. Given our continued expansion at IEIT, this innovative service will deliver consistent, reliable, truck competitive transportation, challenging the norms of over-the-road shipping and competing head-to-head with team driver truck services.

We will also be adding a strategic service product by shifting our Kansas City (KCIT) domestic service from the ICTF terminal to the City of Industry terminal in Southern California. Domestic units moving to KCIT will now ride in our expedited Z network six days per week, offering a more than 25% faster journey and up to 25 hours in savings compared to current industry options, with just over 2.5 days transit. Units originating in Kansas City will continue to ride the expedited Z train to the City of Industry terminal. These changes will complement our new, recently opened KCIT terminal and allow for expanded market access, efficient drayage management and enhanced logistics planning. Our Kansas City location offers technology that provides faster turnaround times, along with an optimal location in the Kansas City metroplex providing an elevated driver experience.

These strategic service products will boost growth, optimize the LA Basin and take additional trucks off the road with increased capacity throughout the network. You can read the **full press releases here**.

Both Standard and Priority Domestic COFC service will be offered in these lanes effective September 3, 2025. Published schedules will be as follows:

IEIT to Global 2

- Standard
  Gate c/o: 1300-0
  Availability: 0100-4
  Transit Hours: 82

- Priority
  Gate c/o: 1900-0
  Availability: 1900-3
  Transit Hours: 70

City of Industry – KCIT

- Standard
  Gate c/o: 2100-0
  Availability: 1815-3
  Transit Hours: 67

- Priority
  Gate c/o: 0300-0
  Availability: 1215-2
  Transit Hours: 55

Additional details will follow in a few weeks. Until that time, please direct all questions to your Union Pacific sales representative. Get ready for a game-changing development in intermodal transportation and join us on this journey to elevate intermodal transportation with Union Pacific!

Sincerely,

Union Pacific Premium Business Team

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Our Union Pacific team is here to assist you – from shipping by rail to career opportunities.

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EXHIBIT 12

Intermodal | All Intermodal | June 16, 2025

Share

New Kansas City Terminal Begins Operations July 15

Announcement Number: PR2025-44

To Our Intermodal Customers:

Union Pacific has invested in a new multi-million dollar intermodal terminal in Kansas City, KS (KCIT) located at **1810 Bayard Avenue, Kansas City, KS 66105**. As a result of this strategic investment, operations at our current facility located at 4801 Gardner Ave in Kansas City, MO 64120 will be consolidated into the KCIT operation on July 15, 2025.

KCIT enhancements include a 30% total throughput lift capacity increase with the ability to double capacity as demand warrants, superior highway access, additional working tracks for peak efficiency, and automation with **Precision Gate Technology**.

For your advanced planning:

- Last ingates at our current Kansas City Terminal for Southern California will be 21:00 CT Monday, July 14, 2025. Thereafter, all ingates should be directed to the new KCIT.
- Last ingates at our current Kansas City Terminal for Northern California, SLC, and the Pacific Northwest will be 19:00 CT Monday, July 14, 2025. Thereafter, all ingates should be directed to the new KCIT.
- Effective Monday, July 7, 2025, please begin waybilling shipments originating in the Pacific Northwest to the new KCIT facility.
- Effective Thursday, July 10, 2025, please begin waybilling shipments originating at all other locations to the new KCIT facility.

Current Kansas City Facility hours will be reduced starting July 18 through July 21 to 0800-1600. Our current Kansas City facility will be closed effective Monday, July 21, 2025 at 1600. Please outgate all boxes and bare chassis by Monday, July 21, 2025.

These changes will result in a positive customer experience through efficiency in drayage management, balance of assets, simplicity in logistics planning, and access to both domestic and international markets.

If you have any questions, please contact your Union Pacific Representative.

Kansas City Intermodal Terminal Grand Opening – Initial Announcement

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EXHIBIT 13

Norfolk Southern to make strategic investments in Alabama

AUG 01, 2024

Significant capacity improvements will enhance critical rail corridor, open additional opportunities for statewide business and economic growth

ATLANTA, Aug. 1, 2024 /**PRNewswire**/ -- Norfolk Southern Corporation (NYSE: NSC) is investing to grow capacity on a key rail line in the state of Alabama, the 3B Corridor, which connects markets in northern and central Alabama to the Port of Mobile and destinations worldwide. The more-than $200 million investment positions the line to accommodate expected growth in several sectors as the Southeast progresses as an economic powerhouse for the US economy.

The 3B Corridor is strategically aligned with the Port of Mobile, which contributes $85 billion in annual economic value to Alabama. The corridor represents an important segment of Norfolk Southern's annual traffic, serving critical industries like agriculture, automotive, chemicals, forestry, and steel. The investments are expected to yield immediate returns when they begin to come online in 2025.

"Together with our customers, we are anticipating where markets are heading, and positioning to deliver on their supply chain needs now and into the future," said Norfolk Southern President and CEO Alan H. Shaw. "These investments will bring immediate returns as they make rail an even more competitive part of our nation's supply chain and expand our customers end-to-end solutions."

"We are grateful to Norfolk Southern for these investments in our state and for their support of our existing industries," said Secretary of the Alabama Department of

Commerce Ellen McNair. "This is proof that our open for business approach is attracting growth in our state among world-class businesses looking to locate or expand their operation. We look forward to the positive impact these enhancements will have on Alabama's economic competitiveness and on the nation's supply chain more broadly."

The project involves a mix of terminal and track-based infrastructure improvements, including capacity projects in central and southwest Alabama, customer-specific projects in north Alabama and locations north of Mobile, yard upgrades in Wilton and a series of grade crossing improvements throughout the region.

Already, Norfolk Southern is collaborating on a project to allow a high-volume met coal customer to take advantage of the expanded 3B Corridor. This new premium met coal production facility, set to be developed in 2025, will help power global production of metals products, especially for essential infrastructure projects, for decades to come.

Another customer, Packaging Corporation of America, recently expanded its paper mill located along the corridor, partnering with Norfolk Southern on the project to enhance efficiencies for both companies.

"Without Norfolk Southern's investment in the region, we would not have been able to maximize the opportunity to ship more volume via rail," said PCA Vice President, Transportation Ross Corthell. "The projects Norfolk Southern is planning and doing in the region are great examples of how their long-term strategy to invest in infrastructure, operate safely and efficiently, and market their service, is designed to promote growth."

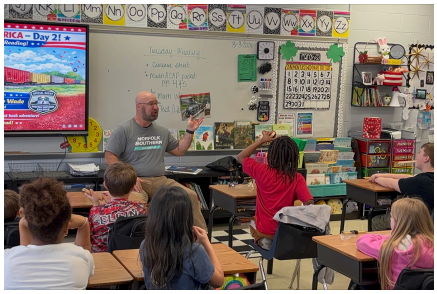
"Norfolk Southern is focused on delivering long-term value through collaboration and innovation with our customers and their markets," said Norfolk Southern EVP and Chief Marketing Officer Ed Elkins. "This means being deeply engaged from the beginning, working with customers to identify business needs and help develop solutions, staying engaged throughout the development process, and finally executing on the safe, reliable, efficient transport of their cargo. Our comprehensive approach is all about being there for our customers' needs today and being ready to handle the next phase of their business tomorrow."

An overview of Norfolk Southern's business and impact on the state of Alabama can also be found **here** .

About Norfolk Southern

Since 1827, Norfolk Southern Corporation (NYSE: NSC) and its predecessor companies have safely moved the goods and materials that drive the U.S. economy. Today, it operates a customer-centric and operations-driven freight transportation network. Committed to furthering sustainability, Norfolk Southern helps its customers avoid approximately 15 million tons of yearly carbon emissions by shipping via rail. Its dedicated team members deliver more than 7 million carloads annually, from agriculture to consumer goods, and Norfolk Southern originates more automotive traffic than any other Class I Railroad. Norfolk Southern also has the most extensive intermodal network in the eastern U.S. It serves a majority of the country's population and manufacturing base, with connections to every major container port on the Atlantic coast as well as major ports in the Gulf of Mexico and Great Lakes. Learn more by visiting **www.NorfolkSouthern.com**.

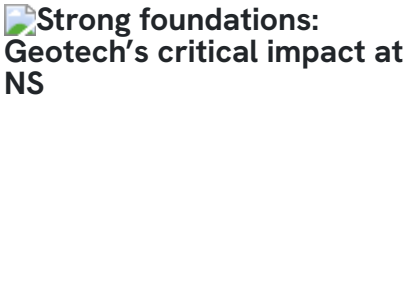
CONTINUE READING



From classrooms to careers: Celebratin...

Mar 06, 2026

The week of March 2 is the nation’s largest celebration of reading Education opens doors at every stage of life, and during Read Across America Week, Norfolk Southern emp...



Strong foundations: Geotech’s critical...

Jan 21, 2026



Safety, service shine in Norfolk Southern...

Oct 23, 2025

Today, Norfolk Southern shared its third-quarter earnings results, highlighting notable gains in safety, service and productivity. The company’s service and safety improv...

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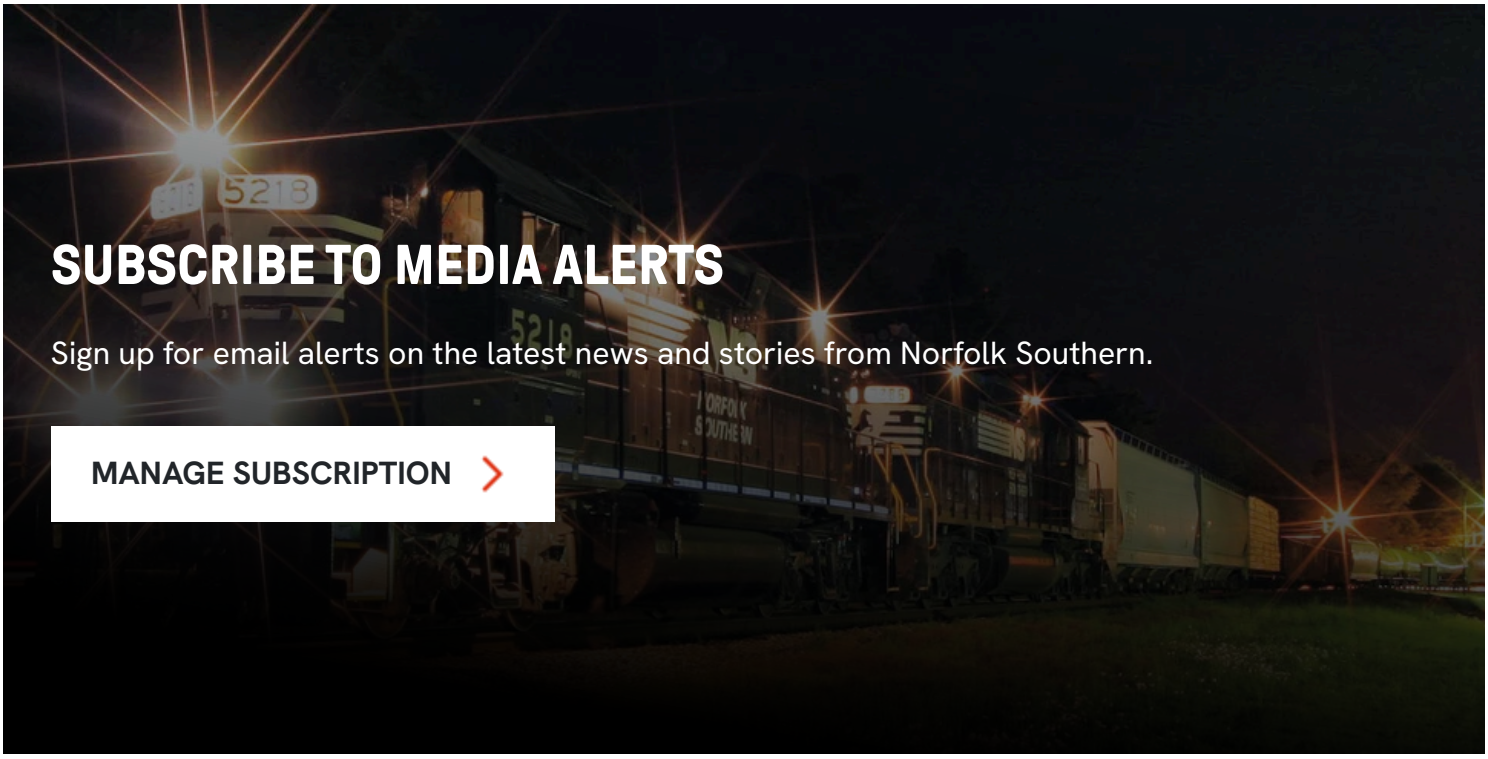

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EXHIBIT 14

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BNSF and CSX team up for faster coast-to-coast domestic intermodal service

By Bill Stephens | October 19, 2026

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Amazon appears to be the anchor customer on the new service linking Los Angeles and New Jersey

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An Amazon container moves through West Hinsdale, Ill., on a westbound BNSF stack train on Feb. 14, 2026. David Lassen

BNSF Railway and CSX have launched a transcontinental premium intermodal train linking Los Angeles and South Kearny, N.J., on a 100-hour schedule — 26 hours faster than the interline schedule the railroads introduced in November 2025.

The railroads would not disclose the train's anchor customer, but trackside observers report that it is Amazon. The online retail giant in May launched Amazon Supply Chain Services, which opened its logistics network to outside shippers, and in September introduced a service that moves sellers' goods from the Port of Los Angeles by direct rail to its East Coast fulfillment centers. [See "Amazon expands...," Trains.com, May 4, 2026.]

Observers report the train has carried more than 100 Amazon containers per day, with additional boxes from other customers, including J.B. Hunt. The service runs seven days a week under the symbols Z-LACNWH on BNSF and I072 on CSX eastbound.

The train has converted 100 highway loads to rail daily since its Oct. 5 launch, a BNSF spokeswoman says, and has room to grow based on its performance so far.

"We have improved our interline intermodal service between Los Angeles and New Jersey in both directions," a CSX spokesman says. "It's part of broader network changes announced about a month ago and reflects our continued focus on growing intermodal by improving speed and reliability across the network."

BNSF and CSX have steadily expanded their interline domestic intermodal offerings since August 2025. [See "BNSF and CSX announce...," Aug. 22, 2025.]

— To report news or errors, contact trainsnewswire@firecrown.com.

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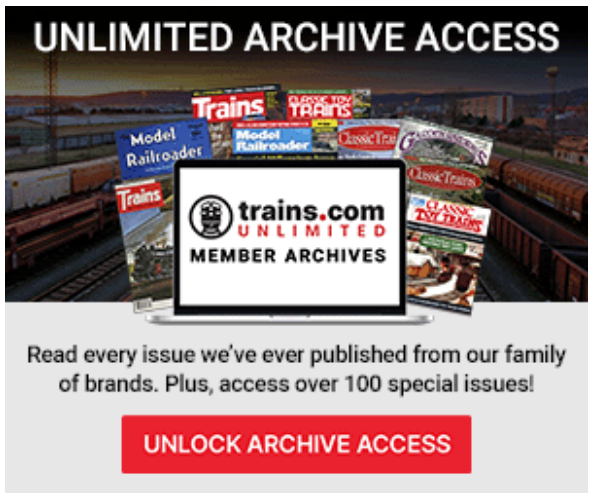

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EXHIBIT 15

Growth Omaha, Neb. and Montreal, Canada | July 22, 2026 Share

Union Pacific and CN Announce Agreement to Improve North American Rail Connectivity

Agreement expands operating rights in Chicago and creates new Canada-Mexico service opportunities for customers

Union Pacific Railroad (NYSE: UNP) and CN (NYSE: CNI) today announced the signing of a binding Memorandum of Understanding that will strengthen rail service across North America, improving both railroads' ability to serve customers.

The agreement provides Union Pacific with expanded operating rights over CN's Elgin, Joliet & Eastern Railway (EJ&E) corridor through Chicago, while granting CN new rights over Union Pacific's network between Memphis, Tennessee, and Eagle Pass, Texas, to support freight movements between Canada and Mexico.

“We are thrilled to have an agreement with Union Pacific to expand CN’s access to Mexico. This is a natural extension of our north-south franchise and will open new routes for customers, provide greater choice and strengthen connections between Canada and Mexico,” said Tracy Robinson, President and CEO of CN. “By extending our reach, we are creating new opportunities for growth while continuing to deliver the safe, reliable service our customers expect. This is another example of CN’s commitment to strengthening rail competitiveness across North America.”

"I’ve seen the benefits first-hand of what the EJ&E route around Chicago can do for a railroad, and we look forward to having access to the quickest way around Chicago,” said Jim Vena, CEO of Union Pacific.

#####

About Union Pacific

Union Pacific (NYSE: UNP) delivers the goods families and businesses use every day with safe, reliable and efficient service. Operating in 23 western states, the company connects its customers and communities to the global economy. Trains are the most environmentally responsible way to move freight, helping Union Pacific protect future generations. More information about Union Pacific is available at www.up.com.

Union Pacific Media Contact: media@up.com

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About CN

CN powers the economy by safely transporting more than 300 million tons of natural resources, manufactured products, and finished goods throughout North America every year for its customers. With its nearly 20,000-mile rail network and related transportation services, CN connects Canada's Eastern and Western coasts with the U.S. Midwest and the U.S. Gulf Coast, contributing to sustainable trade and the prosperity of the communities in which it operates since 1919.

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Forward-Looking Statements

Certain statements by CN and Union Pacific included in this news release constitute "forward-looking statements" within the meaning of the United States Private Securities Litigation Reform Act of 1995 and under Canadian securities laws. By their nature, forward-looking statements involve risks, uncertainties and assumptions. The companies caution that their assumptions may not materialize and that current economic conditions render such assumptions, although reasonable at the time they were made, subject to greater uncertainty. Forward-looking statements may be identified by the use of terminology such as "believes," "expects," "anticipates," "assumes," "outlook," "plans," "targets," or other similar words. Forward-looking statements reflect information as of the date on which they are made. The companies assume no obligation to update or revise forward-looking statements to reflect future events, changes in circumstances, or changes in beliefs, unless required by applicable securities laws. In the event CN or Union Pacific do update any forward-looking statement, no inference should be made that they will make additional updates with respect to that statement, related matters, or any other forward-looking statement.

The statements and information contained in the news releases provided by Union Pacific speak only as of the date issued. Such information by its nature may become outdated, and investors should not assume that the statements and information contained in Union Pacific's news releases remain current after the date issued. Union Pacific makes no commitment, and disclaims any duty, to update any of this information.

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EXHIBIT 16

Certified Fraud Compliance Officer
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Freight fraud isn't random.
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CN and UP reach settlement on Norfolk Southern merger

Canadian carrier agrees not to oppose UP-NS transcon

Trains.com Staff • Thursday, July 23, 2026



An eastbound Union Pacific stack train crosses CN's former Elgin, Joliet & Eastern main at West Chicago, Ill., in May 2023. (Photo: Trains/Bill Stephens)

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Canadian National said it will not oppose the Union Pacific-Norfolk Southern rail merger in a sweeping set of deals that gives it better access to the U.S. Midwest and Mexico.

Union Pacific (NYSE: UNP) will gain rights over CN's crown jewel, the former Elgin, Joliet & Eastern, which will give UP a congestion-free route around Chicago to reach Norfolk Southern's Chicago Line route to the East Coast.

TODAY'S TOP FREIGHT NEWS PLUS EVENTS & INSIGHTS

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CN (NYSE: CNI) will gain operating rights over UP between Memphis and the Eagle Pass, Texas, gateway to Mexico, improving CN's position against rival CPKC (NYSE: CP), which can provide single-line service between Canada and Mexico.

"We are thrilled to have an agreement with Union Pacific to expand CN's access to Mexico. This is a natural extension of our north-south franchise and will open new routes for customers, provide greater choice and strengthen connections between Canada and Mexico," CN Chief Executive Tracy Robinson said in a statement. "By extending our reach, we are creating new opportunities for growth while continuing to deliver the safe, reliable service our customers expect. This is another example of CN's commitment to strengthening rail competitiveness across North America."

UP CEO Jim Vena, who served as CN's chief operating officer from 2013 to 2016, noted that the EJ&E is the fastest route around Chicago. CN acquired the carrier in 2009 to connect its routes from Western Canada, Eastern Canada, and the Gulf Coast. The route provides transit time of 12 hours or less compared to the average Chicago-area time of 35 hours.

"I've seen the benefits first-hand of what the EJ&E route around Chicago can do for a railroad, and we look forward to having access to the quickest way around Chicago," Vena said in a statement.

UP and CN aim to move forward with the Mexico and EJ&E deals as soon as possible. They are not contingent upon the UP-NS (NYSE: NSC) merger gaining regulatory approval.

The other elements of the UP-CN agreements, however, are dependent on UP and NS closing their merger deal. Under the settlement agreement with UP, which is subject to Surface Transportation Board approval, CN would:

- Gain access to the handful of shipper facilities where Class I railroad options would be reduced from 2-to-1 or 3-to-2, "where commercially and operationally feasible."
- Acquire NS ownership interests in the Kansas City Terminal Railway and the Terminal Railroad Association of St. Louis.
- Gain new access in the Midwest through overhead rights between Tuscola, Ill., and East St. Louis, Ill., and rights to serve customers between St. Louis and Kansas City, Mo., via UP.
- Have a presence in Kansas City, with usage of UP's Neff Yard.

"From day one, we've said our merger with Norfolk Southern will preserve and enhance competitive options and create a stronger railroad industry that delivers better service for customers," Vena said. "This settlement agreement reinforces those commitments by giving expanded access and operating rights to a tough competitor."

The UP-NS merger would give UP parallel routes across Missouri, including Norfolk Southern's former Wabash lines as well as its own former Missouri Pacific main. UP previously has said it would look to divest one of its St. Louis-Kansas City routes.

CN, meanwhile, unsuccessfully sought access to Kansas City while opposing the CP-KCS merger. CN had asked the STB to order CP to divest the KCS Springfield, Ill.-Kansas City route, a request the STB rejected.

Robinson said it's important that rail customers benefit from competition and choice.

"This framework would preserve competitive access to key markets, including Kansas City, while positioning CN to continue providing reliable and efficient options for customers across North America," she said.

The UP-CN deal involving the EJ&E brings UP full circle.

UP had considered acquiring the EJ&E in 1995, seeing it as a way to improve the fluidity of its interchange options in Chicago. At the time, the route would have been valuable as a way for Powder River Basin coal traffic to reach eastern railroads. But UP had a bigger goal: It also was in pursuit of a merger with Southern Pacific. At the time, Omaha thought an EJ&E transaction would be too much for the railroad to handle given the larger and more important SP acquisition, which proved true given the later troubled UP-SP integration.

UP and NS have argued that eliminating interchange in Chicago will shave 24 to 48 hours off of existing transit times. The ability to route traffic around Chicago via the EJ&E would further reduce

transit times around the Windy City while also making service more consistent due to the lack of congestion.

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Read more:

First look: Union Pacific earnings

First look: Norfolk Southern earnings

First look: CSX earnings

Street flip: Intermodal rail charges ahead in latest data

Trains.com Staff

EXHIBIT 17

Intermodal | International Products | Domestic Products | September 15, 2025 | Share

New Union Pacific and Norfolk Southern Intermodal Gateway Expands Market Access

Announcement Number: PR2025-73

To Our Customers,

Union Pacific and Norfolk Southern are launching a new domestic intermodal service to deliver greater market reach and more efficient freight transportation options. The service leverages Union Pacific's premier network to connect customers with key western and southern markets and Norfolk Southern's modernized intermodal facilities in the Louisville area.

This joint service, expected to begin in mid-October, offers customers across industries – automotive, consumer goods, food and beverage, healthcare and manufacturing – truck-competitive transit times and expanded market reach.

This bi-directional service will originate and terminate in the Louisville market, interchanging between Norfolk Southern and Union Pacific in Kansas City. It will travel by rail to and from:

- Los Angeles
- Lathrop, California
- Seattle
- Portland, Oregon
- Salt Lake City
- Houston

This is another example of Union Pacific and Norfolk Southern developing innovative interline service products, just as each have with other short line and Class 1 rail partners in the past, to support the growth of the American economy. Other products include moving freight from Los Angeles to Charlotte, North Carolina, and Jacksonville, Florida.

You can read the **full news story here**. We will post service schedules for the new service shortly.

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EXHIBIT 18

May 04, 2026

Amazon Launches Amazon Supply Chain Services, Opening Its Logistics Network to All Businesses

Any business can now move, store, and deliver everything from raw materials to finished products quickly and reliably, using the same supply chain that supports Amazon.com

Retail, wholesale, and commercial businesses of all sizes now have access to the same logistics capabilities that have supported Amazon's growth for decades

Leading brands Procter & Gamble, 3M, Lands' End, and American Eagle Outfitters, Inc. among the first to sign up for ASCS, now relying on Amazon's logistics network across their supply chain

SEATTLE--(BUSINESS WIRE)-- Amazon (NASDAQ: AMZN) today announced the launch of Amazon Supply Chain Services (ASCS), which extends the company's entire portfolio of freight, distribution, fulfillment, and parcel shipping solutions to businesses of all types and sizes. These services were originally developed to power Amazon's own retail operations and to support independent selling partners

beyond the Amazon store. The launch of ASCS builds on this momentum, now supporting third-party logistics for businesses in industries such as healthcare, automotive, manufacturing, and retail.

Amazon Supply Chain Services

"Amazon is bringing the infrastructure, intelligence, and scale of its supply chain services—proven over decades—to businesses everywhere, much like Amazon Web Services did for cloud computing," said Peter Larsen, vice president of Amazon Supply Chain Services. "Supply chain wasn't just a function at Amazon—it was core to providing an exceptional shopping experience. Our differentiator. The reason we could offer fast, dependable delivery that nobody else could. And with the launch of ASCS, we're confident we can give any other business access to the same cost efficiency, reliability, and speed that we've built for Amazon customers."

Amazon offers flexible, scalable solutions that grow with businesses as their needs evolve. From moving goods into warehouses to package delivery and everything in between, leading brands have already started to leverage Amazon's supply chain services. Announced today, Procter & Gamble is using Amazon's freight services to transport raw materials to production facilities and move finished goods across its distribution network; 3M is leveraging Amazon's freight services to move products from its manufacturing sites to distribution centers worldwide; Lands' End is using a unified inventory pool within Amazon's network to fulfill orders across multiple sales channels; and American Eagle Outfitters, Inc. is using Amazon's parcel shipping network to deliver online orders from its American Eagle and Aerie

businesses improve speed, reliability, and efficiency, even through peak demand and unexpected disruptions. Businesses can also benefit from Amazon's AI forecasting models and vast supply chain data set, which help optimize inventory placement. Core offerings include:

- **Freight:** Amazon's transportation network spans ocean, air, ground, and rail freight, supported by a fleet of 80,000+ trailers, 24,000+ intermodal containers, and 100+ aircraft, built to help businesses move goods quickly and reliably at scale. Amazon offers dependable capacity with a range of speed and service options, including time-sensitive shipments, simplified booking, customs clearance, and end-to-end shipment visibility.
- **Distribution and Fulfillment:** Amazon enables businesses to import inventory from overseas, store inventory in bulk, position inventory closer to demand, and fulfill customer orders across their sales channels, all within a single network. By leveraging a unified inventory pool and advanced forecasting capabilities, businesses can improve operational agility, increase inventory accuracy, and provide fast, reliable delivery across all their sales channels, including their own website, ecommerce marketplaces, social media channels, and physical stores.
- **Parcel Shipping:** Amazon provides shipping solutions for orders placed across all sales channels, with predictable two-to-five-day delivery speeds and seven-day-a-week service, backed by the same robust transportation network Amazon uses to deliver billions of packages each year. Businesses can benefit

on-delivery.

Starting today, businesses can access a centralized console to discover, select, and sign up for the various ASCS solutions. Businesses can visit https://supplychain.amazon.com to get started.

About Amazon Supply Chain Services

Amazon Supply Chain Services gives businesses of all types and sizes access to the freight, distribution, fulfillment, and parcel shipping capabilities Amazon has built, refined, and proven at scale over decades—supporting Amazon sellers and other businesses, regardless of where they sell. By extending the global infrastructure, technology, and operational expertise behind Amazon's own supply chain, ASCS helps businesses improve performance, reduce complexity, and operate more efficiently. ASCS is a major growth opportunity for Amazon, supported by continued investment in forecasting, automation, and AI to enhance the speed and accuracy of its supply chain solutions.

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EXHIBIT 19

J.B. HUNT

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02

J.B. Hunt Signs Long-Term Intermodal Agreement With Walmart

FEB 22, 2024 | 2 MIN READ



LOWELL, Ark., February 22, 2024 – J.B. Hunt Transport Services Inc. (NASDAQ: JBHT), one of the largest supply chain solutions providers in North America, announced today that its subsidiary, J.B. Hunt Transport Inc., has entered into a multi-year intermodal service agreement with Walmart, in an arrangement that includes J.B. Hunt's purchase of Walmart's intermodal assets.

The strategic service agreement increases the companies' respective current volume and capacity commitments and enables the development of comprehensive intermodal solutions to drive long-term value for both organizations. In connection with the service agreement and increased commitments, J.B. Hunt will acquire Walmart's operational intermodal container and chassis fleets.

For decades, J.B. Hunt has worked closely with Walmart to provide efficient transportation solutions. "Mr. Hunt always said 'Good partners attract good partners,'" said Spencer Frazier, executive vice president of sales and marketing at J.B. Hunt. "Our customers trust us to develop solutions that scale and drive efficiencies across their ever-changing supply chains. Today's announcement is a testament to the mutual trust

and shared vision our companies have developed over time, and innovative arrangements like this one demonstrate J.B. Hunt's disciplined approach to strategically allocating capital to advance our mission of driving long-term value for our people, customers and shareholders."

"Finding new ways to serve our customers and members and exceed their expectations is important to us," said Fernando Cortes, senior vice president of transportation at Walmart. "Walmart's long history of working with J.B. Hunt has many milestones of innovation and growth. This agreement will strengthen our commitment to delivering goods at an every day low cost to our customers and members."

J.B. Hunt is an industry leader in converting over-the-road shipments to intermodal, which reduces a shipment's carbon footprint by an average of 60%. Operating one of the largest company-owned intermodal fleets in the world, J.B. Hunt Intermodal specializes in domestic and international freight movement that offers dependable, consistent and flexible shipping options, including ocean, transloading, temperature-controlled and expedited capabilities.

J.B. Hunt has long-standing relationships with the industry's leading rail providers, and in recent years, has worked alongside them to enhance service quality and consistency. In 2023, J.B. Hunt and its long-time joint service provider BNSF Railway launched Quantum, a breakthrough intermodal service to convert service-sensitive highway freight to intermodal. The two also created a new service option to support cross-border freight movement to and from Mexico with coast-to-coast access in the U.S.

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EXHIBIT 20

PUBLIC VERSION - REDACTED

WATCH: Norfolk Southern CEO apologizes before Senate for Ohio train derailment

Politics Mar 9, 2023 9:34 AM EST

WASHINGTON (AP) — Norfolk Southern's CEO apologized before Congress on Thursday and pledged millions of dollars to help East Palestine, Ohio, recover from last month's fiery, hazardous materials train derailment. But he stopped short of fully endorsing a Senate bill to toughen safety regulations.

Watch the hearing in the player above.

CEO Alan Shaw said his railroad supports the goal of improving rail safety, but he also defended the railroad's record.

He did back proposals to tighten standards for tank cars that the railroads don't own, expand hazardous materials training for first responders and establish standards for the trackside detectors railroads use to spot problems.

"I'm terribly sorry for the impact this derailment has had on the folks of that community," Shaw said. "We're going to be there for as long as it takes to help East Palestine thrive and recover."

He pointed to a **$20 million commitment** so far to help the community recover. Norfolk Southern's final financial responsibility is expected to run far beyond that after legal proceedings.

The company has announced several voluntary safety upgrades. Senators, however, have promised a pressing inquiry into the derailment, the Biden administration's response and the company's safety practices after the toppling of 38 railcars, including 11 carrying hazardous materials. Federal regulators have also said Norfolk Southern itself must do more to improve safety.

No one was injured in the crash, but state and local officials decided to release and burn toxic vinyl chloride from five tanker cars, prompting the evacuation of half of the roughly 5,000 residents of East Palestine. Scenes of billowing smoke above the village, alongside an outcry from residents that they are still suffering from illnesses, have turned high-level attention to railroad safety and how dangerous materials are transported.

READ MORE: Latest Ohio train derailment poses no public risk, officials say

Sen. Tom Carper, D-Del., the chair of the committee opened the hearing by calling it an "an opportunity to put ourselves in the shoes of those impacted by this disaster, examine the immediate response and ensure long-term accountability for the cleanup efforts."

Carper joined the top Republican on the committee, Sen. Shelley Capito of West Virginia, in a call with reporters on Wednesday to emphasize they would work in bipartisan fashion "to deliver accountability to the communities and folks who have been impacted."

The East Palestine disaster as well as a spate of other recent train derailments have sparked a show of bipartisanship in the Senate. The committee on Thursday also heard from Ohio and Pennsylvania senators — Republican JD Vance and Democrats Sherrod Brown and Bob Casey — who are pushing new safety regulations called the Railway Safety Act of 2023.

PUBLIC VERSION - REDACTED

"It shouldn't take a train derailment for elected officials to put partisanship aside and work together for the people we serve – not corporations like Norfolk Southern," Brown of Ohio said in prepared remarks. "Lobbyists for the rail companies spent years fighting every effort to strengthen rules to make our trains and rail lines safer. Now Ohioans are paying the price."

Train derailments have been getting less common but there were still more than 1,000 last year, according to data collected by the Federal Railroad Administration. But even a single train derailment involving hazardous materials can be disastrous.

Noting that a train had derailed in her home state of West Virginia on Wednesday, Capito cast the hearing as the Senate's first step among several on railway safety and emergency response.

Hazardous materials shipments account for 7 percent to 8 percent of the roughly 30 million shipments railroads deliver across the U.S. each year. But railroads often mix shipments and might have one or two cars of hazardous materials on almost any train.

The Association of American Railroads trade group says 99.9 percent of hazardous materials shipments reach their destinations safely, and railroads are generally regarded as the safest option to transport **dangerous chemicals** across land.

But lawmakers want to make railroads safer. The Railway Safety Act of 2023, which has gained support from Senate Majority Leader Chuck Schumer, D-N.Y., would require more detectors to be installed to check the temperature of wheel bearings more frequently, make sure railroads notify states about the hazardous materials they are transporting, and fund hazmat training for first responders.

ANALYSIS: Did dangerous substances spread after the Ohio train derailment?

Meanwhile, House Republicans have voiced skepticism about passing new regulations on railroads. GOP senators discussed the bill in their weekly luncheon on Tuesday, but Sen. Mike Rounds, R-S.D., said most would prefer the bill be ironed out in a committee.

Vance, an Ohio senator who first won election last November, slammed fellow Republicans who have dismissed his bill, saying they are ignoring a shift in the GOP to appeal to blue-collar voters.

"We have a choice: Are we for big business and big government, or are we for the people of East Palestine?" he said.

Norfolk Southern is also under pressure from federal regulators. The National Transportation Safety Board and Federal Railroad Administration both announced investigations this week into the company's safety culture. The NTSB said its investigators will look into five significant accidents involving Norfolk Southern since December 2021.

The company has said it is immediately implementing safety upgrades, including adding "approximately 200 hot bearing detectors" to its network. The NTSB has said a detector warned the crew operating the train that derailed Feb. 3 outside East Palestine, **but they couldn't stop the train** before more than three dozen cars came off the tracks and caught fire.

The Senate bill also touches on a disagreement between railroad worker unions and operators by requiring train crews to continue to have two people. Unions argue that railroads are riskier because of job cuts in the industry over the past six years. Nearly one-third of all rail jobs were eliminated and train crews, they say, deal with fatigue because they are on call night and day.

Shaw said Norfolk Southern has gone on a "hiring spree" in the last year, but he didn't back other proposed changes including a requirement to maintain two-person crews on freight railroads.

Republicans, at the same time, are more eager to delve into the emergency response to the East Palestine derailment. Thursday's Senate hearing also featured environmental protection officials from the federal, state and local levels.

PUBLIC VERSION - REDACTED

Shaw and the state and federal EPA officials who have been overseeing the cleanup all said they would be comfortable living in East Palestine today because the air and water tests that have been done all show it is safe.

Republicans have repeatedly criticized President Joe Biden for not visiting the community in the aftermath of the derailment. The Democratic president has said he will visit at some point, though Transportation Secretary Pete Buttigieg went to East Palestine last month and has pressed for increased safety protocols for trains.

Several East Palestine residents made their way to Washington for Thursday's hearing, including Misti Allison, who has joined a group called Moms Clean Air Force. Officials have told the town's residents that air and water tests don't show any dangerous levels of toxins, but Allison and other residents worry about potential long-term effects.

"Everybody here wants it to be fine. We want that to be true so badly. Everybody loves this community and nobody wants to leave. ... But if it's not, we need to know that," Allison said.

A chemical odor can still be smelled in East Palestine at times, she said, adding: "Congress must hold accountable Norfolk Southern and these polluters and companies that run these train bombs through neighborhoods like ours."

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By — **Stephen Groves, Associated Press**

By — **Josh Funk, Associated Press**

PUBLIC VERSION - REDACTED

NTSB releases preliminary report on Ohio derailment that led to toxic chemical spill

Nation Feb 23

BNSF-OP-P-VOL. 3 PAGE 234

EXHIBIT 21 (REDACTED)

EXHIBIT 22

Union Pacific Reports Third Quarter 2023 Results

- *Earnings per diluted share of $2.51*
- *Operating revenue of $5.9 billion*
- *Operating income of $2.2 billion*

Omaha, Neb., October 19, 2023 – Union Pacific Corporation (NYSE: UNP) today reported 2023 third quarter net income of $1.5 billion, or $2.51 per diluted share. This compares to 2022 third quarter net income of $1.9 billion, or $3.05 per diluted share.

“We faced many challenges in the quarter, including continued inflationary pressures and a drop in carloads,” said Jim Vena, Union Pacific Chief Executive Officer. “Operationally we gained momentum through the quarter, which positions us to provide our customers with great service. Operating and safety metrics are showing solid improvement, as we increase asset utilization. We are aligning the team around our strategy focused on being the best in safety, service, and operational excellence as we drive growth to the railroad. Through our day-to-day actions, we will continue to make improvements as we exit the year.”

Financial Results: Operating Revenue Reduced by Lower Fuel Surcharge Revenue and Lower Volumes

Third Quarter 2023 Compared to Third Quarter 2022

- Operating revenue of $5.9 billion was down 10% driven by reduced fuel surcharge revenue, lower volumes, and business mix, partially offset by core pricing gains.
- Business volumes, as measured by total revenue carloads, were down 3%.
- Operating ratio was 63.4%, up 350 basis points. Rising fuel prices during the quarter negatively impacted the operating ratio 170 basis points.
- Operating income of $2.2 billion declined 17%.

Operating Performance: Service Strengthening as Resource Utilization Improves

Third Quarter 2023 Compared to Third Quarter 2022

- Quarterly freight car velocity was 200 daily miles per car, a 5% improvement.
- Quarterly locomotive productivity was 129 gross ton-miles (GTMs) per horsepower day, a 4% improvement.
- Average maximum train length was 9,537 feet, a 1% increase.
- Quarterly workforce productivity decreased 6% to 985 car miles per employee.
- Fuel consumption rate of 1.052, measured in gallons of fuel per thousand GTMs, was flat.
- Union Pacific’s year to date reportable personal injury and derailment rates improved.

2023 Full Year Outlook Remains Relatively Unchanged

- Year to date softness in consumer-related volumes likely drive full year volume expectations below Industrial Production (Current forecast: 0.0%)
- Pricing dollars in excess of inflation dollars
- 2023 Capital Allocation:
    - Updated capital plan of $3.7 billion
    - Maintain dividend of $1.30/quarter
    - No further 2023 share repurchases planned

Third Quarter 2023 Earnings Conference Call

Union Pacific will webcast its third quarter 2023 earnings release presentation live at www.up.com/investor and via teleconference on Thursday, October 19, 2023, at 8:45 a.m. Eastern Time. Participants may join the conference call by dialing 877-407-8293 (or for international participants, 201-689-8349).

ABOUT UNION PACIFIC

Union Pacific (NYSE: UNP) delivers the goods families and businesses use every day with safe, reliable, and efficient service. Operating in 23 western states, the company connects its customers and communities to the global economy. Trains are the most environmentally responsible way to move freight, helping Union Pacific protect future generations. More information about Union Pacific is available at www.up.com.

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Union Pacific Media contact: Clarissa Beyah at 402-957-4793 or cbeyah@up.com

Supplemental financial information is attached.

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This news release and related materials contain statements about the Company's future that are not statements of historical fact, including specifically the statements regarding the potential impacts of public health crises, including pandemics, epidemics and the outbreak of other contagious diseases, such as the coronavirus and its variant strains (COVID); the Russia-Ukraine and Israeli wars and any impacts on our business operations, financial results, liquidity, and financial position, and on the world economy (including customers, employees, and supply chains), including as a result of fluctuations in volume and carloadings; expectations as to general macroeconomic conditions, including slowdowns and recessions, domestically or internationally, and future volatility in interest rates and fuel prices; closing of customer manufacturing, distribution, or production facilities; expectations as to operational or service improvements; expectations as to hiring challenges; availability of employees; expectations regarding the effectiveness of steps taken or to be taken to improve operations, service, infrastructure improvements, and transportation plan modifications; expectations as to cost savings, revenue growth, and earnings; the time by which goals, targets, or objectives will be achieved; projections, predictions, expectations, estimates, or forecasts as to business, financial, and operational results, future economic performance, and planned capital investments ; proposed new products and services; estimates of costs relating to environmental remediation and restoration; estimates and expectations regarding tax matters; expectations that claims, litigation, environmental costs, commitments, contingent liabilities, labor negotiations or agreements, cyberattacks or other matters. These statements are, or will be, forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Forward-looking statements also generally include, without limitation, information, or statements regarding: projections, predictions, expectations, estimates, or forecasts as to the Company's and its subsidiaries' business, financial, and operational results, and future economic performance; and management's beliefs, expectations, goals, and objectives and other similar expressions concerning matters that are not historical facts.

Forward-looking statements should not be read as a guarantee of future performance or results and will not necessarily be accurate indications of the times that, or by which, such performance or results will be achieved. Forward-looking information, including expectations regarding operational and financial improvements and the Company's future performance or results are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in the statement. Important factors, including risk factors, could affect the Company's and its subsidiaries' future results and could cause those results or other outcomes to differ materially from those expressed or implied in the forward-looking statements. Information regarding risk factors and other cautionary information are available in the Company's Annual Report on Form 10-K for 2022, which was filed with the SEC on February 10, 2023. The Company updates information regarding risk factors if circumstances require such updates in its periodic reports on Form 10-Q and its subsequent Annual Reports on Form 10-K (or such other reports that may be filed with the SEC).

Forward-looking statements speak only as of, and are based only upon information available on, the date the statements were made. The Company assumes no obligation to update forward-looking information to reflect actual results, changes in assumptions, or changes in other factors affecting forward-looking information. If the Company does update one or more forward-looking statements, no inference should be drawn that the Company will make additional updates with respect thereto or with respect to other forward-looking statements. References to the Company's website are provided for convenience and, therefore, information on or available through the website is not, and should not be deemed to be, incorporated by reference herein.

###

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES

Condensed Consolidated Statements of Income (unaudited)

Millions, Except Per Share Amounts and Percentages, For the Periods Ended September 30,	***3rd Quarter***			***Year-to-Date***		
	2023	*2022*	*%*	***2023***	*2022*	*%*
Operating Revenues						
Freight revenues	**$ 5,545**	$ 6,109	(9)%	**$ 16,770**	$ 17,391	(4)%
Other revenues	**396**	457	(13)	**1,190**	1,304	(9)
Total operating revenues	**5,941**	6,566	(10)	**17,960**	18,695	(4)
Operating Expenses						
Compensation and benefits	**1,201**	1,278	(6)	**3,649**	3,471	5
Fuel	**702**	932	(25)	**2,132**	2,586	(18)
Purchased services and materials	**668**	626	7	**1,971**	1,809	9
Depreciation	**580**	563	3	**1,729**	1,677	3
Equipment and other rents	**235**	215	9	**718**	660	9
Other	**378**	319	18	**1,086**	987	10
Total operating expenses	**3,764**	3,933	(4)	**11,285**	11,190	1
Operating Income	**2,177**	2,633	(17)	**6,675**	7,505	(11)
Other income, net	**106**	124	(15)	**383**	334	15
Interest expense	**(334)**	(315)	6	**(1,009)**	(938)	8
Income before income taxes	**1,949**	2,442	(20)	**6,049**	6,901	(12)
Income tax expense	**(421)**	(547)	(23)	**(1,322)**	(1,541)	(14)
Net Income	**$ 1,528**	$ 1,895	(19)%	**$ 4,727**	$ 5,360	(12)%
Share and Per Share						
Earnings per share - basic	**$ 2.51**	$ 3.05	(18)%	**$ 7.76**	$ 8.56	(9)%
Earnings per share - diluted	**$ 2.51**	$ 3.05	(18)	**$ 7.75**	$ 8.54	(9)
Weighted average number of shares - basic	**608.7**	620.4	(2)	**609.3**	626.1	(3)
Weighted average number of shares - diluted	**609.8**	621.5	(2)	**610.3**	627.4	(3)
Dividends declared per share	**$ 1.30**	$ 1.30	-	**$ 3.90**	$ 3.78	3
Operating Ratio	**63.4%**	59.9%	3.5pts	**62.8%**	59.9%	2.9pts
Effective Tax Rate	**21.6%**	22.4%	(0.8)pts	**21.9%**	22.3%	(0.4)pts

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES

Freight Revenues Statistics (unaudited)

	3rd Quarter			Year-to-Date		
For the Periods Ended September 30,	***2023***	*2022*	*%*	***2023***	*2022*	*%*
Freight Revenues (Millions)						
Grain & grain products	**$ 825**	$ 880	(6)%	**$ 2,658**	$ 2,624	1%
Fertilizer	**194**	178	9	**563**	541	4
Food & refrigerated	**259**	290	(11)	**777**	828	(6)
Coal & renewables	**488**	611	(20)	**1,422**	1,611	(12)
Bulk	**1,766**	1,959	(10)	**5,420**	5,604	(3)
Industrial chemicals & plastics	**557**	579	(4)	**1,638**	1,656	(1)
Metals & minerals	**556**	601	(7)	**1,654**	1,648	-
Forest products	**333**	390	(15)	**1,012**	1,140	(11)
Energy & specialized markets	**611**	624	(2)	**1,856**	1,762	5
Industrial	**2,057**	2,194	(6)	**6,160**	6,206	(1)
Automotive	**609**	601	1	**1,821**	1,663	10
Intermodal	**1,113**	1,355	(18)	**3,369**	3,918	(14)
Premium	**1,722**	1,956	(12)	**5,190**	5,581	(7)
Total	**$ 5,545**	$ 6,109	(9)%	**$ 16,770**	17,391	(4)%
Revenue Carloads (Thousands)						
Grain & grain products	**183**	190	(4)%	**582**	590	(1)%
Fertilizer	**51**	51	-	**144**	149	(3)
Food & refrigerated	**45**	48	(6)	**133**	143	(7)
Coal & renewables	**231**	243	(5)	**650**	670	(3)
Bulk	**510**	532	(4)	**1,509**	1,552	(3)
Industrial chemicals & plastics	**163**	165	(1)	**484**	486	-
Metals & minerals	**206**	202	2	**604**	589	3
Forest products	**54**	62	(13)	**161**	189	(15)
Energy & specialized markets	**146**	140	4	**429**	412	4
Industrial	**569**	569	-	**1,678**	1,676	-
Automotive	**210**	198	6	**623**	580	7
Intermodal [a]	**763**	811	(6)	**2,246**	2,373	(5)
Premium	**973**	1,009	(4)	**2,869**	2,953	(3)
Total	**2,052**	2,110	(3)%	**6,056**	6,181	(2)%
Average Revenue per Car						
Grain & grain products	**$ 4,486**	$ 4,641	(3)%	**$ 4,563**	$ 4,449	3%
Fertilizer	**3,818**	3,504	9	**3,921**	3,634	8
Food & refrigerated	**5,847**	6,017	(3)	**5,850**	5,809	1
Coal & renewables	**2,114**	2,514	(16)	**2,187**	2,403	(9)
Bulk	**3,465**	3,685	(6)	**3,592**	3,612	(1)
Industrial chemicals & plastics	**3,406**	3,508	(3)	**3,381**	3,404	(1)
Metals & minerals	**2,688**	2,969	(9)	**2,736**	2,799	(2)
Forest products	**6,197**	6,347	(2)	**6,305**	6,044	4
Energy & specialized markets	**4,201**	4,434	(5)	**4,331**	4,273	1
Industrial	**3,612**	3,852	(6)	**3,671**	3,702	(1)
Automotive	**2,894**	3,030	(4)	**2,921**	2,866	2
Intermodal [a]	**1,459**	1,672	(13)	**1,500**	1,651	(9)
Premium	**1,769**	1,939	(9)	**1,809**	1,890	(4)
Average	**$ 2,702**	$ 2,895	(7)%	**$ 2,769**	$ 2,814	(2)%

[a] For intermodal shipments each container or trailer equals one carload.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES

Condensed Consolidated Statements of Financial Position (unaudited)

Millions, Except Percentages		***Sep. 30, 2023***		*Dec. 31, 2022*
Assets				
Cash and cash equivalents	**$**	**750**	$	973
Short-term investments		**16**		46
Other current assets		**3,047**		2,933
Investments		**2,580**		2,375
Properties, net		**57,010**		56,038
Operating lease assets		**1,670**		1,672
Other assets		**1,467**		1,412
Total assets	**$**	**66,540**	$	65,449
Liabilities and Common Shareholders' Equity				
Debt due within one year	**$**	**1,724**	$	1,678
Other current liabilities		**3,580**		3,842
Debt due after one year		**31,153**		31,648
Operating lease liabilities		**1,244**		1,300
Deferred income taxes		**13,095**		13,033
Other long-term liabilities		**1,740**		1,785
Total liabilities		**52,536**		53,286
Total common shareholders' equity		**14,004**		12,163
Total liabilities and common shareholders' equity	**$**	**66,540**	$	65,449

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES

Condensed Consolidated Statements of Cash Flows (unaudited)

	Year-to-Date	
Millions, for the Periods Ended September 30,	***2023***	*2022*
Operating Activities		
Net income	**$ 4,727**	$ 5,360
Depreciation	**1,729**	1,677
Deferred income taxes	**59**	180
Other - net	**(531)**	(147)
Cash provided by operating activities	**5,984**	7,070
Investing Activities		
Capital investments*	**(2,582)**	(2,690)
Other - net	**(68)**	131
Cash used in investing activities	**(2,650)**	(2,559)
Financing Activities		
Dividends paid	**(2,380)**	(2,362)
Debt repaid	**(2,179)**	(2,185)
Debt issued	**1,599**	6,080
Share repurchase programs	**(705)**	(5,497)
Other - net	**125**	(246)
Cash used in financing activities	**(3,540)**	(4,210)
Net change in cash, cash equivalents, and restricted cash	**(206)**	301
Cash, cash equivalents, and restricted cash at beginning of year	**987**	983
Cash, cash equivalents, and restricted cash at end of period	**$ 781**	$ 1,284
Free Cash Flow**		
Cash provided by operating activities	**$ 5,984**	$ 7,070
Cash used in investing activities	**(2,650)**	(2,559)
Dividends paid	**(2,380)**	(2,362)
Free cash flow	**$ 954**	$ 2,149

* Capital investments include locomotive and freight car early lease buyouts of $14 million in 2023 and $55 million in 2022.

** Free cash flow is a non-GAAP measure; however, we believe this measure is important to management and investors in evaluating our financial performance and measures our ability to generate cash without additional external financing.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES

Operating and Performance Statistics (unaudited)

	3rd Quarter			Year-to-Date		
For the Periods Ended September 30,	***2023***	*2022*	%	***2023***	*2022*	%
Operating/Performance Statistics						
Freight car velocity (daily miles per car)*	**200**	191	5%	**199**	192	4%
Average train speed (miles per hour)*	**23.6**	23.7	-	**23.9**	23.8	-
Average terminal dwell time (hours)*	**23.5**	24.4	(4)	**23.6**	24.3	(3)
Locomotive productivity (GTMs per horsepower day)	**129**	124	4	**126**	126	-
Gross ton-miles (GTMs) (millions)	**208,678**	214,999	(3)	**622,932**	634,494	(2)
Train length (feet)	**9,537**	9,483	1	**9,337**	9,376	-
Intermodal car trip plan compliance (%)**	**75**	62	13 pts	**75**	65	10 pts
Manifest/Automotive car trip plan compliance (%)**	**64**	58	6 pts	**63**	59	4 pts
Workforce productivity (car miles per employee)	**985**	1,045	(6)	**984**	1,045	(6)
Total employees (average)	**31,624**	30,841	3	**31,800**	30,582	4
Locomotive Fuel Statistics						
Average fuel price per gallon consumed	**$ 3.12**	$ 3.96	(21)%	**$ 3.07**	$ 3.64	(16)%
Fuel consumed in gallons (millions)	**219**	227	(4)	**677**	687	(1)
Fuel consumption rate***	**1.052**	1.056	-	**1.087**	1.083	-
Revenue Ton-Miles (Millions)						
Grain & grain products	**17,649**	18,554	(5)%	**56,551**	59,042	(4)%
Fertilizer	**2,982**	2,802	6	**9,071**	9,068	-
Food & refrigerated	**4,643**	4,430	5	**13,700**	13,389	2
Coal & renewables	**23,367**	25,169	(7)	**66,728**	69,977	(5)
Bulk	**48,641**	50,955	(5)	**146,050**	151,476	(4)
Industrial chemicals & plastics	**7,492**	7,702	(3)	**21,797**	22,946	(5)
Metals & minerals	**9,253**	10,053	(8)	**27,409**	28,460	(4)
Forest products	**5,636**	6,573	(14)	**17,000**	19,892	(15)
Energy & specialized markets	**9,621**	9,322	3	**28,937**	27,493	5
Industrial	**32,002**	33,650	(5)	**95,143**	98,791	(4)
Automotive	**4,624**	4,347	6	**13,711**	12,634	9
Intermodal	**17,765**	18,296	(3)	**53,452**	54,924	(3)
Premium	**22,389**	22,643	(1)	**67,163**	67,558	(1)
Total	**103,032**	107,248	(4)%	**308,356**	317,825	(3)%

* Surface Transportation Board (STB) reported performance measures.

** Methodology used to report is not comparable with the reporting to the STB under docket number EP 770.

*** Fuel consumption is computed as follows: gallons of fuel consumed divided by gross ton-miles in thousands.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES

Condensed Consolidated Statements of Income (unaudited)

	2023			
Millions, Except Per Share Amounts and Percentages,	***1st Qtr***	***2nd Qtr***	***3rd Qtr***	***Year-to-Date***
Operating Revenues				
Freight revenues	$ 5,656	$ 5,569	$ 5,545	$ 16,770
Other revenues	400	394	396	1,190
Total operating revenues	6,056	5,963	5,941	17,960
Operating Expenses				
Compensation and benefits	1,179	1,269	1,201	3,649
Fuel	766	664	702	2,132
Purchased services and materials	653	650	668	1,971
Depreciation	572	577	580	1,729
Equipment and other rents	235	248	235	718
Other	357	351	378	1,086
Total operating expenses	3,762	3,759	3,764	11,285
Operating Income	2,294	2,204	2,177	6,675
Other income, net	184	93	106	383
Interest expense	(336)	(339)	(334)	(1,009)
Income before income taxes	2,142	1,958	1,949	6,049
Income tax expense	(512)	(389)	(421)	(1,322)
Net Income	$ 1,630	$ 1,569	$ 1,528	$ 4,727
Share and Per Share				
Earnings per share - basic	$ 2.67	$ 2.58	$ 2.51	$ 7.76
Earnings per share - diluted	$ 2.67	$ 2.57	$ 2.51	$ 7.75
Weighted average number of shares - basic	610.6	608.7	608.7	609.3
Weighted average number of shares - diluted	611.5	609.5	609.8	610.3
Dividends declared per share	$ 1.30	$ 1.30	$ 1.30	$ 3.90
Operating Ratio	62.1%	63.0%	63.4%	62.8%
Effective Tax Rate	23.9%	19.9%	21.6%	21.9%

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES

Freight Revenues Statistics (unaudited)

	2023			
	1st Qtr	2nd Qtr	3rd Qtr	Year-to-Date
Freight Revenues (Millions)				
Grain & grain products	$ 943	$ 890	$ 825	$ 2,658
Fertilizer	186	183	194	563
Food & refrigerated	263	255	259	777
Coal & renewables	505	429	488	1,422
Bulk	1,897	1,757	1,766	5,420
Industrial chemicals & plastics	536	545	557	1,638
Metals & minerals	536	562	556	1,654
Forest products	332	347	333	1,012
Energy & specialized markets	613	632	611	1,856
Industrial	2,017	2,086	2,057	6,160
Automotive	587	625	609	1,821
Intermodal	1,155	1,101	1,113	3,369
Premium	1,742	1,726	1,722	5,190
Total	$ 5,656	$ 5,569	$ 5,545	$ 16,770
Revenue Carloads (Thousands)				
Grain & grain products	202	197	183	582
Fertilizer	45	48	51	144
Food & refrigerated	44	44	45	133
Coal & renewables	216	203	231	650
Bulk	507	492	510	1,509
Industrial chemicals & plastics	157	164	163	484
Metals & minerals	188	210	206	604
Forest products	52	55	54	161
Energy & specialized markets	139	144	146	429
Industrial	536	573	569	1,678
Automotive	200	213	210	623
Intermodal [a]	734	749	763	2,246
Premium	934	962	973	2,869
Total	1,977	2,027	2,052	6,056
Average Revenue per Car				
Grain & grain products	$ 4,668	$ 4,527	$ 4,486	$ 4,563
Fertilizer	4,135	3,830	3,818	3,921
Food & refrigerated	5,963	5,740	5,847	5,850
Coal & renewables	2,341	2,107	2,114	2,187
Bulk	3,743	3,568	3,465	3,592
Industrial chemicals & plastics	3,402	3,336	3,406	3,381
Metals & minerals	2,853	2,677	2,688	2,736
Forest products	6,384	6,337	6,197	6,305
Energy & specialized markets	4,408	4,388	4,201	4,331
Industrial	3,760	3,646	3,612	3,671
Automotive	2,944	2,928	2,894	2,921
Intermodal [a]	1,573	1,471	1,459	1,500
Premium	1,866	1,794	1,769	1,809
Average	$ 2,861	$ 2,748	$ 2,702	$ 2,769

[a] For intermodal shipments each container or trailer equals one carload.

UNION PACIFIC CORPORATION AND SUBSIDIARY COMPANIES
Non-GAAP Measures Reconciliation to GAAP

Debt / Net Income

Millions, Except Ratios for the Trailing Twelve Months Ended [a]	***Sep. 30, 2023***	*Dec. 31, 2022*
Debt	**$ 32,877**	$ 33,326
Net income	**6,365**	6,998
Debt / net income	**5.2**	4.8

Adjusted Debt / Adjusted EBITDA*

Millions, Except Ratios for the Trailing Twelve Months Ended [a]	***Sep. 30, 2023***	*Dec. 31, 2022*
Net income	**$ 6,365**	$ 6,998
Add:		
Income tax expense	**1,855**	2,074
Depreciation	**2,298**	2,246
Interest expense	**1,342**	1,271
EBITDA	**$ 11,860**	$ 12,589
Adjustments:		
Other income, net	**(475)**	(426)
Interest on operating lease liabilities [b]	**56**	54
Adjusted EBITDA	**$ 11,441**	$ 12,217
Debt	**$ 32,877**	$ 33,326
Operating lease liabilities	**1,606**	1,631
Unfunded pension and OPEB, net of tax cost of $0 and $0	**-**	-
Adjusted debt	**$ 34,483**	$ 34,957
Adjusted debt / Adjusted EBITDA	**3.0**	2.9

[a] The trailing twelve months income statement information ended September 30, 2023, is recalculated by taking the twelve months ended December 31, 2022, subtracting the nine months ended September 30, 2022, and adding the nine months ended September 30, 2023.

[b] Represents the hypothetical interest expense we would incur (using the incremental borrowing rate) if the property under our operating leases were owned or accounted for as finance leases.

* Total debt plus operating lease liabilities plus after-tax unfunded pension and OPEB (other postretirement benefit) obligations divided by net income plus income tax expense, depreciation, amortization, interest expense, and adjustments for other income and interest on operating lease liabilities. Adjusted debt to adjusted EBITDA (earnings before interest, taxes, depreciation, amortization, and adjustments for other income and interest on operating lease liabilities) is considered non-GAAP financial measure by SEC Regulation G and Item 10 of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe this measure is important to management and investors in evaluating the Company's ability to sustain given debt levels (including leases) with the cash generated from operations. In addition, a comparable measure is used by rating agencies when reviewing the Company's credit rating. Adjusted debt to adjusted EBITDA should be considered in addition to, rather than as a substitute for, other information provided in accordance with GAAP. The most comparable GAAP measure is debt to net income ratio. The tables above provide a reconciliation from net income to adjusted EBITDA, debt to adjusted debt, and debt to net income to adjusted debt to adjusted EBITDA. At September 30, 2023, and December 31, 2022, the incremental borrowing rate on operating lease liabilities was 3.5% and 3.3%, respectively.

EXHIBIT 23

RAILFAN & RAILROAD MAGAZINE
Passenger Train JOURNAL

RailNews



On Sunday, Soroban Capital went public with its call to replace Lance Fritz as CEO of Union Pacific; hours later, the railroad said he was heading out the door.

Union Pacific CEO to Step Down Amid Investor Pressure

By Justin Franz

Lance M. Fritz, president and chief executive officer of Union Pacific since 2015, will step down later this year amid pressure from investors tired of the Class I lagging behind its competitors.

On Sunday, Soroban Capital went public with its criticisms of UP, specifically noting that UP was in last place against its competitors. Soroban Capital owns a $1.6 billion stake in the railroad and apparently had been pushing privately for a new CEO for months. After getting nowhere in private with board members, the investor went public.

PUBLIC VERSION - REDACTED

“Union Pacific has repeatedly and significantly failed to reach its potential under Mr. Fritz’s leadership,” Eric Mandelblatt wrote. “UP has ranked the worst in safety, volume growth, revenue growth, cost management, EBIT growth, and total shareholder return. These are highly underwhelming results despite UP having the premier railroad franchise in North America.”

Mandelblatt wrote that the investment firm also had an idea of who they wanted to replace Fritz: former Chief Operating Officer Jim Vena, who overhauled UP a few years ago.

The railroad was quick to respond on Sunday, issuing a press release stating that Fritz would be stepping down this year and that it had been searching for a new CEO since last year.

“The Board is seeking a CEO with a strong track record of success and expertise across safety, operational excellence, enhancing and driving customer service, innovation, employee culture and sustainability,” the railroad wrote. “The Board is focusing the process on highly-qualified candidates both within the industry and adjacent industries to identify a CEO capable of leading the Company for a long-term tenure. The Board expects to name a successor who will assume the position in 2023.”

The last year has been a tough one for Class I railroads, but especially UP. Earlier in the year, all of the Class Is were ordered to go before the U.S. Surface Transportation Board and explain their ongoing service issues. Months later, only Union Pacific was ordered to come back and defend its lack of progress.

Although UP officials were quick to announce that they were planning on replacing Fritz, they did not do so without praising him a little.

“The Board is grateful to Lance for his unwavering leadership, dedication and oversight in driving our Company forward over the last eight years as CEO. Lance created an environment that has allowed Union Pacific to make a measurable impact with our customers, communities and employees alike,” said Michael McCarthy, Lead Independent Director of the Board. “He has capably led our company during a time of significant challenge and change, positioning Union Pacific to deliver long-term sustainable value for shareholders and customers. We are immensely grateful to have Lance’s continuing leadership and support and know he will ensure a smooth transition.”

This article was posted on: February 28, 2023

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EXHIBIT 24

BEFORE THE SURFACE TRANSPORTATION BOARD

- - -

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY,	:	FINANCE DOCKET NO.
-- CONTROL --	:	36873
NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY.	:	VOLUME I

HIGHLY CONFIDENTIAL
PURSUANT TO PROTECTIVE ORDER

- - -

October 7, 2026

- - -

Videotaped hybrid deposition of DAVID T. HUNT, taken pursuant to notice, was held at the law offices of Covington & Burling, 850 10th Street, NW, Washington, D.C., beginning at 8:04 a.m., on the above date, before Michelle L. Ridgway, a Registered Professional Reporter, Certified Shorthand Reporter, Certified Realtime Reporter, Certified Court Reporter, and Notary Public.

- - -

Q. Okay. And some of those critiques go to the reliability of those models, don't they, sir?

A. I don't know if I used that exact term, but I did critique the modeling and the approach, yes.

Q. Okay. Can we agree that a traffic diversion model should reliably predict traffic shifts in the post-merger world?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It provides the best estimate that I can develop of what the post-merger traffic diversions would look like. Yes.

BY MR. McCARRICK:

Q. Okay. And so that best estimate should be predicted in some way, correct?

A. It is a predictive model, yes.

Q. And you want that model to

reliably predict diversions that could result from the merger, correct?

A. I want it -- it is my best estimate of what a post -- what a merged carrier, the traffic that could be attracted to that.

Q. Okay. Is it your testimony that the model you've submitted to the Surface Transportation Board in this case is reliable?

A. It is my best -- I'm sorry. I'm hung up on your use of "reliable."

It is my best estimate of what -- if Union Pacific and Norfolk Southern had been merged in 2023, which was the base year that we selected for the data, or for the analysis, what the world would have looked like had they been merged in that year. So it's my best estimate of that. So if that fits your term of "reliable."

Q. Well, I'm trying to figure out, is there a difference between your best estimate of a post-merger world and

a reliable prediction about the post-merger world or are those the same things in your mind?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I -- I guess I don't understand how reliable -- how you mean -- reliable in what way? Reliable in terms of that it is an unbiased estimate. That it is giving the best estimate that I can of the diversion results. And if that is the definition, then yes.

BY MR. McCARRICK:

Q. Your diversion model should predict what traffic shifts there will be in the real-world after the merger, right?

A. Yes. It's my estimate, my best estimate, of what the traffic shifts would be. Yes.

Q. Okay. Are you able to say

BY MR. McCARRICK:

Q. Okay. The future worksheet summarizes future post-merger routes that are eligible for diversion, correct?

A. Yes.

Q. I want to look at -- withdrawn.

One of the parts of your lookalike methodology is to calculate the price difference between truck and rail for eligible post-merger lanes, correct?

A. Yes. For the intermodal model, yes.

Q. Okay. And you agree with me that price is one of the factors that shippers most care about when deciding whether to choose between truck or rail for intermodal shipments?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I have stated in my statement in

Section 3 that price is definitely a consideration.

BY MR. McCARRICK:

Q. It's one of the most important considerations, correct, sir?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Price, reliability, transit time are all very important considerations.

BY MR. McCARRICK:

Q. We'll talk about the other ones, but I want to know, specifically, is price one of the most important considerations for a shipper choosing between truck or rail for intermodal? Yes or no?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It is -- it is an important consideration.

BY MR. McCARRICK:

Q. Okay. Is it the most

important consideration, based on your experience?

MS. FLAHIVE WU: Same objection.

THE WITNESS: Oliver Wyman did a survey a few years ago of shippers, and reliability came out as being the most important.

BY MR. McCARRICK:

Q. Are you talking about the 2025 survey?

A. I don't remember the date of it. It was a few years ago.

Q. Okay. We'll talk about that one in a little bit. But let's drill down on price.

First, can you navigate over to Column BY.

And just let me know when you're there.

A. BY?

Q. Yes, sir.

A. Okay.

Okay. I'm there.

Q. Okay. And do you see to the right of BY, there's some tabs that are hidden?

A. There are -- there are columns that were -- that needed to be expanded. Is that what you mean?

Q. Yes. Thank you.

There were some columns that were hidden from view, correct?

A. Yes.

Q. Can you please expand those columns?

A. I have.

Q. Okay. Do you see Column CF?

A. Yes.

Q. Column CF is titled "Price Dif," correct?

A. Yes.

Q. That's where you calculate the price difference between truck and rail, correct?

A. I would have to look at this. I --

Q. Well, that's what that price dif column is supposed to do, right?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I would have -- I would have to look at it.

BY MR. McCARRICK:

Q. Are you looking at it?

A. I'm looking at it.

Q. Okay. Can you tell me what it's doing?

A. It's -- it looks like it's dividing -- it's dividing Column AZ by Column O.

Q. Okay. Let's talk about what those represent. Column AZ represents intermodal drayage costs, correct?

A. That's what the title is on it.

Q. Okay. Can we agree that intermodal drayage costs does not

represent the entirety of how much intermodal rail costs?

A. The drayage cost is a component of the overall rail cost.

Q. It is not the total rail cost, correct?

A. It is -- the drayage cost is not the overall rail cost.

Q. Okay. Intermodal drayage cost is a fraction of the total rail cost, correct?

A. Correct.

Q. Okay. Let's look at Column O. Column O represents truck average price, correct?

A. That is the heading on the column.

Q. Okay. So your original price dif calculation took the difference between intermodal drayage cost and truck average cost, correct?

A. It looks like it's dividing out the difference.

Q. Right.

A. You're talking about column -- I'm sorry. Which one was it again? C?

Q. CF.

A. It looks like a division.

Q. Okay. And the division in Column CF, which is titled "Price Dif," divides intermodal drayage cost by truck average cost, correct?

A. I would have to look through this in more detail. I'm just reading the column headings here. So I would have to really look at the spreadsheet in more detail.

Q. Okay. Do you know what the price dif calculation does in any of your spreadsheets or would you have to look at them for a while too?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I don't know what this specific column does.

In general, we use the price differential to set up the

archetypes. But this specific column, I would have to see how this column is used.

BY MR. McCARRICK:

Q. Okay. When you're setting up your archetypes, one of the inputs into that is the price differential, correct?

A. That's correct.

Q. And when you're setting up the archetypes, what you want to compare is the price differential between intermodal rail costs and average truck costs, correct?

A. Correct.

Q. And for the intermodal rail portion of that comparison, you want it to be the total intermodal rail cost, correct?

A. In the archetypes, yes. But, again, I don't know how the specific column is being used.

Q. Well, we can tie through, but I'm just asking the question about

the archetypes right now, which is, for purposes of grouping your archetypes, you want to be measuring fully loaded intermodal rail costs compared to average truck price, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. And for purposes of your archetype analysis, you would not want to be comparing just intermodal drayage costs by average truck cost, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I would want to compare the total rail cost to the truck cost.

BY MR. McCARRICK:

Q. Right. You wouldn't want to compare only a part of the rail cost to the truck cost, correct?

A. As I stated, I would want to compare the total cost. Yes.

Q. Okay. Can we agree that if that price dif calculation was used to bucket lanes into different price segments, that would be an error?

A. I can't state that here. I really would have to look at it in more detail.

Q. Well, I'm just saying, if we had taken that formula, right -- and I'm not asking about this particular spreadsheet. I'm just asking for your independent analysis as an expert.

Which is if the formula that Oliver Wyman used to bucket price segments was a division of intermodal drayage cost by average truck price, that would be an error, correct?

A. The archetype should be the rail cost compared to the truck cost. The total rail cost compared to the truck cost.

Q. Okay. So if you were only comparing part of the rail cost to the truck cost and bucketing lanes based on

price, that would be an error?

A. I would need to see how this is used.

Q. Okay. So let's do it.

Take a walk over to Column BA.

Do you see Column BA?

A. Yes.

Q. Column BA represents the intermodal price, correct?

A. That is the label on it.

Q. Okay. Now, sir, based on the formula, the price dif formula that we looked at in Column CF, every single route was sorted into the price bucket where rail was 10 percent cheaper than truck, true?

A. You're asking me to try to go through a spreadsheet quickly here, and I really would need time to dig into the spreadsheet to understand what's going on.

Q. Well, sir, you've had between before December and now to dig

into your spreadsheets.

But let's go to Column BR. Do you see that Column BR is titled "Price Bucket Future"?

A. Yes.

Q. Okay. Price bucket future is where you assign a lane to a particular price segment, correct?

A. Correct.

Q. And that's for future lanes, correct? The future, in the header, denotes.

A. That would seem to be correct.

Q. Okay. Can you click the drop-down filter.

A. Yes.

Q. Okay. In the price bucket future column, there's only two options, correct?

A. One moment. I want to make sure there's no other filters on.

Q. I'll represent to you there's no other filters on.

A. Okay. All right.
Q. You see if you click the drop-down filter on the price bucket future column, there's only two options?
A. Mm-hmm.
Q. Sorry. Just to get a "yes" for the court reporter's benefit.
A. Oh, I'm sorry.
Yes.
Q. Thank you.
One of the options is a divide by zero option, correct?
A. Correct.
Q. That's a null set, correct?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: It -- yes.
BY MR. McCARRICK:
Q. Okay. The other option in that drop-down is a 10-plus percent better option, correct?
A. It is.
Q. And that bucket indicates lanes where rail is 10 percent cheaper

than truck, correct?

A. Yes.

Q. Can you filter to display only the 10-plus percent better results?

A. It's working on it.

Q. Just let me know when it's run. These are big. I get that.

A. Okay.

Q. All right. And then you can take a scroll if you want, but every single post-merger lane that is eligible for a diversion is bucketed as 10 percent cheaper than truck in this column, correct?

A. In this column, yes.

Q. Okay. This is the column that pulls through to your other spreadsheets, right? That's how your spreadsheets work?

A. The spreadsheets build on -- the worksheets in this workbook build on each other, but I would need to look through to see exactly where this is getting pulled through to.

Q. Okay. Can we at least agree that not every single post-merger lane that's eligible for diversions will be 10 percent cheaper than truck?

A. I would agree with that.

Q. That column, as it appears, is incorrect, true?

A. I don't know that.

I have -- I have seen other results that show lanes where the price is within 10 percent where diversions occurred. So I -- that's why I'm not certain that this is a column that's being used.

I would have to look at it in more depth to understand.

Q. Well, this is just bucketing based on price, the column that we're looking at, correct?

A. Again, this is -- where does this come from?

I mean, this is doing a look-up. I would have to trace through where this look-up is coming from.

Again, this -- it's -- I know that there are lanes that were diverted in the intermodal model where the price was within 10 percent. It was not -- not all diversions occurred when the price was 10 percent better. So that's why I would want to trace this through, to understand how this is being used.

Q. Yeah. And, I mean, just to be clear. Your actual analysis, right, the results that you are putting forward to the board, shows diversion in lanes where rail is 10 percent cheaper?

A. Correct.

Q. It shows it where rail's within 10 percent, plus or minus, with truck, correct?

A. Correct.

Q. And it shows diversions in some lanes where rail is 10 percent or more -- actually, more than 10 percent -- expensive than truck, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: That is correct, because it is looking at historical data and looking at market shares in lanes where those buckets occur and using those historical comparisons.

BY MR. McCARRICK:

Q. Right. And so you agree with me that your actual analysis has future lanes that fall into each of those three different buckets, correct?

A. Correct.

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Sorry.

BY MR. McCARRICK:

Q. This column that we're looking at only has them falling into one bucket, correct?

A. It does, but, again, I would have to see how this column is used.

Q. Well, I mean, we agree that not every lane falls into a single bucket, right?

MS. FLAHIVE WU: Objection to form.

BY MR. McCARRICK:

Q. Or withdrawn.

Will you agree with me not every lane falls into a single price bucket?

A. I agree with that.

Q. Okay. And this column has every lane falling into a single price bucket?

A. This column does, but I would need to see how this column is used.

Q. Okay. Do you -- do you know whether or not this was an error?

A. Sitting here right now, I would have to trace through it before I would say that.

Q. Is this the first time that anyone has brought this to your

attention?

A. I have not looked at this specific one.

Q. Okay. All right. One of the other segments that you use is transit time difference, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Correct.

BY MR. McCARRICK:

Q. And transit time difference is the time difference between a -- between truck and rail, effectively, right?

A. As it's used here, yes.

Q. Okay. Let's talk about how you calculated that in the spreadsheet.

Can you go to Column BZ.

A. All right.

Q. Column BZ is titled "Transit Dif," correct?

A. Correct.

Q. This column calculates the time difference bucket for each route in

the post-merger world, correct?

A. I would have to look at that.

Q. Okay. Well, let's just do it concretely.

Can you go to Cell BZ5.

A. Yes. I'm there.

Q. Cell BZ5 identifies a transit time difference of negative 13 hours, correct?

A. Correct.

Q. And that means, based on your analysis, that intermodal rail is 13 hours faster than truck, correct?

A. I would have to check AH and Q to be able to reference this.

Q. Okay. That's right. The formula is a difference between a value in Column Q and a value in Column A5, correct?

A. AH5.

Q. Excuse me. AH.

Correct?

A. Correct.

Q. All right. Let's go to Q first. Column Q is titled "Truck Transit Hours," correct?

A. That is the title on it, yeah.

Q. Okay. That's an expression of time, correct?

A. It says it's in hours.

Q. And hours measure time?

A. Yes.

Q. Let's go to Column AH.

Column AH is intermodal drayage models, correct?

A. That is correct.

Q. That's an expression of distance, correct?

A. Correct.

Q. Miles measure distance?

A. Correct.

Q. So your formula for transit time subtracts miles from hours, correct?

A. Okay. It does. And this error was -- was corrected this summer.

We caught this error and corrected it this summer. I was not aware that it was in there, in the December statement.

Q. Okay. So let's just agree that this is an error, correct?

A. It should have been hours. Yes.

Q. Okay. Subtracting miles from hours isn't a thing a person can do, right?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I stated that we found that and we corrected it.

BY MR. McCARRICK:

Q. Yeah, I understand. I just want to be very clear.

The formula that you inputted subtracted a unit of distance from a unit of time, correct?

A. Yes.

Q. That's physically impossible, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It was -- it was something that was incorrect, and we corrected it.

BY MR. McCARRICK:

Q. I get that it's incorrect or you corrected it. My question is just more fundamental.

As a mathematical matter, are you aware of any way in which you can subtract distance from time without a conversion?

A. No.

Q. Okay. You said that this error was corrected this summer, correct?

A. It was, yes.

Q. Do you know when?

A. I believe it was in August.

Q. August. Okay.

Did Oliver Wyman discover this error itself or did someone else identify it for Oliver Wyman?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Oliver Wyman -- Oliver Wyman discovered it.

BY MR. McCARRICK:

Q. Okay. What was your reaction when you discovered it?

A. My reaction was that I wanted to correct it to see what the impact would be to the diversions.

Q. Okay. But were you pleased when you found this error?

A. I was pleased when I saw it had minimal impact on the diversions.

Q. You've said that a couple times, the idea that it -- there's only been minimal impact, right?

A. Yes.

Q. Have you ever heard the phrase "How you do anything is how you do everything"?

A. No, I haven't heard that one.

agree with that. One-offs, I would not agree with that statement.

BY MR. McCARRICK:

Q. So if it was a repeated pattern of a lack of attention to detail on small things, you agree that that could give concerns about the reliability of a person's ability to do -- on bigger analyses or conclusions?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It really comes back to, you know, did it have impact on the outcome.

I mean, you know, in this statement, if you go to Table F5, I believe it is.

I have to double-check that.

Yes. Exhibit F5. And you look at what was filed in December, the total net diversions in December were

1,535,000 cars plus containers.

And if you look at what was filed -- or with the correction noted here and the two other corrections that we made, it was 1,532,000. So it was 3,000 cars units different. It was a zero percentage different.

And so I would say that that did not -- that this did not impact our overall conclusion, our overall findings, our overall result.

BY MR. McCARRICK:

Q. Well, let's break that down. Your point is that there's not a material difference between your original estimates and your final estimates after correcting for the errors you identified, correct?

A. We still are at over 4 billion annual revenue to the UP-NS. We still are at 2.1 million truckloads a

year estimated removed from the road.

And as I just pointed out, the numbers here on the total carloads was only 3,000 cars units different.

Q. I guess doesn't that raise more questions than answers in the following respect?

I mean, in December of 2025 you predict 1,535,000 approximate intermodal truck-to-rail diversions, correct?

A. That's correct.

Q. And that's at a time when you're subtracting miles from hours, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. Right. So using the impossible formula, you're getting approximately 1.5 million of truck-to-rail intermodal diversions, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Yes. The number is there.

BY MR. McCARRICK:

Q. Okay. And then you correct that, right? Among with other errors?

A. Well, we also switched to the 100 percent data.

Q. Yeah. So the corrected errors, you decided you wanted to use a different dataset, correct?

A. We had better data available to us, so we used it.

Q. Okay. We'll talk about when that data became available.

But you used the 2023 data, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I used the 100 percent data that had been received from all six Class I railroads after the December

statement was filed.
BY MR. McCARRICK:
Q. Which is 2023?
A. 2023 data, yes.
Q. Okay. Was 2024 available?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: It was not available to me at that time, and as far as I know, the STB sample had not been released at that time.
BY MR. McCARRICK:
Q. But after you make all the changes to your analysis, you still land at approximately 1.5 million intermodal diversions, correct?
A. That's correct.
Q. Does that suggest -- well, withdrawn.
You mentioned this error. What other errors? You mentioned a couple others. What were the other errors that you were talking about?

A. So after we re-filed in April, in a statement from Burlington Northern Santa Fe, they identified two tabs in this worksheet where the number of rows was different, and they questioned that.

We went in and looked at that and realized that some formulas had not been pulled through that should have been, and so that was one of them.

And then the second one was in July, I guess it was. CPKC had difficulty replicating our results, and so we reran that. We discovered there was a version control mistake that we had made, and so we corrected that.

So those are the three -- and plus this miles plus hours, those are the three I'm referring to. Two spreadsheet errors and one version control error.

Q. Okay. Just talking about those errors that you described.

Is that -- are those errors

Q. Okay. After you filed your April 29, 2026, statement, you had to make hundreds of changes to your verified statement after it was submitted, correct?

A. It was the three items that we've talked about that drove it. It made small changes to a lot of the exhibits, yes.

Q. And the numbers in the verified statement itself, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It made -- it made small changes to exhibits and to the numbers stated in the statement, yes.

BY MR. McCARRICK:

Q. Okay. And I recognize that you think they are small changes.

There were hundreds of small changes that had to be made to the verified statement in the exhibits, correct?

A. These -- the three things that we've discussed did change -- did make small changes to a lot -- to many of the numbers in this statement.

Q. Okay. My question is more precise. Appreciate if you answer it.

The small changes that you're identifying -- that you've identified -- withdrawn.

The small changes that you're referencing, did they require hundreds of changes to your amended verified statement, yes or no?

A. I would have to count up the number in the errata, but --

Q. Okay.

A. -- it was -- there were several changes we had to make, yes.

Q. Okay. I think we will count them up shortly.

A. Okay.

Q. Ultimately, UP-NS's revised application is accepted as complete by the board but held in abeyance, correct?

That happened?

A. The STB ruled on it, yes.

Q. Okay. And that was in Decision Number 21, correct?

A. It was Decision 30 that came after where I thought they accepted it, but I --

Q. Okay. You reviewed Decision Number 21, correct?

A. Decision 21 led to my supplemental statement they were requesting there by the STB, and so those were addressed in my supplemental statement.

Q. My -- I'd really appreciate if you'd just listen to my question, which is much narrower.

You reviewed Decision Number 21, correct?

A. As it pertained to Oliver Wyman, yes.

Q. Okay. Did you read the entire thing?

A. I believe I did at the

THE WITNESS: We did miss those two.

BY MR. McCARRICK:

Q. Okay. Are there any others that you're aware of, sitting here today?

A. No.

Q. Okay. Are your work papers your final work papers?

A. Yes.

Q. Okay.

A. They are complete at this point, yes.

Q. Recognizing they are complete, have you discovered any additional inaccuracies since September 11, 2026, in those work papers?

A. I -- not in the work papers, I have not.

I found a couple of editorial issues in the statement itself but nothing in the work papers. Nothing that affect the results.

Q. When you say editorial issues, do you mean typos or incorrect numbers?

A. It's really typos.

Q. Okay. Sitting here today, do you intend to submit any additional errata?

A. I do not.

Q. Okay. Sitting here today, do you intend to do any other type of diversion analysis than the ones you've submitted?

A. No, I have no plans to.

Q. Okay. Let's go to July 2026.

On July -- on July 20, 2026, you signed a supplemental verified statement that addressed some of the board's questions in Decision Number 21, correct?

A. Correct.

Q. Okay. In July of 2026, you also submitted errata for the verified statement that you had provided back in

April, correct?

A. Correct.

Q. And those were to correct errors in the April verified statement, correct?

A. Yes, they addressed changes to the April statement.

Q. Okay. And when you say "changes," those are in the way of errors, correct?

A. It was errata, yes.

Q. Okay. The court reporter is going to hand you what we're marking as Exhibit 335.

(Document marked for identification as Hunt Exhibit 335.)

BY MR. McCARRICK:

Q. This is a letter from UP-NS, dated July 27, 2026, correct?

A. Correct.

Q. Look at the first paragraph.

Do you see where UP-NS

accompanying UP81 and NS79.

A. I have something here that's referring to replacement files, a tab replacement files. Is that what you mean?

Q. There might be a few. And if I could just ask you to look at the file name at the top, kind of dead center.

A. Okay.

Q. Is that the change log accompanying UP81-NS79?

A. I am not seeing what you're talking -- I see the name of the file. It looks like 14-2026.09, et cetera.

Q. Okay. Can you minimize that one and find the one that starts with a 10 dash?

A. Okay. 10 dash. Yes, I have that.

Q. Okay. And you see in the file head that's a change log accompanying UP81 and NS79?

A. Yes.

Q. Okay. This is the application work paper change log that UP-NS served on July 27, 2026. Can you click the replacement files tab?

A. It's there, yes.

Q. Okay. There's a number of columns, correct?

A. There are.

Q. One is the replacement date on which the new work papers provided, correct?

A. I'm looking at the header, yes.

Q. Okay. And do you see there's a column titled "Folder"?

A. Yes.

Q. Can you filter to display only Hunt work papers?

A. Okay.

Q. Okay. You see in the bottom left, it returns 79 records?

A. I do.

Q. So on July 27, 2026, you replaced 79 work papers due to errors,

correct?

A. Due to that one error. Yes.

Q. Okay. You mentioned this earlier. After July 27, 2026, Oliver Wyman had to correct more errors, correct?

A. There were two additional errors. Yes.

Q. Okay. And there was an errata produced for those errors as well, correct?

A. Correct.

Q. All right. Walk through it.

MS. FLAHIVE WU: Counsel, could we take five minutes when you're at a natural stopping point.

MR. McCARRICK: That's fine. We can do it now.

THE WITNESS: Oh, okay.

THE VIDEOGRAPHER: Going off the record. The time is

9:27.

(Short break.)

THE VIDEOGRAPHER: We are on the record. The time is 9:39.

BY MR. McCARRICK:

Q. Okay. We were talking before we broke about some of the errata that you submitted.

We just walked through the July 2026 errata to the verified statement that you had submitted back in April, correct?

A. Correct.

Q. Okay. You also submitted errata to -- for that April verified statement on September 4, 2026, correct?

A. I believe that was the date. But yes, correct.

Q. Okay. We're going to mark as Exhibit 337 as another errata letter submitted by UP-NS.

(Document marked for identification as Hunt

Q. And so it's a 20,000 difference in diverted units, correct?
A. Correct.
Q. Okay. And between the July errata and the September errata, combined, that's 50,000 units, correct?
A. I would have to compare the December against this one. I don't know if they are strictly additive like that.
Q. Okay. When you say they are not strictly additive, you would have to know whether the error that affected this 20,000, how that compares Venn diagram-wise with the 30,000 from the prior errata?
A. I would just compare this number to the December statement, yes.
Q. When you say the December --
A. I think --
Q. -- do you mean the July statement?
A. Well, by this number, I mean the July statement. Compare that

to the December statement to see if that 50,000 is the accurate number.

Q. Okay. All right. It states that the correction produces minor changes across the application.

Do you see that in the first paragraph?

A. Yes.

Q. All right. And let's go to the second paragraph.

UP-NS again say that they are enclosing a table with error corrections, true?

A. Yes.

Q. And you see that they used the errata filed on July 27, 2026, as the reference point, correct?

A. Correct.

Q. Okay. Go ahead and turn to the enclosure again. The chart that's attached.

A. Mm-hmm.

Q. Do you see that that's titled "Second Errata to the Amended

Application"?

A. Yes.

Q. Okay. And if you take a look, the errata to your amended verified statement appear on Pages 7 through 19, correct?

A. Yes.

Q. All right. I'm going to represent to you that there's 115 entries of errata to your amended verified statement here.

Do you have any reason to dispute that?

A. I do not.

Q. All right. We can agree that that's more entries than the 79 that appeared in Version 1.0 of your errata, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Correct.

BY MR. McCARRICK:

Q. Okay. I'm going to represent to you that there is just

north of 150 actual changes.

Do you have any reason to dispute that?

A. I do not.

Q. Okay. And, again, if you just scan it, you can see that certain rows have more than one change in them. Is that fair?

A. Yes.

Q. Okay. There were also errors in your work papers, correct?

A. The numbers in the statement were derived from work papers, so, yes, they would have changed as well.

Q. All right. And if you look at the first page of the letter.

Take a look at the second-to-last paragraph. You see that UP-NS again say that they are going to identify a change log for the work papers?

A. Oh, the last paragraph --

Q. I'm sorry. Yes.

A. Yes.
Q. Okay. We're going to mark that change log from September 4th, 2026, as Exhibit 338. It's a native file. It's on your laptop there.
A. Should I close out the one that's open now?
Q. Yes, sir. Thank you.
(Document marked for identification as Hunt Exhibit 338.)
BY MR. McCARRICK:
Q. And we're going to be looking at -- it's going to be the 12-Excel file.
A. All right.
Q. And at the top, you see that it's titled "Change Log Accompanying UP100-NS99," correct?
A. Yes.
Q. Okay. Are you on the replacement files tab?
A. I am.

Q. Okay. Like last time, can you go to the folder column?
A. Okay.
Q. And can you filter only to display Hunt work papers?
A. All right.
Q. That returns 126 records, correct?
A. Yes.
Q. Okay. And you were not finished with your errata, correct?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: I'm sorry. I do not understand the question.
BY MR. McCARRICK:
Q. Okay. Literally a week after September 4, 2026, you served additional errata which corrected certain aspects of your supplemental verified statement, true?
A. I'm sorry. I'm trying to remember the timeline.

It would make sense that the supplemental statement would have to have those changes carried forward.

Q. Why -- I guess my question is why weren't they all rolled up into one, I guess, errata?

Like, did you just discover the problem between September 4th and September 11th, or what's the deal there?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I'm sorry. I'm not recalling what that was.

BY MR. McCARRICK:

Q. Okay. The court reporter is going to mark Exhibit 339.

(Document marked for identification as Hunt Exhibit 339.)

BY MR. McCARRICK:

Q. That's yet another errata letter.

A. Okay.

diversion study described in Applicant's September 4, 2026, filing."

Do you see that?

A. Yes.

Q. And is that what you meant when, a few moments ago, you said it would make sense for the changes in the September 4, 2026, errata to carry over to, you know, the supplemental verified statement?

A. Yes.

Q. Okay. And, again, in the second paragraph, UP-NS say, "They are enclosing a table with error corrections," correct?

A. Second paragraph, error corrections. I'm looking for that term.

Identify changes.

Q. Oh. How about we go to the first paragraph for a second.

A. Okay.

Q. "Applicants are correcting certain errors."

Do you see that?

A. Yes.
Q. You can agree that what's reflected here are error corrections, right?
A. Yes.
Q. Okay. There's a table attached with those error corrections, right?
A. There is a table here, yes.
Q. Okay. And it's titled "Errata to Supplemental Verified Statement of David T. Hunt."
Do you see that?
A. Yes.
Q. Okay. I'm going to represent to you that there's 45 entries of errata that are contained here.
Do you have any reason to dispute that?
A. I do not.
Q. And I'm going to represent to you that there's 60 specific changes, plus or minus, listed here.
Do you have any reason to

dispute that?
A. No.
Q. Okay. UP-NS also included a change log for work papers in connection with this errata letter, true?
A. Yes.
Q. All right. And we're going to mark the September 11, 2026, change log as Exhibit 340.
(Document marked for identification as Hunt Exhibit 340.)
BY MR. McCARRICK:
Q. And that's going to be -- you can X out of the --
A. 12.
Q. Yes, sir. And we're going to look at 14.
A. Okay.
Q. Do you see the file is titled "Change Log Accompanying UP103-NS102"?
A. I'm sorry. What -- could

you please repeat that.

Q. Of course.

The file is titled "Change Log Accompanying UP103-NS102."

Do you see that?

A. It looks like the title is "Change Log RE: Supplemental VS D Hunt." I don't see where you're reading.

Q. Okay. Okay. It refers to the supplemental Hunt statement, correct?

A. Yes.

Q. Okay. Can you click the replacement files tab.

A. I'm there.

Q. All right. And like last time, can you go to folder.

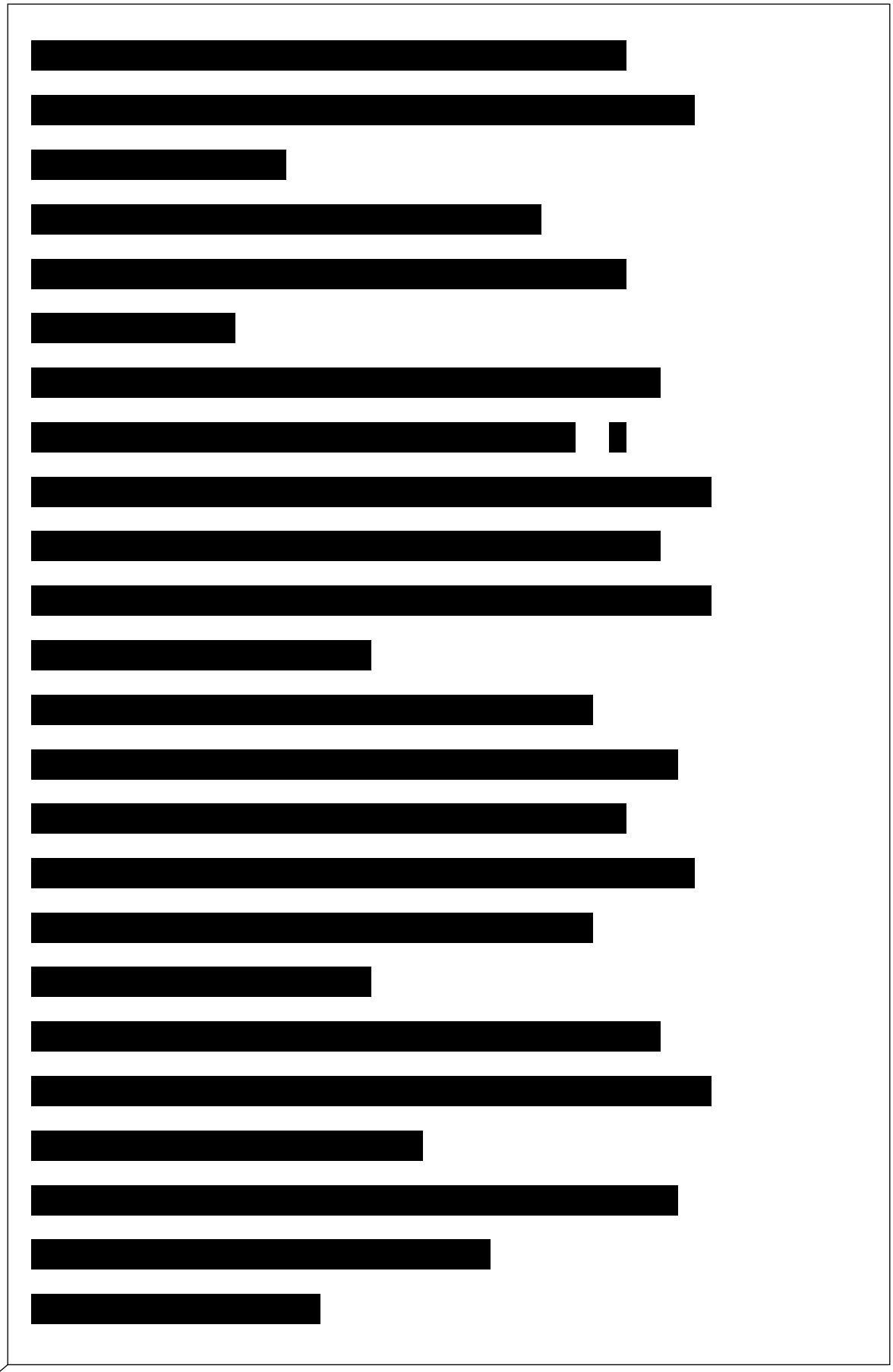
A. Yes.

Q. And can you filter by Hunt work papers?

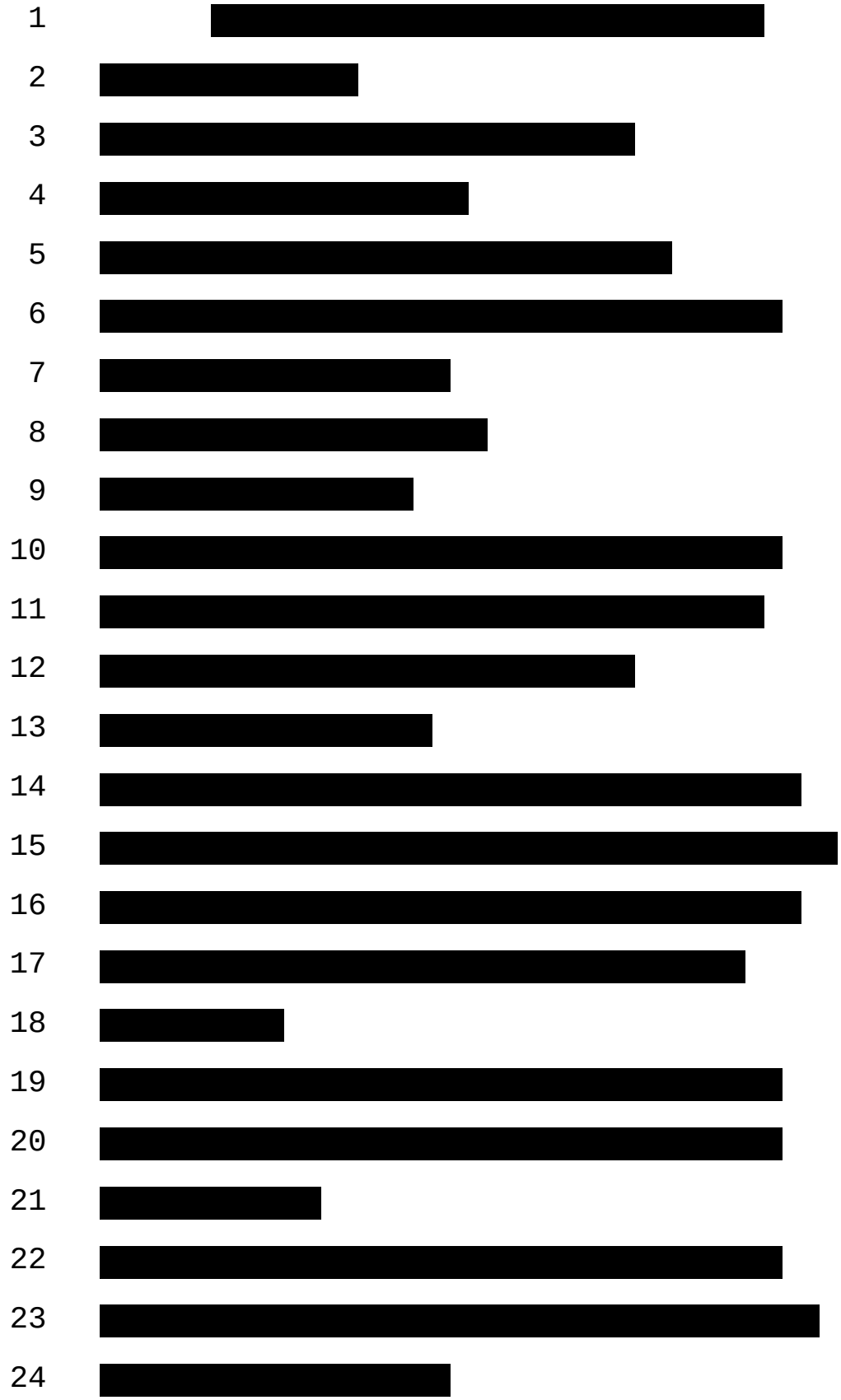
A. Yes.

Q. And you see it returns nine records?

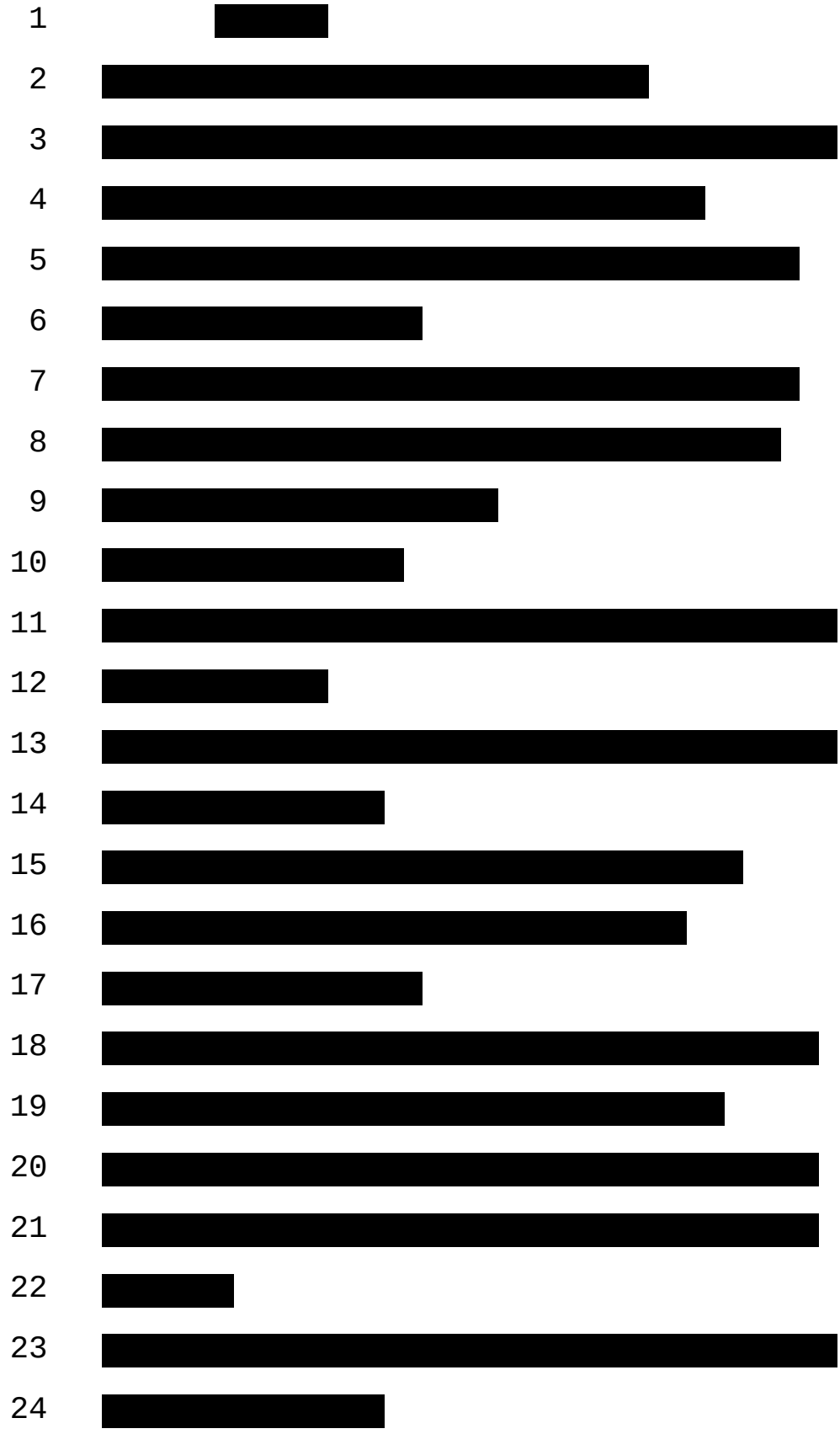
A. Yes.

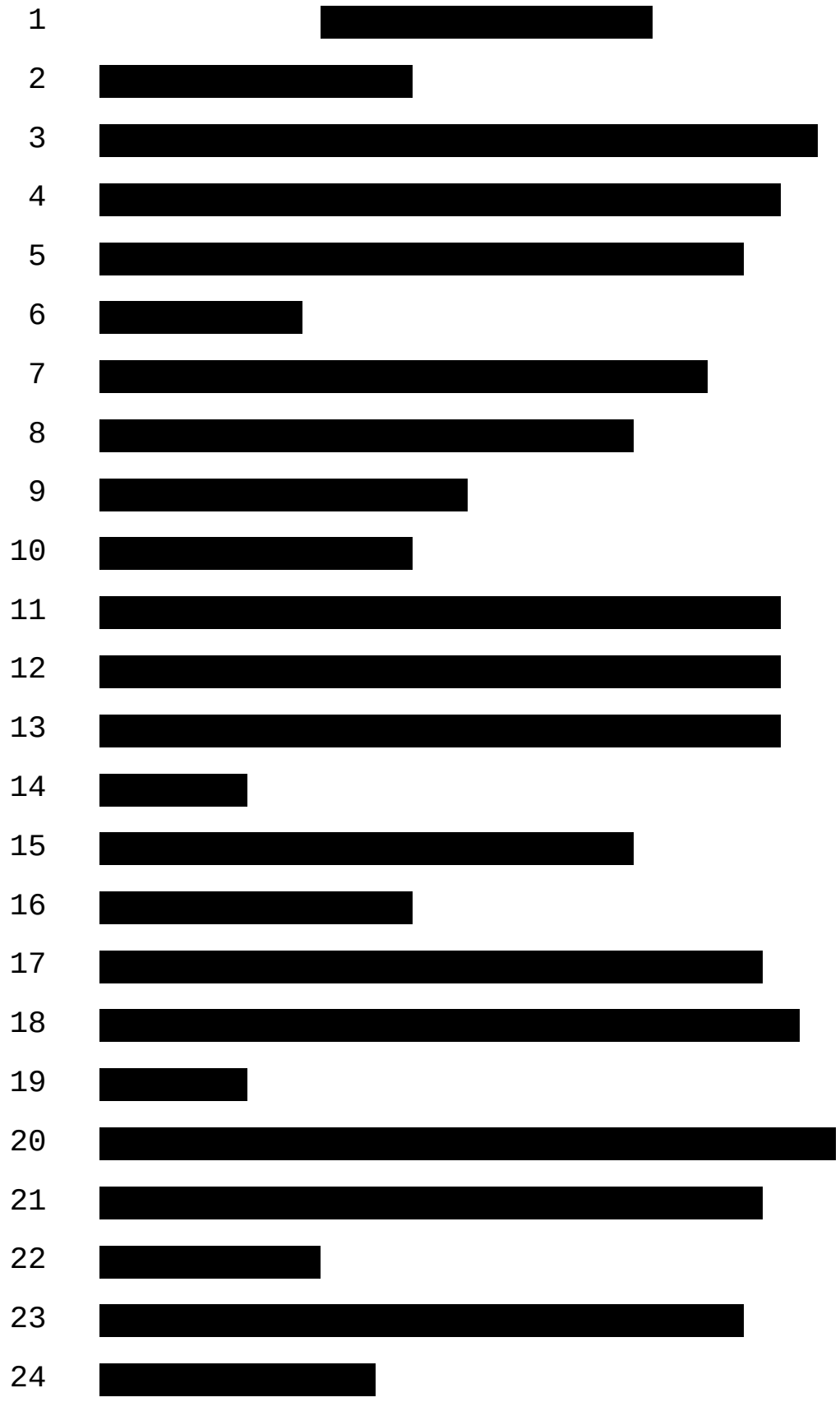


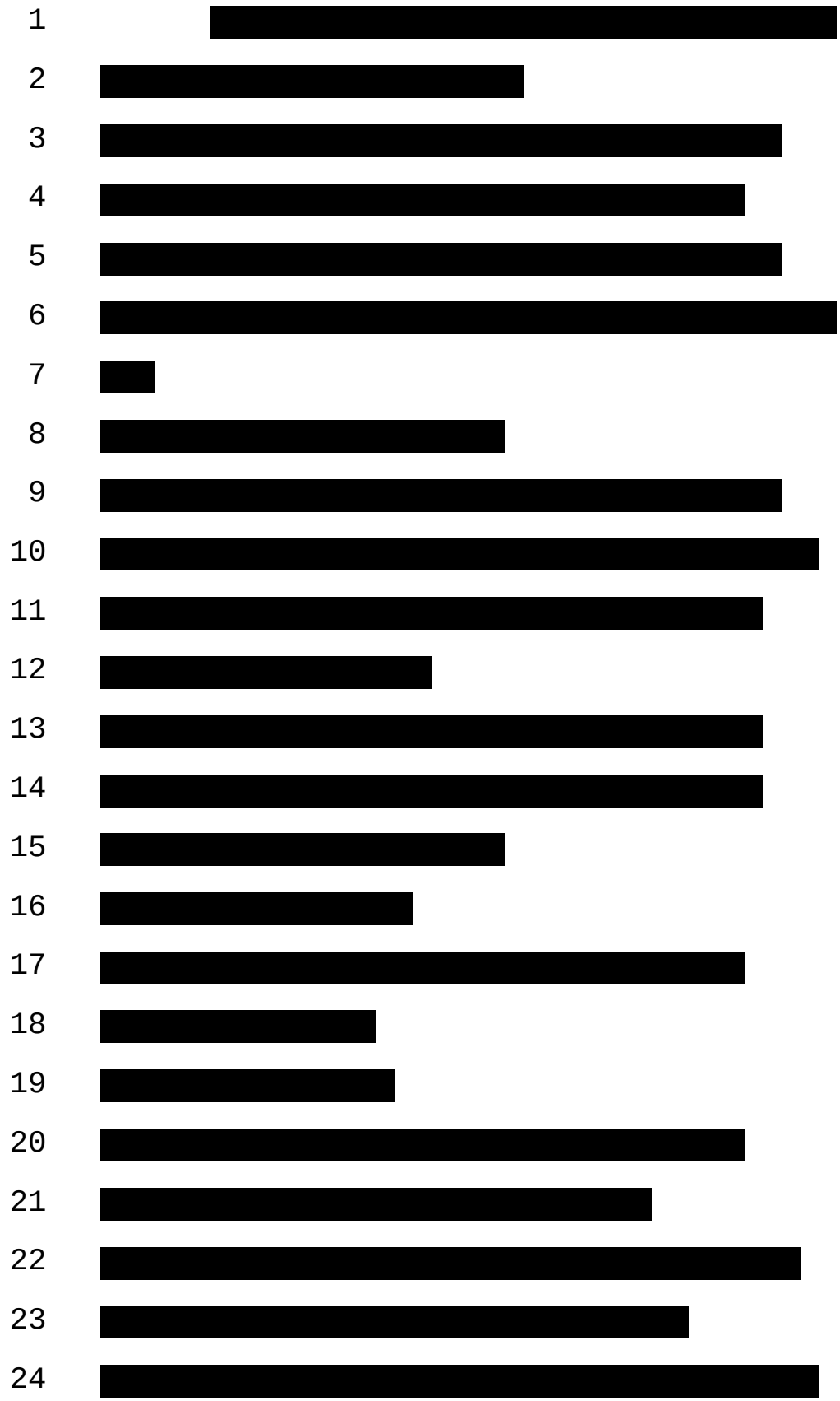


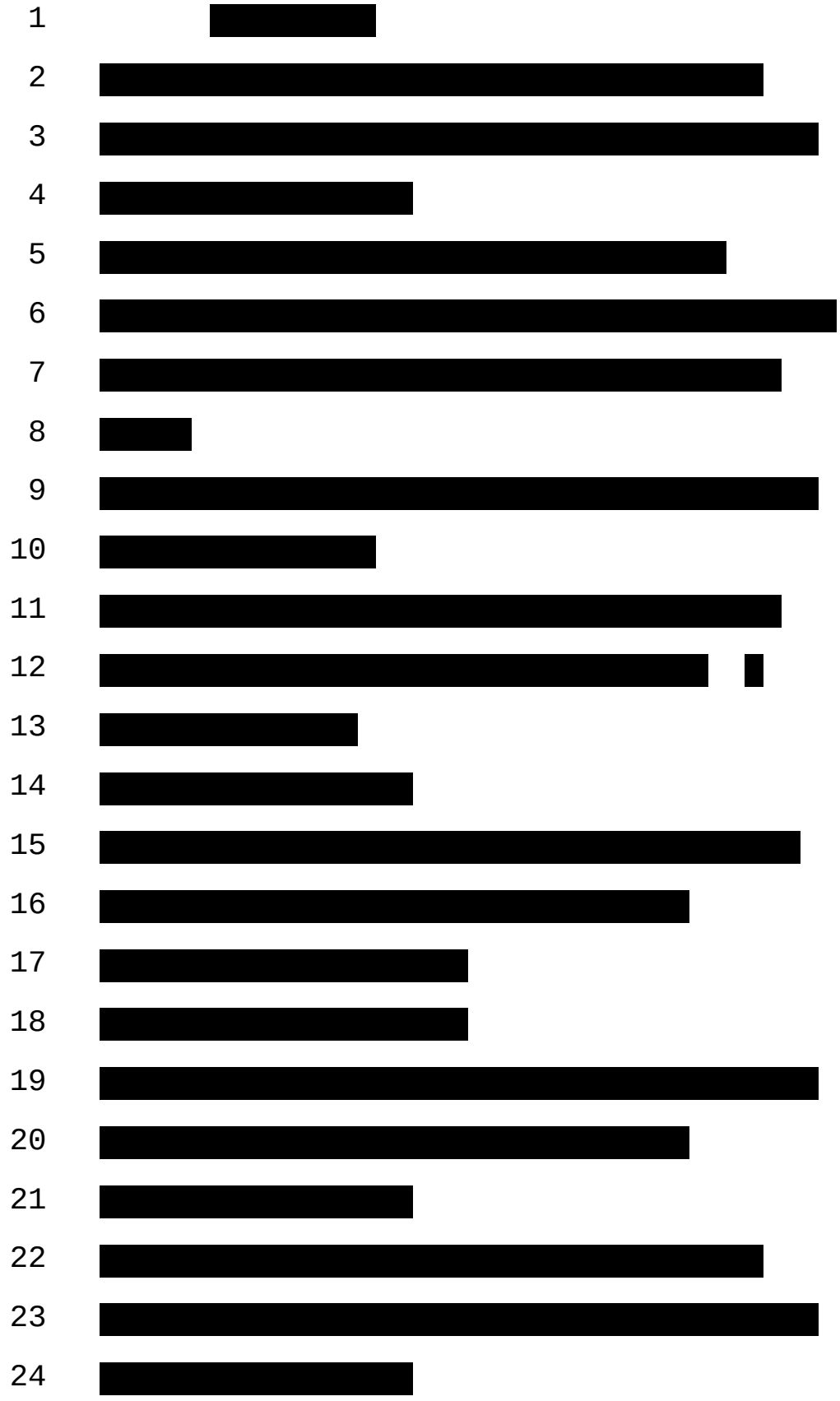


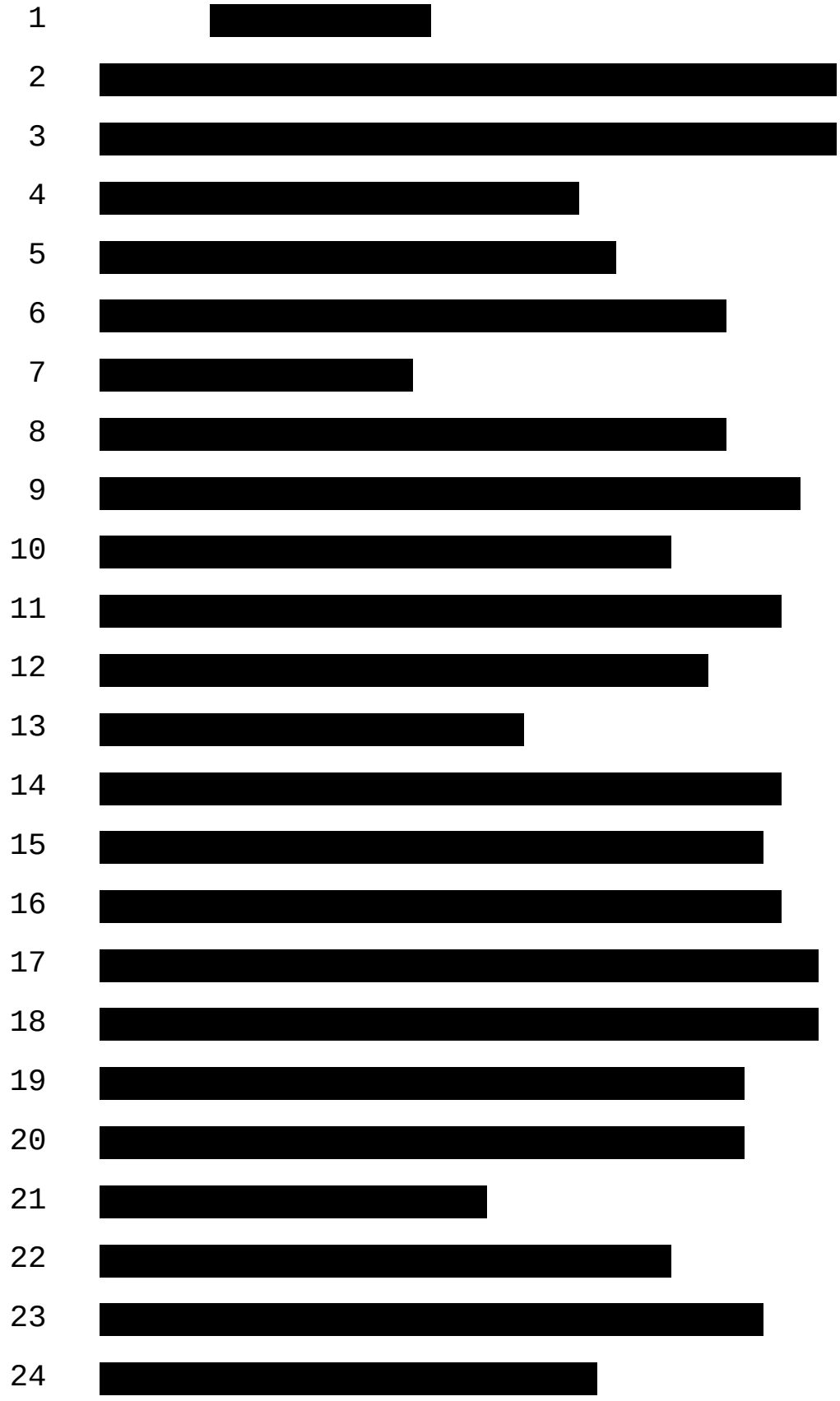






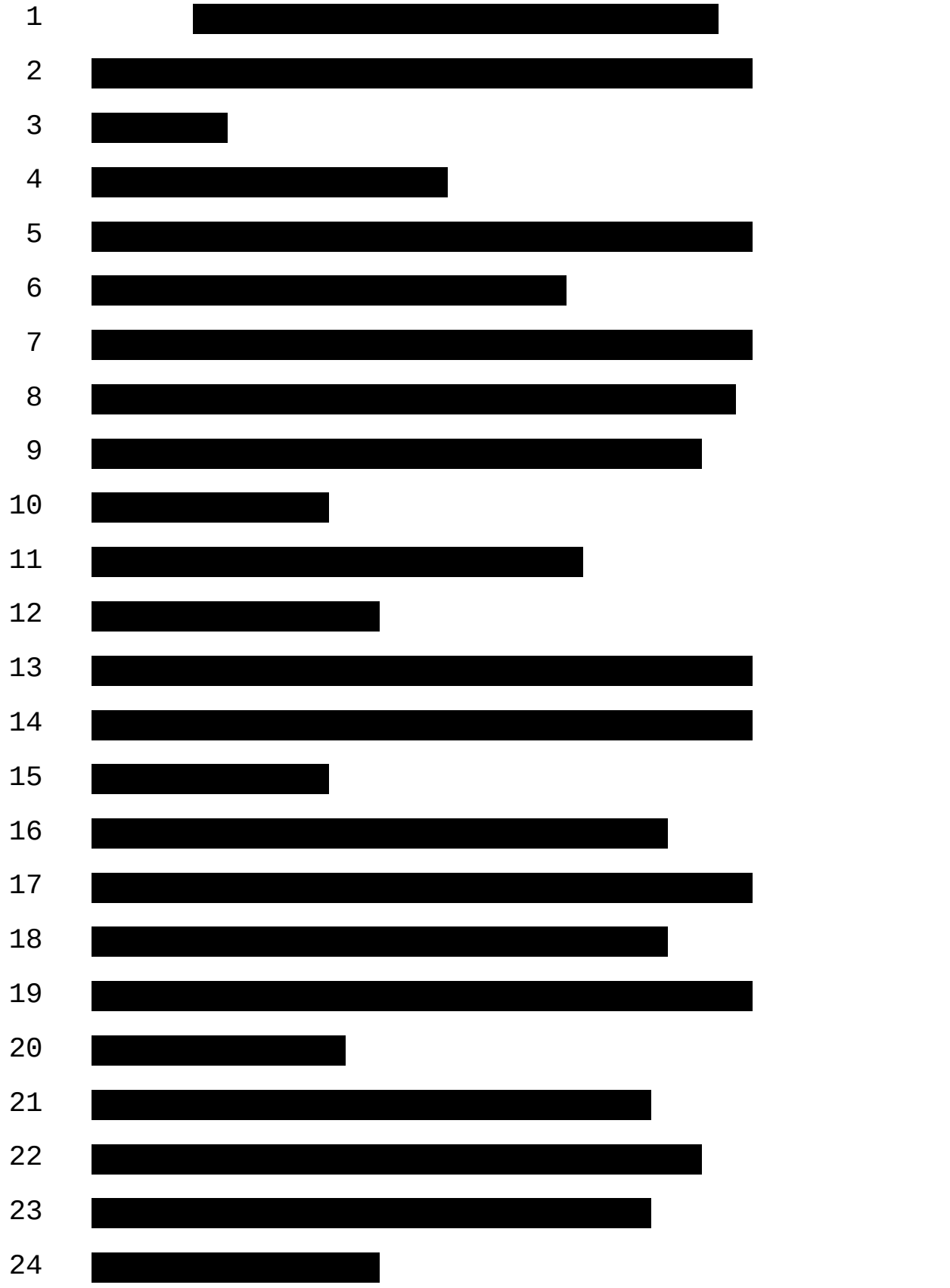


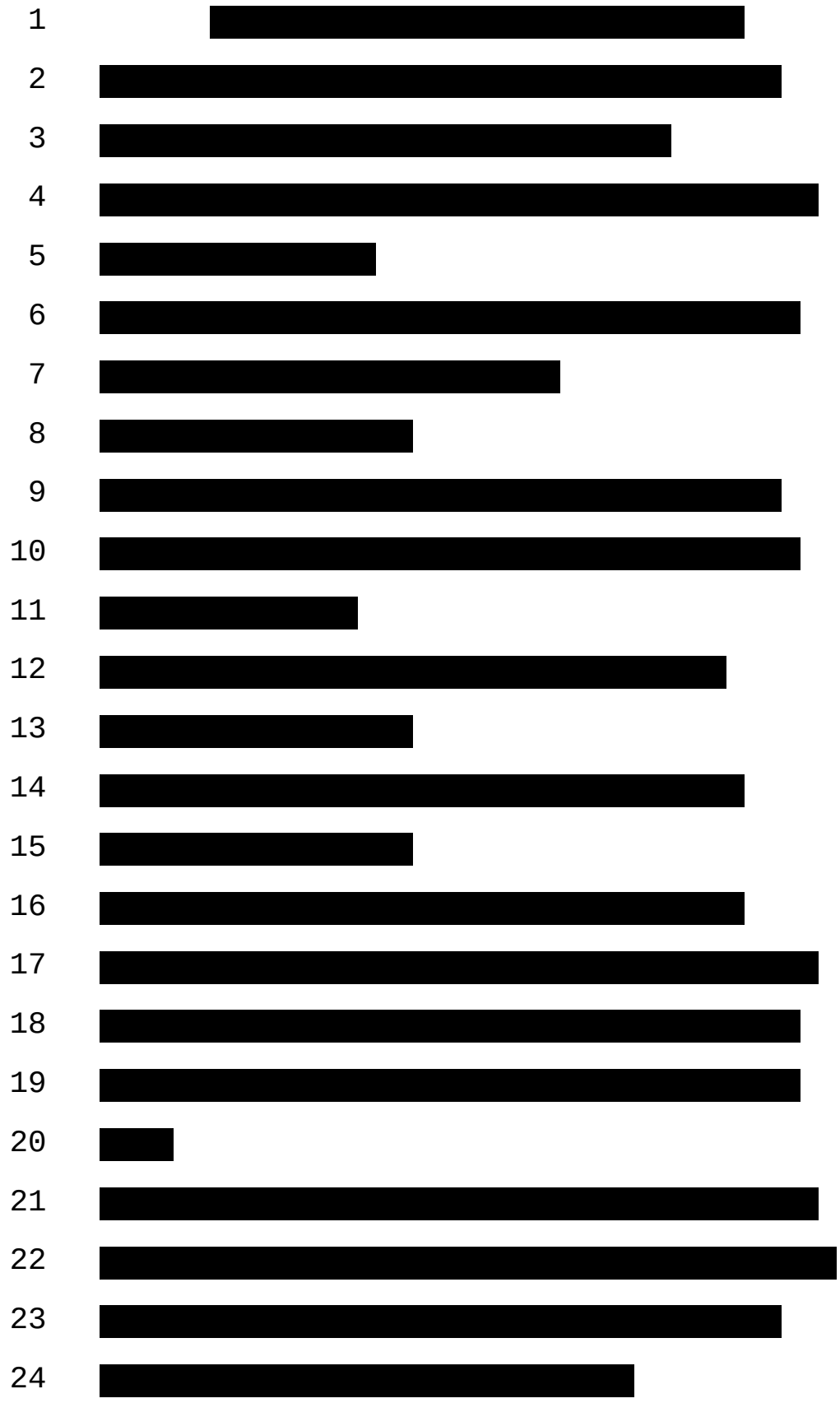


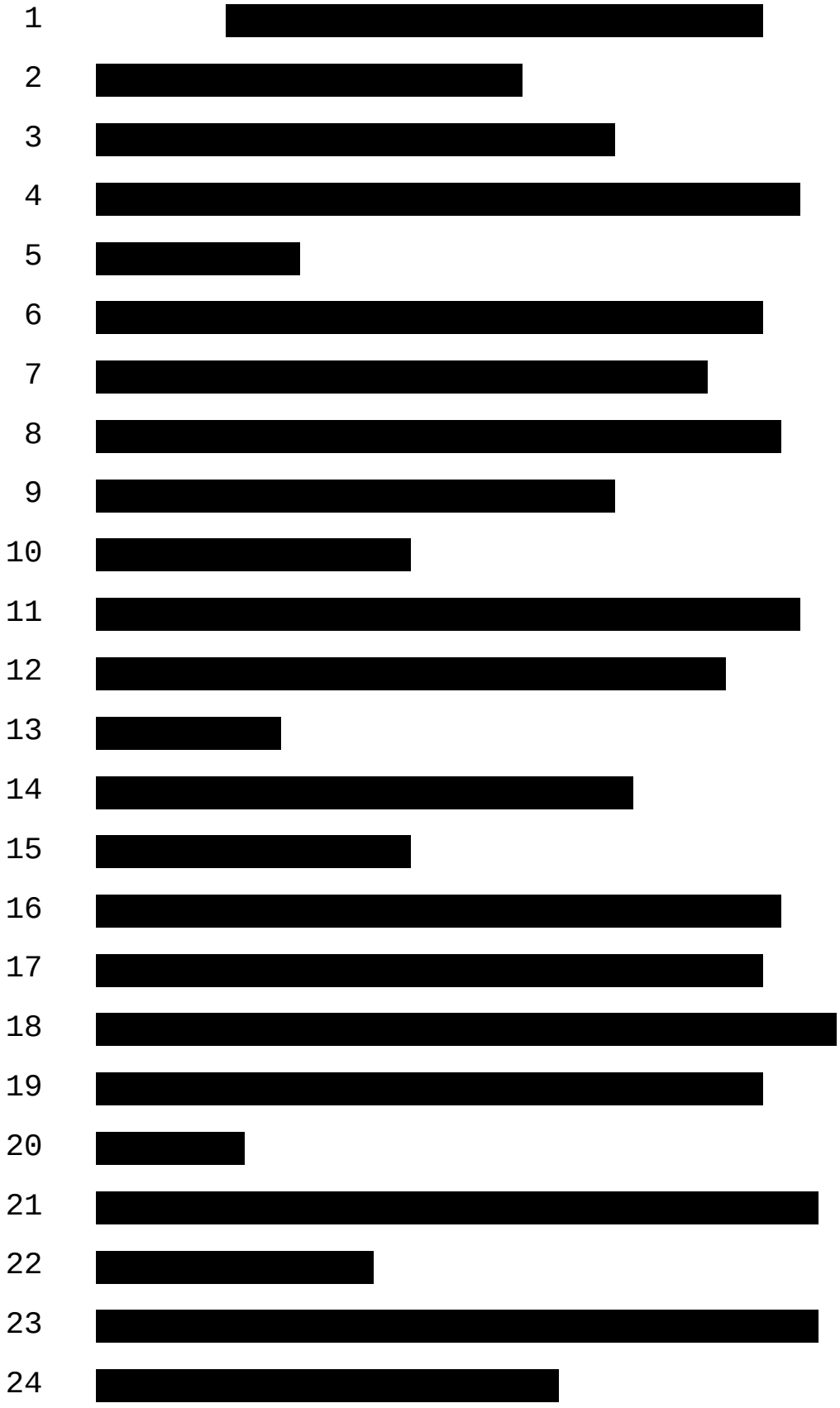




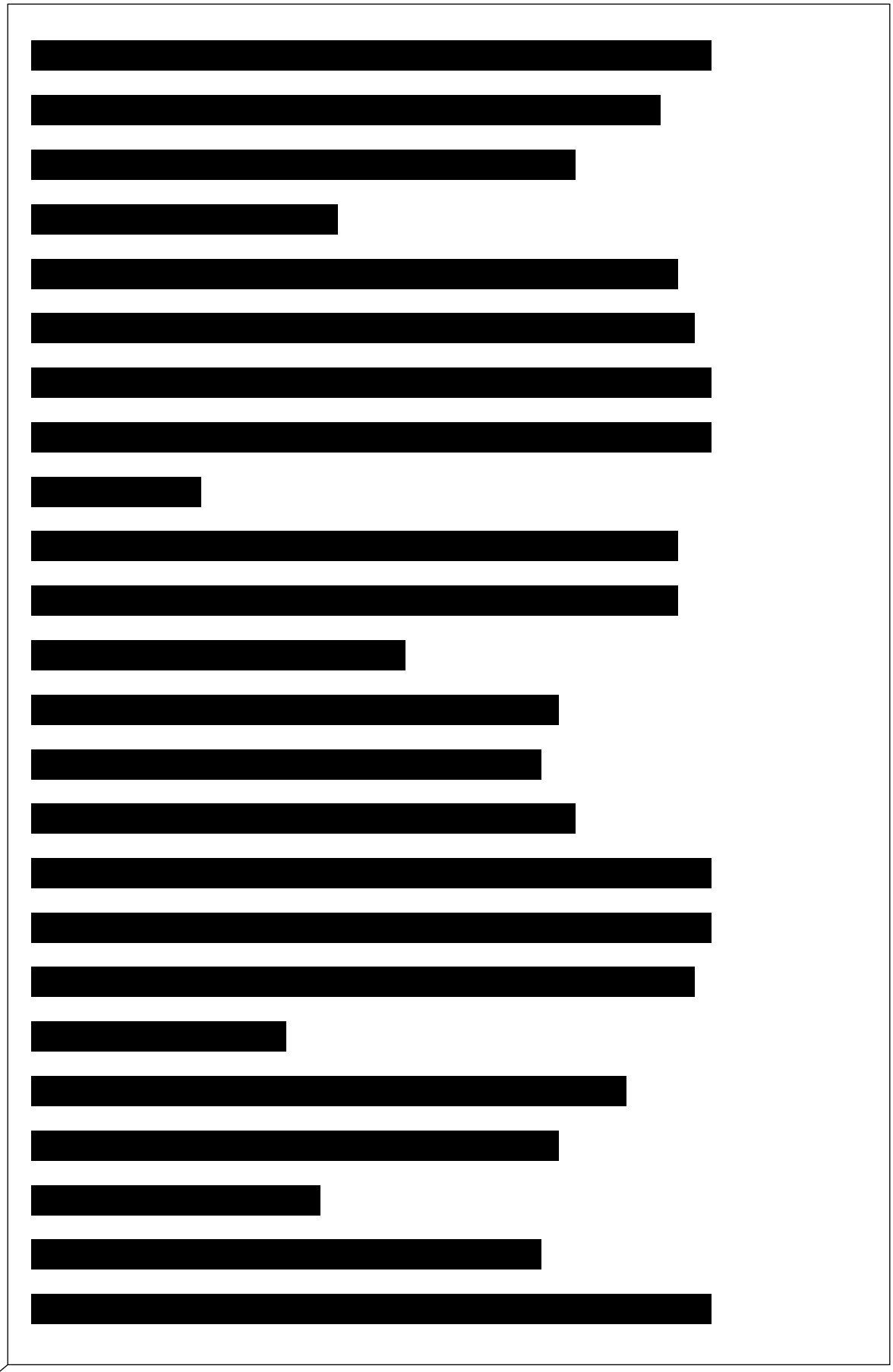












Q. Oh, no, no, no.
A. Oh, okay. Then yes, I would agree with that. Sorry. I misunderstood.
Q. No worries.
Price, reliability, and transit time are the factors that shippers value most, correct?
A. They consistently are factors that I see shippers mention. I mean, different shippers have different things that they depend on. But I would consider those three the primary ones, yes.
Q. Okay. Well, I just want -- the words on the page.
A. Yeah.
Q. You say, "Oliver Wyman's diversion models estimate how much traffic would shift by focusing on the factors that shippers value most: price, reliability, and transit time," correct?
A. Yes.
Q. Okay. I want to go through

a couple of these, but --

A. Okay.

Q. -- you agree that a diversion model should be price sensitive, correct?

A. I agree that price is a component -- should be considered in a diversion model, yes.

Q. And something that basically -- or withdrawn.

The model should be sensitive to price, correct?

Let me try it this way, maybe.

If all other factors are equal, you agree that a diversion model should be sensitive to changes in price, in estimating diversions, correct?

A. Either directly or indirectly, price is a component of it.

Q. Yeah. And so the model should be sensitive to price changes, correct?

A. I mean, I'm not quite sure

I'm understanding your question.
Q. Let's put it this way.
Changes in price can affect the number of diversions, correct?
A. Changes in price can affect how much traffic a shipper may send over a certain mode, yes.
Q. For example, if truck were 99 percent cheaper than rail, you would not expect to see significant diversions from truck to rail in the intermodal space, correct?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: If truck was 99 percent cheaper than rail, I would expect that most shippers would select truck.
BY MR. McCARRICK:
Q. Okay. A diversion model should account for reliability, correct?
A. Ideally, yes. The data is very difficult to get. But ideally.
Q. Yeah. And so sometimes you

have to use proxies for reliability, right?

A. Correct.

Q. One of those proxies might be junction frequency, correct?

A. Correct.

Q. But there's other factors that affect reliability, correct?

A. Yes.

Q. Okay. You agree that your model doesn't include a proxy for reliability other than junction frequency. Is that fair?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: No. I would disagree with that.

Because the model -- both the rail-to-rail model is calibrated against historical data, and the truck-to-rail model creates archetypes that reflect the shipper behavior in markets.

decision-makers of those companies to tell Oliver Wyman about what railroads are doing well in the market, right?

A. Mm-hmm.

Q. I'm sorry. Could I have a verbal?

A. Yes. I'm sorry. Yes.

Q. It's okay.

Oliver Wyman asked decision-makers at those companies to tell Oliver Wyman what it would take for shippers to increase their use of rail, correct?

A. Correct.

Q. And before we go any further, you did not rely on this analysis in any way in formulating your truck-to-rail diversion model, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I did not.

MS. FLAHIVE WU: I'm sorry?

THE WITNESS: I did not.

BY MR. McCARRICK:

Q. Okay. Let's turn to Page 4.

Do you see there's a section titled "Freight Segmentation and Mode Share"?

A. Yes.

Q. Okay. Do you see that it says, "To determine where rail has the most opportunity to gain market share by meeting shipper requirement, Oliver Wyman segmented North American freight into four categories."

Do you see that?

A. Yes.

Q. And you agree that different freight categories are associated with different opportunities for rail to gain share over truck, correct?

A. I would agree with that.

Q. Not all commodities are created equal in terms of where truck has a comparative advantage over rail,

fair?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: There are more truck-centric commodities and more rail-centric commodities, yes.

BY MR. McCARRICK:

Q. Yeah. You see Oliver Wyman states, "Each segment has shown different growth and rail market share patterns over the past decade, and each has a different trajectory for future growth."

Do you see that?

A. I'm sorry. You are on Page 4 still?

Q. Yes.

A. Okay. Yes, I do see that.

Q. Okay. It's -- and you agree that different freight segments have different growth patterns over time, correct?

A. Yes.

Q. You agree that different freight segments have different rail market share patterns over time, correct?

A. Market share between truck and rail does change over time, yes.

Q. Yeah. The relative share at different points in time could be different, correct?

A. Correct.

Q. One year the relative share could be 50/50, and in a different year, it could be 30/70, correct?

A. Sure. Unlikely to change that much in one year, but yes.

Q. The -- yeah. Fair point.

The point is just that there can be relative changes in market share year over year between truck and rail, correct?

A. Correct.

Q. Okay. And you agree that different freight segments have different growth trajectories in the

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I'm sure that they tried to get a segment of -- a cross-segment of different types of shippers.

I don't know, on this survey, how successful they were in reaching different types of shippers.

BY MR. McCARRICK:

Q. Okay. You don't have any reason to think they were unsuccessful in doing that, do you?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I have no reason to believe that.

BY MR. McCARRICK:

Q. Okay. Do you see here that 33 percent of intermodal shippers are -- prefer truck?

A. I see that.

Q. 30 percent of intermodal

shippers express no preference on truck versus rail as a transportation mode, correct?

A. I see that.

Q. Okay. Oliver Wyman's 2025 shipper survey evaluated factors influencing shippers' choice of transportation mode, correct?

It's a chart at the bottom.

A. I see Exhibit 6 that says that, yes.

Q. Okay. Do you see that price was ranked as number one by nearly half of shippers?

A. Okay. Yes, I see that.

Q. Okay. Price was ranked as a top three influencer by 85 percent of shippers, correct?

A. Correct.

Q. Then there's a graphic that describes Oliver Wyman's findings, true?

A. Yes.

Q. All right. Shipment management/on-time reliability was

ranked as the number one factor by about a quarter of shippers, correct?

A. I'm sorry. Which one are you looking at?

Q. Sure.

The -- in the bar chart, do you see shipment management/on-time reliability?

A. The second one, yes.

Q. Okay. And do you see that shipment management and on-time reliability was ranked as the number one factor by about a quarter of shippers?

A. Yes.

Q. All right. Shipment management and on-time reliability was ranked as a top three influencer by 70 percent of shippers, correct?

A. In this chart, yes.

Q. Okay. Transit time/speed was ranked as the number one factor influencing selection of transportation mode by less than 10 percent of shippers, correct?

A. Yes.
Q. Transit time/speed was ranked as a top three influencer by less than 40 percent of shippers, true?
A. Yes.
Q. Okay. Different factors affect a shipper's selection of a mode of transportation, correct?
A. It's --
MS. FLAHIVE WU: Objection to form.
THE WITNESS: Different, if you mean a multitude of factors, yes.
BY MR. McCARRICK:
Q. Yeah. And you had made this point earlier, which is that different factors might matter to different shippers differently, right?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: Yes.
BY MR. McCARRICK:
Q. One shipper could care more

about price, true?
A. That is true.
Q. A different shipper might care more about time, correct?
A. Correct.
Q. A different shipper could care more about reliability, correct?
A. That is correct.
Q. Okay. And whether -- like, which of those things that the shipper cares on can depend on the commodity that they are shipping, correct?
A. Yes, it can.
Q. And those factors, and how a shipper weights them, can depend on their geography, correct?
A. I guess it could.
Q. Okay. All right. Do you see that shippers identify price here as a number one factor about seven times more than transit time?
A. I do, yes.
Q. Shippers identified price as a top-three influencer, over twice as

much as transit time, correct?
A. According to this survey, yes.
Q. Okay. Shippers identified shipment management and on-time performance reliability as a number one factor at least three times more than transit time, correct?
A. That is correct, yes.
Q. All right. And shippers identified shipment management/on-time performance reliability as the top-three influencer a little under twice as much than transit time, true?
A. True, yes.
Q. Okay. You talked a little earlier that you sort of have four segments that are used to construct your archetypes, right?
A. Yes.
Q. Price was one, correct?
A. Yes.
Q. Junction frequency was one, correct?

A. Yes.
Q. Transit time was one, correct?
A. Yes.
Q. And length of haul is the fourth, correct?
A. Correct.
Q. And you weight those equally, correct, for purposes of your archetype?
A. They are used to create buckets, and those buckets, then we take averages. So I can't really say how they are weighted, but they are used for creating the archetypes.
Q. And -- yeah. Maybe let's actually do it in two steps, right.
Step one is you use those four factors to create the archetype, right?
A. Correct.
Q. And when you are creating those archetypes, you weight those four things equally in identifying the

For carload, 60 percent of shippers listed equipment availability as a top-three influencer for switching from rail to truck, correct?

A. Yes.

Q. And 60 percent of carload shippers listed price as a top-three influencer from switching from rail to truck, correct?

A. Sorry. You are talking about carload?

Q. Yes. For carload, 60 percent of shippers listed price as a top-three influencer for switching from rail to truck, correct?

A. It looks like 40 percent to me. The third line is price.

Q. Okay. It's your testimony it's 40 percent, based on your --

A. I'm reading -- I'm reading this chart right here where the third line says price.

Q. Okay. Are you sure that's not for intermodal shippers?

A. It's -- the dark bar on top is carload.

And for the third line down, price, it looks like --

Q. Oh, I've got them inverted. Let me -- let me go back to it. Thank you.

A. Okay.

Q. For carload, 40 percent of shippers listed price as a top-three influencer for switching from rail to truck, correct?

A. Yes.

Q. Okay. And what percentage of intermodal shippers listed price as a top-three influencer for switching from rail to truck?

A. 50 -- nearly 50 percent.

Q. Okay. Transit time doesn't crack the top five here, correct?

A. It's Number 6.

Q. So it doesn't crack the top five, correct?

A. Correct.

Q. Okay. Oliver Wyman did not conduct a shipper survey as part of its analysis in these proceedings, correct?

A. In the UP-NS case, no.

Q. Okay. And Oliver Wyman didn't conduct a survey assessing shipper preferences, correct?

A. Correct.

Q. To your knowledge, UP-NS also didn't conduct a shipper survey as part of these proceedings, correct?

A. I have no knowledge of that.

Q. Okay. You didn't see and rely on one from UP-NS, correct?

A. Correct.

Q. Okay. Can you take a look at Page 525 of your September 4, 2027 (sic) report. It's the big mama-jama.

A. 525. I'm there.

Q. All right. Look at the last paragraph.

You write, "Based on Oliver Wyman's collective experience, when

response how? Would you please restate that.

BY MR. McCARRICK:

Q. And when you say "restate," do you want me to rephrase the question?

A. Please.

Q. Yeah. Okay.

A traffic diversion model should predict how shipper demand for -- and this is your truck -- take one step back. I want to talk about your truck-to-rail model for a second. Okay?

In the context of the truck-to-rail model, you agree that a traffic diversion model should predict how shippers will -- how shipper demand for different modes of transportation will change in response to market conditions?

A. Yes.

Q. Okay. One of those market conditions is price, correct?

A. Correct.

Q. Okay. You employ a

lookalike methodology to estimate truck-to-rail diversions, correct?

A. Correct.

Q. You match lanes with improved service post merger to archetypes of present day lanes with similar characteristics, correct?

A. Correct.

Q. Your archetypes are based on four characteristics, correct?

A. That's correct.

Q. Those are the four we discussed earlier, right?

A. Correct.

Q. Your archetypes are intended to establish comparable markets, correct?

A. Correct.

Q. And the rail share observed in those comparable markets is then used to predict the rail share for the improved lane, correct?

A. Correct. What we see historically in similar market

conditions is what we are predicting will occur when UP-NS is able to create those market conditions in new markets.

Q. Right. So you start with the rail shares in lanes that basically fall into different archetypes based on 2023 data, correct?

A. That is correct.

Q. Okay. You then project those rail shares onto lanes that, after the merger, experience an improvement and share the same characteristics as those pre-merger lanes, right?

A. Yes. It is looking at -- again, as I said earlier, the way I think about it is, you know, how -- if UP-NS had been merged, how would that 2023 traffic have behaved -- moved differently through the network. And I'm trying to isolate the impact of that, of the merger.

Q. Yeah. And the way that you do that is you take the rail shares for existing lanes that have certain

characteristics and you apply those rail shares to lanes that, after the merger, share those characteristics and have, you know, received some sort of improvement, correct?

A. Correct.

Q. Okay. And so, basically, the idea here is, like, if a lane looks like a duck and quacks like a duck, it's going to act like a duck?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. Okay. You're proposing the duck test is the basis for approving the largest merger in history?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I am saying that I'm using history to identify similar lanes that will -- that -- UP-NS will create lanes that will have

characteristics that I've seen historically, and I'm applying those, moving those forward.

BY MR. McCARRICK:

Q. Okay. In approving a rail merger, to your knowledge, has the Surface Transportation Board ever used a lookalike model to estimate traffic diversions?

A. Has the Surface Transportation Board used one? I'm not aware of what the Surface Transportation Board uses.

Q. Okay. Have you reviewed prior merger decisions?

A. I have.

Q. Okay. In any of the merger decisions that you have reviewed, has the Surface Transportation Board relied on a lookalike model in estimating traffic diversions?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: You mean has

the applicant submitted a diversion statement that used a lookalike model?

BY MR. McCARRICK:

Q. Well, we can break it down that way. Let's try to do it in two steps.

Before this merger, are you aware of any merger in which the applicants have submitted a lookalike model to estimate traffic diversions?

A. I would argue that the CPKC work by FTI used a -- they didn't call it a lookalike model, but they used a form of a lookalike model.

I mean, there was a tape on there that shows, based on the characteristics of the lanes, that they would divert 25 percent, 50 percent, or 75 percent, and so that was based on how the lanes looked.

Q. Okay. Other than the FTI model in CPKC, can you think of any other merger in which the applicants

have put forward a lookalike model to estimate truck-to-rail diversions?

A. I'm not aware of any.

Q. Okay. You criticized the FTI lookalike model in CPKC, correct?

A. I did.

Q. You did not think that lookalike model accurately depicted truck-to-rail diversions, correct?

A. The FTI model was rail-to-rail.

Q. Okay. So let me just ask my question again.

Are you aware of any merger proceeding in which a lookalike model has been used to estimate truck-to-rail diversions by the applicants?

A. Outside of this one, I am not.

Q. And you had criticized the FTI rail-to-rail model, correct?

A. I did, yes.

Q. Okay. And you thought it vastly overstated diversions, correct?

A. I felt that the -- they had -- CPKC had three different statements with diversion numbers in it, and I collectively looked at those and felt that they were overstated.

Q. Okay. And one of the -- one of the things I think that you opined on, that there were different diversion estimates from different sponsoring witnesses, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I discussed the different diversion estimates of the different witnesses.

BY MR. McCARRICK:

Q. Yeah. In your mind, did those diversion estimates match?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Did they -- I don't know what you mean. Match what?

BY MR. McCARRICK:

Q. Okay. That's fine. We'll come back to that.

Other than this case and the rail-to-rail model in CPKC, are you aware of a single instance in which a federal agency has used a lookalike model to estimate traffic diversions?

A. I know that my former company, Cambridge Systematics, did a study -- it was after I left Cambridge Systematics for the Department of Energy, looking at sustainability.

And they referenced -- they didn't call it lookalike. They called it market segmentation model, but it's the same thing.

And there, I don't know whether the Department of Energy used it or not, but they recommended that a market segmentation model would be a good model for a nationwide study.

Q. Okay. Other than that, are you aware of any other instance in which

a federal agency has used a lookalike model to estimate traffic diversions?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I'm not aware of a federal agency using one.

BY MR. McCARRICK:

Q. And fair to say --

A. Yeah.

Q. Fair to say that you weren't actually involved in the market segmentation analysis that Cambridge -- is it Systematics?

A. Yes.

Q. -- submitted to Department of Energy, correct?

A. It was a report on -- it was around -- it involved sustainability and looking at different approaches for mode shifts around that topic. I don't think it was a specific study or estimate of mode shifts.

Q. Do you know if the

Department of Energy used that?

A. I have no idea.

Q. Okay. Are you aware of any instance in which a federal or state court has used a lookalike model to estimate traffic diversions?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I'm not aware of any.

BY MR. McCARRICK:

Q. Okay. In your verified statements, do you cite a single publication in which a lookalike methodology is used to estimate traffic diversions?

A. I don't believe I do.

Q. Okay. Do you cite any scholarly papers on lookalike methodologies for estimating diversions?

A. I do not.

Q. Okay. Sir, this is the first time that you personally used a lookalike model to estimate traffic

diversions, true?

A. Well, I mentioned before that for the work for Norfolk Southern last spring, we used the lookalike model. But before that, no.

Q. Okay. And that's -- fair enough.

Were you involved in constructing a lookalike model that Oliver Wyman used with Norfolk Southern before the merger?

A. I had involvement in it. In particular, I was -- I had input to it. I'm trying to remember exactly what part of it I worked on.

Again, I have not looked at that study in over a year, but I was involved in that study. At least in parts of it.

Q. Okay. Other than for purposes of this merger, whether for Norfolk Southern or the application, this is the first time you've ever used a lookalike methodology to estimate

traffic diversions, true?

A. That is true, yes.

Q. Okay. The first formal document that you've ever authored using a lookalike model to estimate traffic diversions was your verified statement in this case, correct?

A. Yes.

Q. The first formal audience you'll ever address using a lookalike model to estimate traffic diversions will be the Surface Transportation Board in this case, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I'm sorry. I got turned off. Would you please repeat that.

BY MR. McCARRICK:

Q. Sure.

The first formal audience that you'll ever address using a lookalike model to estimate traffic diversions will be the Surface

Transportation Board in this case, correct?

MS. FLAHIVE WU: Same objection.

THE WITNESS: I don't know what you mean by "formal audience." I mean, the work for Norfolk Southern was presented to a client. I would consider them a formal audience.

BY MR. McCARRICK:

Q. Okay. I'll say external facing, then.

Because you and your clients work together, right?

A. Yes.

Q. Okay. The first external audience that you'll ever address using a lookalike model to estimate traffic diversions will be the Surface Transportation Board in this case, correct?

A. Using your definition, yes.

Q. Okay. You have offered

truck-to-rail diversion analyses to the Surface Transportation Board before, correct?

A. Correct.

Q. The first time that you offered a truck-to-rail diversion analysis to the Surface Transportation Board was the CPKC proceeding, yes?

A. That is correct.

Q. Okay. And I want to focus on truck-to-rail.

That's just a few years ago, correct? 2022?

A. Yes, that's correct.

Q. All right. You did not use a lookalike methodology to measure truck-to-rail diversions in CPKC, correct?

A. That is correct.

Q. Okay. You used a logistics regression, correct?

A. Correct.

Q. Specifically, you used a cost-based logistics regression,

correct?

A. That is correct.

Q. And a cost-based logistics regression considers the cost of a truck move relative to the cost of a rail move in predicting shipper responses, correct?

A. That is correct.

Q. Okay. The truck-to-rail diversion analysis you sponsored in CPKC was the first that you ever personally sponsored under your own name before the board, correct?

A. It was the first time before the board I had done that, yes.

Q. All right. So the first time you had a chance to pick a methodology to estimate truck-to-rail diversions, you picked a logistics regression, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: For that work, I felt a logistics

regression elasticity model was the appropriate choice, yes.

BY MR. McCARRICK:

Q. Okay. And that work was the first time that you were presenting a truck-to-rail diversion model to the board, correct?

A. To the board, yes.

Q. And, in fact, the logistics regression is the tool that you used to estimate rail-to-rail diversions in this case, correct?

A. It is a logistics regression model. A different form, but yes.

Q. Right. It's not a cost-based one, correct?

A. That's correct.

Q. It's just a other sort of logistics regression, right?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Yes. It's a multinomial logit model. But

yes.
BY MR. McCARRICK:
Q. All right. A multinomial logit model is another way that you could have estimated truck-to-rail diversions in this case, correct?
A. There are different approaches that you could use, yes.
Q. Yeah. And I just want to walk through some of them.
You could have used a cost-based logistics regression to estimate truck-to-rail diversions in this case, correct?
A. Do you mean elasticity model, the way that --
Q. Sure. I'll rephrase to say that.
You could have used a cost-based elasticity model to estimate truck-to-rail diversions in this case, correct?
A. Yes.
Q. You did not do that,

correct?

A. I tested one.

Q. You tested one?

A. I did.

Q. Internally?

A. Internally.

Q. Okay. Did you produce the results from that?

A. It was not used in the decision, so I did not.

Q. Okay. What did it show?

A. It was --

MS. FLAHIVE WU: I apologize. I'm going to ask you to answer categorically as to draft work papers.

MR. McCARRICK: Your testifying expert ran an analysis that you guys threw in the garbage bin. That's not privileged.

MS. FLAHIVE WU: I'm asking him to testify categorically, as counsel has

recognized that drafts of work product are protected in this case.

I --

MR. McCARRICK: Okay.

MS. FLAHIVE WU: I'm asking him to go slow so that I can instruct if necessary.

I'm not instructing him not to answer, just asking that he answer categorically.

MR. McCARRICK: Okay.

MS. FLAHIVE WU: There is no instruction not to answer, just to go slow, so that if there is an issue in terms of drafting, or input from counsel, then I can instruct as necessary.

MR. McCARRICK: Okay. Let's just go one step at a time.

BY MR. McCARRICK:

Q. You tested a cost

elasticity model to estimate truck-to-rail diversions in this case, correct?

A. Yes.

Q. Okay. That cost elasticity model was your first choice for a methodology in this case, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Not -- no. We had done the lookalike for Norfolk Southern, and we were doing -- we had a team. We were doing the lookalike model. And I was testing the elasticity model also.

BY MR. McCARRICK:

Q. Okay. So let's break this down.

During the merger negotiations when Oliver Wyman was consultant to Norfolk Southern, Oliver Wyman used a lookalike methodology, correct?

A. Correct.
Q. Oliver Wyman then gets engaged by UP-NS, correct?
A. Correct.
Q. After Oliver Wyman was engaged, what was the first analysis that you performed? Was it a lookalike analysis or was it a cost elasticity analysis?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: They were done, really, in parallel.
BY MR. McCARRICK:
Q. Okay. They were done at the same time?
A. Yes. They were done in parallel.
Q. Okay. Do you know which one started first?
A. I don't recall. I mean, the first step is to assemble all the data necessary. And then once you have the data assembled, then you can start

doing analysis so they -- my memory is it was about at the same time.

Q. Okay. Who made the decision to test a price elasticity model?

A. It was discussed among our team working on it. And so I -- I tested one similar to what I had used before, and the team was working on the lookalike model simultaneously.

Q. Okay. So there was discussion on the Oliver Wyman team about the proper methodology to use, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: We wanted to apply the most appropriate methodology, yes.

BY MR. McCARRICK:

Q. Okay. And one group at Oliver Wyman was working on the lookalike model, correct?

A. I would not say they

elasticity model? Is it looking at prices? Or what's it looking at?

A. It's looking at the cost to the carrier. So the trucking cost and the rail cost, not the price to the shipper.

Q. Okay. So it looks at the cost of the carrier, not the cost of the shipper?

A. Correct.

Q. Got it.

Okay. Have you ever run a price elasticity model, like the price to the shipper?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I have only used cost-based.

BY MR. McCARRICK:

Q. Okay. So the -- you tested a cost-based elasticity model in -- in connection with this case, correct?

A. Correct.

Q. You used the same model

that you had used in CPKC, correct?

A. It was the same form, yes.

Q. Okay. That model produced results, correct?

A. It -- yes, it did.

Q. Okay. In terms of intermodal diversions -- or, actually, withdrawn.

In terms of truck-to-rail diversions, were the results that the cost-based elasticity model produced less than, greater than, or equal to the number of diversions that your lookalike model depicts today?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: My memory is that we -- it was by truck type, because that was what I had -- what we were able to differentiate were truck costs by the type of truck. And there were five truck types.

My memory is some were

lower, some were higher.

BY MR. McCARRICK:

Q. Okay. Well, what were the five truck types?

A. It's the truck types that come out of TRANSEARCH. It's dry van, flatbed, tank trucks...

Dry van, flatbed, tank, refrigerated, and -- sorry. I'm forgetting the fifth one. But there were five of them.

Q. Intermodal?

A. No. A lot of intermodal is in dry bed. So it's not -- I mean, I can look. I'm sure it's in here somewhere, if I would look at...

Q. Okay.

A. There must be a table that has them split out.

Q. Did you ever bridge, or try to bridge, the -- well, actually, why don't we just take a step back.

You said some were lower and some were higher.

Reefer, is that Number 5?

A. I said reefer. I have it here. It's bulk --

Q. Bulk.

A. -- was the one I was missing.

Bulk, reefer, dry van, tank and, flatbed.

Q. Okay. Got it. Okay.

All right. So you said that the results of the cross elasticity -- or withdrawn.

You said that the results of the cost-based elasticity model produced some diversions that were higher and some diversions that were lower, correct?

A. That is my memory, yes.

Q. Okay. What diversions were lower, to your memory?

A. I do not recall.

Q. Okay. Can you give me an order of magnitude on how much lower?

MS. FLAHIVE WU: Objection

to form.

THE WITNESS: I'm trying to go off memory.

I don't recall exactly.

BY MR. McCARRICK:

Q. More or less than 100,000?

MS. FLAHIVE WU: Objection to form.

BY MR. McCARRICK:

Q. Or, actually, that's a fair --

MR. McCARRICK: I'll give you that one.

BY MR. McCARRICK:

Q. Which is, was it 100,000 less or more than 100,000 less?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It's hard -- it's hard for me to answer that because I didn't really look at it that way.

BY MR. McCARRICK:

Q. Okay. Did anyone at any

point attempt to bridge the results of the cost-based elasticity model with the lookalike model?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Bridge them in what way?

BY MR. McCARRICK:

Q. Basically, to see which produced, after standardizing for different truck types, more or less diversions.

Did you ever try to figure out which of those two models produced more or less diversions?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Okay. I did not look at it that way.

I compared the results of the two, and what I discovered on the cost elasticity model is that for truck, I had five truck costs. And I was trying to use

five truck costs nationwide.

And the rail cost we had derived from IRKS, which were system average rail costs.

So, essentially, what I was getting was very similar diversion results for the entire country. It was driving it -- the cost elasticity model was driving it to a very standard diversion rate everywhere, regardless of the characteristics of that -- of that individual market.

Whereas the lookalike model did a much better job of picking up regional and different -- and differences, based on the characteristics of the markets.

So the -- based on that analysis, or based on that observation, the cost elasticity model was scrapped very early as

not being a good model, given the lack of differences in truck cost, to use on a nationwide basis.

So it was -- it was discarded, not used, not referenced or used in anything in my statement.

BY MR. McCARRICK:

Q. Okay. Let's break this down.

You said that the cost-based elasticity model was discarded early. When was it discarded?

A. I really don't recall.

Q. Was it November of 2025?

A. It would have been before that.

Q. Okay. October of 2025?

A. Possibly early October. I don't recall.

Q. Okay. Let me ask you, did you ever attempt to use the complete 2023 waybill data to refine the

cost-based elasticity model?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: That wouldn't have mattered because I still have five truck costs that I got from the American Trucking Research Institute. And I got the rail cost from IRKS.

And so the 2023 waybill data, it had rail revenue. It did not have rail cost on it. So it would have made no difference.

BY MR. McCARRICK:

Q. Okay. So there's no way for you to do a cost-based elasticity model with anything other than the five truck costs that you had here?

A. I -- I did not know of a way of breaking it down into more lane-specific truck cost.

Q. Did you try to break it down into more lane-specific truck cost?

A. I didn't know a way of doing that.

Q. So is the answer no?

A. The answer is -- I'm sorry. What was the question?

Q. Sure.

Did you try to break the cost-based elasticity model down into more lane-specific truck costs?

A. I did not.

Q. Okay. I want to talk -- you talked about how there's some diversions that went up, some diversions that went down.

All in, which model produced a higher number of truck-to-rail diversions, the lookalike model or the cost-based elasticity model?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: As I explained, I don't really recall because I was not that focused

on it.

I was focused more on how the model was behaving in individual lanes, and that was -- so I was looking at it more from the ground up.

So I really -- I don't -- I just don't recall that.

BY MR. McCARRICK:

Q. So you don't remember whether the cost-based elasticity model produced fewer overall truck-to-rail diversions than the lookalike model, fair?

A. That was not the basis for deciding which model to use.

The basis for deciding which model to use, again, was by looking at individual markets and how it was predicting in individual markets.

Q. Okay. My question was different. We'll talk about the reasons you chose what you chose.

My question was do you

remember, yes or no, whether the cost-based elasticity model produced fewer truck-to-rail diversions than the lookalike model?

A. I do not remember the totals, so...

Q. Okay. At any point in your verified statement do you tell the Surface Transportation Board that you had run a different model?

A. It was not used in the statement. It was discarded early. As I said, I did not see a reason to bring it up.

Q. Couldn't you have told the board, we tried this model, here is what it produced, we chose this other model for a different reason?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I didn't see a reason to do that.

BY MR. McCARRICK:

Q. Okay. Do you think that

the board would be interested in knowing that the truck-to-rail diversion expert for Union Pacific and Norfolk Southern had run a different diversion model that was then discarded?

A. I presented the results of our diversion analysis to the board. I explained the results fully.

I explained that I felt there were -- due to the lack of data, that a -- that the cost elasticity model was not providing a good estimate to put before the board, based on the limited amount of data I had.

In the lookalike model we purchased 10,000 lanes of price data from DAT, and we were able to use that in the lookalike model to get a much richer dataset that gave us more geographically sensitive information and better information for a nationwide model.

Q. Couldn't you have used the 10,000 lanes of price data from DAT to

carry it forward. It was -- it was discarded at that point.

BY MR. McCARRICK:

Q. Flat diversion rates, in your view, generally are not credible, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It's -- it depends on the situation. For a nationwide study, I felt there were regional differences that we were not picking up. There were different lanes, different characteristics, that we were not able to pick up with the cost model, and, therefore, we did not proceed with it.

BY MR. McCARRICK:

Q. Yeah. And your point is, if you have a model, and however you change it, it just keeps spitting out the same number, that should raise questions about the model?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: If it's -- if it's not really using the characteristics of that lane, and it's not distinguishing, it's just coming out with a flat rate, then I don't think it's doing as good a job as it could do.

BY MR. McCARRICK:

Q. Okay. Did you ever present the results of the cost-based elasticity model to anyone at Union Pacific?

A. No.

Q. Did you ever present the results of the cost-based elasticity model to Norfolk Southern?

A. No.

Q. Okay. Did you ever present the results of the cost-based elasticity model to anyone outside of Oliver Wyman?

A. No.

Q. Okay. You did not

reference any cost-based elasticity model with your verified statement, true?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Correct.

BY MR. McCARRICK:

Q. Okay. A cost-based elasticity model is different than a multinomial regression, correct? Can be?

A. Terminology, I mean, you can have a multinomial cost-based elasticity, but it's different than the form I used in the rail-to-rail diversion.

Q. Okay. Okay. Do -- when is the last time you reviewed the results for the cost-based elasticity model?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: The testing of the model we've been discussing? It would have

been -- again, I don't recall the timing. It would have been last fall.

BY MR. McCARRICK:

Q. Okay. Do you think that the board should have been able to judge for itself which of your two models it finds to be more credible?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: No. I think that I was asked to produce my best estimate of the rail-to-rail and truck-to-rail traffic diversions in a UP-SP merger, and what I put forth was my best estimate.

BY MR. McCARRICK:

Q. Okay. And you told no one outside of Oliver Wyman that there had been another model that had generated results?

MS. FLAHIVE WU: Objection to form.

Q. Oh. Of course.

The third time that you were asked to estimate truck-to-rail diversions for the surface -- for a Surface Transportation Board proceeding is this case?

A. Correct.

Q. Okay. And you started your work by at least including a cost-based logistics regression, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It seemed logical to at least consider what I had used before, yes.

BY MR. McCARRICK:

Q. Okay. In fact, sir, logistics regressions are similar to the types of diversion models used in prior proceedings before the board, correct?

A. Yes.

Q. Okay. In fact, you've made that statement in prior verified statements to the board, right?

A. I have.
Q. You've told the board that cost-based logistics regressions are similar to diversion models that the board and the ICC have used in prior proceedings, correct?
A. The -- yes, the Rebe models, specifically. Yes.
Q. The which model? I'm sorry.
A. Rebe.
Q. Rebe.
A. Rebe Associates.
Q. Got it.
You actually have a footnote to, I think, the Rebe statement in one of your prior verified statements, correct?
A. I think Peter Stone's statement, if I'm not mistaken.
Q. Yes. That's correct.
You do not have a similar sentence in your current verified statements, true?

A. I believe the Peter Stone statement is referenced in here.
Q. Oh. All I mean by this is do you have, with respect to your truck-to-rail lookalike methodology --
A. Mm-hmm.
Q. -- nowhere in your verified statements do you say that similar to diversion models previously used by the board, do you?
A. I do not.
Q. It is not, correct?
A. Not to my knowledge.
Q. Okay. Let me ask you this, sir. How many errata did you submit in the CPKC proceeding?
A. I do not recall any.
Q. Okay. How many errata did you submit in the Canadian National-Iowa Northern proceeding?
A. I do not recall any.
Q. Okay. Do you think that the level of errata in this case could stem from the fact that you're using

intermodal lanes was required for creating an archetype using the four characteristics, yes.

Q. Okay. Can you turn to Page 528 in your verified statement.

A. I'm there.

Q. Okay. Do you see the paragraph that reads "For all segmentation categories"?

A. Yes.

Q. The last line of that says, "A minimum of three intermodal lanes was required for the segment to be calculated and considered a valid reference in mode share."

Do you see that?

A. Yes.

Q. Okay. And one of the reasons that Oliver Wyman required a minimum of three lanes per archetype was to make sure that there was a robust enough dataset to support those shares, correct?

A. Yes.

Q. Looking back at the spreadsheet. There's a row titled "Minimum Impotence" -- or is it impedence or impotence?

A. Impedence.

Q. Okay. There's a row -- I've been, in that case, correct. I say it for all to hear.

There's a row titled "Minimal Impedence Improvement for Diversions."

Do you see that?

A. Yes.

Q. There's a value of 50 for that, correct?

A. Correct.

Q. And what that means is there's a 50 -- or -- that means there's got to be a 50-mile improvement in the length of haul between the pre- and the post-merger route for -- to be considered improved, correct?

A. No. It's a 50 impedence difference. So it could be -- a removal

of a junction could cause that. It doesn't have to be solely distance.

Q. Yeah. I was actually just going to break that down.

There's a couple different ways that you can achieve a 50-mile improvement, correct? You can eliminate a junction. The line could get shorter, right?

A. A 50-impedence-point difference, yes.

Q. Yeah. Okay. What is that 50-mile improvement of threshold based on?

A. I'm sorry. I don't recall how we came up with that.

Q. Okay. You don't cite anything explaining what the basis for that is, do you, sir?

A. I don't believe so.

Q. Okay. Do you cite any -- are you, sitting here today, aware of any empirical research about the 50-mile impedence difference being a

differentiating factor for shippers?

A. I am not.

Q. Okay. Let's go to the -- we're going to go to a different worksheet now.

Let's go to the current IM routes worksheet.

A. All right. I'm there.

Q. That includes data for all domestic intermodal lanes for UP-NS, correct?

A. Yes.

Q. That's based on the 100 percent traffic waybill data for 2023, correct?

A. Correct.

Q. Okay. I'll represent to you there are 223 lanes.

Do you have any reason to dispute that?

A. I do not.

Q. All right. The lanes in current IM routes show lanes that in 2023 had line haul intermodal service

available, correct?

A. Yes.

Q. And just to get terminology straight, line haul intermodal service is the rail-to-rail portion of an intermodal move, correct?

A. Yes.

And to correct something I said. I'm not 100 percent sure whether it was the -- whether it's lanes that operate in 2023 or current lanes.

I suspect they are very similar, but I -- I can't state which one it is exactly.

Q. Okay. Either way, the current IM routes tab is basically designed to show where line haul intermodal service is available in the pre-merger world.

A. Correct.

Q. Yeah. Okay.

You agree that not every lane in this worksheet will actually experience a truck-to-rail diversion

recess was taken.)

- - -

A F T E R N O O N P R O C E E D I N G S

- - -

THE VIDEOGRAPHER: We are on the record. The time is 1:48.

- - -

CONTINUED EXAMINATION

- - -

BY MR. McCARRICK:

Q. All right. Good afternoon, Mr. Hunt.

A. Good afternoon.

Q. Okay. We talked about price a bit earlier.

A. We did.

Q. Can we go to the future tab on the consolidated spreadsheet that we've been looking at.

A. Someone will probably need to log this in.

Q. I think the password will be on the bottom right, if you wouldn't

mind entering it in.
A. Oh, okay.
Q. For both of you.
ZOOM PARTICIPANT: Sorry to interrupt. We can't hear on Zoom.
MR. McCARRICK: Can you hear us now?
ZOOM PARTICIPANT: Yes. Thank you.
MR. McCARRICK: You bet.
BY MR. McCARRICK:
Q. All right. Do you have the "Future" tab up?
A. "Future IM Routes"?
Q. Just "Future."
A. Just "Future."
Q. The tab that's just titled "Future."
A. I'm there.
Q. Okay. Great. Could you go over to the Column BI.
A. I'm there.
Q. All right. Do you see that

it jumps from BI to CB?
A. I do.
Q. Okay. Can you please unhide the tabs in between those?
A. Okay.
Q. All right. Let's look at Column BW. Column BW is titled "Price Dif," correct?
A. Yes.
Q. That's the difference in price between truck and rail prices for intermodal, correct?
A. I would assume so, yes.
Q. Okay. Let's take a look at Cell BW6.
Do you see there's a formula that basically compares values in Column AR to Column O? Correct?
A. Yes.
Q. Okay. And if you look at Column AR, it's titled "IM Price," correct?
A. Yes.
Q. That's the intermodal rail

price for a specific route, correct?

A. Again, I would have to -- that's what it's labeled. I would have to go through and check the formulas to see exactly what it is.

Q. Okay. Column O is titled "Truck Average Price," correct?

A. It is.

Q. Okay. That shows the average truck price for a specific route, as I think you testified earlier, correct?

A. It would -- it would be the average over the DOT data that we received.

Q. Okay. I want to take a look at what happens to your diversions when you discount truck prices by 99 percent.

Can you go over to cell -- excuse me.

Can you go to Cell O3? It's blank.

Do you see that?

A. O3?
Q. Yes.
A. Wait a second.
All right.
Q. Can you type 0.01 in Cell O3?
A. Okay.
Q. All right. And just to be clear. You agree, conceptually, that if we take average truck price and multiply it by 0.01, that's a 99 percent decrease, correct?
A. Yes.
Q. Okay. Let's go to Cell O5, which is also blank. Oh, I'm sorry. Cell O5 is not blank. Can we go to Cell O5?
A. Okay.
Q. Do you see there's a formula?
A. Yes.
Q. All right. At the end of the formula, after the parenthetical, can you type the following: *$ --

A. Just a second.
Okay.
Q. So it's *O3.
A. All right.
Q. Have you done that?
A. Yes.
Q. Okay. And on the cell, you can hover on the bottom right-hand corner until a cross-hair comes up.
A. Okay. You have to -- I have to accept it.
Q. Okay. Accept it.
A. It's thinking about it.
Q. Let me know when it's done thinking.
A. I will let you know.
Okay. So do you want me to drag that down?
Q. Yeah. And, actually, before we do, just to make sure it's inputted correctly. The new value in Cell O3 -- or excuse me.
The new value in Cell O5 is around $31, correct?

A. 31.74. Yes.
Q. Perfect. Okay. So yeah. We want to apply that formula to every average truck price in the spreadsheet.
Can you do that?
A. Yes.
Q. Just let me know when you think it's complete.
A. Just make sure it did it correctly.
Q. Okay.
A. It did not do that correctly. So let me try...
It still says 95 percent.
Q. No worries.
A. Okay. It's done.
Q. Okay. Great.
Let's look at the consequences of that.
Can you go to the Future UP-NS Terminal/Terminal 2 tab. This is the one we looked at earlier today.
A. All right.
Q. And earlier, do you recall

us looking at Cell AD together?
A. I do.
Q. And Cell AD earlier today estimated 1.2 million units, correct?
A. It did.
Q. Okay. After applying the 99 percent discount to truck, Cell AD now has a value of 1,129,413, correct?
A. It does.
Q. Okay. So with rail discounted -- excuse me. Withdrawn.
With truck discounted by 99 percent in all future lanes, your model still predicts the merger will divert 1.13 million intermodal units from truck to rail, correct?
A. Sorry. What was that number again?
Q. Sure.
With rail discounted -- sorry. Withdrawn. I messed that up last time too.
A. Okay.
Q. With truck discounted by

99 percent in all future lanes, your model still predicts the merger will divert 1.13 million intermodal units from truck to rail, correct?

A. Correct.

Q. Okay. Can we agree that would be absurd?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: No, it's not absurd, because you've multiplied every truck cost by a constant value, and, therefore, you've rearranged every bucket. So all you've done is reclassified the buckets at the lower-cost truck price. And so I would expect it to have not a huge difference.

BY MR. McCARRICK:

Q. Exactly. Right.

By changing the truck value, it just migrates all of the lanes to a different bucket, correct?

A. It doesn't migrate all the -- it redefines the buckets based on the new truck price, and, therefore, there would be some shifting around. But, in general, it's going to have a premarket archetype that has a truck -- a very low truck rate, compared to a rail rate.

And then in the post case, it's still going to be the rail rate compared to a very low truck rate. So you're really just -- it's how you've defined the buckets. Multiplying everything by a constant I would not expect to give a big change.

Q. Well, so it's your testimony that you can't change -- you can't -- hold on. Withdrawn.

Your testimony is that if you vary truck price, it's not going to change diversions?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: If I change

the truck price in a lane, it could throw it to a different archetype, which then would give a different diversion result.

If I'm uniformly multiplying everything by a constant, then I would -- it's just redefining the buckets. I would not expect a big difference.

BY MR. McCARRICK:

Q. Okay. What do you mean by that? I'm not following.

MS. FLAHIVE WU: Objection to form.

THE WITNESS: That if -- well, if a lane -- it's taking the data that's there already, and it has -- there are diversions that are already 10 percent lower. And so it's going to have no impact on those.

There are ones that it

would redefine the buckets, because now you're going to have more that are 10 percent lower, so it's going to redefine the buckets.

And it would -- I would expect some change. But, again, you're multiplying everything by a constant value.

BY MR. McCARRICK:

Q. Yeah. Let's just break this down.

It's not redefining the buckets. It's reassigning lanes to different buckets, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It is -- yes. I will agree with that.

BY MR. McCARRICK:

Q. Okay. And so, basically, the -- by applying that constant 99 percent discount, what you have done is reassigned all lanes that previously

weren't in the 10-plus percent more expensive bucket, to that bucket, correct?

A. But the thing is that the archetypes have changed, so...

Q. Well, the archetypes are the same. It just buckets the lanes into a different archetype.

A. I would -- I would have to look and see what it's doing here.

Q. Correct?

Well, so we made one change, correct?

A. I understand that, but I would need to see how that change carries through.

I'm not -- I mean, it's hard for me to sit here and look at this Excel spreadsheet and see how that one change would carry through and impact the results.

Q. Well, we just looked at one way that it impacts the results, correct?

A. It did change them, yes.
Q. Right. It reduced your predicted intermodal diversions by around 7- or 8,000, correct?
A. Again, I would have to look at this. I mean, there are other factors besides just price, as we've discussed.
I would really have to look at this to see how the model is behaving.
Q. Okay. So can we -- can you -- can we agree with the following:
If you discount truck price by 99 percent, in every lane, those lanes will be bucketed into the archetype where truck is -- over rail, excuse me -- is 10-plus more percent expensive than truck?
A. If you discount truck by 99 percent, then, yes, it would be -- I mean, rail would always be more than 10 percent higher than truck.
But, again, I would need to

see exactly how that's behaving in the model.

Q. And just to be clear, your archetypes are based on the characteristics of current lanes, correct?

A. They are based on, yeah, the historical data.

Q. Right.

A. Yes.

Q. And then you sort the future lanes into the archetypes that were based on the current lanes, correct?

A. We match up the future lanes against the archetypes, yes.

Q. Okay. And based on the one change that we have made, can we agree that your estimate of truck-to-rail diversions is still over 1 million? That's what that shows.

A. Based on the one change that we made, I would agree with that, that it is still over a million. But I

would need to understand a little bit more what that -- what actually changed and how that impacted the routes.

Q. Well, sir, you're the sponsor of this verified statement, correct?

A. I am.

Q. You're the sponsor of this methodology, correct?

A. Yes.

Q. You are the sponsor of these work papers, correct?

A. Yes.

Q. Okay. Sitting here right now, can you think of anything that would have changed, other than what we just described, that could explain why you're still predicting 98 percent of the diversions that you estimated previously, in a world where truck is discounted by 99 percent?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I really

would need to look at the details.

BY MR. McCARRICK:

Q. What details would you need to look at?

A. I would need to trace through -- look at individual markets and trace back through how it's getting calculated, to understand what that impact is.

Q. Okay. All right. Let's put the spreadsheets back to normal.

Can you go to the future worksheet?

A. I'm sorry --

Q. Actually, before we do, let me just ask you the following question.

You testified that you would need some time to look at how this 99 percent discounted truck price flows through the model, yes?

A. Yes.

Q. Sitting here right now, can you explain why your model returns

1.13 million truck-to-rail diversions in a world where truck price has been discounted by 99 percent? Can you explain that right now?

A. There are other factors that are considered in the archetypes. It's not just price.

But I would -- again, I would want to look at some individual markets to understand what's happening.

Q. Okay. I think we looked earlier at a shipper survey that shows the price is the most important factor to shippers, correct?

A. You showed me an Oliver Wyman study that -- yes, that said that.

Q. Okay. Is it -- and so your answer to me a moment ago was that the model looks at factors other than price, too, correct?

A. Yes.

Q. And that those factors might be accounting for the result, correct?

A. They will be influencing the result.

Q. Okay. And so it's your testimony that for 1.13 million of the shipments that you estimate will be diverted from truck to rail in the intermodal space, price does not matter?

A. I did not say that.

Q. Okay.

A. I said that I would need to look at some individual markets to understand what is going on there.

Q. Right. So it's not your testimony that the shippers who are responsible for those 1.13 million intermodal units would still make the conscious choice to switch to rail if truck is 99 percent discounted, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I would have -- again, I would have to look through this. I could not -- I do not want to make

statements off a spreadsheet that I was just asked to change some cells and I haven't had time to really look through it.

BY MR. McCARRICK:

Q. Okay. Do you recall testifying earlier that you would not expect there to be over a million diversions if truck prices were discounted by 99 percent?

A. I don't recall that.

Q. Okay. You and I -- just sitting here right now, do you agree that you would not expect 1 million diversions if truck price were discounted by 99 percent, separate and apart from the spreadsheet?

A. I think that's a -- I mean, it's a false hypothesis, because the market -- the archetypes reflect historical shipper choices when the price wasn't 99 percent lower.

And so when I'm looking at a diversion percentage for an archetype,

it based on 2026, you would expect different results, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I would expect slightly different results.

BY MR. McCARRICK:

Q. Well, you know that market conditions for truck and rail have changed rather substantially in 2026, correct?

A. Because of fuel prices, yes.

Q. Right. Diesel prices are high, correct?

A. Yes.

Q. And rail has been able to grow its intermodal share because those high diesel prices disproportionately affect truck, correct?

A. Correct.

Q. Okay. And you don't know what impact -- withdrawn.

That growth that we've seen in 2026 for rail share, you don't know how that impacts the total universe of potential diversions that, in the real world, would be possible under your model, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: When you do the modeling, you take a dataset, it's a snapshot in time. And yes, if you did a different snapshot, it would change.

But, you know, diesel prices are high now. They could come back down. I don't know whether that traffic will stay on rail, whether it will shift back to truck. It's an evolving market.

But the best data we had available was the 2023 data.

BY MR. McCARRICK:

Q. Okay. Well, sir, 2024 data was available to you before you did your April 2026 verified statement, correct?

A. I'm not sure about the timing of the 2024 TRANSEARCH to the 2024 STB waybill sample.

Q. Okay. I'm actually not talking about that.

I'm talking about, do you know whether or not the Class I railroads in this proceeding produced 100 percent traffic data for 2024 months in advance of your April 2026 verified statement?

A. I know that Charles River Associates had multiple years of data. We only had 2023.

Q. Why didn't you have access to 2024 or 2025?

A. We had the 2023 TRANSEARCH. We were not going to line that up against 2024 rail data.

Q. Okay. Could you have got 2024 TRANSEARCH?

A. I don't know when that became available.
Q. Okay. Do you expect that it's available?
A. At this point?
Q. Before you did your April 2026 statement.
MS. FLAHIVE WU: Objection to form.
THE WITNESS: I don't know when it became available. But as I also said, getting it in April does not help us, because the diversions are one of the first things that we have to finish. So it feeds the operating plant and it feeds other downstream processes.
BY MR. McCARRICK:
Q. Well, you could run sensitivities on the subsequent years of data, right?
A. I wasn't asked to do that.
Q. Okay. Do you think that

would be a valuable thing to do?

A. I was asked to provide estimates. We established the base year at 2023, and I provided the estimates for 2023, as I was instructed to do.

Q. Okay. You referred to the 2023 base years as a snapshot that's used to generate the model, correct?

A. Yes. It's taking data from a snapshot in time, yes.

Q. Can we agree, to have predictive power for what the post-merger world is actually going to look like, that snapshot needs to be representative of market conditions?

A. Yes.

Q. One thing I want to ask you, too, is that -- you said earlier that the truck-to-rail diversions that you have are your best estimate of diversions.

Do you recall giving that testimony?

A. Yes. What we put forth in

the statement is our best estimate.

Q. Okay. Is it your belief that if the merger is approved, 1.2 million intermodal units will be diverted from truck to rail?

A. Yes, I do.

Q. Okay. All right. Can we go back to the spreadsheet for a second, and can we go back to the future tab.

A. I have not undone that change. Does that matter?

Q. That's what we're going to do right now.

A. Okay.

Q. Because we made it in the future tab.

A. Okay.

Q. O3 and O5. Do you recall that?

A. Yes.

Q. Can you delete the 0.01 in O3?

A. Wouldn't it make more sense just to make it a 1?

Q. And B51.
A. Close paren?
Q. Yes, sir.
A. Okay.
Q. All right. Is that calculated?
A. Yes.
Q. Okay. That's 297,534 diversions in lanes where rail is over 10 percent more expensive than truck, correct?
A. That's the number I'm getting.
Q. All right. Then let's express it in terms of a percentage. Can you go to Cell F5, which is blank?
A. Mm-hmm.
Q. Then can you enter the following formula: Equals.
A. All right.
Q. E5.
A. Okay.
Q. Divided by B59.
A. Okay.

Q. Times 100.
A. All right.
Q. Is that calculated?
A. It is.
Q. Okay. So for lanes where truck -- withdrawn.
Lanes where rail is more than 10 percent -- withdrawn.
Lanes where rail is over 10 percent more expensive than truck account for 24.78 percent of your total intermodal diversions, correct?
A. Yes.
Q. Okay.
A. Well, let me make one correction there. You're saying lanes --
Q. That's actually -- that's a fair -- that's a fair clarification.
What's shown here is that 24.78 percent of your total intermodal diversions are in the bucket where rail is over 10 percent more expensive than truck, correct?

A. Yes. There may be lanes where you have a shorter drayage distance and lanes where you have longer drayage distances. So it can vary by lane.

Q. That's about one out of every four of your diversions, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: 25 percent would be one out of four, yes.

BY MR. McCARRICK:

Q. Okay. So one out of every four of your diversions involves a scenario where rail is over 10 percent more expensive than truck, correct?

A. Again, it's based on what we're seeing historically in the data and what those markets are representing. So we're reflecting what we see in other markets.

Q. Okay. And that's totally fair. All I'm asking is that your prediction is that if the merger is

approved, one out of every four of your intermodal diversions will involve scenarios where rail is more than 10 percent more expensive than truck, right?

A. Again, you're just looking at that one variable. You're not considering improved reliability and improved transit time and the other things that are considered.

Q. That's great. I totally acknowledge there's other parts of that too.

All I'm saying is that one out of every four of your diversions involve scenarios which, among other factors -- withdrawn.

One out of every four of your diversions involve scenarios where, among other things, rail is over 10 percent more expensive than truck, correct?

A. Yes.

Q. Okay. Last thing I want to

do is look at the 10 percent cheaper bucket.

A. Okay.

Q. And that's represented by the 10-plus percent better designation.

Do you see that?

A. Mm-hmm.

Q. To calculate those diversions, let's go to Cell E6, which is blank.

A. Okay.

Q. And the formula is going to be: =sum[B19,B28,B39 --

A. Hold it. B19, B28, B39.

Q. Yes. And B42. And you can close the paren.

A. Okay.

Q. Okay. That returns 210,227 diversions in scenarios where rail is cheaper than truck by 10 percent or more, correct?

A. Correct.

Q. And let's express that as a percentage. If you'd go to Cell F6,

CERTIFICATE

I HEREBY CERTIFY that the witness was duly sworn by me and that the deposition is a true record of the testimony given by the witness.

It was requested before completion of the deposition that the witness, DAVID T. HUNT, have the opportunity to read and sign the deposition transcript.

Michelle Ridgway

MICHELLE L. RIDGWAY,
A Registered Professional Reporter, Certified Shorthand Reporter, Certified Realtime Reporter, Certified Court Reporter, and Notary Public
Dated: October 12, 2026

(The foregoing certification of this transcript does not apply to any reproduction of the same by any means, unless under the direct control and/or supervision of the certifying reporter.)

EXHIBIT 25

BEFORE THE SURFACE TRANSPORTATION BOARD

- - -

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY,	:	FINANCE DOCKET NO.
-- CONTROL --	:	36873
NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY.	:	VOLUME II

HIGHLY CONFIDENTIAL
PURSUANT TO PROTECTIVE ORDER

- - -

October 8, 2026

- - -

Continued videotaped hybrid deposition of DAVID T. HUNT, taken pursuant to notice, was held at the law offices of Covington & Burling, 850 10th Street, NW, Washington, D.C., beginning at 8:34 a.m., on the above date, before Michelle L. Ridgway, a Registered Professional Reporter, Certified Shorthand Reporter, Certified Realtime Reporter, Certified Court Reporter, and Notary Public.

- - -

that and said I felt that their diversions were overstated by twice. So I estimated their diversions at 50 percent, which is much closer to what they are getting today.

Q. I'm sorry. You -- what do you mean "their diversions were overstated by twice"? You mean the actual diversions or the diversions that Mr. Mutén projected?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I'm talking about the overall.

MS. FLAHIVE WU: Sorry.

BY MR. ENSON:

Q. I'm sorry?

A. I was talking about the overall, based on the STB report they filed.

Q. When you say "overall," do you mean actual diversions?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: The -- I was asked by Canadian National to review the diversions. They had three different sets of witnesses submitting diversions, and I reviewed all of those diversions and felt that the total number in my rebuttal, which is part of the proceeding, was -- I -- I said that they would get about half of what they projected they would get.

BY MR. ENSON:

Q. Okay. I'm not asking about your projections. I'm asking about Mr. Mutén's projections. And the question is pretty simple.

Do you agree that the truck-to-rail diversions at CPKC have seen as a result of their merger are far lower than what Mr. Mutén projected in the CPKC merger?

A. Based on the report I read that the CPKC filed with the STB, I

would agree with that.

Q. And in performing your diversion, truck-to-rail diversion analysis in this merger, you didn't look back to see what Mr. Mutén had done and determine whether that would inform your analysis?

A. I remembered the regression that Mr. Mutén ran in his analysis.

I also -- part of my rebuttal was, and skepticism of their results, involved the fact that they had to run everything through Kansas City, and they were adding significant circuity to their routes.

So on average, for their rail diversions, they were adding over 200 miles over existing traffic. And on truck routes that may have been much more direct, they had to run things west to Kansas City and back east if they were going to Chicago.

I felt that some of the -- that extra circuity would be a factor.

Q. Did you incorporate any of that into your analysis here in this merger?

A. I considered distances, I considered circuity in my analysis, yes.

Q. I think what I want to know is did you specifically consider the analysis that Mr. Mutén performed in the CPKC merger in your work in this merger?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: Mr. Mutén's work did not influence the structure of my models.

BY MR. ENSON:

Q. In your truck-to-rail diversion model, you filter out truck routes shorter than 250 miles, correct?

A. Correct.

Q. And you did this based on the belief that truck routes of 250 miles or less were not competitive with truck in terms of transit time and price; is that right?

A. That is correct.
Q. Okay. And in making that estimate, you are essentially making predictions; is that fair?
A. Yes.
Q. Okay. Specifically, you are predicting what decisions shippers will make post-merger, correct?
A. I am predicting the -- essentially, the probabilities that shippers will convert from their -- from either their existing rail service or their truck service to the new UP-NS service. Yes.
Q. Where -- where in your report do I find probabilities?
A. I would have to scan through. I'm not sure if I used that term.
Q. Okay. You are predicting a certain level of diversions, correct?
A. Yes.
Q. Okay. And when you said it's your estimate -- and I think

Mr. Enson may have been getting at this, so I just want to make sure I fully understand -- you haven't provided any sort of confidence intervals or error bands around your probabilities or predictions, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I was asked to give my best estimate, which is what I gave.

BY MR. CONGDON:

Q. Okay. But your -- your estimate doesn't contain any -- you haven't provided any sort of margin of error, correct?

A. I have not.

Q. Okay. And you haven't provided any confidence intervals, correct?

A. I have not.

Q. Okay. In your truck-to-rail conversions, you are predicting whether shippers will choose

to send their goods via rail or truck in a post-merger world, correct?

A. Correct.

Q. In your rail-to-rail conversions, you're predicting whether a shipper will choose to send their goods via combined UP-NS network or via a different rail service, correct?

A. I am estimating whether -- I'm estimating the -- whether they will shift to the -- some or all of their traffic -- to the UP-NS route or stay on their incumbent route.

Q. And that incumbent route is a competing rail provider, correct?

A. Correct.

Q. Have you ever worked at a railroad in sales or marketing?

A. I have not.

Q. Okay. Have you ever worked at a shipper and made decisions about whether to ship via rail or truck?

A. I have not.

Q. In making your predictions

Morgan County, Alabama, chemicals lane, will go from zero percent rail share to 77 percent rail share after the merger; is that right?

A. That is correct.

Q. Okay. And that's based on the four changes that you identify in this table in Exhibit 4-6; is that right?

A. Those changes define the archetype. And when we compare that archetype to the average that we see in other similar lanes across the country, that is the market share we get. Yes.

Q. Okay. And based on the -- yeah.

And based on the pre-merger characteristics, the rail share is zero, correct?

A. The historic rail share is zero in that market.

Q. Got it. Okay.

Did you analyze the specific market as to why the historical

rail share is zero?

A. I did not.

Q. Okay. And based on the post-merger characteristics, when you compare it to your lookalike archetype markets, what you find is that the historical rail share is 77 percent; is that right?

A. The average across all the similar lanes that make up that archetype is 77 percent.

Q. Okay. And I guess to be even more specific, when we say "historical," what you mean is 2023, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: 2023. Correct.

BY MR. CONGDON:

Q. Okay. You didn't look at what the historical share was over time, correct?

A. Our base year for all our

analysis was 2023.

Q. So which is to say you didn't look at the historical share over time beyond 2023, correct?

A. I only had access to the TRANSEARCH data for 2023, so that would not have been possible.

Q. Okay. Did you ever attempt to look at what your model would predict for -- and we can just take, like, this lane, this specific lane as an example -- for what the model would predict the rail share would be based on the pre-merger characteristics?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I did not.

BY MR. CONGDON:

Q. You did not. Okay.

So you don't know, if you took the characteristics here in the pre-merger column and put that into the lookalike model, what it would predict for the rail market share?

A. I do not know.
Q. Okay. What would you expect it to show?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: I would expect it to show whatever the average is across the country for the lanes in that archetype.
BY MR. CONGDON:
Q. Right. And if you compared the zero percent that is the actual share in this market to the average across all of the archetypes, that this would -- in the bucket that this would fit in, and there was a delta, what would that delta be showing you?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: I'm sorry. The delta. Could you please --
BY MR. CONGDON:
Q. Sure.
So let's say -- you said

you would expect it to show whatever the average is across the country for the lanes of that archetype, right?

A. Correct.

Q. Okay. And let's say the average is 30 percent. This is a hypothetical, so I'm not representing to you that's what it is. Let's just say that the average for the lanes in the archetype, based on the pre-merger characteristics, was 30 percent, right?

A. All right.

Q. Okay. And what we see here is that the pre-merger market share for this lane is actually zero percent, right?

A. Correct.

Q. Okay. So if you compared that zero percent to the 30 percent, what would that be showing you? What is that telling you?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It would be

THE WITNESS: Same response.

I would just need to check the appendix on that.

BY MR. CONGDON:

Q. Let's look at -- if you take a second and open up the laptop in front of you.

A. Okay. All right.

Q. Do you see that there's a folder open that should say CPKC?

A. There is nothing opened here.

Sorry. There are some spreadsheets, but there's nothing.

Q. Do you see a spreadsheet in the folder open in front of you that's called "lookalike Market Share v. Final"?

A. Yes.

Q. Okay. Could you open that, please.

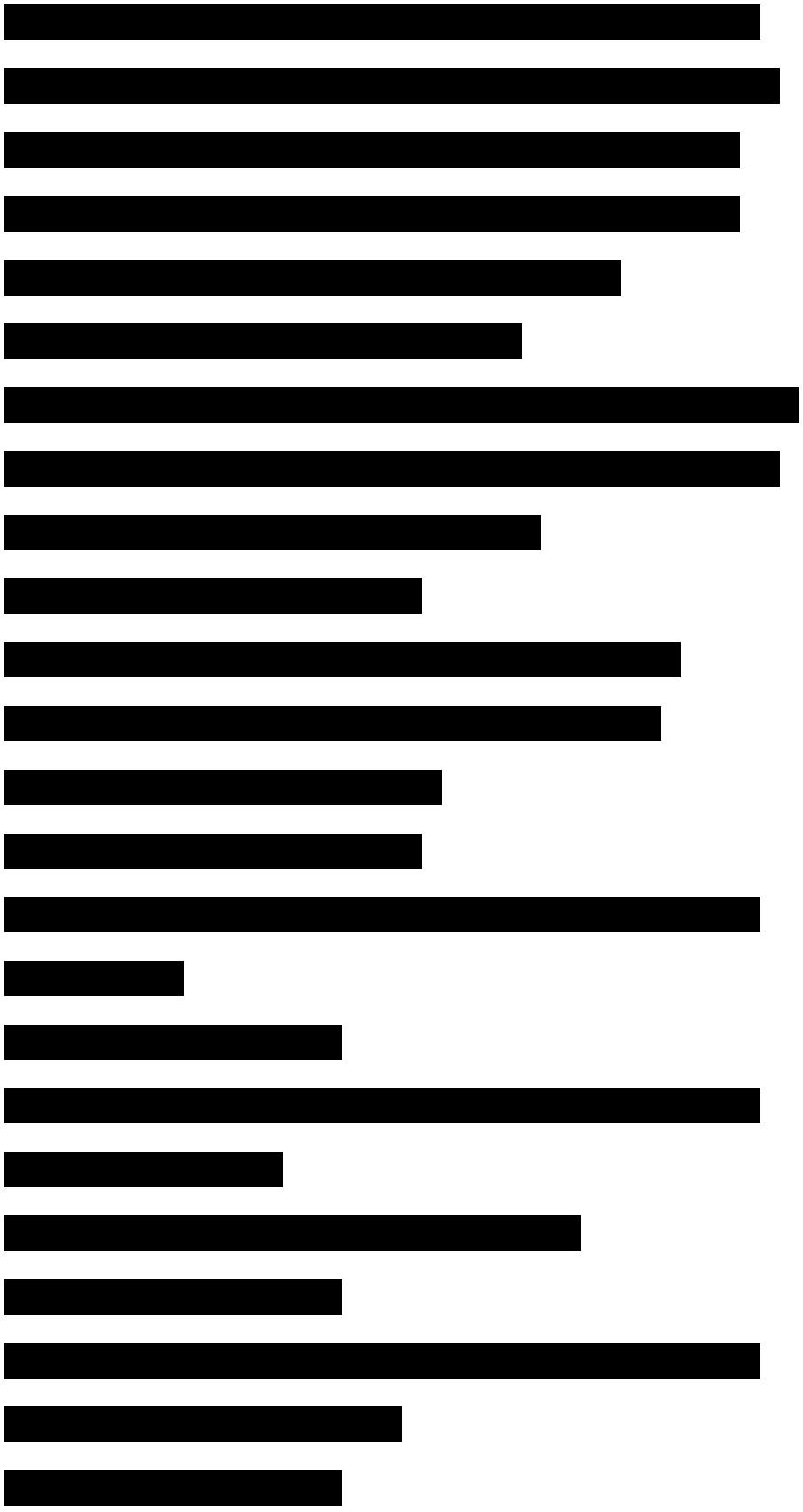
A. All right.

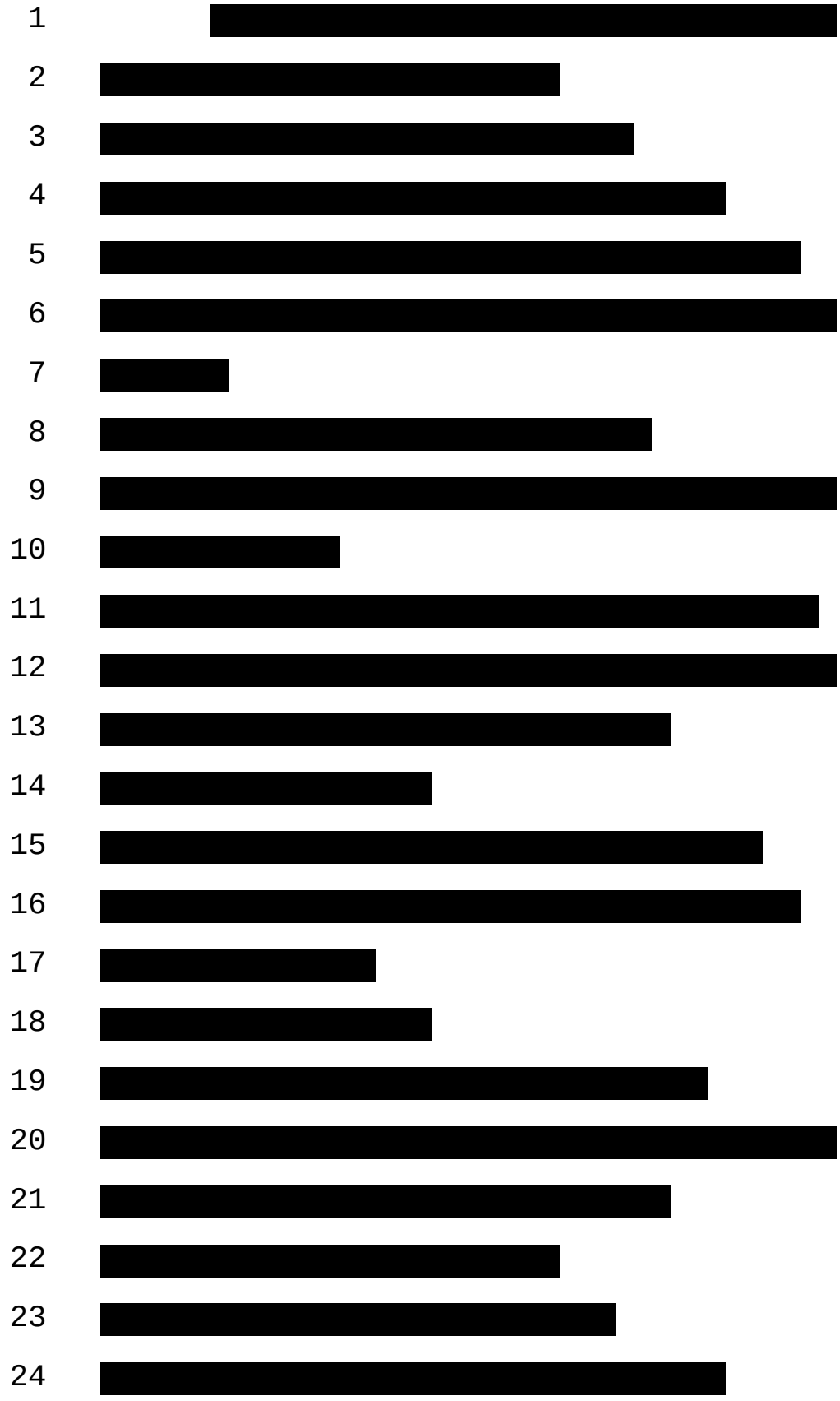
MR. CONGDON: And I guess

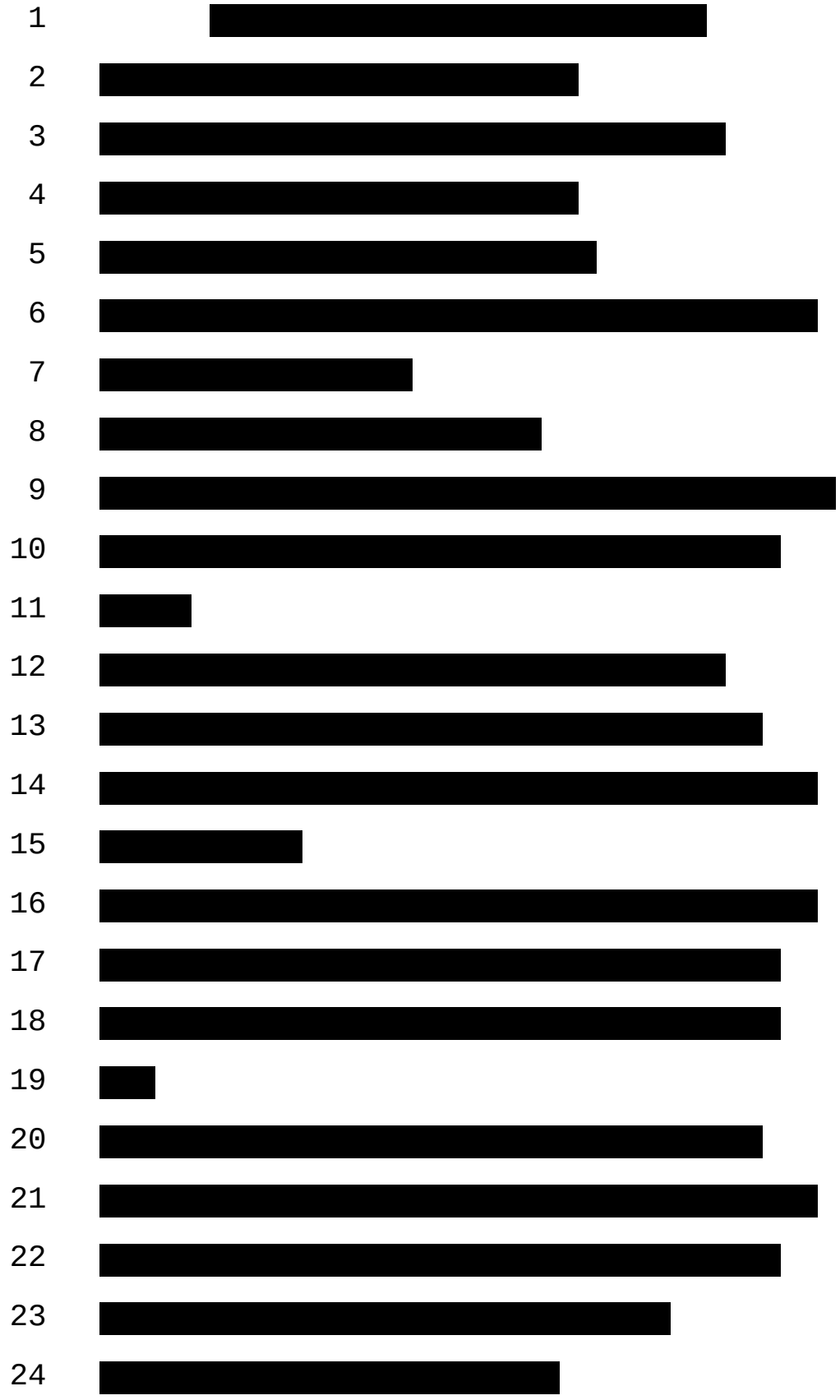
we'll go ahead and mark this electronic exhibit as Exhibit 350.

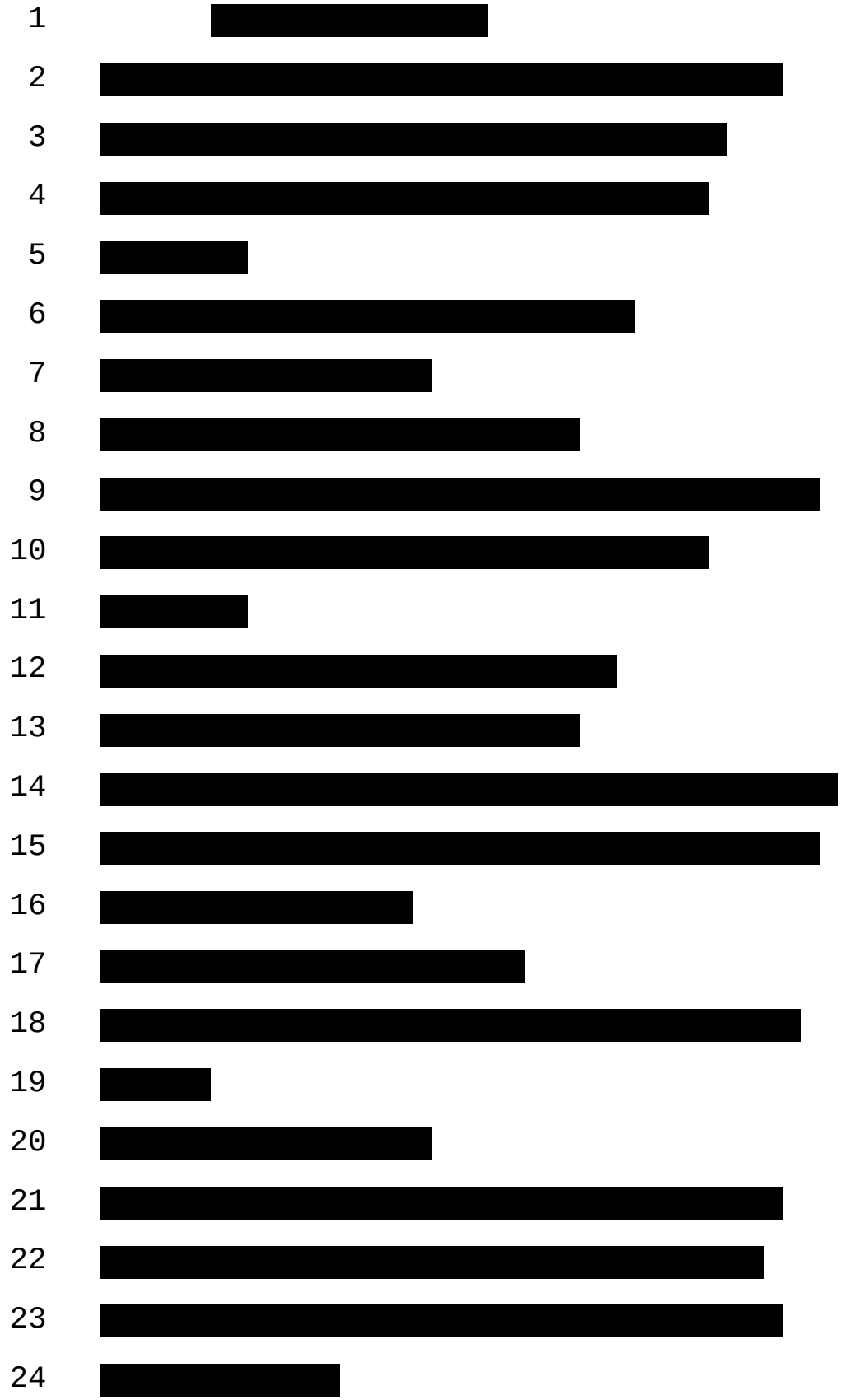
(Document marked for identification as Hunt Exhibit 350.)

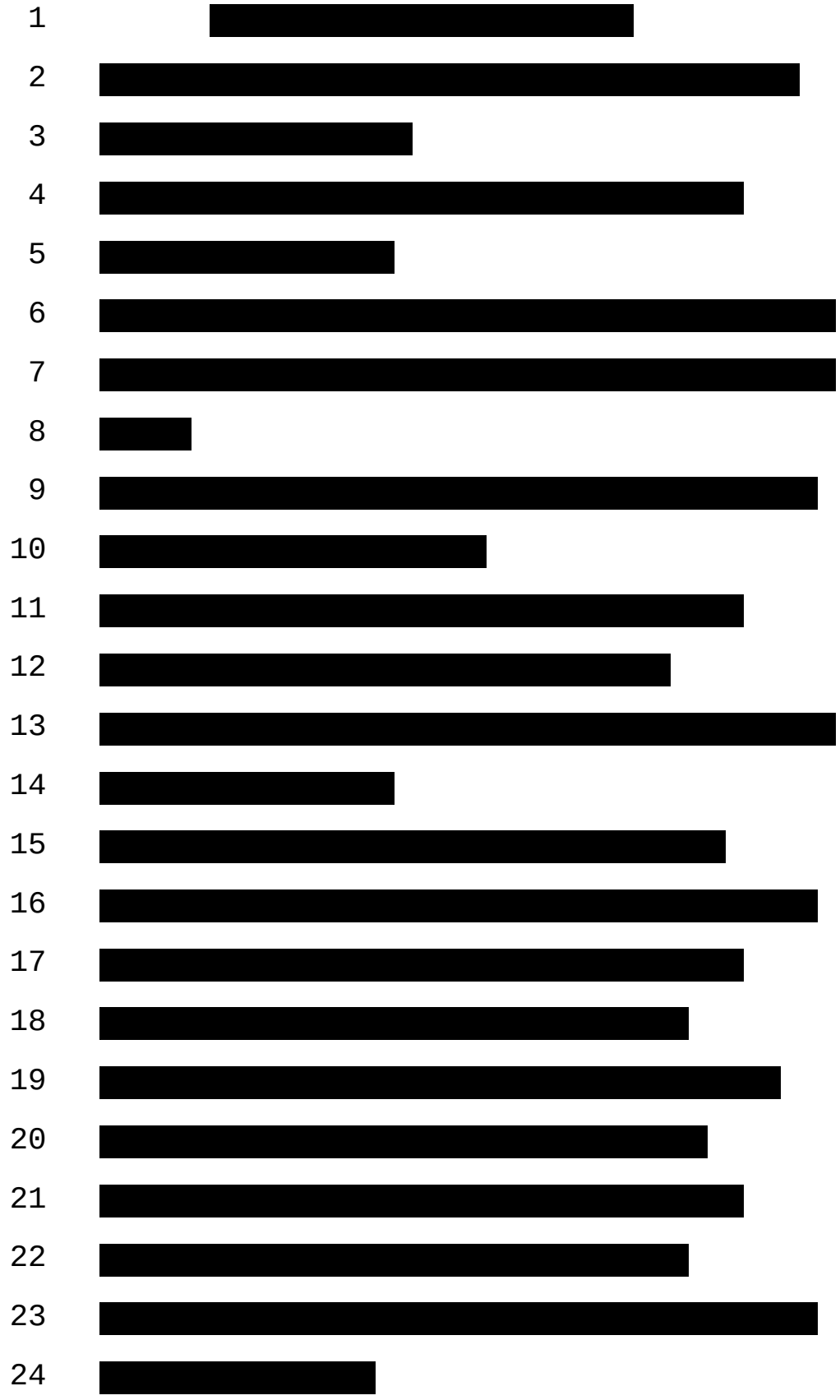
[redacted]

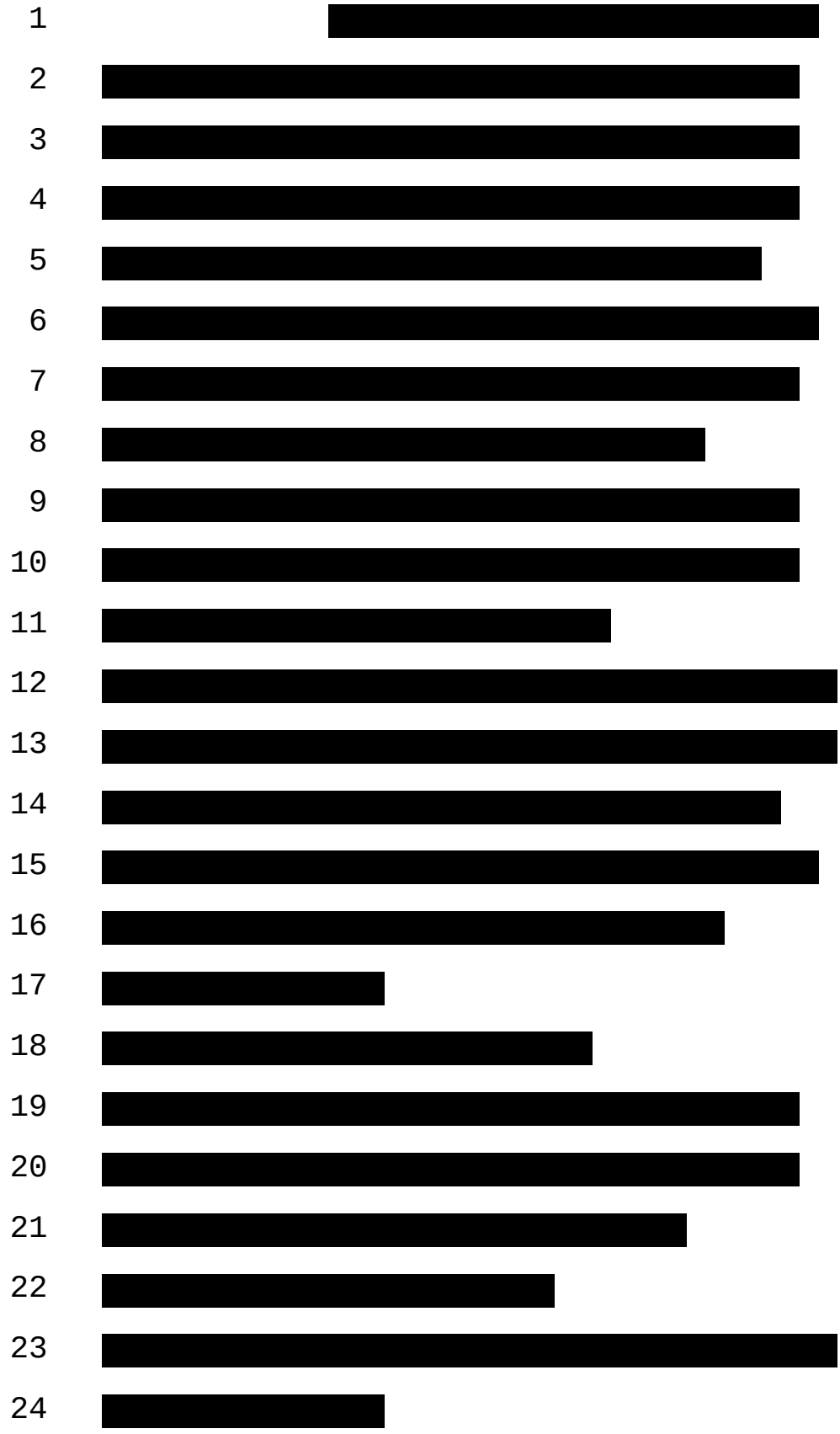


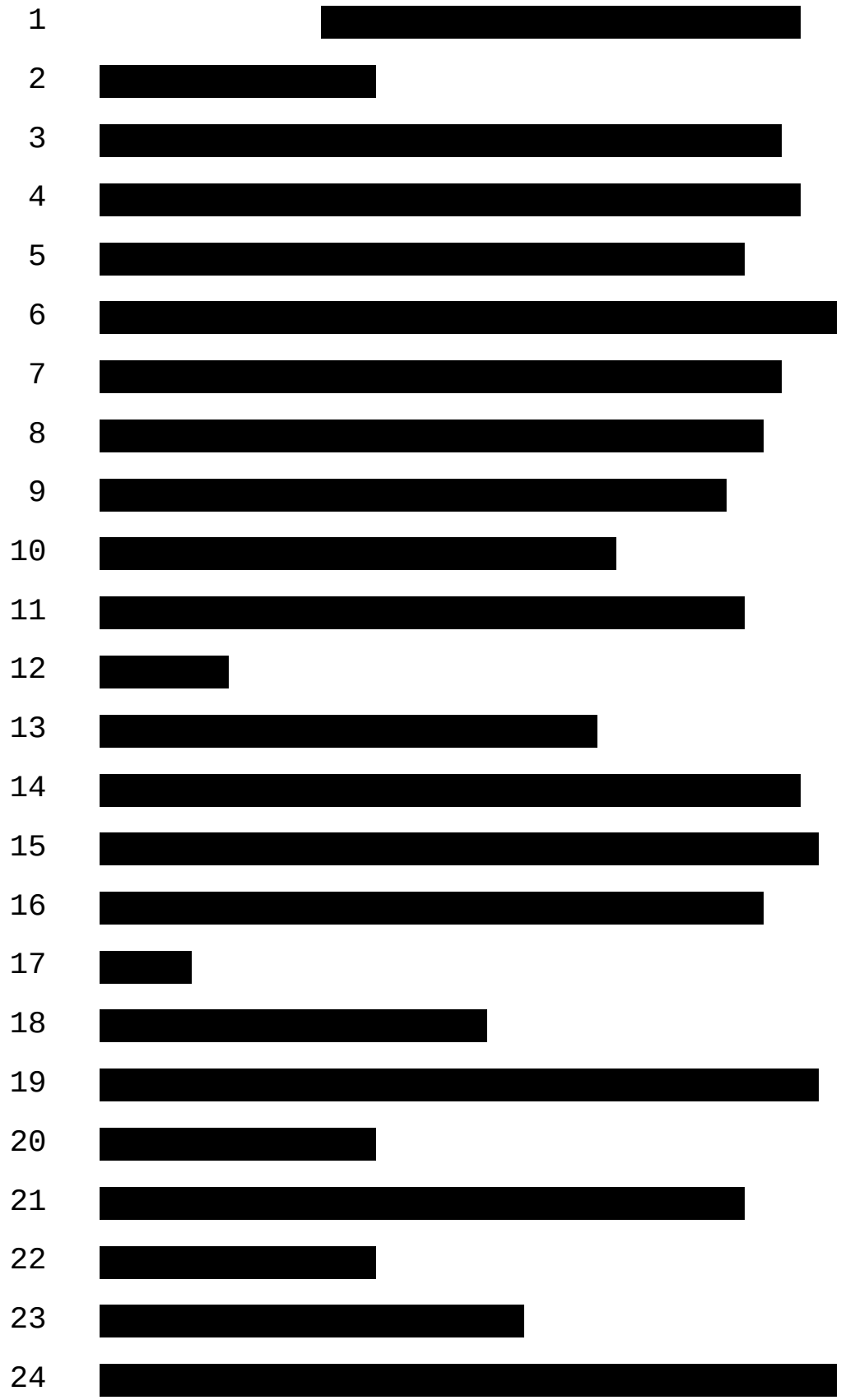












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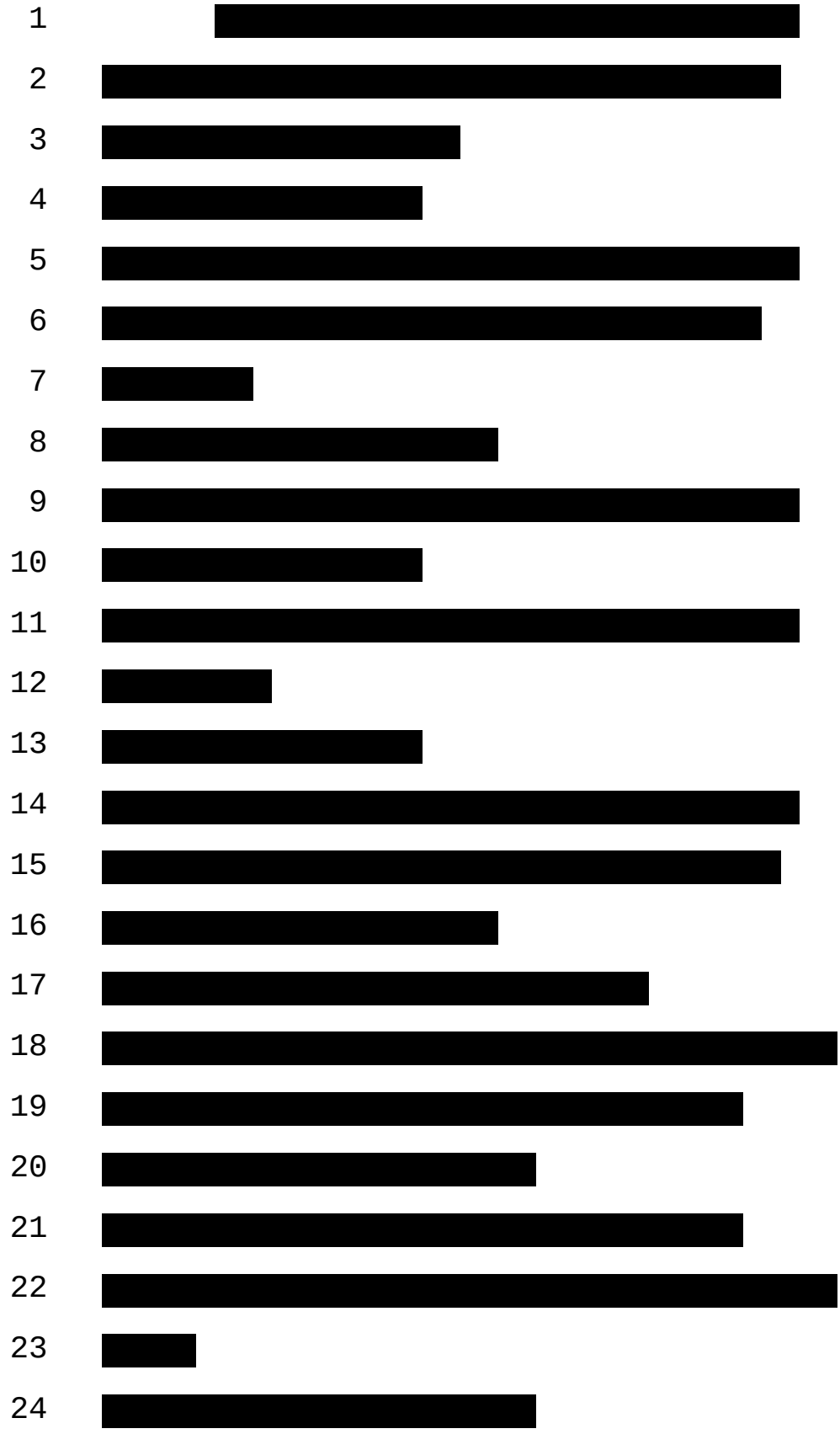
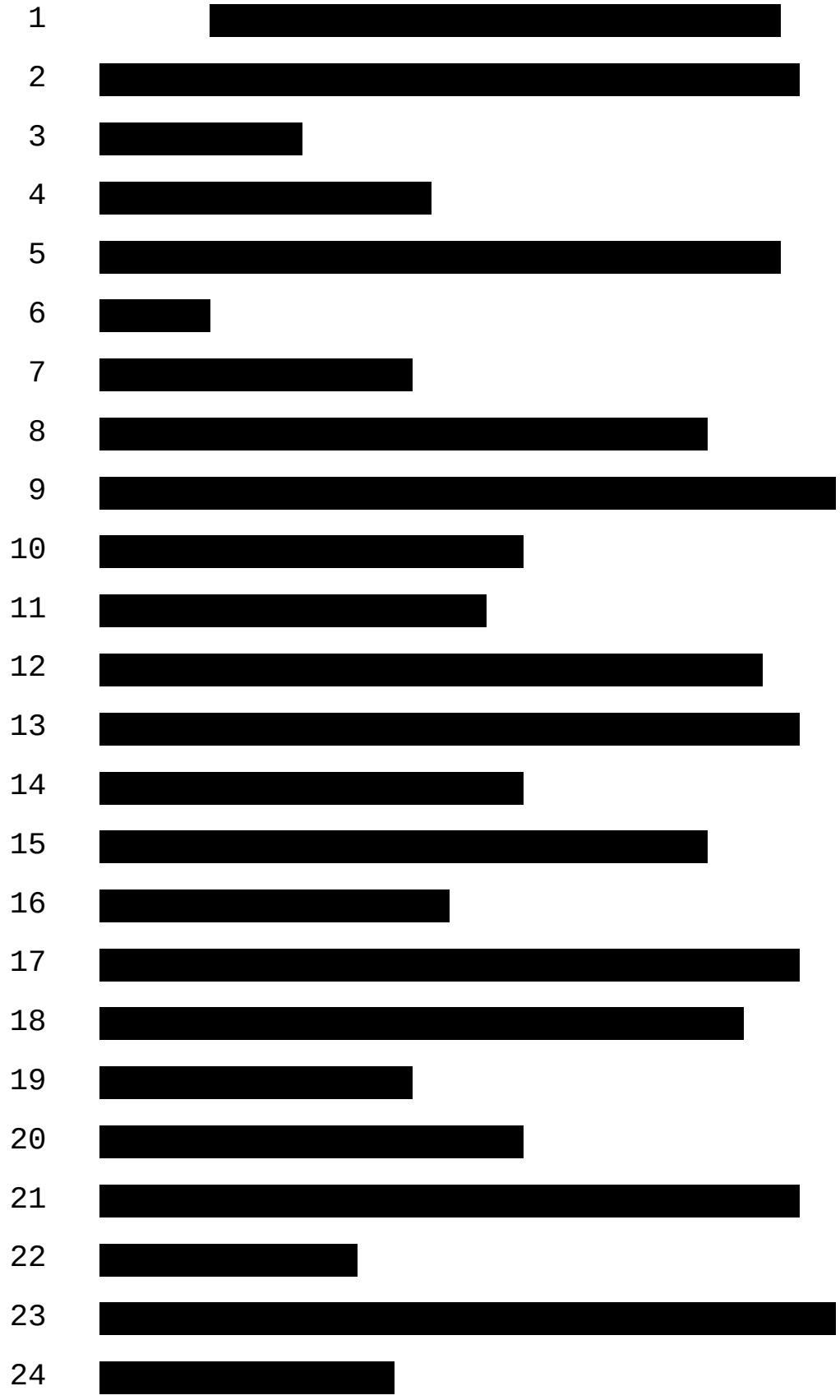
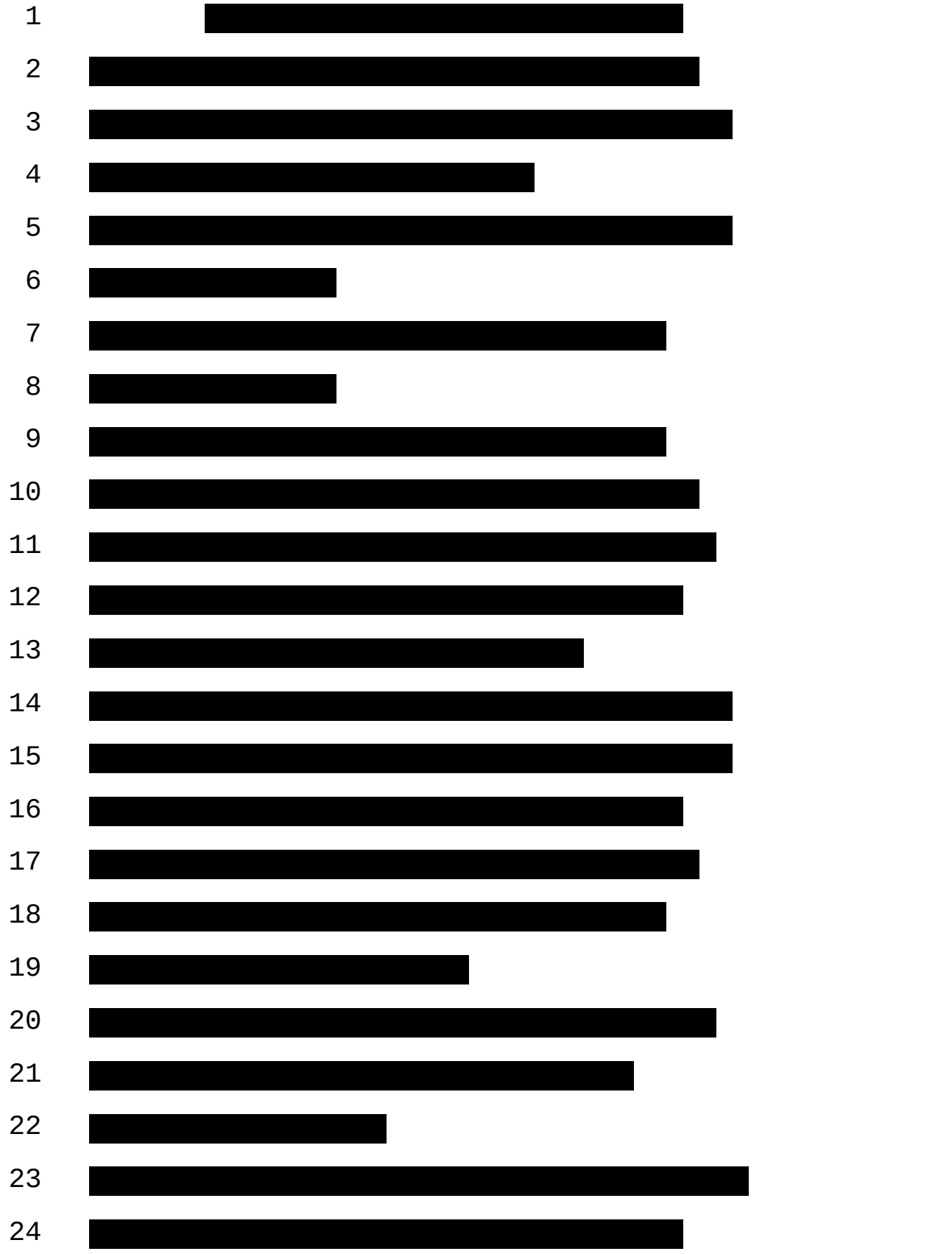
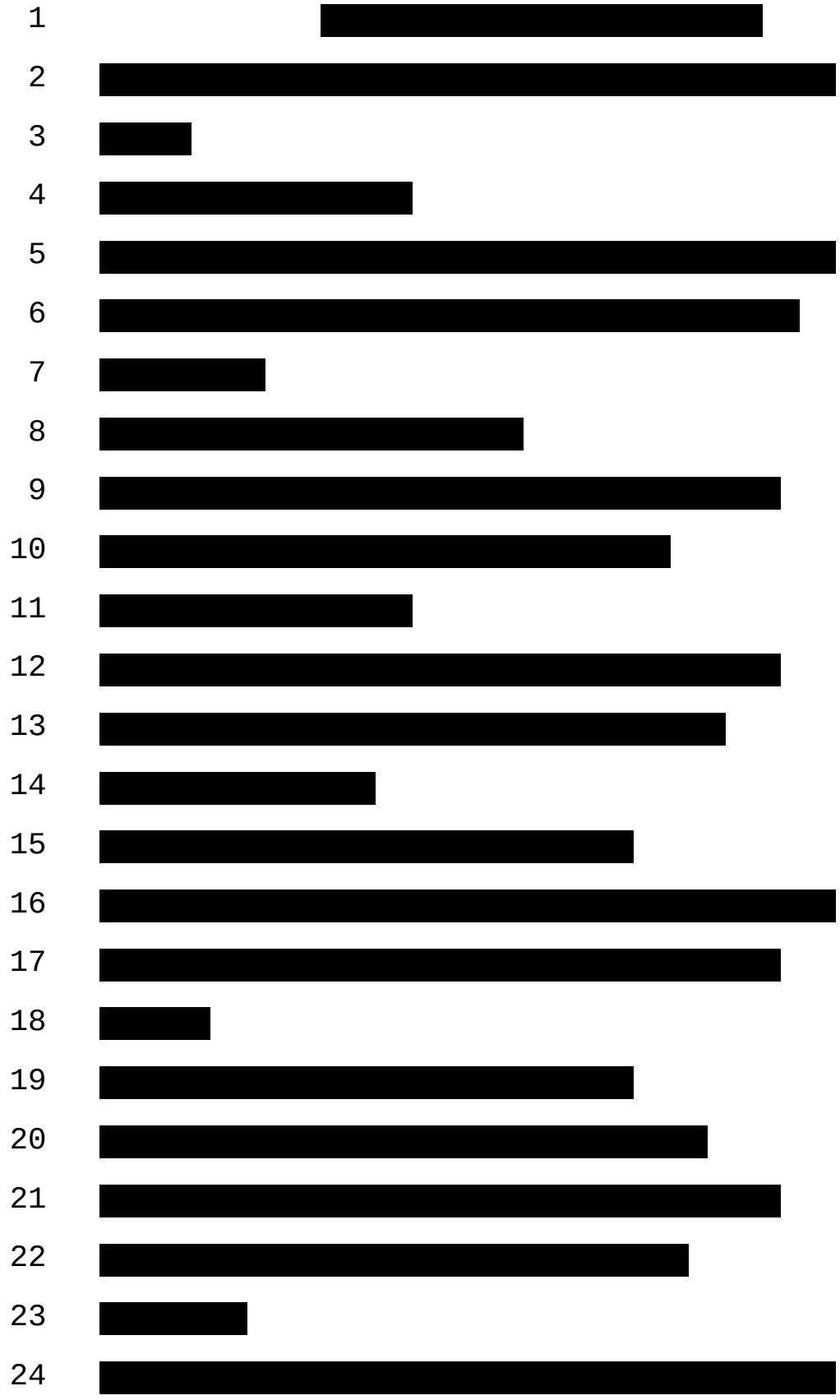




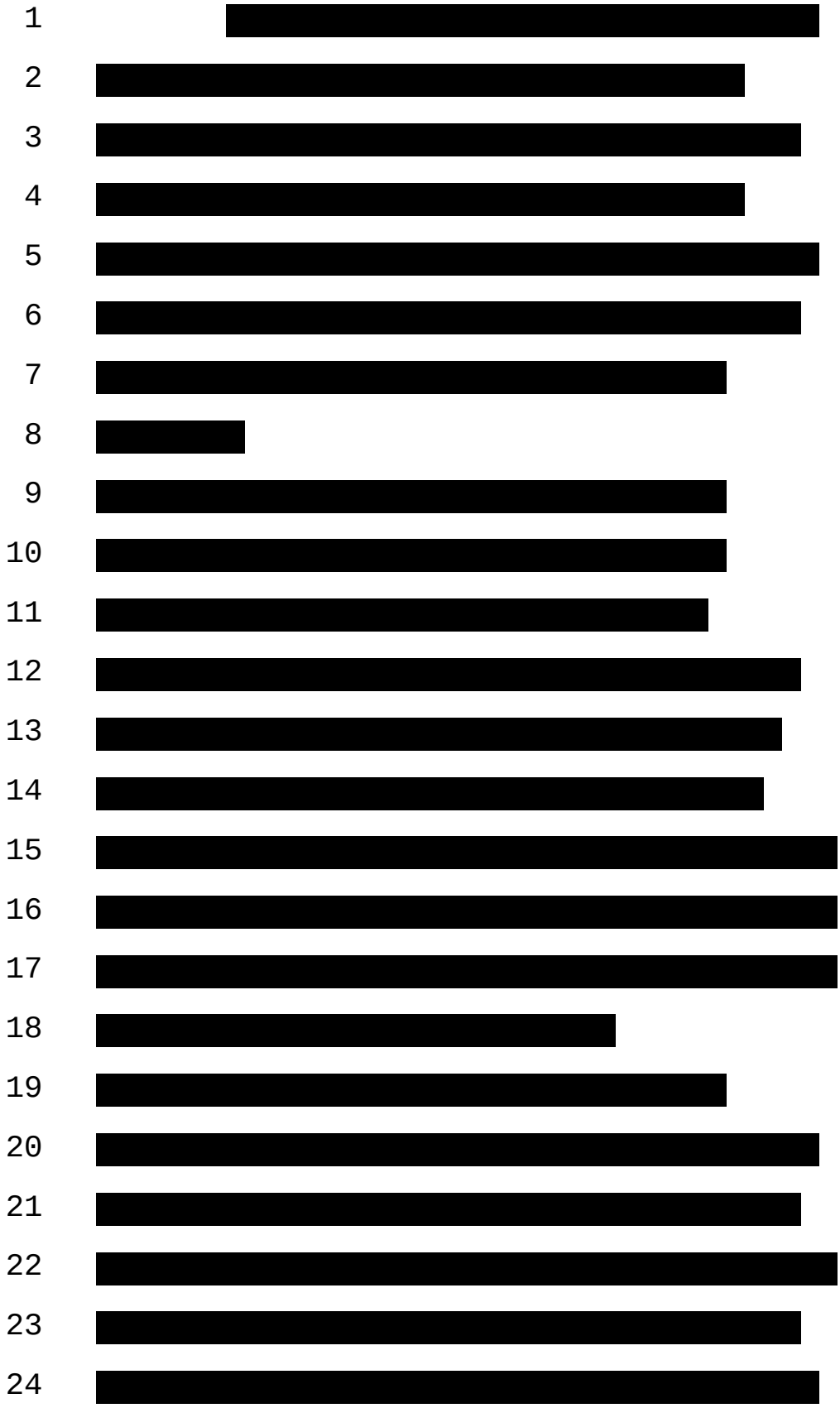


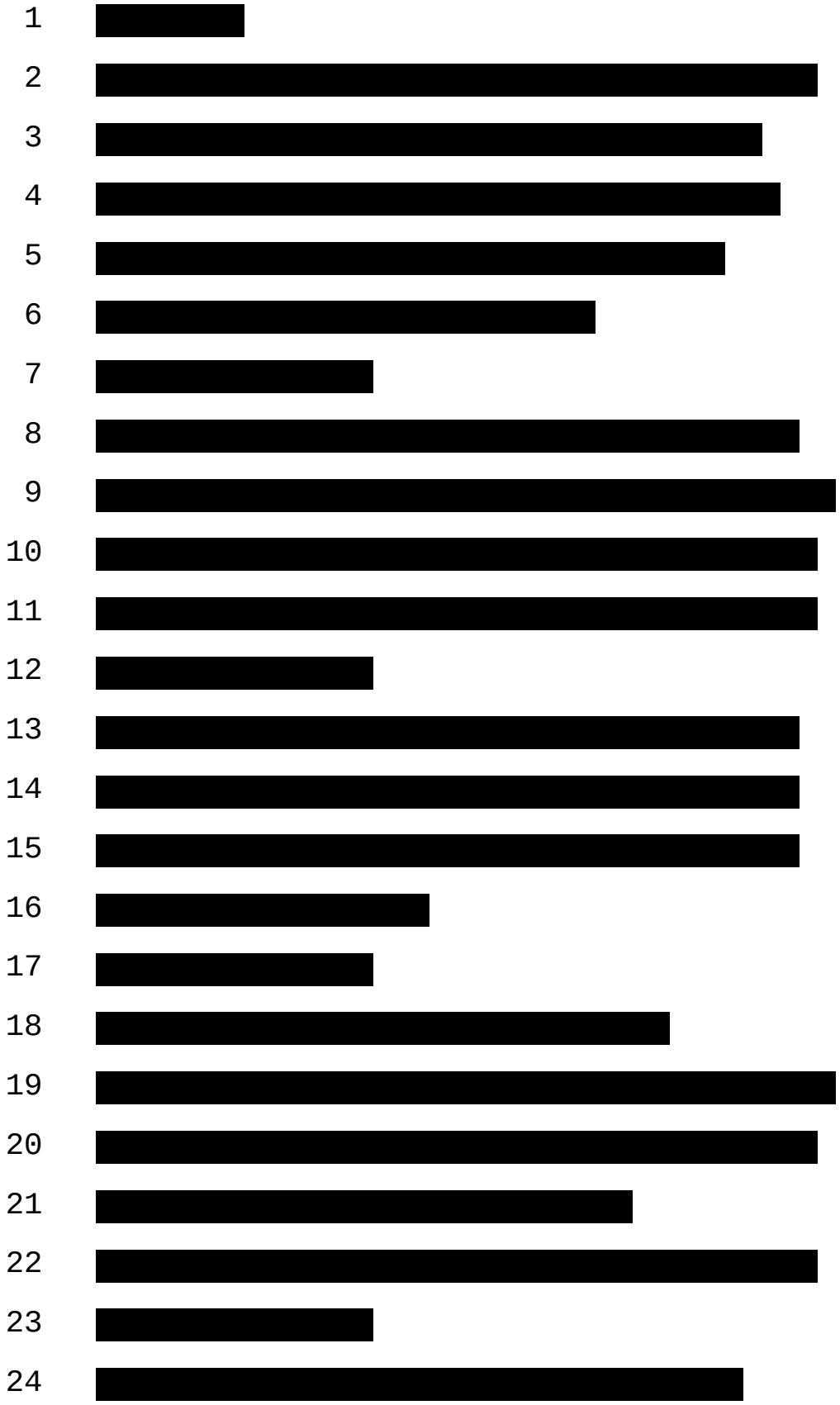












[redacted] }}

[redacted]

BY MR. CONGDON:

Q. All right. I'm handing you a document that's been previously marked as Exhibit 38.

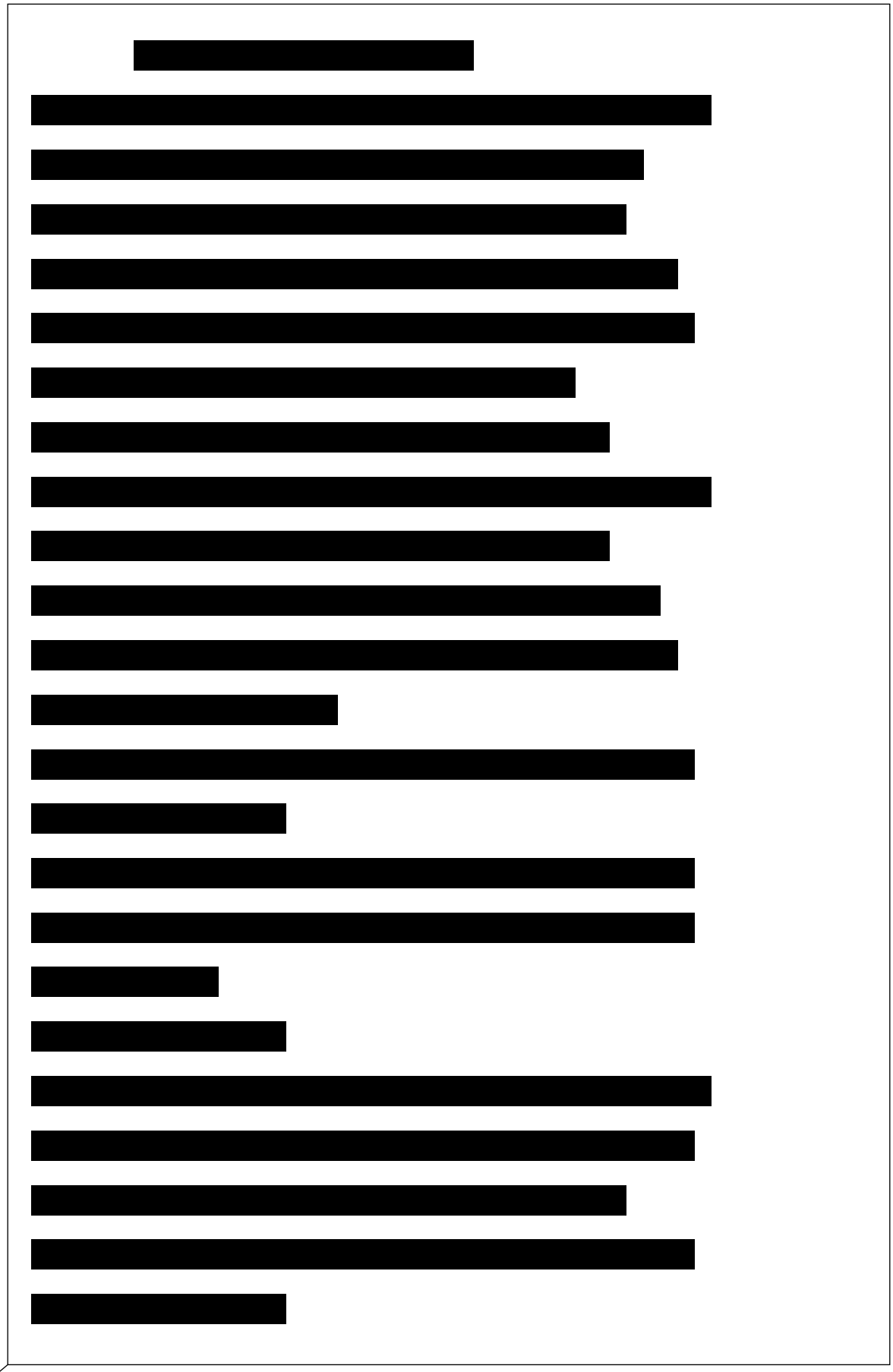
(Document previously marked for identification as Exhibit 38.)

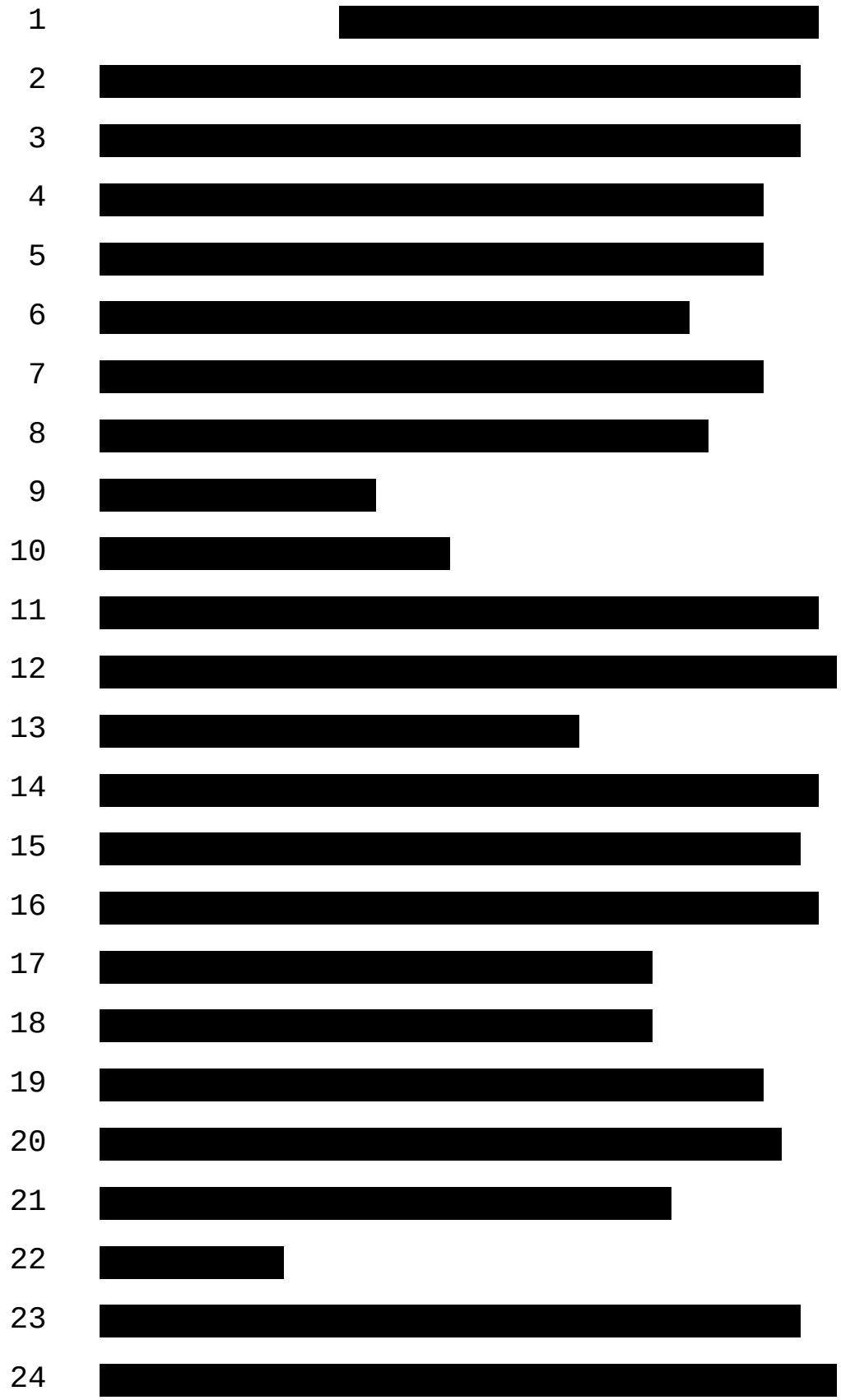
BY MR. CONGDON:

Q. Feel free to take a second to look at it. My first question will be whether you recognize it, so...

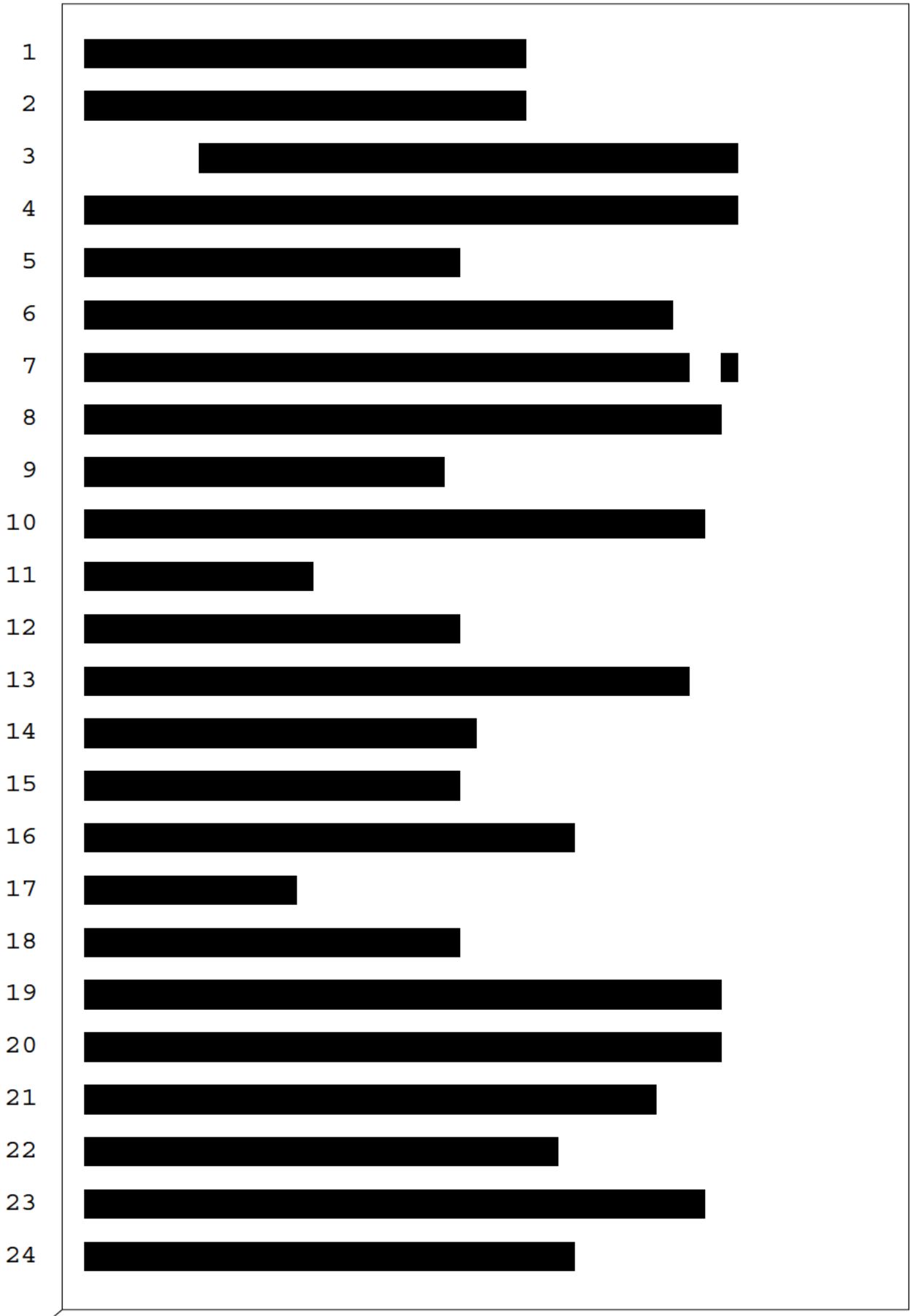
A. I do not remember seeing this document.

{ [redacted]









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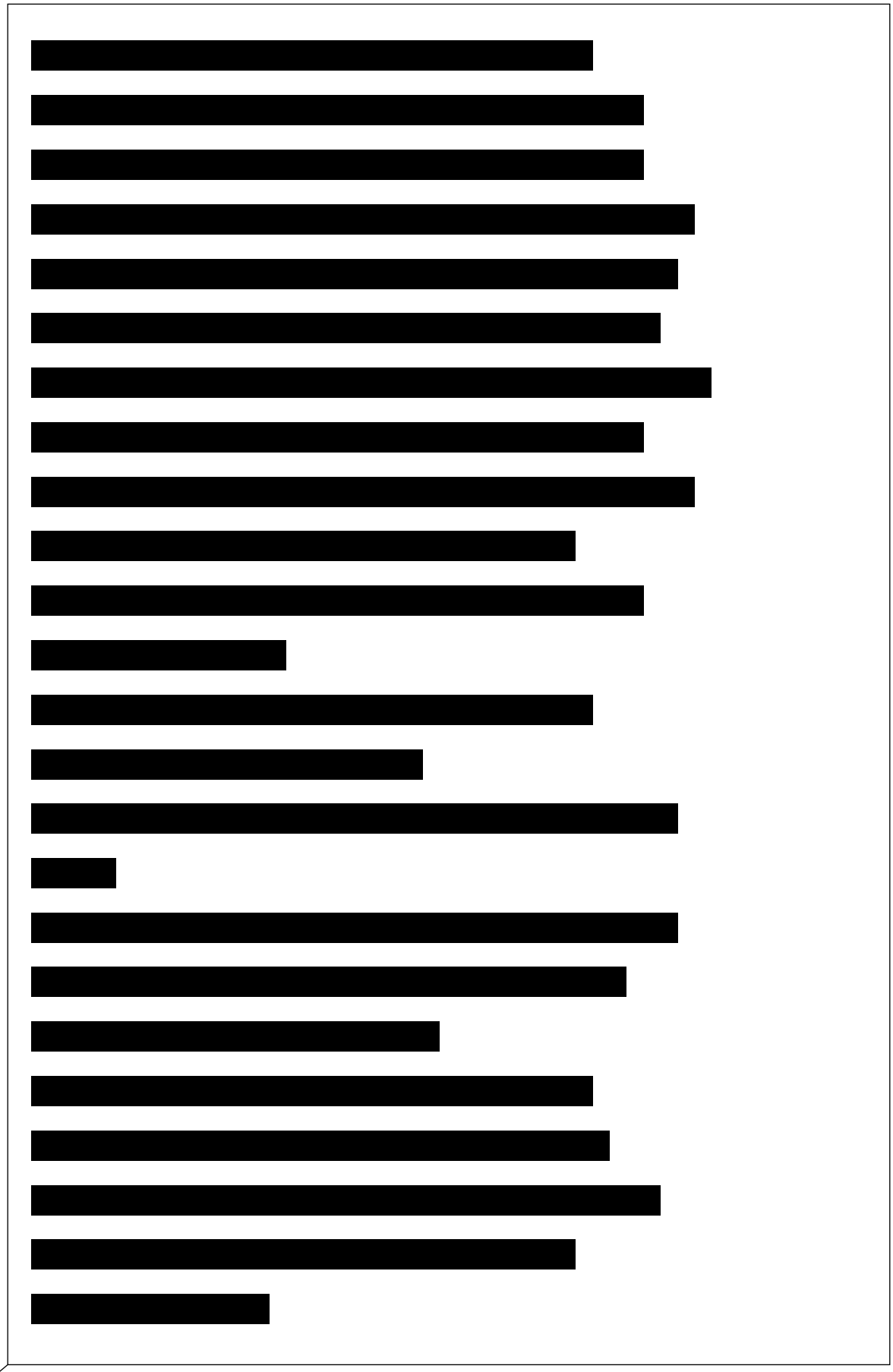


Meridian Speedway going forward, correct?

A. I do not.

Q. Okay. Did you have any other basis for removing or for changing the impedence applied to Meridian Speedway from 180 to 90, other than simply for two railroads involved instead of three?

A. That was the reason we did it.

Q. Can you identify any handling crew activity, other operation involved in the interchanges at the Meridian Speedway that will be eliminated by the merger?

A. That -- again, that would be more in the operating plan and not something that I considered at diversion level.

Q. Okay. If you applied the same 180 impedence in the post-merger case that you do in the pre-merger case, would that affect your results in terms

of diversions on routes involving the Meridian Speedway?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I have not run that to see.

BY MR. CONGDON:

Q. It could, though, right?

A. It's possible.

Q. Using 2023 as your representative base year applies to both the lanes where you're projecting diversions and also your lookalike markets, correct?

A. Correct.

Q. Okay. Did you control for any macroeconomic factors that could affect the relationship between truck share and rail share?

A. I did not. I strictly looked at the historical data.

Q. Okay. So you didn't account for whether diesel prices, for instance, affect one more than the

other, relatively speaking?

A. I -- there is a fuel charge in the -- in the revenue that we used, but I did not make -- try to make any assumptions about future rail cost -- sorry -- future fuel cost.

Q. Okay. Did you run any study that estimated the cost elasticity demand as to rail and truck?

A. Sorry. For what purpose? I'm trying to understand your question.

Q. So do you have any way of telling me if the price of one, of rail or truck, goes up, what effect that might have on demand for the other?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I mentioned yesterday that I had tested elasticity model. I did not -- that was abandoned early on. Those were -- that model did not influence this statement or the diversions in this statement.

I did not use that to test different fuel price assumptions or anything like that.

BY MR. CONGDON:

Q. Okay. So as part of your report and as part of your testimony here in this case, you can't tell me anything about the relationship between how the price of one impacts the demand for the other; is that right?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: The price of one?

BY MR. CONGDON:

Q. Sorry. Fair enough.

As part of your report and as part of your testimony here in this case, you don't say anything about the relationship between truck and rail in terms of how the price of one impacts the demand for the other, correct?

A. Price is a factor in our models. So I do look at price and how

that -- how shippers have historically responded with market share, given the price buckets we've defined. Yes.

Q. Okay. But you don't specifically isolate price and identify how price impacts -- the price of one impacts demand for the other, correct?

A. I did not isolate price and look at that.

Q. Okay. And you did not control for diesel prices in projecting rail market share post merger, correct?

A. I did not make any assumptions about fuel prices.

Q. Okay. Did you run any sort of regression to estimate how diesel prices impact the relative attractiveness of truck verse rail?

A. I did not.

Q. Did you run any regression to estimate how any macroeconomic factor impacts the relative attractiveness of truck service verse rail?

A. That is making additional

assumptions that would bring in things unrelated to the merger. I was trying to isolate the impacts of the merger, so I did not do any of that, no.

Q. Okay. To that point, you're trying to isolate the impacts of the merger.

Do I understand that right?

A. I am trying to -- I'm trying to estimate how much traffic UP-NS could attract. Yes.

Q. Specifically as a result of the merger, correct?

A. Correct.

Q. Okay. And so what you're comparing is the world as it exists today verse the world as it will exist post merger, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: As I've said before, I'm taking the 2023 traffic as my base and trying to estimate how that traffic would

with each other, correct?

A. Correct.

Q. Okay. You're not measuring the merger verse a world in which railroads increase trackage agreements with each other, correct?

A. I was asked to look at the merger. That's what I looked at.

Q. Right. So sitting here today, you can't say how many diversions could have been achieved verse the 2023 real-world traffic data that you looked at by options other than a merger, correct?

A. I would have to model that.

Q. Right. And you haven't done so, correct?

A. I have not.

Q. Okay.

MR. CONGDON: Why don't we go off the record.

MS. FLAHIVE WU: Okay.

THE VIDEOGRAPHER: Going off the record. The time is

11:46.

(Short break.)

THE VIDEOGRAPHER: We are on the record. The time is 11:54.

BY MR. CONGDON:

Q. Mr. Hunt, do you have -- or could you pull back up Exhibit 351, which is your December verified statement?

A. I have it here.

Q. Could you turn to Page 77, please.

A. I'm there.

Q. Okay. And these are your total -- Exhibit 8-1 at the bottom of this page is your total diversion revenue estimate, correct?

A. Correct.

Q. Okay. And in December of 2025, in your total diversion revenue estimates, you did not include the $3.5 billion in savings to shippers that you included in later versions, correct?

A. That is correct.
Q. Okay. Why did it appear in later versions but not in this December of 2025 verified statement?
A. We were asked if we could come up with an estimate of the shipper savings.
Q. Okay. So originally, in December of 2025, when you were asked to come up with revenue synergies as a result of the merger, Exhibit 8-1 in Exhibit 351 is what you came up with, correct?
A. That was our revenue estimate for -- revenue synergies of the merger for UP-NS, yes.
Q. Okay. And then at some point after that, you were asked to estimate shipper savings and include that in your revenue estimates?
A. It was a separate calculation. It's not part of these revenue estimates. But we were asked if we could estimate shipper savings.

Q. You were asked at some point after December of 2025?
A. I believe that's true.
Q. Who were you asked by?
A. The request would have come through counsel.
Q. Counsel for Union Pacific?
A. The -- yes, the lead counsel we've been working with.
Q. Okay. So as of December 2025, when you put in your first verified statement, you had not calculated shipper savings; is that right?
A. That is correct.
Q. And then at some point after December 2025, counsel for Union Pacific asked you to do so?
A. That is my memory.
Q. Okay. And then you included it in your April 2026 verified statement, correct?
A. It was in the April statement, yes.

Q. It was not something that you had thought to include in your December of 2025 statement?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It was an additional calculation. After the diversions were completed, we were asked to do a diversion analysis. I did not add additional work on top of what we were asked to do.

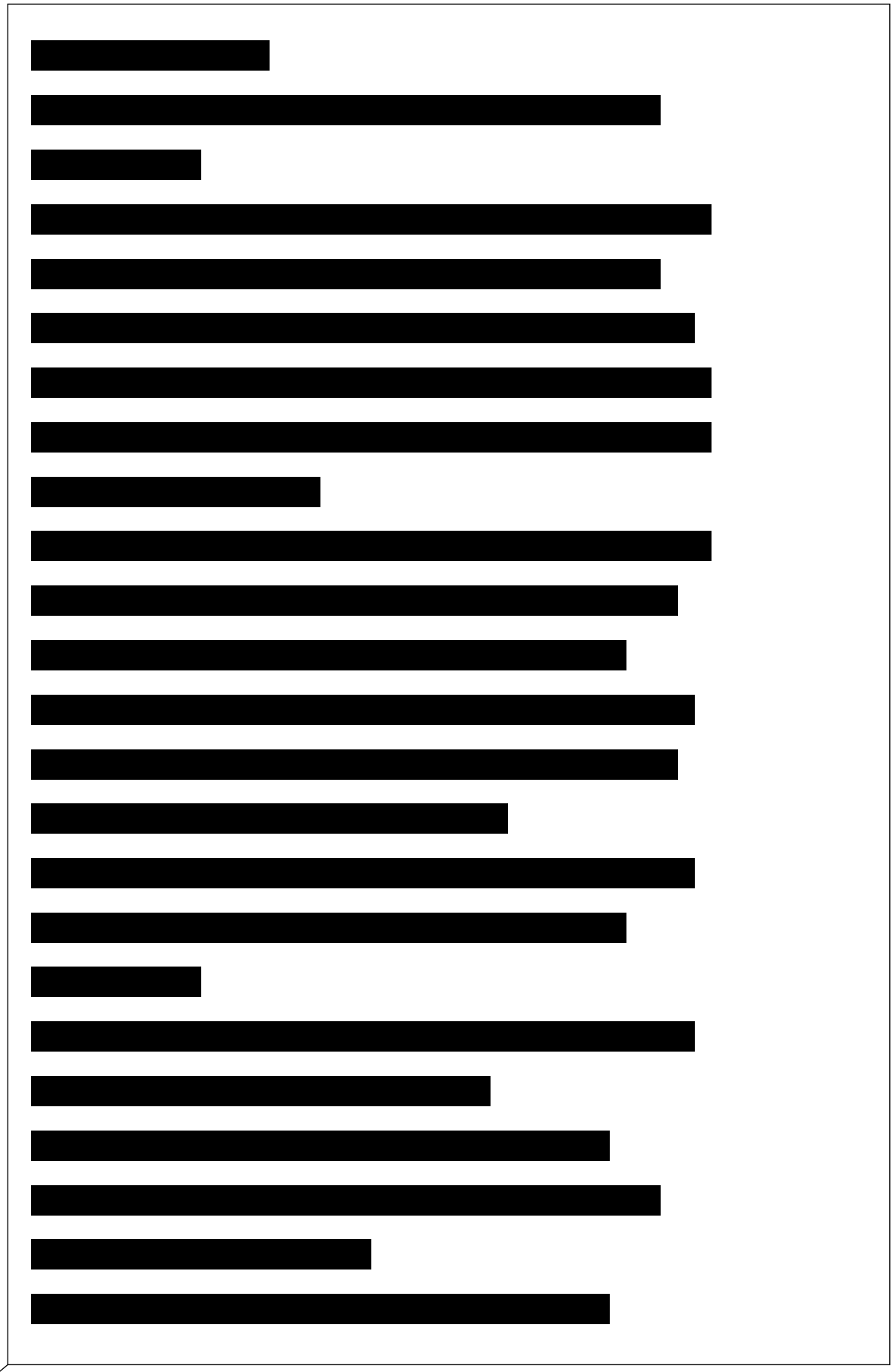
BY MR. CONGDON:

Q. Okay. It's not an idea that you came up with on your own, right?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: It was not my idea to include it.

[redacted]



CERTIFICATE

I HEREBY CERTIFY that the witness was duly sworn by me and that the deposition is a true record of the testimony given by the witness.

It was requested before completion of the deposition that the witness, DAVID T. HUNT, have the opportunity to read and sign the deposition transcript.

Michelle Ridgway

MICHELLE L. RIDGWAY,
A Registered Professional Reporter, Certified Shorthand Reporter, Certified Realtime Reporter, Certified Court Reporter, and Notary Public
Dated: October 12, 2026

(The foregoing certification of this transcript does not apply to any reproduction of the same by any means, unless under the direct control and/or supervision of the certifying reporter.)

EXHIBIT 26

Union Pacific and Norfolk Southern to Create America's First Transcontinental Railroad

July 29, 2025

- *Transaction to transform the U.S. supply chain and economy; strengthen domestic manufacturing; and preserve union jobs*
- *Two legendary railroads enter agreement to combine in stock and cash merger, creating a combined enterprise of over $250 billion*
- *Transaction values Norfolk Southern at an enterprise value of $85 billion and is expected to unlock approximately $2.75 billion in annualized synergies and deliver substantial long-term value for Union Pacific and Norfolk Southern shareholders*
- *Positions railroads to continue accelerating technological advancements promoting greater freight competition*
- *Companies to host conference call and live webcast on July 29 at 8:30 a.m. ET.*

OMAHA, Neb. & ATLANTA--(BUSINESS WIRE)--Jul. 29, 2025-- Union Pacific Corporation (NYSE: UNP) and Norfolk Southern Corporation (NYSE: NSC) today announced an agreement to create America's first transcontinental railroad. These legendary companies will seamlessly connect over 50,000 route miles across 43 states from the East Coast to the West Coast, linking approximately 100 ports and nearly every corner of North America. This combination will transform the U.S. supply chain, unleash the industrial strength of American manufacturing, and create new sources of economic growth and workforce opportunity that preserves union jobs.

This press release features multimedia. View the full release here: https://www.businesswire.com/news/home/20250729719223/en/

Union Pacific and Norfolk Southern to create America's First Transcontinental Railroad.

Under the terms of the agreement, Union Pacific will acquire Norfolk Southern in a stock and cash transaction, implying a value for Norfolk Southern of $320 per share based on Union Pacific's unaffected closing stock price on July 16, 2025[1], and representing a 25% premium to Norfolk Southern's 30-trading day volume weighted average price on July 16, 2025. The value per share implies an enterprise value of $85 billion for Norfolk Southern, resulting in the creation of a combined enterprise of over $250 billion.

"Railroads have been an integral part of building America since the Industrial Revolution, and this transaction is the next step in advancing the industry," said Jim Vena, Union Pacific Chief Executive Officer. "Imagine seamlessly hauling steel from Pittsburgh, Pennsylvania to Colton, California and moving tomato paste from Heron, California to Fremont, Ohio. Lumber from the Pacific Northwest, plastics from the Gulf Coast, copper from Arizona and Utah, and soda ash from Wyoming. Right now, tens of thousands of railroaders are moving almost everything we use. You name it, and at some point, the railroad hauled it."

The Union Pacific Transcontinental Railroad will connect people, strengthen communities, and build a stronger, more competitive America. Both railroads envision every union employee who wants a job in the combined company will have one.

Together, the companies aim to be the safest railroad in North America and deliver the service customers rely on with operational excellence. The combined company will deliver faster, more comprehensive freight service to U.S. shippers by eliminating interchange delays, opening new routes, expanding intermodal services, and reducing distance and transit time on key rail corridors. A more truck-competitive solution, the Union Pacific Transcontinental Railroad will decrease highway congestion, reducing wear-and-tear on taxpayer-funded roads. Today, Union Pacific and Norfolk Southern invest approximately $5.6 billion annually in infrastructure, innovation, and network expansion.

"Norfolk Southern, like Union Pacific, is a railroad integral to the U.S. economy, with a storied 200-year legacy of serving customers across 22 states in the eastern half of the nation," said Mark George, CEO of Norfolk Southern. "Our safety, network, and financial performance is among the best we've had as a company, as is our customer satisfaction. And it is from this position of strength that we embark on this transformational combination. We are confident that the power of Norfolk Southern's franchise, diversified solutions, high-quality customers and partners, as well as skilled employees, will contribute meaningfully to America's first transcontinental railroad, and to igniting rail's ability to deliver for the whole American economy today and into the future. Union Pacific is a true partner that shares our belief in rail's ability to deliver for all stakeholders simultaneously, and we are excited for our future together."

"This combination is transformational, enhancing the best freight transportation system in the world – it's a win for the American economy, it's a win for our customers, and it's a win for our people," Vena said. "It builds on President Abraham Lincoln's vision of

a transcontinental railroad from nearly 165 years ago and advances our Safety, Service and Operational Excellence Strategy. I am confident this historic transaction will enhance competition to benefit customers, communities, and employees while delivering shareholder value."

Delivering Benefits to All Stakeholders

By opening new routes and expanding access for customers, the Union Pacific Transcontinental Railroad will unlock opportunities for faster, more reliable transit times and provide a more seamless customer experience.

For America

- **Enhancing the competitiveness of U.S. freight.** U.S. freight railroads move approximately 1.5 billion tons of material and goods every year. The transcontinental railroad will compete more effectively with Canadian railroads to win back U.S. freight volume and American jobs.
- **Strengthening our nation and economy.** The combination will unlock rail options for shippers in regions where railroad connections are less efficient, such as the Ohio Valley and on both sides of the Mississippi River ("Watershed" markets), creating a more accessible, sustainable, and lower-cost supply chain for manufacturers and consumers.
- **Helping U.S. industry feed and power the world.** With access to 10 international interchanges and approximately 100 ports, the Union Pacific Transcontinental Railroad will unlock strong international trade routes and offer greater access to U.S.-made goods.

For Safety

- **Safety is the top priority for Union Pacific and Norfolk Southern.** The combined company's focus will remain on ensuring every employee goes home safe to their families and protecting the communities where it operates.
- **Improving safety through technology.** Union Pacific and Norfolk Southern's proven technologies will further advance the ability to predict in-train forces and quickly assess potential mechanical and track defects.

For Service

- **Customers will benefit from seamless, single-line service across the country.** The combination will improve transit times, removing several days by eliminating car touches and interchanges where rail cars are handed off.
- **Enhancing the rail experience and ease of doing business.** Customers will have the ability to quickly receive single-line rate quotes with one system to track freight, enabling real-time decisions that optimize supply chains.
- **Greater partnership with short lines and U.S. ports.** Short lines and their shippers will have access to a unified rail network with a single Class I interface, new services, and reduced gateway delays. U.S. ports served by the transcontinental railroad will have expanded reach and faster access to new markets.

For the Workforce

- **Protecting and expanding opportunities for employees and local economies.** Union Pacific and Norfolk Southern union employees – including train crew, mechanical and engineering – will have job opportunities with the combined company. Beyond job security, expected rail volume growth will drive additional employment opportunities in towns and cities across the combined rail network. Non-union workers will have opportunities to grow as part of a larger, combined enterprise.
- **Preserving the best-paid industrial careers in America.** Railroad employees are among the most highly compensated workers across U.S. industries. They also receive a generous retirement that exceeds other workers in the private sector, as well as top tier health care benefits.

For Communities

- **Investing in safe, resilient, and vibrant communities.** Union Pacific and Norfolk Southern invested $300 million in philanthropic giving from 2020 to 2025, supporting workforce development, safety initiatives, and vibrant spaces where people want to live and work.
- **Our goal is simple: zero incidents involving trains, pedestrians, drivers, or employees.** In addition to Operation Lifesaver programs, Union Pacific and Norfolk Southern trained over 10,000 first responders in 2024.

For Shareholders

- **Realizing significant shareholder value**. Union Pacific and Norfolk Southern shareholders are expected to realize significant value from the transaction, including more than $30 billion of potential value creation through the expected achievement of approximately $2.75 billion in annualized synergy opportunity.

Path to Completion

Creating the Union Pacific Transcontinental Railroad is overwhelmingly in the public interest and will enhance competition, consistent with the test that will be applied in the review of the transaction by the Surface Transportation Board (STB).

The companies expect to file their application with the STB within six months, in which the companies will describe how the combined rail network will provide safer, faster, and more reliable service and increased competition to a broad range of stakeholders.

The Board of Directors of both Union Pacific and Norfolk Southern unanimously approved the transaction, which is subject to STB review and approval within its statutory timeline, customary closing conditions, and shareholder approval. The companies are targeting closing the transaction by early 2027.

Transaction Details and Financial Impact

Under the terms of the agreement, Norfolk Southern shareholders will receive 1.0 Union Pacific common share and $88.82 in cash for each share of Norfolk Southern. The implied value of $320 per share represents an implied total enterprise value for Norfolk Southern of $85 billion based on Union Pacific's unaffected closing stock price on July 16, 2025[2]. Union Pacific will issue a total of approximately 225 million shares to Norfolk Southern shareholders, representing 27% ownership in the combined company on a fully diluted basis, and providing the ability of Norfolk Southern shareholders to participate in the upside of the combined company's growth opportunities and synergies. The agreement is structured without a voting trust and includes a $2.5 billion reverse termination fee.

The cash portion of the transaction will be funded through a combination of new debt and balance sheet cash. At closing, the combined business will have a strong balance sheet and Debt to EBITDA of approximately 3.3x, supporting a balanced capital allocation strategy. The combined company will continue to prioritize and maintain a strong balance sheet and investment grade rating.

Based on 2024 results, the pro-forma combined company would have revenues of approximately $36 billion, EBITDA of approximately $18 billion, operating ratio of 62%, and free cash flow of $7 billion. The transaction is expected to be accretive to Union Pacific's adjusted EPS per share in the second full year after closing and rising to high single digit accretion thereafter.

Leadership and Governance

Jim Vena, Union Pacific CEO, will lead the combined company as Chief Executive Officer and has committed his intent to remain at Union Pacific for at least the next 5 years. Through integration and beyond, talented leaders from both companies will work together to deliver on the combination's full value creation potential. The experienced Union Pacific and Norfolk Southern management teams will continue to independently run each company until the transaction's closing. At closing, three Norfolk Southern Directors, including Mark George and Richard Anderson, are expected to join the Union Pacific Board of Directors after completing the corporate governance process.

The combined company will be headquartered in Omaha, Nebraska. Atlanta, Georgia will remain a core location for the combined organization over the long-term with a focus on technology, operations, and innovation, among other priorities.

Advisors

Morgan Stanley & Co. LLC and Wells Fargo are serving as financial advisors to Union Pacific. Skadden, Arps, Slate, Meagher & Flom LLP is serving as legal advisor to Union Pacific on the acquisition, with Covington & Burling LLP providing legal advice on regulatory matters. BofA Securities is serving as exclusive financial advisor to Norfolk Southern. Wachtell, Lipton, Rosen & Katz is serving as legal advisor to Norfolk Southern, with Sidley Austin LLP providing legal advice on regulatory matters.

Conference Call Information

Union Pacific and Norfolk Southern will host a joint investor conference call on July 29 at 8:30 a.m. Eastern Time to discuss the announcement. A live webcast of the call and the replay will be available on the Union Pacific website at https://investor.unionpacific.com and the Norfolk Southern website at https://norfolksouthern.investorroom.com/events Supporting materials will be posted at www.up-nstranscontinental.com

Participants may join the conference call by dialing 1-800-836-8184 (or for international participants, 1-646-357-8785).

Union Pacific and Norfolk Southern Transaction Information Hub for All Stakeholders

A dedicated website providing information about the transaction is available at www.up-nstranscontinental.com

About Union Pacific

Union Pacific (NYSE: UNP) delivers the goods families and businesses use every day with safe, reliable, and efficient service. Operating in 23 western states, the company connects its customers and communities to the global economy. Trains are the most environmentally responsible way to move freight, helping Union Pacific protect future generations. More information about Union Pacific is available at www.up.com.

About Norfolk Southern

Since 1827, Norfolk Southern Corporation (NYSE: NSC) and its predecessor companies have safely moved the goods and materials that drive the U.S. economy. Today, it operates a 22-state freight transportation network. Committed to furthering sustainability, Norfolk Southern helps its customers avoid approximately 15 million tons of yearly carbon emissions by shipping via rail. Its dedicated team members deliver approximately 7 million carloads annually, from agriculture to consumer goods. Norfolk Southern also has the most extensive intermodal network in the eastern U.S. It serves a majority of the country's population and manufacturing base, with connections to every major container port on the Atlantic coast as well as major ports across the Gulf Coast and Great Lakes. Learn more by visiting www.NorfolkSouthern.com

NO OFFER OR SOLICITATION

This communication is for informational purposes only and does not constitute, or form a part of, an offer to sell or the solicitation of an offer to buy any securities or a solicitation of any vote or approval, nor shall there be any sale of securities in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction. No offer of securities shall be made except by means of a prospectus meeting the requirements of Section 10 of the Securities Act of 1933, as amended (the "Securities Act"), and otherwise in accordance with applicable law.

CAUTIONARY NOTE REGARDING FORWARD LOOKING STATEMENTS

Certain statements in this communication are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause Union Pacific's, Norfolk Southern's or the combined company's actual results, levels of activity, performance, or achievements or those of the railroad industry to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements may be identified by the use of words like "may," "will," "could," "would," "should," "expect," "anticipate," "believe," "project," "estimate," "intend," "plan," "pro forma," or any variations or other comparable terminology.

While Union Pacific and Norfolk Southern have based these forward-looking statements on those expectations, assumptions, estimates, beliefs and projections they view as reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond Union Pacific's, Norfolk Southern's or the combined company's control, including but not limited to, in addition to factors disclosed in Union Pacific's and Norfolk Southern's respective filings with the U.S. Securities and Exchange Commission (the "SEC"): the occurrence of any event, change or other circumstance that could give rise to the right of one or both of the parties to terminate the definitive merger agreement between Union Pacific and Norfolk Southern providing for the acquisition of Norfolk Southern by Union Pacific (the "Transaction"); the risk that potential legal proceedings may be instituted against Union Pacific or Norfolk Southern and result in significant costs of defense, indemnification or liability; the possibility that the Transaction does not close when expected or at all because required Surface Transportation Board, shareholder or other approvals and other conditions to closing are not received or satisfied on a timely basis or at all (and the risk that such approvals may result in the imposition of conditions that could adversely affect the combined company or the expected benefits of the Transaction); the risk that the combined company will not realize expected benefits, cost savings, accretion, synergies and/or growth from the Transaction, or that such benefits may take longer to realize or be more costly to achieve than expected, including as a result of changes in, or problems arising from, general economic and market conditions, tariffs, interest and exchange rates, monetary policy, laws and regulations and their enforcement, and the degree of competition in the geographic and business areas in which Union Pacific and Norfolk Southern operate; disruption to the parties' businesses as a result of the announcement and pendency of the Transaction; the costs associated with the anticipated length of time of the pendency of the Transaction, including the restrictions contained in the definitive merger agreement on the ability of Union Pacific and Norfolk Southern, respectively, to operate their respective businesses outside the ordinary course during the pendency of the Transaction; the diversion of Union Pacific's and Norfolk Southern's management's attention and time from ongoing business operations and opportunities on merger-related matters; the risk that the integration of each party's operations will be materially delayed or will be more costly or difficult than expected or that the parties are otherwise unable to successfully integrate each party's businesses into the other's businesses; the possibility that the Transaction may be more expensive to complete than anticipated, including as a result of unexpected factors or events; reputational risk and potential adverse reactions of Union Pacific's or Norfolk Southern's customers, suppliers, employees, labor unions or other business partners, including those resulting from the announcement or completion of the Transaction; the dilution caused by Union Pacific's issuance of additional shares of its common stock in connection with the consummation of the Transaction; the risk of a downgrade of the credit rating of Union Pacific's indebtedness, which could give rise to an obligation to redeem existing indebtedness; a material adverse change in the financial condition of Union Pacific, Norfolk Southern or the combined company; changes in domestic or international economic, political or business conditions, including those impacting the transportation industry (including customers, employees and supply chains); Union Pacific's, Norfolk Southern's and the combined company's ability to successfully implement its respective operational, productivity, and strategic initiatives; a significant adverse event on Union Pacific's or Norfolk Southern's network, including, but not limited to, a mainline accident, discharge of hazardous materials, or climate-related or other network outage; the outcome of claims, litigation, governmental proceedings and investigations involving Union Pacific or Norfolk Southern, including, in the case of Norfolk Southern, those with respect to the Eastern Ohio incident; the nature and extent of Norfolk Southern's environmental remediation obligations with respect to the Eastern Ohio incident; new or additional governmental regulation and/or operational changes resulting from or related to the Eastern Ohio incident; and a cybersecurity incident or other disruption to our technology infrastructure.

This list of important factors is not intended to be exhaustive. These and other important factors, including those discussed under "Risk Factors" in Norfolk Southern's Annual Report on Form 10-K for the year ended December 31, 2024 (available at: https://www.sec.gov/ix?doc=/Archives/edgar/data/0000702165/000070216525000008/nsc-20241231.htm) and Union Pacific's most recent Annual Report on Form 10-K for the year ended December 31, 2024, as filed with the SEC on February 7, 2025 (available at: https://www.sec.gov/ix?doc=/Archives/edgar/data/0000100885/000010088525000042/unp-20241231.htm) (the "Union Pacific Annual Report"), as well as Union Pacific's and Norfolk Southern's subsequent filings with the SEC, may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. References to Union Pacific's and Norfolk Southern's website are provided for convenience and, therefore, information on or available through the website is not, and should not be deemed to be, incorporated by reference herein. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, Union Pacific and Norfolk Southern disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise, except as may be required by applicable law or regulation.

ADDITIONAL INFORMATION ABOUT THE TRANSACTION AND WHERE TO FIND IT

In connection with the Transaction, Union Pacific intends to file with the SEC a registration statement on Form S-4 (the "Registration Statement"), which will include a prospectus with respect to the shares of Union Pacific's common stock to be issued in the Transaction and a joint proxy statement for Union Pacific's and Norfolk Southern's respective shareholders (the "Joint Proxy Statement/Prospectus"). The definitive joint proxy statement (if and when available) will be mailed to shareholders of Union Pacific and Norfolk Southern. Each of Union Pacific and Norfolk Southern may also file with or furnish to the SEC other relevant documents regarding the Transaction. This communication is not a substitute for the Registration Statement, the Joint Proxy Statement/Prospectus or any other document that Union Pacific or Norfolk Southern may mail to their respective shareholders in connection with the Transaction.

INVESTORS AND SECURITY HOLDERS OF UNION PACIFIC AND NORFOLK SOUTHERN ARE URGED TO READ THE REGISTRATION STATEMENT AND THE JOINT PROXY STATEMENT/PROSPECTUS INCLUDED WITHIN THE REGISTRATION STATEMENT WHEN THEY BECOME AVAILABLE, AS WELL AS ANY OTHER RELEVANT DOCUMENTS FILED WITH THE SEC IN CONNECTION WITH THE TRANSACTION OR INCORPORATED BY REFERENCE INTO THE REGISTRATION STATEMENT AND THE JOINT PROXY STATEMENT/PROSPECTUS (INCLUDING ANY AMENDMENTS OR SUPPLEMENTS THERETO), BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION REGARDING UNION PACIFIC, NORFOLK SOUTHERN, THE TRANSACTION AND RELATED MATTERS.

Investors and security holders of Union Pacific and Norfolk Southern may obtain free copies of these documents and other documents filed with the SEC by Union Pacific or Norfolk Southern through the website maintained by the SEC at http://www.sec.gov or from Union Pacific at its website, https://investor.unionpacific.com/financials/sec-filings, or from Norfolk Southern at its website, https://norfolksouthern.investorroom.com/sec-filings. Documents filed with the SEC by Union Pacific will be available free of charge by accessing Union Pacific's website at https://investor.unionpacific.com/financials/sec-filings, or alternatively by directing a request by mail to Union Pacific's Corporate Secretary, 1400 Douglas Street, Omaha, Nebraska 68179, and documents filed with the SEC by Norfolk Southern will be available free of charge by accessing Norfolk Southern's website at https://investor.unionpacific.com/financials/sec-filings or, alternatively, by directing a request by mail to Norfolk Southern's Corporate Secretary, 650 West Peachtree Street NW, Atlanta, Georgia 30308-1925.

PARTICIPANTS IN THE SOLICITATION

Union Pacific, Norfolk Southern and certain of their respective directors and executive officers may be deemed to be participants in the solicitation of proxies from the shareholders of Norfolk Southern and Union Pacific in connection with the Transaction under the rules of the SEC.

Information about the interests of the directors and executive officers of Union Pacific and Norfolk Southern and other persons who may be deemed to be participants in the solicitation of shareholders of Union Pacific and Norfolk Southern in connection with the Transaction and a description of their direct and indirect interests, by security holdings or otherwise, will be included in the Joint Proxy Statement/Prospectus, which will be filed with the SEC.

Information about the directors and executive officers of Union Pacific and their ownership of Union Pacific common stock can also be found in the Union Pacific Annual Report, and its definitive proxy statement in connection with its 2025 annual meeting of shareholders, as filed with the SEC on March 25, 2025 (the "Union Pacific 2025 Proxy Statement") and other documents subsequently filed by Union Pacific with the SEC, which are available on its website at www.up.com. Information about the directors and executive officers of Union Pacific, their ownership of Union Pacific common stock, and Union Pacific 's transactions with related persons is set forth in the sections entitled "Proposal Number 1 – Election of Directors—Directors/Nominees", "Director Compensation in Fiscal Year 2024", "Proposal Number 3 – Advisory Vote to Approve Executive Compensation", "A Letter From Our Compensation and Talent Committee" and "Compensation Discussion and Analysis" of the Union Pacific 2025 Proxy Statement. To the extent holdings of Union Pacific common stock by the directors and executive officers of Union Pacific have changed from the amounts of Union Pacific common stock held by such persons as reflected therein, such changes have been or will be reflected on Statements of Change in Ownership on Form 4 filed with the SEC, which are available at https://www.sec.gov/edgar/browse/?CIK=100885&owner=exclude under the tab "Ownership Disclosures".

Information about the directors and executive officers of Norfolk Southern and their ownership of Norfolk Southern common stock is also set forth in the definitive proxy statement for Norfolk Southern's 2025 Annual Meeting of Shareholders, as filed with the

SEC on Schedule 14A on March 28, 2025 (which is available at https://www.sec.gov/ix?doc=/Archives/edgar/data/0000702165/000119312525066914/d892357ddef14a.htm) and other documents subsequently filed by Norfolk Southern with the SEC. Information about the directors and executive officers of Norfolk Southern, their ownership of Norfolk Southern common stock, and Norfolk Southern's transactions with related persons is set forth in the sections entitled "Norfolk Southern Director Nominees", "Corporate Governance and the Board—Item 1: Election of 13 Directors for a One-Year Term", "Corporate Governance and the Board—Director Nominees", Corporate Governance and the Board—Compensation of Directors", "Executive Compensation" and "Stock Ownership Information" of such definitive proxy statement. Please also refer to Norfolk Southern's subsequent Current Report, as filed with the SEC on Form 8-K on June 3, 2025 (which is available at https://www.sec.gov/ix?doc=/Archives/edgar/data/0000702165/000119312525133796/d35291d8k.htm), regarding subsequent changes to Norfolk Southern's Board of Directors following the filing of such definitive proxy statement. To the extent holdings of Norfolk Southern common stock by the directors and executive officers of Norfolk Southern have changed from the amounts of Norfolk Southern common stock held by such persons as reflected in the definitive proxy statement, such changes have been or will be reflected on Statements of Change in Ownership on Form 4 filed with the SEC, which are available at https://www.sec.gov/edgar/browse/?CIK=702165&owner=exclude under the tab "Ownership Disclosures".

Free copies of these documents may be obtained as described above.

[1] Represents the last trading day prior to press speculation that Union Pacific was pursuing a potential acquisition of Norfolk Southern.

[2] Represents the last trading day prior to press speculation that Union Pacific was pursuing a potential acquisition of Norfolk Southern.

View source version on businesswire.com: https://www.businesswire.com/news/home/20250729719223/en/

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Union Pacific Media contact: Clarissa Beyah at 402-957-4793 or cbeyah@up.com

Norfolk Southern Media Inquiries:
Media Relations
Joseph Sala / Sophie Throsby / Lucas Pers
Joele Frank, Wilkinson Brimmer Katcher
(212) 355-4449
Norfolk Southern Investor Inquiries:
Investor Relations

Source: Union Pacific Corporation

EXHIBIT 27

Norfolk Southern board of directors appoints Mark R. George President and Chief Executive Officer through unanimous vote of independent directors

SEP 11, 2024

Board Terminates Alan H. Shaw as President and Chief Executive Officer Due to Violations of Company Policies

Nabanita Nag Terminated as Chief Legal Officer

Company Reaffirms Full-Year 2024 Guidance

ATLANTA, Sept. 11, 2024 /**PRNewswire**/ -- Norfolk Southern Corporation (NYSE: NSC) today announced that the Norfolk Southern Board of Directors has by unanimous vote of the independent directors appointed Mark R. George, the company's Executive Vice President and Chief Financial Officer, as President and Chief Executive Officer, effective immediately. George will also join the Norfolk Southern Board.

George's appointment follows the Norfolk Southern Board's unanimous decision to terminate Alan H. Shaw for cause, effective immediately.

This change in leadership comes in connection with preliminary findings from an ongoing investigation that determined Shaw violated company policies by engaging in

a consensual relationship with the company's Chief Legal Officer. Shaw's departure is unrelated to the company's performance, financial reporting and results of operations.

Claude Mongeau, Chairman of the Norfolk Southern Board, said, "The Board has full confidence in Mark and his ability to continue delivering on our commitments to shareholders and other stakeholders. Mark has played an integral role in our recent progress and brings decades of financial experience and strong operational expertise. He embodies our corporate values and is a champion of our safety culture. In close partnership with our accomplished COO, John Orr, they will continue to improve NS' operating performance and close the margin gap with peers."

"I am honored to take on this role and lead Norfolk Southern," said George. "I look forward to my continued partnership with John and the entire Thoroughbred team as we further our progress on optimizing operations and serving our customers, while creating a safe and satisfying workplace and delivering enhanced value for our employees, customers, shareholders, and communities."

In connection with George's appointment as Chief Executive Officer, Norfolk Southern announced that Jason A. Zampi will serve as acting Chief Financial Officer.

Norfolk Southern also announced that Nabanita C. Nag has been terminated from her roles as Executive Vice President Corporate Affairs, Chief Legal Officer & Corporate Secretary, effective immediately, in connection with the preliminary findings of the Board's ongoing investigation. Jason M. Morris will serve as acting Corporate Secretary.

Reaffirms 2024 Guidance

Norfolk Southern reaffirms its full-year 2024 guidance provided on July 25, 2024, in conjunction with its second quarter 2024 financial results.

About Mark R. George

Mark R. George is a seasoned executive with over 35 years of professional experience spanning multiple global industries. He most recently served as EVP and Chief Financial Officer of Norfolk Southern since 2019. In this capacity, George oversaw the company's Finance, Investor Relations, Sourcing, and Corporate Strategy teams. During his time at Norfolk Southern, Mark brought a strategic and business partnership mindset to the CFO office. He has used his expertise across multiple industrial segments to help shape the company's strategy and drive value for our shareholders. Prior to joining Norfolk Southern, he held successive roles of responsibility across multiple commercial and business segments of United

Technologies Corporation and its subsidiaries, including six years in Asia as the regional CFO for the Otis Elevator Company. He held roles of increasing responsibility and ultimately served as the Global CFO for both the Otis Elevator Company and the Carrier Corporation from 2008 to 2019. George is also on the Board of Directors for Trane Technologies plc, where he serves on the Finance and Audit Committees. He also serves on the Board of Directors for Junior Achievement of Georgia. He holds a Bachelor of Science in finance from Central Connecticut State University and a Master of Business Administration from Rensselaer Polytechnic Institute.

About Norfolk Southern

Since 1827, Norfolk Southern Corporation (NYSE: NSC) and its predecessor companies have safely moved the goods and materials that drive the U.S. economy. Today, it operates a customer-centric and operations-driven freight transportation network. Committed to furthering sustainability, Norfolk Southern helps its customers avoid approximately 15 million tons of yearly carbon emissions by shipping via rail. Its dedicated team members deliver more than 7 million carloads annually, from agriculture to consumer goods, and Norfolk Southern originates more automotive traffic than any other Class I Railroad. Norfolk Southern also has the most extensive intermodal network in the eastern U.S. It serves a majority of the country's population and manufacturing base, with connections to every major container port on the Atlantic coast as well as major ports in the Gulf of Mexico and Great Lakes. Learn more by visiting **www.NorfolkSouthern.com**.

Cautionary Statement on Forward-Looking Statements

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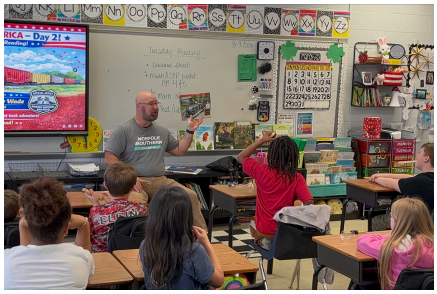
31, 2023, as well as the Company's subsequent filings with the SEC, may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, the Company disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

CONTINUE READING



From classrooms to careers: Celebratin...

Mar 06, 2026

The week of March 2 is the nation’s largest celebration of reading Education opens doors at every stage of life, and during Read Across America Week, Norfolk Southern emp...

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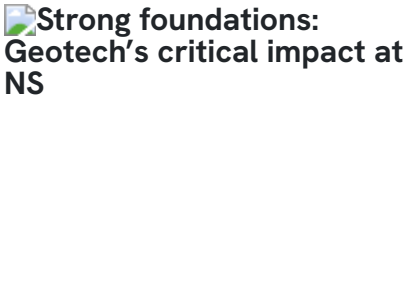

Strong foundations: Geotech’s critical...

Jan 21, 2026

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Safety, service shine in Norfolk Southern...

Oct 23, 2025

Today, Norfolk Southern shared its third-quarter earnings results, highlighting notable gains in safety, service and productivity. The company’s service and safety improv...

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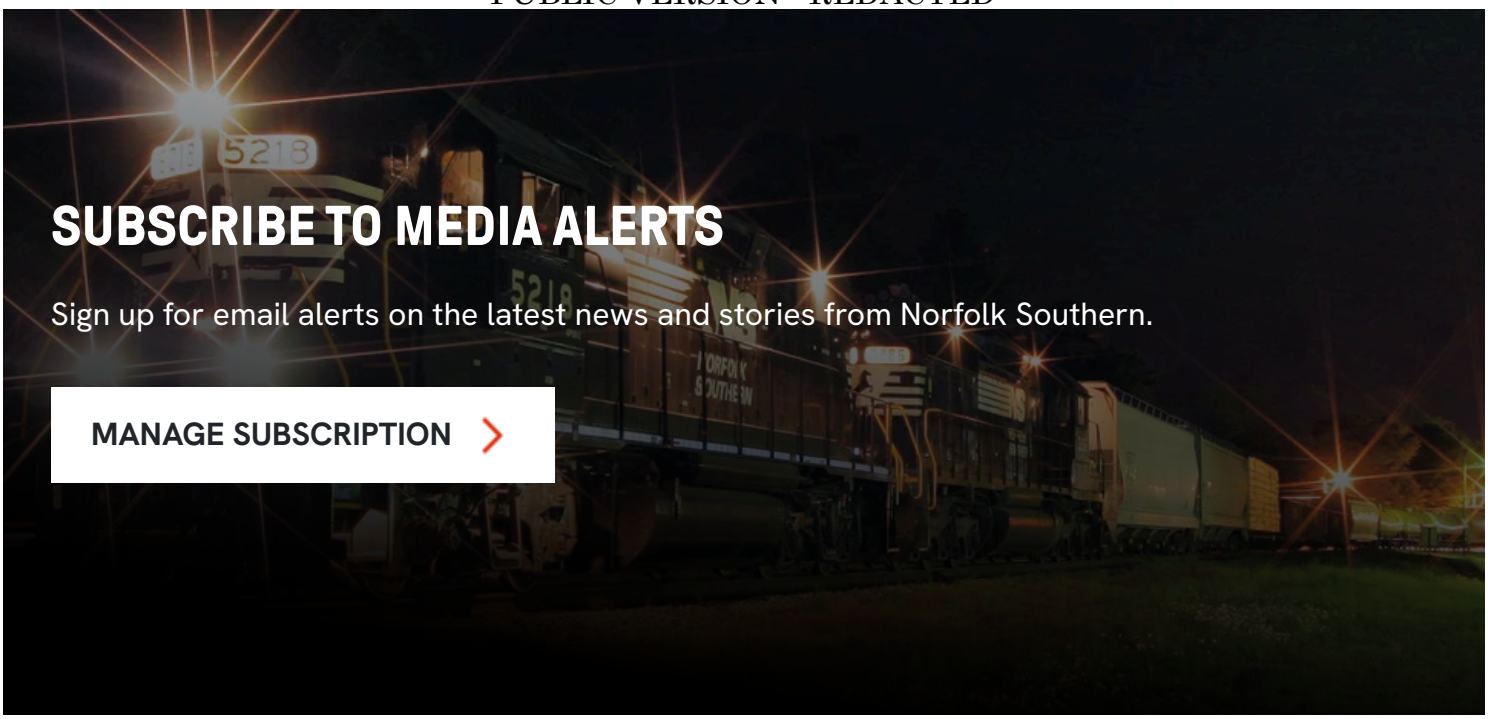

Media Contacts

Are you a member of the media? Contact our media relations team.

MEDIA.RELATIONS@NSCORP.COM

NORFOLK SOUTHERN

NEW TO NORFOLK SOUTHERN

POPULAR SHIPPING TOOLS

RAIL DEVELOPMENT

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Atlanta, Georgia 30308

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EXHIBIT 28



2024 ANNUAL REPORT

NORFOLK SOUTHERN CORPORATION

2024 ANNUAL REPORT

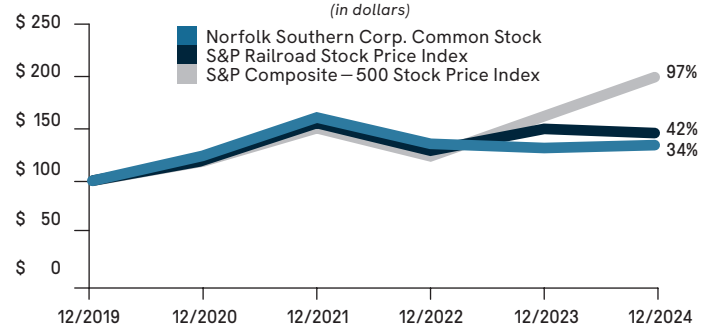
FINANCIAL HIGHLIGHTS

Norfolk Southern Corporation & Subsidiaries

FOR THE YEAR *(dollars in millions, except per-share amounts)*	2024	2023	2022
Railway operating revenues	**$ 12,123**	$ 12,156	$ 12,745
Income from railway operations (as adjusted for both 2024 and 2023)[1]	**$ 4,146**	$ 3,967	$ 4,809
Net income (as adjusted for both 2024 and 2023)[1]	**$ 2,684**	$ 2,673	$ 3,270
Per share – diluted (as adjusted for both 2024 and 2023)[1]	**$ 11.85**	$ 11.74	$ 13.88
Dividends per share	**$ 5.40**	$ 5.40	$ 4.96
Dividend payout ratio (as adjusted for both 2024 and 2023)[1]	**45%**	46%	36%
Net cash provided by operating activities	**$ 4,052**	$ 3,179	$ 4,222
Property additions	**$ 2,381**	$ 2,327	$ 1,948
Acquisition of assets of CSR	**$ 1,643**	$ 22	$ –
Free cash flow[2]	**$ 1,671**	$ 852	$ 2,274
AT YEAR END			
Total assets	**$ 43,682**	$ 41,652	$ 38,885
Total debt	**$ 17,206**	$ 17,179	$ 15,182
Shareholders' equity	**$ 14,306**	$ 12,781	$ 12,733
Shares outstanding (millions)	**226.3**	225.7	228.1
FINANCIAL RATIOS			
Operating Ratio[1]	**65.8%**	67.4%	62.3%
Debt-to-total-capitalization ratio	**54.6%**	57.3%	54.4%

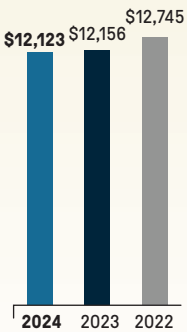
Total Shareholder Returns[3]

(in dollars)



Railway Operating Revenues

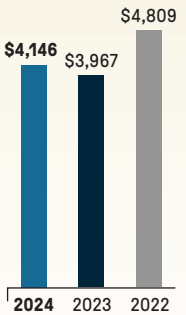
(in millions)



Income from Railway Operations

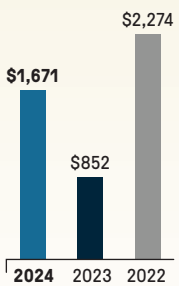
(as adjusted for 2024 and 2023)[1]

(in millions)



Free Cash Flow[2]

(in millions)



ABOUT NORFOLK SOUTHERN

Since 1827, Norfolk Southern Corporation (NYSE: NSC) and its predecessor companies have safely moved the goods and materials that drive the U.S. economy. Today, it operates a 22-state freight transportation network. Committed to furthering sustainability, Norfolk Southern helps its customers avoid approximately 15 million tons of yearly carbon emissions by shipping via rail. Its dedicated team members deliver approximately 7 million carloads annually, from agriculture to consumer goods. Norfolk Southern also has the most extensive intermodal network in the eastern U.S. It serves a majority of the country's population and manufacturing base, with connections to every major container port on the Atlantic coast as well as major ports across the Gulf Coast and Great Lakes. Learn more by visiting **www.NorfolkSouthern.com**.



1 Our 2024 financial results include gains on railway line sales ($433M benefit to railway operating expense), restructuring and other charges ($183M expense to railway operating expense and a $20M benefit to other income-net), the Eastern Ohio incident ($325M expense to railway operating expense), shareholder advisory costs ($59M expense to other income-net), and a deferred tax adjustment ($27M benefit to deferred income taxes). Our 2023 financial results includes $1.1 billion of expenses related to the Eastern Ohio incident. For purposes of period-over-period comparability, 2024 and 2023 results for income from railway operations, net income, net income per share – diluted, dividend payout ratio, and operating ratio have been adjusted to exclude these charges, and are considered non-GAAP financial measures. The 2024 and 2023 dividend payout ratios are dividends paid ($1,221M and $1,225M, respectively) as a percentage of net income ($2,684M and $2,673M, respectively), as compared to a 47% (2024) and 67% (2023) dividend payout ratios using net income under GAAP ($2,622M and $1,827M, respectively). For more information, see the "Non-GAAP Reconciliation for 2024 and 2023" on pages K26 and K27 of our Annual Report on Form 10-K.

2 Free cash flow is considered a non-GAAP financial measure and is a measure of cash available for other investing and financing activities, including payment of dividends, repurchases of common stock, and repayments of debt. Management believes that this non-GAAP financial measure provides useful supplemental information to investors regarding our ability to generate cash flows after taking into consideration cash necessary to cover operations and maintain and grow our capital base. Net cash provided by operating activities is a GAAP measure. Free cash flow ($1,671M) is net cash provided by operating activities ($4,052M) reduced by payments for property additions ($2,381M), excluding our acquisition of assets of CSR.

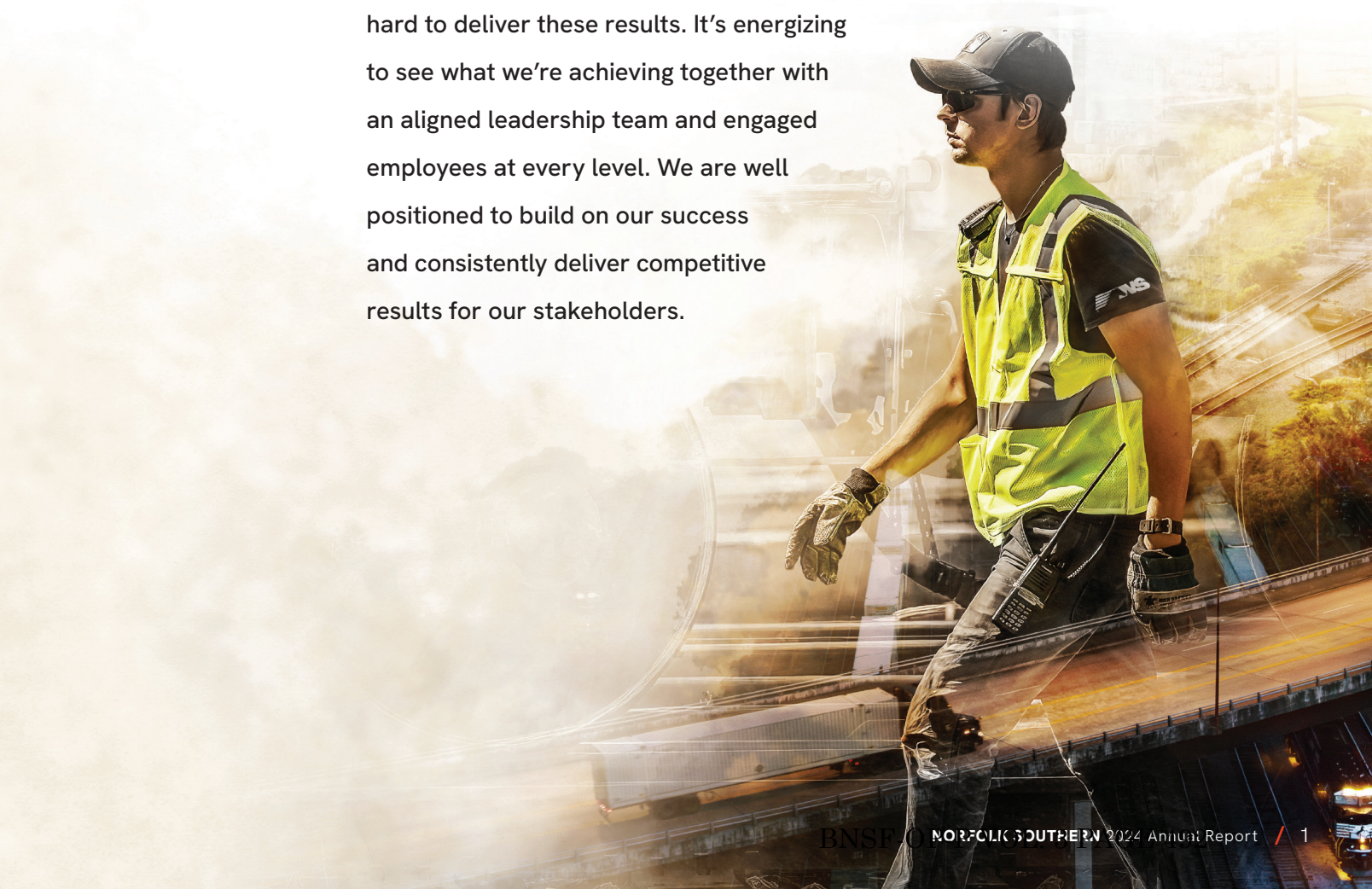
3 This graph compares the cumulative shareholder returns on Norfolk Southern Corporation common stock with the other identified indices. It assumes an investment of $100 in NSC common stock and each index on Dec. 31, 2019, and that all dividends were reinvested over the five-year period, ending Dec. 31, 2024. Data furnished by Bloomberg Financial Markets.

PUBLIC VERSION - REDACTED



FELLOW SHAREHOLDER,

2024 was a year of transformation and progress for Norfolk Southern. Our network is fluid, our terminals are operating efficiently, and service levels are at all-time highs. Our customers are noticing and rewarding us with more business. We have momentum on all fronts — safety, operations, customer trust, and finances — and every Norfolk Southern employee worked hard to deliver these results. It's energizing to see what we're achieving together with an aligned leadership team and engaged employees at every level. We are well positioned to build on our success and consistently deliver competitive results for our stakeholders.



BNSF CONFIDENTIAL



GOVERNANCE AND LEADERSHIP TRANSFORMATION

Since the start of 2024, we have welcomed seven new Board members, and elected a new Board Chair and new Chairs of the Human Capital Management and Compensation and Governance and Nominating committees. Each brings extensive knowledge from a variety of backgrounds, including transportation, regulatory affairs, governance, as well as executive leadership. These changes have enhanced our Board's ability to hold management accountable while providing strategic oversight that drives improved operational and financial performance. Additionally, our new senior management team — including a new CEO, CFO, COO, CHRO, CLO, and CIDO — has brought a disciplined focus to operational improvements, productivity, and process enhancements.







SAFETY AND OPERATIONAL EXCELLENCE

Safety is a core value. In 2024, we reduced our FRA-reportable mainline train accident rate by more than 40% to an industry-leading level. We also launched an ongoing series of safety leadership training events, equipping leaders across the company with skills and expertise to strengthen our safety culture. We continued to invest in technology to augment the work of our railroaders, including doubling the number of autonomous track inspection locomotives, installing five new digital train inspection portals, and adding more than 130 new hot bearing detector systems across our network. We also trained more than 5,600 first responders in 2024 through our Operation Awareness & Response program.

Operational excellence with a strong safety foundation isn't just a goal; it's our commitment to our stakeholders and a launch point for growth. We continue to implement principles of Total Quality Management, including a focus on relentless root cause analysis to optimize



network performance, enhance service reliability, and deliver measurable improvements. And we did deliver. We accelerated our entire network, improving our network train speed by 10% year-over-year, with merchandise train speed improving 11% and unit train speed improving 17% in our last quarter. We also improved intermodal train efficiency by 3.1% in our last quarter, even as our team handled 7% more parcel volume per day. The Norfolk Southern team delivered a perfect peak season with zero controllable failures.





We also drove meaningful cost efficiencies — delivering a $292 million year-over-year improvement in productivity and cost take-out. Our commitment to operational excellence translated into a 160-basis-point adjusted operating ratio improvement, exceeding our 100- to 150-basis-point guidance despite slightly lower revenues. Our metrics show a strong productivity story, driven by disciplined execution and continuous improvement.

This year also tested our resilience, and we proved our ability to navigate challenges. When the Port of Baltimore temporarily shut down, we worked swiftly with customers to reroute traffic to Norfolk, ensuring supply chain continuity. In the wake of Hurricane Helene, our team cleared more than 15,000 fallen trees and restored key routes within 72 hours. Our team also showed resolve and nimbleness in the face of potential work stoppages at East Coast ports, proactively implementing contingency plans and communicating with customers well in advance to continue serving their business. These moments reinforced our ability to safely manage through difficulties and minimize customer impact.

INDUSTRIAL DEVELOPMENT AND GROWTH

Industrial development remains a strong driver of growth along our network. In 2024, we advanced more than 140 projects representing $4.3 billion in customer investment. Our project pipeline remains robust, with activity in steel and metals production, renewable fuels, energy, and food processing and production that will drive future freight volume growth.

We look forward to advancing our culture and high-performing organization with confidence that we can propel our business to new heights and deliver top-tier results in the years ahead.

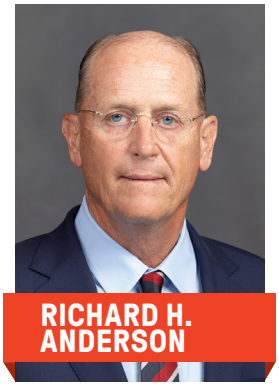
Norfolk Southern is on the move and, together, we are building a stronger, more reliable railroad to power our nation's economy.

Sincerely,



BOARD OF DIRECTORS

All directors are subject to re-election each year. Information as of February 1, 2025.



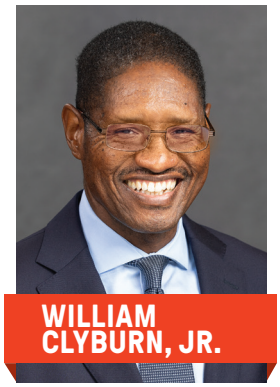
RICHARD H. ANDERSON

Independent Director Since: 2024

Committees:
- Executive
- Finance and Risk Management
- Human Capital Management and Compensation (Chair)

Career Highlights:
Mr. Anderson's significant executive leadership experience in the transportation industry spans over two decades, including his roles as President and Chief Executive Officer of Amtrak, Chief Executive Officer of Delta Air Lines (NYSE: DAL), and Chief Executive Officer of Northwest Airlines. This extensive experience allows him to provide both meaningful oversight of senior management as well as practical advice to the Board on railway and transportation sector issues such as operations, safety, strategic planning, labor relations, logistics, and governmental and stakeholder relations. He has also navigated companies through transformative and key strategic changes, including formative mergers and acquisitions, post-bankruptcy recovery, and a major recession. Mr. Anderson currently serves as a Director of Cargill Inc.

Key Skills and Expertise:
CEO/Executive Leadership, Strategic Planning, Operational Oversight, Transportation and Logistics, Human Resources and Compensation, Governmental and Stakeholder Relations, Governance/Board, Information Technology, Marketing and Customer Experience, Finance and Accounting, Environmental and Sustainability, Risk Management, and Safety.



WILLIAM CLYBURN, JR.

Independent Director Since: 2024

Committees:
- Governance and Nominating
- Safety

Career Highlights:
Commissioner William Clyburn has more than 30 years of experience in the transportation field and the railroad industry. Mr. Clyburn served as a Commissioner and Vice Chairman on the Surface Transportation Board (STB), an independent federal agency charged primarily with the economic regulation of the railroad industry, from 1998 to 2001. His decision-making and regulatory work directly impacted the operations of national and international rail lines and continue to impact the railroad industry today. He has worked in all three branches of the government. He served as Commerce Counsel to former U.S. Senator Chuck Robb from Virginia, overseeing all transportation matters for the Senator, from 1995 to 1998. He also served as the transportation counsel to the U.S. Senate Commerce Subcommittee on Surface Transportation, which had jurisdiction over the statutory framework that created the STB, from 1993 to 1995. Mr. Clyburn is the founder and Chief Executive Officer of Clyburn Consulting, LLC, a public policy consulting firm that advises clients in the transportation, telecommunications, and public health and safety industries.

Key Skills and Expertise:
Operational Oversight, Safety, Governmental and Stakeholder Relations, CEO/Executive Leadership, Governance/Board, Environmental and Sustainability, Strategic Planning, and Transportation and Logistics.



PHILIP S. DAVIDSON

Independent Director Since: 2023

Committees:
- Finance and Risk Management
- Safety

Career Highlights:
Admiral Philip Davidson retired from the U.S. Navy in 2021, following a distinguished military career that spanned nearly 39 years of service and culminated in his appointment in 2018 as a four-star Admiral and 25th Commander of the United States Indo-Pacific Command (INDOPACOM). INDOPACOM is the United States' oldest and largest military combatant command, encompassing more than 100 million square miles or about 52% of the Earth's surface. Prior to his tenure as Commander of INDOPACOM, he led a comprehensive review of the Surface Navy's safety protocols that resulted in the implementation of new training and assessment processes. He founded Davidson Strategies, LLC, a management, technical, and strategic advisory firm. Mr. Davidson currently serves as Director of Par Pacific Holdings, Inc. (NYSE: PARR) and AeroVironment, Inc. (NASDAQ: AVAV).

Key Skills and Expertise:
Safety, Operational Oversight, Governmental and Stakeholder Relations, Strategic Planning, Risk Management, CEO/Executive Leadership, Governance/Board, and Information Technology.



FRANCESCA A. DEBIASE

Independent Director Since: 2023

Committees:
- Audit
- Executive
- Governance and Nominating (Chair)

Career Highlights:
Ms. DeBiase is a seasoned supply chain, sustainability, and finance executive with more than 30 years of global supply chain expertise across restaurant, food, toys, packaging, logistics, construction, real estate, and marketing services. From 2020 to 2022, Ms. DeBiase served as Executive Vice President and Global Chief Supply Chain Officer of McDonald's Corporation (NYSE: MCD). From 2018 to 2020, she served as Chief Sustainability Officer, where she was a champion for sustainability across the McDonald's system, working with leaders to embed social and environmental goals into long-term plans to drive meaningful, industry-wide change. Ms. DeBiase led the revitalization of McDonald's sustainability vision under the platform of Scale for Good. Prior to that role, she held various accounting, finance, and supply chain positions at McDonald's. She began her career at Ernst & Young as an auditor in the retail and consumer products practice. Ms. DeBiase currently serves as a Director of Sysco Corp. (NYSE: SYY).

Key Skills and Expertise:
Operational Oversight, CEO/Executive Leadership, Marketing and Customer Experience, Transportation and Logistics, Environmental and Sustainability, Strategic Planning, Finance and Accounting, Governance/Board, and Risk Management.



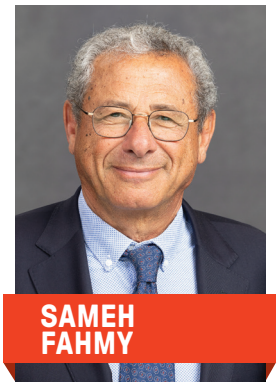
MARCELA E. DONADIO

Independent Director Since: 2016

Committees:
- Audit (Chair)
- Executive
- Governance and Nominating

Career Highlights:
Ms. Donadio, a certified public accountant with nearly 38 years of audit and public accounting experience, is a retired partner of Ernst & Young LLP, a multinational professional services firm. From 2007 until her retirement in 2014, Ms. Donadio was Americas Oil & Gas Sector Leader, with responsibility for one of Ernst & Young's significant industry groups helping set firm strategies for oil and gas industry clients in the United States and throughout the Americas. Ms. Donadio currently serves as Director of NOV Inc. (NYSE: NOV) and Freeport-McMoRan, Inc. (NYSE: FCX), and previously served as Lead Independent Director of Marathon Oil Corporation.

Key Skills & Expertise:
CEO/Executive Leadership, Finance and Accounting, Governmental and Stakeholder Relations, Governance/Board, Human Resources and Compensation, Risk Management, and Strategic Planning.



SAMEH FAHMY

Independent Director Since: 2024

Committees:
- Audit
- Safety

Career Highlights:
Mr. Fahmy brings more than three decades of experience in the railroad industry, most recently serving as Executive Vice President of Precision Scheduled Railroading at Kansas City Southern (KCS) from 2019 to 2021. At KCS, Mr. Fahmy led the implementation of the company's precision scheduled railroading methodology. From 2017 to 2019, Mr. Fahmy was a consultant at CSX Corporation, where he worked to optimize the company's mechanical and engineering departments. Mr. Fahmy previously spent three years at GE Transportation in strategy, product architecture and pricing. Before that, he spent 23 years at Canadian National Railway Company in various leadership roles, including Senior Vice President of Engineering, Mechanical and Supply Management. Mr. Fahmy previously served as a Director of Rumo S.A., a Brazilian company mainly focused on railway line logistics, from 2017 to 2020.

Key Skills and Expertise:
CEO/Executive Leadership, Finance and Accounting, Governance/Board, Information Technology, Operational Oversight, Risk Management, Safety, Strategic Planning, and Transportation and Logistics.



MARK R. GEORGE

Director Since: 2024

Committees:
- Executive

Career Highlights:
Mr. George is President & Chief Executive Officer at Norfolk Southern Corporation. Prior to his current role, Mr. George served as Executive Vice President & Chief Financial Officer and first joined the company in 2019. In that role, Mr. George was responsible for overseeing the company's Finance, Investor Relations, Sourcing, and Corporate Strategy teams. Prior to joining Norfolk Southern, he held successive roles of responsibility across multiple commercial and business segments of United Technologies Corporation (NYSE: UTX) and its subsidiaries, including six years in Asia as the regional Chief Financial Officer for the Otis Elevator Company (NYSE: OTIS). He held roles of increasing responsibility and ultimately served as the Global Chief Financial Officer for both the Otis Elevator Company and the Carrier Corporation (NYSE: CARR) from 2008 to 2019. Mr. George currently serves as a Director of Trane Technologies plc (NYSE: TT).

Key Skills and Expertise:
CEO/Executive Leadership, Finance and Accounting, Governance/Board, Governmental and Stakeholder Relations, Marketing and Customer Experience, Operational Oversight, Risk Management, Strategic Planning, and Transportation and Logistics.

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MARY KATHRYN "HEIDI" HEITKAMP

Independent Director Since: 2024

Committees:
- Governance and Nominating
- Safety

Career Highlights:
Senator Heitkamp brings an extensive and distinguished public service career to Norfolk Southern, including serving as the first female Senator elected from North Dakota. During her six years in the U.S. Senate, Senator Heitkamp was known for proactively reaching across the aisle to deliver results, including introducing the Railroad Emergency Services Preparedness, Operational Needs, and Safety Evaluation (RESPONSE) Act that ensures first responders have the training and resources needed to handle train derailments involving hazardous materials. Prior to that, Senator Heitkamp served as North Dakota's Attorney General, and previously as its Tax Commissioner. Senator Heitkamp also previously served as an attorney with the U.S. Environmental Protection Agency.

Key Skills and Expertise:
Safety, Governmental and Stakeholder Relations, Finance and Accounting, Environmental and Sustainability, CEO/Executive Leadership, Governance/Board, Risk Management, and Strategic Planning.



JOHN C. HUFFARD, JR.

Independent Director Since: 2020

Committees:
- Finance and Risk Management
- Human Capital Management and Compensation

Career Highlights:
Mr. Huffard is a Co-Founder and Director of Tenable Holdings, Inc. (NASDAQ: TENB), a cybersecurity software company. Mr. Huffard was a co-founder and served as President and Chief Operating Officer and a Director of Tenable Network Security, Inc., the predecessor to Tenable Holdings, Inc. from 2002 to 2018, where he was responsible for driving Tenable's global corporate strategy and business operations and was instrumental in the venture funding and IPO process. From 2018 to 2019, Mr. Huffard focused exclusively on business operations as Chief Operating Officer of Tenable Holdings, Inc.

Key Skills and Expertise:
Information Technology, Risk Management, Finance and Accounting, Operational Oversight, Human Resources and Compensation, Strategic Planning, Governmental and Stakeholder Relations, Marketing and Customer Experience, CEO/Executive Leadership, and Governance/Board.



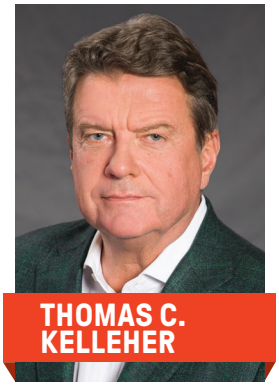
CHRISTOPHER T. JONES

Independent Director Since: 2020

Committees:
- Audit
- Executive
- Safety (Chair)

Career Highlights:
Dr. Jones served as Corporate Vice President and President of the Technology Services sector of Northrop Grumman Corporation (NYSE: NOC), a global aerospace and defense technology company, from 2013 through 2019. Previously, he served as Vice President and General Manager of Northrop Grumman's Integrated Logistics and Modernization division from 2010 through 2012. Dr. Jones also served 26 years in the U.S. Air Force, including as an engineer, systems analyst, communications officer, and maintenance officer, retiring as the Chief of Maintenance for the Connecticut Air National Guard.

Key Skills and Expertise:
Information Technology, Operational Oversight, Safety, Governmental and Stakeholder Relations, Strategic Planning, Risk Management, Environmental and Sustainability, CEO/Executive Leadership, Finance and Accounting, and Governance/Board.



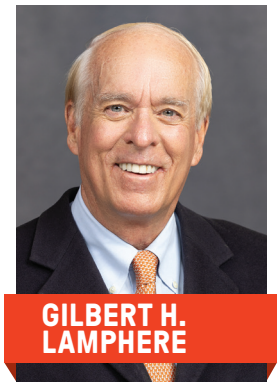
THOMAS C. KELLEHER

Independent Director Since: 2019

Committees:
- Executive
- Finance and Risk Management (Chair)
- Human Capital Management and Compensation

Career Highlights:
Mr. Kelleher has been Chairman of the Board of UBS Group AG (NYSE: UBS) since April 2022. Previously, he served as President of Morgan Stanley (NYSE: MS), a leading global financial services firm, from 2016 until his retirement in June 2019. He also served as Chairman and Chief Executive Officer of Morgan Stanley Bank, N.A. until June 2019. Previously, he was President of Morgan Stanley Institutional Securities from 2010 to 2016, Chief Executive Officer of Morgan Stanley International from 2011 to 2016, Chief Financial Officer and Co-Head of Corporate Strategy from 2007 to early 2010, and served as Morgan Stanley's Head of Global Capital Markets from 2006 to 2007.

Key Skills and Expertise:
Finance and Accounting, Strategic Planning, Risk Management, Governance/Board, Human Resources and Compensation, Governmental and Stakeholder Relations, CEO/Executive Leadership, and Operational Oversight.



GILBERT H. LAMPHERE

Independent Director Since: 2024

Committees:
- Finance and Risk Management
- Human Capital Management and Compensation

Career Highlights:
Mr. Lamphere is the Chairman of MidRail Corp. and the Co-Founder of MidSouth Rail Corporation. From 1990 to 1998, he served as the Chairman of the Illinois Central Railroad. Prior to his career in railroading, Mr. Lamphere led four successive, operationally focused private equity firms. He was the Vice President of Mergers & Acquisitions at Morgan Stanley from 1976 to 1981. Mr. Lamphere previously served as a Director of CSX Corporation (NASDAQ: CSX), Canadian National Railway Company (NYSE: CNI), and Florida East Coast Industries.

Key Skills and Expertise:
CEO/Executive Leadership, Finance and Accounting, Governance/Board, Human Resources and Compensation, Operational Oversight, Risk Management, Strategic Planning, and Transportation and Logistics.



CLAUDE MONGEAU

Independent Director Since: 2019

Committees:
- Executive (Chair)

Career Highlights:
Mr. Mongeau served as President and Chief Executive Officer of Canadian National Railway Company (CN) (NYSE: CNI), a North American railroad and transportation company, from January 2010 to June 2016 and as a Director of CN from October 2009 to June 2016. During his 22-year career at CN, he also served as Executive Vice President and Chief Financial Officer, Vice President Strategic and Financial Planning, and Vice President Corporate Development. Mr. Mongeau currently serves as a Director of Cenovus Energy (NYSE: CVE) and Toronto-Dominion Bank (NYSE: TD).

Key Skills and Expertise:
Transportation and Logistics, CEO/Executive Leadership, Governmental and Stakeholder Relations, Strategic Planning, Risk Management, Safety, Environmental and Sustainability, Finance and Accounting, Operational Oversight, Governance/Board, Human Resources and Compensation, and Marketing and Customer Experience.



LORI J. RYERKERK

Independent Director Since: 2025

Committees:
- Governance and Nominating
- Human Capital Management and Compensation

Career Highlights:
Ms. Ryerkerk is the former Chairman, Chief Executive Officer, and President of Celanese Corp. (NYSE: CE), a Fortune 500 global chemical and specialty materials company. Her expertise in the energy industry spans more than 30 years, including serving as Executive Vice President of global manufacturing at Shell Downstream Inc., and serving in senior leadership roles at Hess Corp. (NYSE: HES) and ExxonMobil (NYSE: XOM). Ms. Ryerkerk currently serves as a Director of Eaton Corp. (NYSE: ETN).

Key Skills and Expertise:
CEO/Executive Leadership, Finance and Accounting, Governance/Board, Governmental and Stakeholder Relations, Human Resources and Compensation, Environmental and Sustainability, Marketing and Customer Experience, Operational Oversight, Risk Management, Strategic Planning, and Transportation and Logistics.

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OFFICERS

As of March 28, 2025.

MARK R. GEORGE
President & Chief Executive Officer

ANIL BHATT
Executive Vice President & Chief Information & Digital Officer

CLAUDE E. ELKINS
Executive Vice President & Chief Commercial Officer

JOHN ORR
Executive Vice President & Chief Operating Officer

JASON A. ZAMPI
Executive Vice President & Chief Financial Officer

ANN A. ADAMS, Ph.D.
Chief Human Resources Officer

TIMOTHY J. LIVINGSTON
Senior Vice President Transportation

MICHAEL R. McCLELLAN
Senior Vice President & Chief Strategy Officer

JASON M. MORRIS
Senior Vice President & Chief Legal Officer





EQUAL EMPLOYMENT OPPORTUNITY POLICY

Norfolk Southern Corporation's policy is to comply with all applicable laws, regulations, and executive orders concerning equal opportunity and nondiscrimination. The company's policy is to offer employment, training, remuneration, advancement, and all other privileges of employment on the basis of qualification and performance regardless of race, religion, color, national origin, gender, age, status as a covered veteran, sexual orientation, gender identity, the presence of a disability, genetic information, or any other legally protected status.

BRIAN BARR
Vice President Mechanical & Chief Mechanical Officer

MICHAEL T. BARR
Vice President Treasurer, Investor Relations & Integrated Resource Planning

EDWARD F. BOYLE, JR.
Vice President Engineering

PERRIN C. BRYANT, II
Vice President Human Resources

JOSEPH H. CARPENTER, IV
Vice President Law

JACOB R. ELIUM
Vice President Financial Planning & Analysis

JOHN R. FLEPS
Vice President Safety

JACQUELINE M. GRAY
Vice President Internal Audit

ANGELA D. KOLAR
Vice President & Chief Compliance Officer

STEFAN R. LOEB
Vice President Business Development & First and Final Mile Markets

CLAIBORNE L. MOORE
Vice President & Controller

RODNEY D. MOORE
Vice President Transportation

FELISMINA HENRIQUES DE OLIVEIRA
Vice President Enterprise Resources

KATHLEEN C. SMITH
Vice President Industrial Products

DEWAYNE A. SWINDALL
Vice President Intermodal & Automotive Operations

ELIZABETH TALTON-BUCK
Vice President & Chief Communication Officer

YANNIK THOMAS
Vice President Network Planning & Optimization

SHAWN I. TUREMAN
Vice President Intermodal & Automotive Marketing

FRANK VOYACK
Vice President Government Relations

ROBERT W. WONG
Vice President Labor Relations

J. JEREMY BALLARD
General Counsel Corporate & Corporate Secretary

UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549
FORM 10-K

☒ ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
for the fiscal year ended **December 31, 2024**

☐ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
for the transition period from _____ to_____

Commission File Number 1-8339



NORFOLK SOUTHERN CORPORATION
(Exact name of registrant as specified in its charter)

Virginia	**52-1188014**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
650 West Peachtree Street NW	
Atlanta, Georgia	**30308-1925**
(Address of principal executive offices)	(Zip Code)

(855) 667-3655
(Registrant's telephone number, including area code)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Norfolk Southern Corporation Common Stock (Par Value $1.00)	**NSC**	**New York Stock Exchange**

Securities registered pursuant to Section 12(g) of the Act: NONE

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.
Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐ Emerging growth company ☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☒

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the voting common equity held by non-affiliates at June 30, 2024 was $48,522,427,121 (based on the closing price as quoted on the New York Stock Exchange on June 30, 2024).

The number of shares outstanding of each of the registrant's classes of common stock, at January 31, 2025: 226,434,128 (excluding 20,320,777 shares held by the registrant's consolidated subsidiaries).

DOCUMENTS INCORPORATED BY REFERENCE: Portions of the Registrant's definitive proxy statement to be filed electronically pursuant to Regulation 14A not later than 120 days after the end of the fiscal year, are incorporated herein by reference in Part III.

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PART I

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 1. Business and Item 2. Properties

GENERAL – Norfolk Southern Corporation (Norfolk Southern) is an Atlanta, Georgia-based company that owns a major freight railroad, Norfolk Southern Railway Company (NSR). We were incorporated on July 23, 1980, under the laws of the Commonwealth of Virginia. Our common stock (Common Stock) is listed on the New York Stock Exchange (NYSE) under the symbol "NSC."

Unless indicated otherwise, Norfolk Southern Corporation and its subsidiaries, including NSR, are referred to collectively as NS, we, us, and our.

We are primarily engaged in the rail transportation of raw materials, intermediate products, and finished goods primarily in the Southeast, East, and Midwest and, via interchange with rail carriers, to and from the rest of the United States (U.S.). We also transport overseas freight through several Atlantic and Gulf Coast ports. We offer the most extensive intermodal network in the eastern half of the U.S.

We make available free of charge through our website, www.norfolksouthern.com, our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and all amendments to those reports as soon as reasonably practicable after such material is electronically filed with or furnished to the U.S. Securities and Exchange Commission (SEC). In addition, the following documents are available on our website and in print to any shareholder who requests them:

- Norfolk Southern Corporation Bylaws
- Charters of the Committees of the Board of Directors
- Corporate Governance Guidelines
- Categorical Independence Standards
- The Thoroughbred Code of Ethics
- Code of Ethical Conduct for Senior Financial Officers

RAILROAD OPERATIONS – At December 31, 2024, we operated approximately 19,200 route miles in 22 states and the District of Columbia.

Our system reaches many manufacturing plants, electric generating facilities, mines, distribution centers, transload facilities, and other businesses located in our service area.



Corridors with heaviest freight volume:

- New York City area to Chicago (via Allentown and Pittsburgh)
- Chicago to Macon (via Cincinnati, Chattanooga, and Atlanta)
- Central Ohio to Norfolk (via Columbus and Roanoke)
- Cleveland to Kansas City
- Birmingham to Meridian
- Memphis to Chattanooga

The miles operated, which include an exclusive operating agreement for trackage rights over property owned by North Carolina Railroad Company, were as follows:

	Mileage Operated at December 31, 2024				
	Route Miles	Second and Other Main Track	Passing Track, Crossovers, and Turnouts	Way and Yard Switching	Total
Owned	14,629	2,826	1,983	8,241	27,679
Operated under lease, contract, or trackage rights	4,525	1,735	373	720	7,353
Total	19,154	4,561	2,356	8,961	35,032

In March 2024, we completed the acquisition of a 337 mile railway line that extends from Cincinnati, Ohio to Chattanooga, Tennessee from the Cincinnati Southern Railway (CSR), which we previously operated under a lease. See further discussion in Item 7 “Management's Discussion and Analysis of Financial Condition and Results of Operations” and Item 8 “Notes to Consolidated Financial Statements.”

We operate freight service over lines with significant ongoing Amtrak and commuter passenger operations and conduct freight operations over trackage owned or leased by Amtrak, New Jersey Transit, Southeastern Pennsylvania Transportation Authority, Metro-North Commuter Railroad Company, Virginia Passenger Rail Authority (VPRA), and Michigan Department of Transportation.

The following table sets forth certain statistics relating to our operations for the past five years:

	Years ended December 31,				
	2024	2023	2022	2021	2020
Revenue ton miles (billions)	178	176	179	178	164
Revenue per thousand revenue ton miles	$ 68.09	$ 69.05	$ 71.35	$ 62.56	$ 59.67
Revenue ton miles (thousands) per railroad employee	8,846	8,719	9,513	9,694	8,191
Ratio of railway operating expenses to railway operating revenues (railway operating ratio)	66.4%	76.5%	62.3%	60.1%	69.3%

RAILWAY OPERATING REVENUES – Total railway operating revenues were $12.1 billion in 2024. Following is an overview of our three commodity groups. See the discussion of merchandise revenues by major commodity group, intermodal revenues, and coal revenues and tonnage in Item 7 “Management’s Discussion and Analysis of Financial Condition and Results of Operations.”

MERCHANDISE – Our merchandise commodity group is composed of four groupings:

- Agriculture, forest and consumer products includes soybeans, wheat, corn, fertilizer, livestock and poultry feed, food products, food oils, flour, sweeteners, ethanol, lumber and wood products, pulp board and paper products, wood fibers, wood pulp, beverages, and canned goods.
- Chemicals includes sulfur and related chemicals, petroleum products (including crude oil), chlorine and bleaching compounds, plastics, rubber, industrial chemicals, chemical wastes, sand, and natural gas liquids.
- Metals and construction includes steel, aluminum products, machinery, scrap metals, cement, aggregates, minerals, clay, transportation equipment, and items for the U.S. military.
- Automotive includes finished motor vehicles and automotive parts.

In 2024, we handled 2.3 million merchandise carloads, which accounted for 62% of our total railway operating revenues.

INTERMODAL – Our intermodal commodity group consists of shipments moving in domestic and international containers and trailers. These shipments are handled on behalf of intermodal marketing companies, international steamship lines, premium customers, and asset-owning companies. In 2024, we handled 4.1 million intermodal units, which accounted for 25% of our total railway operating revenues.

COAL – Coal revenues accounted for 13% of our total railway operating revenues in 2024. We handled 76.7 million tons, or 0.7 million carloads, most of which originated on our lines from major eastern coal basins with the balance from major western coal basins received via the Memphis and Chicago gateways. Our coal franchise supports the electric generation market, directly serving 18 coal-fired power plants, as well as the export, domestic metallurgical, and industrial markets, primarily through direct rail and river, lake, and coastal facilities, including various terminals on the Ohio River, at Lamberts Point in Norfolk, Virginia, at the Port of Baltimore, and on Lake Erie.

FREIGHT RATES – Our predominant pricing mechanisms, private contracts and exempt price quotes, are not subject to regulation. In general, market forces are the primary determinant of rail service prices.

RAILWAY PROPERTY

Our railroad infrastructure makes us capital intensive with net properties of approximately $36 billion on a historical cost basis.

Property Additions – Property additions for the past five years were as follows:

	2024	2023	2022	2021	2020
			($ in millions)		
Road and other property	$ 1,711	$ 1,525	$ 1,345	$ 1,041	$ 1,046
Acquisition of assets of CSR	1,643	22	—	—	—
Equipment	670	802	603	429	448
Total	$ 4,024	$ 2,349	$ 1,948	$ 1,470	$ 1,494

Our capital spending and replacement programs are and have been designed to support our ability to provide safe, efficient, and reliable rail transportation services.

Equipment – Our equipment includes owned and leased locomotives and railcars; maintenance of way equipment and machinery; other equipment and tools used in our shops, offices, and facilities; and vehicles and other equipment used for maintenance, transportation, and other activities. Our equipment includes both owned equipment acquired by us and equipment held under lease arrangements. At December 31, 2024, we owned or leased the following revenue generating equipment:

	Owned	Leased	Total	Capacity of Equipment
Locomotives:				(Horsepower)
Multiple purpose	3,101	—	3,101	12,073,500
Auxiliary units	140	—	140	—
Switching	4	—	4	4,400
Total locomotives	3,245	—	3,245	12,077,900
Freight cars:				(Tons)
Gondola	17,007	3,739	20,746	2,346,243
Hopper	6,875	—	6,875	787,764
Covered hopper	5,107	310	5,417	602,841
Box	1,743	513	2,256	211,489
Flat	1,038	670	1,708	122,369
Other	121	—	121	—
Total freight cars	31,891	5,232	37,123	4,070,706
Intermodal equipment:				
Chassis	39,037	—	39,037	
Containers	17,443	—	17,443	
Total intermodal equipment	56,480	—	56,480	

The following table indicates the number and year built for locomotives and freight cars owned at December 31, 2024:

	2024	2023	2022	2021	2020	2015-2019	2010-2014	2009 & Before	Total
Locomotives:									
No. of units	—	—	—	1	10	178	325	2,731	3,245
% of fleet	—%	—%	—%	—%	—%	6%	10%	84%	100%
Freight cars:									
No. of units	254	1,059	236	—	—	3,505	6,745	20,092	31,891
% of fleet	1%	3%	1%	—%	—%	11%	21%	63%	100%

The following table shows the average age of our owned locomotive and freight car fleets at December 31, 2024 and information regarding 2024 retirements:

	Locomotives	Freight Cars
Average age – in service	29.6 years	24.2 years
Retirements	61 units	3,937 units
Average age – retired	23.9 years	42.4 years

Track Maintenance – Of the 35,000 total miles of track on which we operate, we are responsible for maintaining 28,300 miles, with the remainder being operated under trackage rights from other parties responsible for maintenance.

Over 85% of the main line trackage (including first, second, third, and branch main tracks, all excluding rail operated pursuant to trackage rights) has rail ranging from 131 to 155 pounds per yard with the standard installation currently at 136 pounds per yard. Approximately 40% of our lines, excluding rail operated pursuant to trackage rights, carried 20 million or more gross tons per track mile during 2024.

The following table summarizes several measurements regarding our track roadway additions and replacements during the past five years:

	2024	2023	2022	2021	2020
Track miles of rail installed	559	584	541	458	418
Miles of track surfaced	3,957	4,013	4,155	4,225	4,785
Crossties installed (millions)	2.1	2.1	2.2	2.0	1.8

Traffic Control – Of the 16,200 route miles we dispatch, 11,300 miles are equipped with signalization. This includes 8,500 miles governed by Centralized Traffic Control (CTC) and 2,800 miles utilizing Automatic Block Signals. Within the 8,500 CTC miles, 7,600 miles are controlled wirelessly through our data radio network and other infrastructure.

ENVIRONMENTAL MATTERS – Compliance with laws and regulations relating to the protection of the environment is one of our principal goals. With the exception of our response to the Eastern Ohio Incident (the "Incident" as defined in Note 18) such compliance has not had a material effect on our financial position, results of operations, or liquidity. For further information on the Incident and environmental matters, see Note 18 in Item 8 "Notes to Consolidated Financial Statements."

HUMAN CAPITAL MANAGEMENT

Workforce – We employed an average of 20,200 employees during 2024 and 19,600 employees at the end of 2024. Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions and referred to as "craft" employees. See the discussion of "Labor Agreements" in Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations." The remainder of our workforce is composed of management employees.

Safety – Safety is a core value at Norfolk Southern. We are dedicated to providing employees with a safe workplace and the knowledge and tools they need to work safely and return home safely every day. Our commitment to an injury-free workplace is outlined in our Risk Reduction Program, which focuses on safety policies and procedures, risk-based hazard management program, safety outreach and communications, technology analysis and implementation, and collaboration with craft employees. Our safety programs, practices, and messaging further reinforce the importance of working safely including the imperative to speak up with ideas and concerns as well as reinforce the universal authority to stop work if ever unsure or detect a risk that is not adequately safeguarded. We measure employee safety performance through internal metrics such as accidents, injuries, and serious injuries per 200,000 employee-hours. We also use metrics established by the Federal Railroad

Administration (FRA) to measure FRA-reportable accidents per million train miles and injuries per 200,000 employee-hours. Given that safety continues to be a top priority, and the importance of safety among our workforce and to our business, our Board of Directors (Board) has a standing Safety Committee that, among other duties, reviews, monitors, and evaluates our compliance with our safety programs and practices.

Craft Workforce Levels and Productivity – Maintaining appropriate headcount levels for our craft-employee workforce is critical to our on-time and consistent delivery of customers' goods and operational efficiency goals. We manage this human capital metric through forecasting tools designed to ensure the optimal level of staffing to meet business demands. We measure and monitor employee productivity based on various factors, including gross ton miles per train and engine employee.

Attracting and Retaining Management Employees – Our talent strategy for management employees is essential to attracting strong candidates in a competitive talent environment. We evaluate the effectiveness of that strategy by studying market trends, benchmarking the attractiveness of our employee value proposition, maintaining a competitive compensation package, and analyzing retention data.

We also focus on driving employee engagement, which is key to increasing employee productivity, retention, and safety. We take a data-centric approach, including the use of periodic surveys among employees, to identify new initiatives that will help boost engagement and drive business results.

Employee Development and Training – We provide a range of developmental programs, opportunities, skills, and resources for our employees to be successful in their careers. We provide classroom instruction, hands-on training and simulation-based training designed to improve on-the-job effectiveness and safety outcomes.

We also use modern learning and performance technologies to offer robust professional growth opportunities. Through on-demand digital course offerings, custom-built learning paths, and in-person facilitated content, our programs provide a holistic and inclusive approach to professional development throughout an employee's career.

Workplace Experience – As a leading transportation service company, we recognize that success in the global marketplace relies on the recruitment and retention of top-tier talent, as well as leveraging the expertise and experiences of individuals from all backgrounds.

In pursuit of this goal, we are dedicated to establishing a workplace where a broad spectrum of identities, perspectives, and experiences is not only represented but also valued and empowered to thrive.

GOVERNMENT REGULATION – In addition to environmental, safety, securities, and other regulations generally applicable to all business, our railroads are subject to regulation by the U.S. Surface Transportation Board (STB). The STB has jurisdiction to varying extents over rates, routes, customer access provisions, fuel surcharges, conditions of service, and the extension or abandonment of rail lines. The STB has jurisdiction to determine whether we are "revenue adequate" on an annual basis based on the results of the prior year. A railroad is "revenue adequate" on an annual basis under the applicable law when its return on net investment exceeds the rail industry's composite cost of capital. This determination is made pursuant to a statutory requirement. The STB also has jurisdiction over the consolidation, merger, or acquisition of control of and by rail common carriers.

The relaxation of economic regulation of railroads, following the Staggers Rail Act of 1980, included exemption from STB regulation of the rates and most service terms for intermodal business (trailer-on-flat-car, container-on-flat-car), rail boxcar shipments, lumber, manufactured steel, automobiles, and certain bulk commodities such as sand, gravel, pulpwood, and wood chips for paper manufacturing. Further, all shipments that we have under contract are effectively removed from commercial regulation for the duration of the contract. Approximately 90% of our revenues comes from either exempt shipments or shipments moving under transportation contracts; the remainder comes from shipments moving under public tariff rates.

Efforts have been made over the past several years to increase federal economic regulation of the rail industry, and such efforts may continue in 2025. The Staggers Rail Act of 1980 substantially balanced the interests of shippers and rail carriers, and encouraged and enabled rail carriers to innovate, invest in their infrastructure, and compete for business, thereby contributing to the economic health of the nation and to the revitalization of the industry. Accordingly, we will continue to oppose efforts to reimpose increased economic regulation.

Railroads are also subject to the enactment of laws by Congress and regulation by the U.S. Department of Transportation (DOT) (including the FRA) and the U.S. Department of Homeland Security (DHS) (including the Transportation Security Administration (TSA)), which regulate most aspects of our operations related to safety, security, and cybersecurity.

Government regulations are further discussed within Item 1A "Risk Factors," and the safety and security of our railroads are discussed within the "Security of Operations" section contained herein.

COMPETITION – There is continuing strong competition among rail, water, and highway carriers. Price is usually only one factor of importance as shippers and receivers choose a transport mode and specific hauling company. Inventory carrying costs, service reliability, ease of handling, and the desire to avoid loss and damage during transit are also important considerations, especially for higher-valued finished goods, machinery, and consumer products. Even for raw materials, semi-finished goods, and work-in-progress, users are increasingly sensitive to transport arrangements that minimize problems at successive production stages.

Our primary rail competitor is CSX Corporation (CSX); both we and CSX operate throughout much of the same territory. Other railroads also operate in parts of the territory. We also compete with motor carriers, water carriers, and with shippers who have the additional options of handling their own goods in private carriage, sourcing products from different geographic areas, and using substitute products.

Certain marketing strategies to expand reach and shipping options among railroads and between railroads and motor carriers enable railroads to compete more effectively in specific markets.

SECURITY OF OPERATIONS – We continue to enhance the security of our rail system. Our comprehensive security plan is modeled on and was developed in conjunction with the security plan prepared by the Association of American Railroads (AAR) post September 11, 2001. The AAR Security Plan defines four Alert Levels and details the actions and countermeasures that are being applied across the railroad industry as the risk of terrorist, extremist, or seriously disruptive cyber-attack increases or decreases. The Alert Level actions include countermeasures that will be applied in three general areas: (1) operations (including transportation, engineering, and mechanical); (2) information technology and communications; and, (3) railroad police. All of our Operations Division employees are advised by their supervisors or train dispatchers, as appropriate, of any change in Alert Level and any additional responsibilities they may incur due to such change.

Our security plan also complies with DOT security regulations pertaining to training and security plans with respect to the transportation of hazardous materials. As part of the plan, security awareness training is given to all railroad employees who directly affect hazardous material transportation safety and is integrated into hazardous material training programs. Additionally, location-specific security plans are in place for rail corridors in certain metropolitan areas referred to as High Threat Urban Areas (HTUA). Particular attention is aimed at reducing risk in a HTUA by: (1) the establishment of secure storage areas for rail cars carrying toxic-by-inhalation (TIH) materials; (2) the expedited movement of trains transporting rail cars carrying TIH materials; (3) reducing the number of unattended loaded tank cars carrying TIH materials; and (4) cooperation with federal, state, local, and tribal governments to identify those locations where security risks are the highest.

We also operate four facilities that are under U.S. Coast Guard (USCG) Maritime Security Regulations. With respect to these facilities, each facility's security plan has been approved by the applicable Captain of the Port and remains subject to inspection by the USCG.

Additionally, we continue to engage in close and regular coordination with numerous federal and state agencies, including the DHS, the TSA, the Federal Bureau of Investigation, the FRA, the USCG, U.S. Customs and Border Protection, the Department of Defense, and various state Homeland Security offices.

In 2024, through the Norfolk Southern Operation Awareness and Response Program as well as participation in the Transportation Community Awareness and Emergency Response Program, we provided rail accident response training to more than 5,500 emergency responders, such as local police and fire personnel, utilizing a combination of online training and face-to-face training sessions as well as the Norfolk Southern Safety Train. We also have ongoing programs to sponsor local emergency responders at the Security and Emergency Response Training Center.

We also continually evaluate ourselves for appropriate business continuity and disaster recovery planning, with test scenarios that include cybersecurity attacks. Our risk-based information security program helps ensure our defenses and resources are aligned to address the most likely and most damaging potential attacks, to provide support for our organizational mission and operational objectives, and to keep us in the best position to detect, mitigate, and recover from a wide variety of potential attacks in a timely fashion.

Item 1A. Risk Factors

The risks set forth in the following risk factors could have a material adverse effect on our financial position, results of operations, or liquidity in a particular year or quarter, and could cause those results to differ materially from those expressed or implied in our forward-looking statements. The information set forth in this Item 1A "Risk Factors" should be read in conjunction with the rest of the information included in this annual report, including Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" and Item 8 "Financial Statements and Supplementary Data." We have experienced a number of the risks described below in connection with the Incident and the Incident Proceedings (defined below). The risks described below should be read in conjunction with the information regarding the Incident and Incident Proceedings provided in Note 18 in Item 8 "Notes to Consolidated Financial Statements."

INCIDENT RISKS

As defined and as further described in Note 18 in Item 8 "Notes to Consolidated Financial Statements," there was an Incident that occurred in the first quarter of 2023 that consisted of a February 3, 2023 train derailment in East Palestine, Ohio that included 11 non-Company-owned tank cars containing hazardous materials, fires associated with the derailment that threatened certain of the tank cars, and a controlled vent and burn procedure conducted on February 6, 2023 on five of the derailed tank cars, all of which contained vinyl chloride. As a result of the Incident, we became subject to numerous legal, regulatory, legislative, and other proceedings related thereto, including but not limited to, the National Transportation Safety Board (NTSB) Investigation, the FRA Incident Investigation, the FRA Safety Assessment, the U.S. Department of Justice (DOJ) Complaint, the Ohio Complaint, the Incident Lawsuits, the Shareholder Matters, and the Incident Inquiries and Investigations (each as defined in Note 18 in Item 8 "Notes to Consolidated Financial Statements") in addition to other proceedings, actions, or potential changes in response to the Incident, including but not limited to those related to, among other items, train size, train length, train composition, crew size, or detection systems (collectively, the "Incident Proceedings"). Set forth below are additional risks pertaining to an investment in the Company that are related to the Incident and the Incident Proceedings.

The costs, liabilities, fines, penalties, and/or financial impact resulting from or related to the Incident or the Incident Proceedings have been significant to date, may exceed expected or accrued amounts, and have and can be expected to continue to negatively affect our financial results. We have incurred and will continue to remain subject to incurring significant costs, liabilities, fines, and penalties related to the Incident and the Incident Proceedings, including amounts that may have a material adverse effect on our financial position, results of operations, or liquidity.

While we have accrued estimates of probable and reasonably estimable liabilities with respect to the Incident and the Incident Proceedings, we cannot predict the final outcome or estimate the reasonably possible range of loss with certainty, and such estimates may change over time due to a variety of factors, including but not limited to those set forth in Note 18 in Item 8 "Notes to Consolidated Financial Statements" or other unfavorable or unexpected developments or outcomes which could result in our current estimates being insufficient. These estimated amounts also do not include any estimate of loss for specific items for which we believe a loss is either not probable or not reasonably estimable for the reasons set forth in Note 18 in Item 8 "Notes to Consolidated Financial Statements." As a result, our currently accrued amounts of estimated liabilities may be insufficient, and any additional, new or updated accruals could have a material adverse effect on our results of operations or financial position.

New or additional governmental regulation and/or operational changes resulting from or related to the Incident or the Incident Proceedings may negatively impact us, our customers, the rail industry, or the markets we serve. The legislative, regulatory, operational, or other actions taken, protocols adopted (including by us), or changes resulting from the Incident or any of the Incident Proceedings may, either individually or in the aggregate, have a material adverse effect on us, our customers, the rail industry, or the markets we serve. We also face risks from requirements that may be imposed by the government in resolution of government actions, including, for example, restrictions on our methods of operations. Our inability to comply with the requirements of any new or additional laws, regulations, or operating protocols resulting from or related to the Incident or the Incident Proceedings may have a material adverse effect on our financial position, results of operations, liquidity, or operations.

REGULATORY AND LEGISLATIVE RISKS

Governmental legislation, regulation, and Executive Orders over commercial, operational, tax, safety, security, or cybersecurity matters could negatively affect us, our customers, the rail industry, or the markets we serve. Congress can enact laws, agencies can promulgate regulations, and Executive Orders can be issued that increase or alter regulation in a way that negatively affects us, our customers, the rail industry, or the markets we serve. Railroads presently are subject to commercial and operational regulation by the STB, which has jurisdiction to varying extents over rates, routes, customer access provisions, fuel surcharges, conditions of service, and the extension or abandonment of rail lines.

The STB also has jurisdiction over the consolidation, merger, or acquisition of control of and by rail common carriers. Additional or updated regulation of the rail industry by Congress or the STB, whether under new, existing or amended laws or regulations, could have a significant negative impact on our ability to negotiate prices for rail services, on our railway operating revenues, and on the efficiency, conduct, or complexity of our operations. Such additional or updated industry regulation, as well as enactment of any new or updated tax laws, could also negatively impact cash flows from our operating activities and, therefore, result in reduced capital spending on our rail network or abandonment of lines.

Railroads are also subject to the enactment of laws by Congress and regulation by the DOT (including the FRA) and the DHS (including the TSA), which regulate many aspects of our operations related to safety, security, and cybersecurity. Additional or updated safety, security, or cybersecurity regulation by Congress, the DOT, or DHS could have a negative impact on our business and the efficiency, conduct, or complexity of our operations including (but not limited to) increased operating costs, capital expenditures, claims, and litigation.

Our inability to comply with, or operational practices and costs necessary to adhere to, the requirements of existing or updated laws, regulations, or Executive Orders that govern our operations or the rail industry, including but not limited to those pertaining to commercial, operational, tax, safety, security, or cybersecurity matters, as such requirements may be interpreted or enforced from time to time (such as in connection with a pending regulatory or other legal proceedings or lawsuits), could have a material adverse effect on our financial position, results of operations, or liquidity.

We are addressing multiple governmental actions as a result of the Incident, as noted in "Incident Risks" above.

Federal and state environmental laws and regulations could negatively impact us and our operations. Our operations are subject to extensive federal, state and local environmental laws and regulations concerning, among other things: emissions to the air; discharges to waterways or groundwater supplies; handling, storage, transportation, use, and disposal of waste and other materials; and, the cleanup of hazardous material or petroleum releases. The risk of incurring environmental liability, for acts and omissions, past, present, and future, is inherent in the railroad business. This risk includes property owned by us, whether currently or in the past, that is or has been subject to a variety of uses, including our railroad operations and other industrial activity by past owners or our past and present tenants.

Environmental problems that are latent or undisclosed may exist on these properties, and we could incur environmental liabilities or costs, the amount and materiality of which cannot be estimated reliably at this time, with respect to one or more of these properties. Moreover, lawsuits and claims involving other unidentified environmental sites and matters are likely to arise from time to time.

Our inability to comply with the extensive federal, state and local environmental laws and regulations to which we are subject could result in significant liabilities, fines, or sanctions, including those related to the investigation or remediation of known and unknown environmental contamination, or otherwise adversely impact our operations.

As noted in "Incident Risks" above, in connection with the Incident, we are experiencing negative impacts related to environmental matters, including extensive cleanup costs and litigation related to alleged environmental impacts of the Incident.

U.S. international trade relationships may adversely impact our customers, our industry, and our business. We transport a significant number of shipments that have either been imported into the U.S. or are destined for export from the U.S. Trade discussions and arrangements between the U.S. and various of its trading partners are fluid, and existing and future trade agreements are, and are expected to continue to be, subject to a number of uncertainties, including the imposition of new tariffs or adjustments and changes to the products covered by existing tariffs. Any decision by the U.S. government to adopt actions such as border taxes on imports, an increase in customs duties or tariffs, or the renegotiation of U.S. trade agreements, or any other action that could have a negative impact on international trade, including corresponding actions taken by other countries in response to U.S. governmental actions, could cause a reduction in the volume of shipments by many of our customers. Any changes in tax and trade policies in the U.S. and corresponding actions by other countries could adversely impact our financial performance.

In addition, compliance with any new laws, regulations, or policies with regard to any of the foregoing may increase our operating costs or require significant capital expenditures. Any failure to comply with applicable laws, regulations or policies in the U.S. or other countries could result in substantial fines or possible revocation of our authority to conduct our operations, which could materially adversely affect us.

OPERATIONAL RISKS

A significant adverse event on our network may significantly impede our ability to operate and serve our customers. The nature of our operations inherently comes with the risk that one or more significant adverse events or outages may occur on or impact our network resulting in our inability or restricted ability to provide rail transportation services to our customers. These events include but are not limited to, a mainline accident, a hazardous material discharge, a climate-related network outage, or a technology-related network outage. Any one or more of these incidents could expose us to significant operational and managerial challenges, as well as reputational damage, requiring a significant amount of time and focus of our Board and management team, as well as significant lost revenues, expenses, liabilities, fines, and penalties, including amounts that may have a material adverse effect on our financial position, results of operations, or liquidity. One or more of these events may also result in subsequent legislative, regulatory, operational or other responsive actions taken, changes or protocols adopted (including by us), or requirements imposed that may, either individually or in the aggregate, have a material adverse effect on our financial position, results of operations, liquidity, or operations, or on our customers, the rail industry, or the markets we serve.

If we are unable to successfully execute on our strategic initiatives, our business and future results of operations may suffer. Our growth strategy includes increasing the volume of shipments moving through our railway networks. We are reliant on the success of our strategic plans and initiatives to execute on this growth strategy, as well as to help offset increasing costs. These strategic plans include marketing, service, growth, and productivity initiatives. The timely and effective execution of our strategies are dependent upon, among other factors, (i) our ability to maintain satisfactory relations with our customers, employees, and other key stakeholders, (ii) our ability to effectively control costs, (iii) the progress and success of our safety programs and inspection technologies, and (iv) our ability to timely and effectively maintain and upgrade technology systems and other infrastructure for our railway networks. Our failure to successfully execute on our strategic initiatives may expose us to a number of risks, including, that our projected volume growth may differ from actual results, and prior capital investments based on our projections may contribute to excess capacity that could negatively impact our profitability.

As a common carrier by rail, we must offer to transport hazardous materials, which exposes us to significant costs and claims. Transportation of certain hazardous materials or third party-owned equipment (typically used to transport such materials) creates risks of significant losses in terms of personal injury and property (including environmental) damage and compromises critical parts of our rail network. The costs of a catastrophic rail accident involving hazardous materials or third party-owned equipment could exceed our insurance coverage. We have obtained insurance for potential losses for third-party liability and first-party property damages (see Note 18 in Item 8 “Notes to Consolidated Financial Statements”); however, insurance is available from a limited number of insurers and may not continue to be available or, if available, may not be obtainable on terms acceptable to us. Any future legislation preventing the transportation of hazardous materials through specific cities could have negative impacts including increased network congestion and operating costs, reduced operating efficiency, and increased risk of an accident involving hazardous materials.

With regard to the risks arising from the transportation of hazardous materials, the Incident and the Incident Proceedings have given rise to significant costs to us and impacts on our rail network, as noted in “Incident Risks” above. With respect to third party-owned equipment, the primary risk arises from the potential for a latent defect we are unable to identify despite robust safety inspection protocols.

We face competition from other transportation providers. We are subject to competition from motor carriers, railroads and, to a lesser extent, ships, barges, and pipelines, on the basis of transit time, pricing, and quality and reliability of service. While we have primarily used internal resources to build or acquire and maintain our rail system, trucks and barges have been able to use public rights-of-way maintained by public entities. Any future improvements, expenditures, legislation, or regulation changing or materially increasing the efficiency or reducing the cost of one or more alternative modes of transportation in the regions in which we operate (such as granting materially greater latitude for motor carriers with respect to size or weight limitations or adoption and utilization of

autonomous commercial vehicles) could have a material adverse effect on our ability to compete with other modes of transportation. In addition, our industry continues to evolve, including customer demands for faster transit times and increased visibility, and the potential for increased competition (due to growth in the market, competitors with improved financial capacity or technology, or business combinations resulting in one or more competitors providing a wider variety of services and products at competitive prices) which may, either individually or in the aggregate, have a material adverse effect on our business or results of operations.

Capacity constraints could negatively impact our service and operating efficiency. We have experienced and may again experience capacity constraints on our rail network related to employee or equipment shortages, increased demand for rail services, severe weather, congestion on other railroads, including passenger activities, or impacts from changes to our network structure or composition. Such constraints could result in operational inefficiencies or adversely affect our operations.

Significant increases in demand for rail services could result in the unavailability of qualified personnel and resources like locomotives. Changes in workforce demographics, training requirements, and availability of qualified personnel, particularly for engineers and conductors, have negatively impacted and may again negatively impact our ability to meet short-term demand for rail service. Unpredicted increases in demand for rail services may exacerbate such risks and could negatively impact our operational efficiency.

Constraints on the supply chain or the operations of carriers with which we interchange may adversely affect our operations. Our ability to provide rail service to our customers depends in large part upon a functioning global supply chain and our ability to maintain collaborative relationships with connecting carriers (including shortlines and regional railroads) with respect to, among other matters, freight rates, revenue division, car supply and locomotive availability, data exchange and communications, reciprocal switching, interchange, and trackage rights. Deterioration in the supply chain or service provided by connecting carriers, or in our relationship with those connecting carriers, could result in our inability to meet our customers' demands or require us to use alternate train routes, which could result in significant additional costs and network inefficiencies. Additionally, any significant consolidations, mergers, or operational changes among other railroads may alter our market access and reach.

We may be negatively affected by terrorism or war. Any terrorist attack, or other similar event, any government response thereto, and war or risk of war could cause significant business interruption or other operational challenges. Because we play a critical role in the nation's transportation system, we could become the target of such an attack or have a significant role in the government's preemptive approach or response to an attack or war.

Although we currently maintain insurance coverage for third-party liability arising out of war and acts of terrorism, we maintain only limited insurance coverage for first-party property damage and damage to property in our care, custody, or control caused by certain acts of terrorism. In addition, premiums for some or all of our current insurance programs covering these losses could increase dramatically, or insurance coverage for certain losses could be unavailable to us in the future.

We may be negatively affected by supply constraints resulting from disruptions in our fuel markets or supplier markets. We consumed approximately 373 million gallons of diesel fuel in 2024. Fuel availability could be affected by limitation in the fuel supply or by imposition of mandatory allocation or rationing regulations. A severe fuel supply shortage arising from production curtailments, increased demand in existing or emerging foreign markets, disruption of oil imports, disruption of domestic refinery production, damage to refinery or pipeline infrastructure, political unrest, war, or other factors could impact us as well as our customers and other transportation companies.

Due to the capital-intensive nature, as well as the industry-specific requirements of the rail industry, high barriers of entry exist for potential new suppliers of core railroad items, such as locomotives and rolling stock equipment. As a result, we are dependent on certain key suppliers and manufacturers of locomotive and railroad items. Disruption to one or more of our key suppliers or manufacturers, including as a result of stopped or restricted production, labor stoppage or restriction, or significant supply shortage or outage could negatively impact our operating efficiency

and increase costs. Additionally, we compete with other industries for available capacity and raw materials used in the production of locomotives and certain track and rolling stock materials. Changes in the competitive landscapes of these limited supplier markets could also result in significantly increased prices or material shortages.

We may be negatively affected by energy prices. Fuel and energy costs have a significant impact on our operations. Volatility in energy prices could have a significant effect on a variety of items including, but not limited to: the economy; demand for transportation services; business related to the energy sector, including crude oil, natural gas, and coal; fuel prices; and, fuel surcharges, each of which could have a material impact on our business and results of operations. In addition, we may also experience a disruption in energy supplies as a result of new or increased regulation, as a result of war or geopolitical conflicts, weather-related events or natural disasters, or other factors beyond our control, which could have a material adverse effect on our business.

Pandemics, epidemics, or endemic diseases could further negatively impact us, our customers, our supply chain, and our operations. The magnitude and duration of a pandemic, epidemic, or endemic disease, and its impact on our customers and general economic conditions can influence the demand for our services and affect our revenues. In addition, such outbreaks could affect our operations and business continuity if a significant number of our essential employees, overall or in a key location, are unable to work from contraction of or exposure to the disease or if governmental orders prevent our employees or critical suppliers from working. To the extent such diseases adversely affect our business and financial results, they may also have the effect of heightening many of the other risks described in the risk factors included herein or may affect our operating and financial results in a manner that is not presently known to us.

Our business is capital intensive, and we must make capital decisions based upon expectations of future usage of our assets. We make significant investments in our railroad infrastructure, including railroad property, track infrastructure, locomotives, freight cars, intermodal equipment, technology, and other assets to support our network, much of which is costly and requires significant capital outlay. The amount and timing of capital investments depend on various factors, including expectations of future carload traffic. In many cases, we must make advance commitments to purchase or modify equipment prior to such equipment being needed. As a result, we must predict volume levels and other requirements and make commitments based on those projections. A significant variance in our expectations or projections could result in too much or too little equipment relative to our actual needs and volumes, thereby negatively impacting our operations or financial results.

TECHNOLOGY RISKS

A significant cybersecurity incident or other disruption to our technology infrastructure resulting from internal and external threats could disrupt our business operations. To conduct business, we extensively rely on information and operational technology systems. The threat landscape is vast, with potential attacks from cybercriminals, nation-states, state-sponsored actors and others including, but not limited to, service denials, unauthorized access, compromised equipment or rolling stock, extortion, or theft of data or money. As a result, our business continuity and disaster recovery plans and activities may not be sufficient for all eventualities, resulting in the potential for a data breach or significant service or operational disruption or failure involving one or more information or operational technology systems operated by us or under control of third parties, including computer hardware, software, cloud services and transportation and communications equipment. Such failures or disruptions can adversely impact our business by, among other things, preventing intercompany communications and disrupting operations that may result in direct or indirect monetary losses, damage to equipment or property, or loss of confidence in corporate competency. Any one or more of these events could have a material adverse effect on our results of operations, financial position, or operations. Although we maintain security programs designed to protect our information and operational technology systems, we are continually targeted by threat actors attempting to access our networks and we may be unable to detect or prevent a breach of our systems or disruption to our service in the future. In addition, while we have previously experienced technology outages and cybersecurity events that have impacted our systems and service, future events may result in more significant impacts to our operations, reputation or financial results. These potentially impactful future events could include service disruptions, unauthorized access to our systems, viruses, ransomware, and/or the compromise, acquisition, or destruction of our

data. We also could be impacted by cybersecurity events targeting third parties that we rely on for business operations, including third party vendors that have access to our systems or data and third parties who provide services and are in our supply chain. Such a direct or indirect cybersecurity incident could interrupt our service, cause safety failures or operational difficulties, decrease revenues, increase operating costs, impact our efficiency, damage our corporate reputation, and/or expose us to litigation or government action or increased regulation, which could result in penalties, fines or judgments. In addition, our failure to comply with or adhere to privacy-related or data protection laws and regulations could result in government investigations and proceedings against us, or litigation, resulting in adverse reputational impacts, penalties, and legal liability.

Our business may be seriously harmed if we fail to develop, implement, maintain, upgrade, enhance, protect and integrate our information or operational technology systems. If we fail to develop, acquire or implement new technology, or otherwise fail to maintain, protect or integrate our information or operational technology systems, we may suffer a competitive disadvantage within the rail industry and with companies providing alternative modes of transportation service. The techniques used by cybersecurity threat actors to obtain unauthorized access, disable or degrade service or sabotage systems change frequently, as data breaches and other cybersecurity events have become increasingly commonplace. Consequently, these techniques may be difficult to detect and cybersecurity events are therefore increasingly difficult to prevent. The rapid evolution and increased adoption of emerging technologies, such as artificial intelligence and machine learning, may make it more difficult to anticipate cybersecurity threats and implement adequate protective countermeasures. If we fail to adequately develop or maintain our information or operational technology systems or cybersecurity infrastructure, we may become increasingly vulnerable to cybersecurity events, or other breaches or disruptions to our information or operational technology systems.

LITIGATION RISKS

We may be subject to various claims and lawsuits that could result in significant expenditures. The nature of our business exposes us to the potential for various claims and litigation related to labor and employment, personal injury, commercial disputes, freight loss and other property damage, and other matters. Job-related personal injury and occupational claims are subject to the Federal Employer's Liability Act (FELA), which is applicable only to railroads. FELA's fault-based tort system produces results that are unpredictable and inconsistent as compared with a no-fault worker's compensation system. The variability inherent in this system could result in actual costs being different from the liability recorded.

A catastrophic rail accident, whether on our lines or another carrier's, involving any or all of release of hazardous materials, freight loss, property damage, personal injury, and environmental liability could compromise critical parts of our rail network. Losses associated with such an accident involving us could exceed our insurance coverage, resulting in a material adverse effect on our financial position or liquidity. Any material changes to current litigation trends could also have a material adverse effect on our financial position or liquidity to the extent not covered by insurance.

We have obtained insurance for potential losses for third-party liability and first-party property damages; however, insurance is available from a limited number of insurers and may not continue to be available or, if available, may not be obtainable on terms acceptable to us.

We are incurring significant expenditures as a result of claims and lawsuits arising from the Incident and the related Incident Proceedings, as described in "Incident Risks" above.

HUMAN CAPITAL RISKS

Failure to attract, retain, and transition key executive officers, or skilled professional or technical employees could adversely impact our business and operations. Our success depends on our ability to attract and retain skilled employees, including key executive officers to oversee our operational, productivity, marketing, and technological initiatives, as well as a sufficient number of skilled professional and craft employees to enable us to

efficiently conduct our operations. Difficulties in recruiting and retaining skilled employees, including train and engine workers, key executives, and other skilled professional and technical employees; the loss of such individuals; and/or our inability to successfully transition key executive, professional, technical, or skilled roles could each have a material adverse effect on our financial position, results of operations, and operations. The loss of one or more key employees could also result in the depletion of our institutional knowledge base and may result in our inability or increased difficulty in successfully transitioning key roles, which could materially adversely impact our business.

The vast majority of our employees belong to labor unions, and the renegotiation of labor agreements or any provisions thereof, or any strikes or work stoppages (including any entered into in connection with any such negotiations), could adversely affect our operations. Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions. In the third and fourth quarters of 2024, the Company reached tentative collective bargaining agreements with ten of these labor unions, a majority of which were subsequently ratified by union membership and became effective January 1, 2025. Future national labor agreements, or renegotiation of labor agreements or provisions of labor agreements, could significantly increase our costs for health care, wages, and other benefits. In addition, if our craft employees were to engage in or threaten a strike, work stoppage, or other slowdown, including in connection with the renegotiation of any collective bargaining agreements or any provisions thereof, we could experience a significant disruption in our operations, customer base, or belief in our ability to provide consistent service, thereby adversely affecting our operations or ability to provide services.

CLIMATE CHANGE RISKS

Severe weather and disasters have caused, and could again cause, significant business interruptions and expenditures. Severe weather conditions and other natural phenomena resulting from changing weather patterns and rising sea levels or other causes, including hurricanes, floods, fires, landslides, extreme temperatures, significant precipitation, and earthquakes, have caused, and may again cause damage to our network, our workforce to be unavailable, and us to be unable to use our equipment, or otherwise cause significant interruptions to our operations. Additionally, shifts in weather patterns caused by climate change are expected to increase the frequency, severity, or duration of certain adverse weather conditions, which could cause more significant business interruptions that result in increased costs, increased liabilities, and decreased revenues. Our inability to quickly and effectively restore operations following adverse weather and disasters could materially impact our business and results of operations. To the extent such weather events or natural disasters become more frequent or severe, disruptions to our business and those of our customers and costs to repair damaged property and equipment or maintain or resume operations could increase. Furthermore, climate change may contribute to an increase in the incidence and severity of natural disasters and adverse weather conditions and reduce the availability or increase the cost of insurance for such events.

Concern over climate change has led to significant federal, state, and international legislative and regulatory efforts to limit greenhouse gas (GHG) emissions. Restrictions, caps, taxes, or other legislative or regulatory controls on GHG emissions, including diesel exhaust, could significantly increase our operating costs and decrease the amount of traffic we handle.

In addition, legislation and regulation related to climate change or GHG emissions could negatively affect the markets we serve and our customers. Even without legislation or regulation, government incentives and adverse publicity relating to climate change or GHG emissions could negatively affect the markets for certain of the commodities we carry, or our customers that use commodities we carry to produce energy (including coal), use significant amounts of energy in producing or delivering the commodities we carry, or manufacture or produce goods that consume significant amounts of energy associated with GHG emissions.

MACROECONOMIC AND MARKET RISKS

We may be negatively impacted by changes in general economic conditions. Because our business is dependent on the rail shipping needs of our customers, negative changes in domestic and global economic conditions,

including reduced import and export volumes, could affect the producers and consumers of the freight we carry. Recessionary economic cycles and downturns in customers' business cycles, especially in market segments and industries where we have a significant concentration of customers, may substantially reduce our volumes, and lead to excess capacity in the industry, resulting in pressure on rates we are able to obtain for our services. Economic conditions could also result in bankruptcies of one or more of our customers. Changes in general economic conditions are beyond our control, and it may be difficult for us to adjust our business model. We are impacted by industrial production, inflation, unemployment, and consumer spending. We have been and may in the future be, materially impacted by adverse developments in these aspects of the economy.

The state of capital markets could adversely affect our liquidity. We rely on the capital markets to provide some of our capital requirements, including the issuance of debt instruments and the sale of certain receivables. Significant instability or disruptions of the capital markets, including the credit markets, or deterioration of our financial position due to internal or external factors could restrict or eliminate our access to, and/or significantly increase the cost of, various financing sources, including bank credit facilities and issuance of corporate bonds. Instability or disruptions of the capital markets and deterioration of our financial position, alone or in combination, could also result in a reduction of our credit rating to below investment grade, which could prohibit or restrict us from accessing external sources of short- and long-term debt financing and/or significantly increase the associated costs.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

CYBERSECURITY RISK MANAGEMENT AND STRATEGY

Process

We use a multi-layered defensive cybersecurity strategy based on the cyber security framework drafted by the U.S. Department of Commerce's National Institute of Standards and Technology (NIST). The NIST Cybersecurity Framework (NIST CSF) is a voluntary framework of best practices to identify, protect, detect, respond to, and recover from cybersecurity matters. Based on the NIST CSF, our processes to identify, assess, and manage material risks from cybersecurity threats includes the following:

Identify
We identify risks from cybersecurity threats by first developing and maintaining an understanding of those assets essential to our operation and reputation, as well as assets that could provide value to threat actors. Any cyber act is considered a potential risk if a threat actor can use it to reduce the value of an asset, reduce our ability to utilize or otherwise access the value of an asset, or surreptitiously gain or increase their access to an asset or its value.

Assess
We assess risks from cybersecurity threats by evaluating exposure of our assets to identified cyber risks, as well as potential impacts to our operations or reputation from our inability to access or utilize an asset or realize its value, or a threat actor's ability to gain access to an asset or its value. We further evaluate the potential materiality of these risks based on the potential impact to our operations or reputation.

Manage
We mitigate risks from cybersecurity threats by applying multiple layers of defense to ensure we have the continued ability to access or utilize an asset or its value, and deny threat actors the ability to gain or increase their access to an asset or its value. We prioritize defensive mechanisms, including administrative, procedural, and technical controls, according to their relative cost and reduction in risk based on the NIST CSF.

We further monitor, test, assess, and update these processes, including working with government agencies and peers to implement practices to guard against an evolving threat environment and to ensure we remain compliant with relevant regulatory requirements.

Integration into our Risk Management Framework

Our processes to assess, identify, and manage cybersecurity risks are expressly incorporated into our enterprise risk management (ERM) framework. Technology is one of the five primary risk categories addressed by the ERM framework, and cybersecurity is identified as a subcategory of the technology risk. Our ERM leadership team works with the Chief Information and Digital Officer (CIDO), the Senior Director of Information Security (SDIS) and other technology leaders to identify, define, and assess top areas of technology and cybersecurity risks, which are included in our ERM risk framework and mapped to the NIST CSF. Our internal ERM leadership meets regularly with our technology leadership team to review developments in our technology risk profile and works with the cybersecurity team to monitor key risk indicators linked to our cybersecurity risks. Any changes to the threat landscape are discussed and considered as adjustments to our risk profile.

Third-Party Engagement

We employ multiple service providers from time to time to perform periodic reviews and evaluations of our cybersecurity framework, the results of which are provided to and reviewed with management, with appropriate reporting to the Finance and Risk Management Committee (F&RM Committee) of the Board. These reviews encompass a broad range of areas, including information technology system resilience, cybersecurity risk assessments, information security program assessments, external threat environment reviews, internal cybersecurity policy compliance, and near-term incident response to identify or disconfirm potential involvement of a threat actor.

Oversight of Third-Party Providers

Within our purchasing and third-party vendor management programs, we require all vendors who handle our data as well as vendors who provide technology and data services – including hardware, software, staffing, and support – to maintain certain security protections including, but not limited to, compliance with applicable data protection laws and implementation of administrative, physical, and technical safeguards to protect our data, including how our data is stored, accessed, and transmitted. In addition, all providers within these service categories must execute a data security addendum that articulates specific security standards, cybersecurity insurance, and mandatory incident reporting protocols applicable to the underlying provision of services.

Risks

Please see Item 1A. Risk Factors – Technology Risks – “A significant cybersecurity incident or other disruption to our technology infrastructure resulting from internal and external threats could disrupt our business operations” for our disclosures regarding the most pertinent risks we may experience from cybersecurity threats.

As noted therein, regardless of the cause, a significant disruption or failure of one or more information or operational technology systems operated by us or under control of third parties can result in service disruptions, unauthorized access to our systems, viruses, ransomware, and/or compromise, acquisition, or destruction of our data.

Such a direct or indirect cybersecurity incident could interrupt our service, cause safety failures or operational difficulties, decrease revenues, increase operating costs, impact our efficiency, damage our corporate reputation, and/or expose us to litigation, government action, increased regulation, penalties, fines or judgments, any or all which may ultimately have a materially adverse effect on our results of operations, financial condition, reputation, and business (including our strategy of operating a resilient freight railroad).

While we have previously experienced technology outages and cybersecurity events that have impacted our systems and service, future events may result in more significant impacts to our operations, reputation, or financial results. As a result of these prior events, and given the potential risks that a technology outage or cybersecurity event would result in a materially adverse effect on our results of operations, financial condition, reputation, or business, we have conducted and will continue conducting, internal and third-party assessments of information technology and cybersecurity vulnerabilities, information technology resiliency, and our related processes and procedures, so that we can continue to identify and address key cybersecurity risks.

CYBERSECURITY GOVERNANCE

Board Oversight

The Norfolk Southern Board, both directly itself and indirectly through the F&RM Committee, has oversight of cybersecurity risks. The F&RM Committee receives periodic reports from the CIDO regarding the primary technology risks impacting the company, including risks impacting our information and operational systems, service resiliency, cybersecurity risks, and the related threat environment. Agendas for these periodic updates may be further adjusted to address any emerging risks or key topics in greater detail, including emerging regulations, best practices, cyber readiness, and third-party assessment results. Regular updates are also provided to the F&RM Committee regarding all material or potentially material cybersecurity incidents, including root causes, and identification of and progress towards, remediation activities through completion.

The Board receives a periodic update from the Chair of the F&RM Committee regarding the matters addressed by the F&RM Committee, as well as an annual report from the CIDO highlighting the emerging threat landscape, our progress executing on our defensive cybersecurity strategy, and a review of our cybersecurity incident investigation and response processes.

Management's Role

Our SDIS, reporting to the CIDO, is directly responsible for the assessment, oversight, and management of our enterprise-wide cybersecurity strategy and governance. Such individual has significant relevant experience in the area, including over 27 years of technology experience in various industries with 17 years focused on information security, as well as significant experience working closely with government agencies including the Federal Bureau of Investigation, the Transportation Security Agency, and the Department of Homeland Security. As noted above, our technology risk working group, comprised of leaders across the information technology, information security, and law departments, including our CIDO, SDIS, and Data Privacy Officer (DPO), among others, further monitor developments in the threat landscape so that key cybersecurity threats impacting the Company continue to be identified and prioritized.

Management and Board Reporting

Cybersecurity incidents are reported directly to the SDIS in accordance with the applicable incident response plan. The SDIS, together with the DPO, determine incident severity and response, and in turn report material or potentially material incidents to our internal 8-K subcommittee (comprised of senior leaders from the law, accounting, finance, investor relations, and communications departments), our CEO, and our Chief Legal Officer, who in turn notify the Chairs of the Board and the F&RM Committee. The Board is promptly notified prior to filing any 8-K disclosing any material or potentially material cybersecurity incidents, with the F&RM Committee provided further updates regarding root causes and remediation efforts.

We also have a cybersecurity incident response plan including specific responsive protocols administered by a predesignated incident response team, led by the SDIS and DPO and comprised of other members of management. This incident response team also conducts periodic table-top exercises with management to ensure adherence to our cybersecurity incident response plan.

In an effort to deter and detect cyber threats, we also periodically provide all employees with a data protection and cybersecurity awareness training program, which covers timely and relevant topics, including phishing, password protection, confidential data protection, asset use, and mobile security and further educates employees on the importance of and process for reporting all potential incidents immediately. We also use technology-based tools to mitigate cybersecurity risks and to bolster employee-based cybersecurity programs.

Item 3. Legal Proceedings

For information on our legal proceedings, see Note 18 "Commitments and Contingencies" in Item 8 "Notes to Consolidated Financial Statements."

Item 4. Mine Safety Disclosures

Not applicable.

Information About Our Executive Officers

Our executive officers generally are elected and designated annually by the Board at its first meeting held after the annual meeting of stockholders, and they hold office until their successors are elected. Executive officers also may be elected and designated throughout the year as the Board considers appropriate. There are no family relationships among our officers, nor any arrangement or understanding between any officer and any other person pursuant to which the officer was selected. The following table sets forth certain information, at February 1, 2025, relating to our officers.

Name, Age, Present Position	Business Experience During Past Five Years
Mark R. George, 57, President and Chief Executive Officer	Present position since September 11, 2024. Served as Executive Vice President and Chief Financial Officer from November 1, 2019 to September 11, 2024.
Ann A. Adams, 54, Chief Human Resources Officer	Present position since December 9, 2024. Served as Special Advisor to CEO from March 17, 2024 to December 9, 2024, and as Executive Vice President & Chief Transformation Officer from April 1, 2019 to March 16, 2024.
Anil Bhatt, 50, Executive Vice President and Chief Information and Digital Officer	Present position since August 19, 2024. Prior to joining Norfolk Southern, served in various positions at Elevance Health. Served as Global Chief Information Officer from December 2020 through August 2024 and Senior Vice President & Chief Technology Officer from August 2018 to December 2020.
John F. Orr, 61, Executive Vice President and Chief Operating Officer	Present position since March 20, 2024. Prior to joining Norfolk Southern, served as Executive Vice President, Chief Transformation Officer for Canadian Pacific Kansas City (CPKC) from April 2023 to March 2024 and Executive Vice President of Operations at Kansas City Southern from April 2021 to April 2023. Served more than three decades at Canadian National in various positions of increasing responsibility across Canada and North America, concluding career as Senior Vice President and Chief Transportation Officer.
Claude E. Elkins, Jr., 59, Executive Vice President and Chief Marketing Officer	Present position since December 1, 2021. Served as Vice President Industrial Products from April 1, 2018 to December 1, 2021.
Jason A. Zampi, 50, Executive Vice President and Chief Financial Officer	Present position since September 24, 2024. Served as Senior Vice President Finance and Treasurer from August 20, 2024 to September 24, 2024. Served as Vice President of Financial Planning and Analysis from June 1, 2020 to September 24, 2024. Served as Vice President and Controller from December 16, 2018 to June 1, 2020.
Claiborne L. Moore, 45, Vice President and Controller	Present position since March 1, 2022. Served as Assistant Vice President Corporate Accounting from March 15, 2019 to March 1, 2022.

PART II

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

STOCK INFORMATION

Common Stock is owned by 18,025 stockholders of record as of December 31, 2024, and is traded on the New York Stock Exchange under the symbol "NSC."

ISSUER PURCHASES OF EQUITY SECURITIES

Period	Total Number of Shares (or Units) Purchased[1]	Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs[2]	Approximate Dollar Value of Shares that may yet be Purchased under Publicly Announced Plans or Programs[2]
October 1-31, 2024	—	$ —	—	$ 6,868,152,575
November 1-30, 2024	143	275.52	—	6,868,152,575
December 1-31, 2024	335	233.35	—	6,868,152,575
Total	478		—	

(1) Of this amount, 478 represent shares tendered by employees in connection with the exercise of stock options under the stockholder-approved Long-Term Incentive Plan (LTIP).

(2) On March 29, 2022, our Board of Directors authorized a new program for the repurchase of up to $10.0 billion of Common Stock beginning April 1, 2022. As of December 31, 2024, $6.9 billion remains authorized for repurchase, until such amount is exhausted.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion and analysis should be read in conjunction with the Consolidated Financial Statements and Notes. Refer to Item 8 "Notes to Consolidated Financial Statements" for all "Note" references.

OVERVIEW

Since 1827, Norfolk Southern Corporation and its predecessor companies have safely moved the goods and materials that drive the U.S. economy. Our dedicated team members deliver a wide variety of commodities annually for our customers, from agriculture products to consumer goods, and help them reduce carbon emissions by shipping via rail. We have the most extensive intermodal network in the eastern U.S. Our network serves a majority of the country's population and manufacturing base, with connections to every major container port on the Atlantic coast as well as major ports in the Gulf of Mexico and Great Lakes.

In 2024, we executed on various initiatives to operate our network more safely and efficiently, better serve our customers, and increase productivity in order to deliver improved financial performance. We enhanced our executive leadership team and continued to execute on our strategy of providing high-quality service to our customers to enable smart, sustainable growth and delivering on productivity initiatives. Additionally, we executed on several strategic initiatives, including the purchase of the Cincinnati Southern Railway, sales of certain railway lines, and completion of targeted rationalization and restructuring efforts, to further advance our organizational objectives. Furthermore, we continued our efforts related to the Eastern Ohio Incident (as defined and further described in Note 18 in the Notes to the Consolidated Financial Statements), including the pursuit of recoveries under our insurance programs.

Our operational improvements during the year, while handling 5% higher volumes, helped drive improvements to income from railway operations, diluted earnings per share, and railway operating ratio (a measure of the amount of operating revenues consumed by operating expenses). For the full year, we achieved an operating ratio of 66.4%, and an adjusted operating ratio of 65.8% (see our non-GAAP reconciliations beginning on page K26), both of which improved on a year-over-year basis. We remain committed to being a safe, productive, resilient, and efficient railroad with industry-competitive margins.

SUMMARIZED RESULTS OF OPERATIONS

	2024	2023	2022	2024 vs. 2023	2023 vs. 2022
	($ in millions, except per share amounts)			*(% change)*	
Railway operating revenues	$ 12,123	$ 12,156	$ 12,745	—%	(5%)
Railway operating expenses	$ 8,052	$ 9,305	$ 7,936	(13%)	17%
Income from railway operations	$ 4,071	$ 2,851	$ 4,809	43%	(41%)
Net income	$ 2,622	$ 1,827	$ 3,270	44%	(44%)
Diluted earnings per share	$ 11.57	$ 8.02	$ 13.88	44%	(42%)
Railway operating ratio (percent)	66.4	76.5	62.3	(13%)	23%

Income from railway operations, net income and diluted earnings per share increased in 2024 compared to 2023, primarily as a result of lower railway operating expenses. The reduction in our operating expenses includes lower net expenses related to the Eastern Ohio Incident and $433 million of gains on the sale of railway lines. Railway operating revenues were slightly lower as decreased fuel surcharge revenue, an adverse mix of traffic, and decreased pricing were nearly offset by increased volumes. Our railway operating ratio improved to 66.4 percent.

Income from railway operations, net income and diluted earnings per share declined in 2023 compared to 2022, driven by expenses incurred with our response efforts to the Incident, lower railway operating revenues, and higher

non-Incident-related railway operating expenses. Railway operating revenues declined 5% due to lower average revenue per unit, the result of lower fuel surcharge revenue and decreased intermodal storage service revenues partially offset by favorable pricing and mix. Additionally, lower volumes contributed to the decline in revenues. Net expenses associated with the Incident for the year 2023 were $1.1 billion. In addition to costs resulting from the Incident, railway operating expenses increased due to inflationary pressures, investments in operational resiliency, and higher service-related costs, offset partially by lower fuel prices. The decline in net income and diluted earnings per share also reflects the absence of a prior year $136 million deferred tax benefit, a result of an enactment of a change in the corporate income tax rate in the Commonwealth of Pennsylvania in 2022. Railway operating ratio deteriorated to 76.5 percent.

The following tables adjust our 2024 and 2023 U.S. Generally Accepted Accounting Principles (GAAP) financial results to exclude gains on railway line sales, restructuring and other charges (including the curtailment gain on our other postretirement benefit plan which is included in "Other income – net"), shareholder advisory costs, and a deferred income tax adjustment, all which occurred in 2024, as well as the effects of the Incident that were present in both years. The income tax effects of these non-GAAP adjustments were calculated based on the applicable tax rates to which the non-GAAP adjustments related. We use these non-GAAP financial measures internally and believe this information provides useful supplemental information to investors to facilitate making period-to-period comparisons by excluding these items. While we believe that these non-GAAP financial measures are useful in evaluating our business, this information should be considered as supplemental in nature and is not meant to be considered in isolation from, or as a substitute for, the related financial information prepared in accordance with GAAP. In addition, these non-GAAP financial measures may not be the same as similar measures presented by other companies.

Non-GAAP Reconciliation for 2024

	Reported (GAAP)	Gains on Railway Line Sales	Restructuring and Other Charges	Eastern Ohio Incident	Shareholder Advisory Costs	Deferred Income Tax Adjustment	Adjusted (non-GAAP)
	($ in millions, except per share amounts)						
Railway operating expenses	$ 8,052	$ 433	$ (183)	$ (325)	$ —	$ —	$ 7,977
Income from railway operations	$ 4,071	$ (433)	$ 183	$ 325	$ —	$ —	$ 4,146
Net income	$ 2,622	$ (327)	$ 125	$ 247	$ 44	$ (27)	$ 2,684
Diluted earnings per share	$ 11.57	$ (1.44)	$ 0.55	$ 1.09	$ 0.20	$ (0.12)	$ 11.85
Railway operating ratio (percent)	66.4	3.6	(1.5)	(2.7)	—	—	65.8

	Non-GAAP Reconciliation for 2023		
	Reported (GAAP)	Eastern Ohio Incident	Adjusted (non-GAAP)
	($ in millions, except per share amounts)		
Railway operating expenses	$ 9,305	$ (1,116)	$ 8,189
Income from railway operations	$ 2,851	$ 1,116	$ 3,967
Net income	$ 1,827	$ 846	$ 2,673
Diluted earnings per share	$ 8.02	$ 3.72	$ 11.74
Railway operating ratio (percent)	76.5	(9.1)	67.4

In the table below, references to 2024 and 2023 results and related comparisons use the adjusted, non-GAAP results from the reconciliations in the tables above.

	Adjusted 2024 (Non-GAAP)	Adjusted 2023 (Non-GAAP)	2022	Adjusted 2024 (Non-GAAP) vs. Adjusted 2023 (Non-GAAP)	Adjusted 2023 (Non-GAAP) vs. 2022
	($ in millions, except per share amounts)			*(% change)*	
Railway operating expenses	$ 7,977	$ 8,189	$ 7,936	(3%)	3%
Income from railway operations	$ 4,146	$ 3,967	$ 4,809	5%	(18%)
Net income	$ 2,684	$ 2,673	$ 3,270	—%	(18%)
Diluted earnings per share	$ 11.85	$ 11.74	$ 13.88	1%	(15%)
Railway operating ratio (percent)	65.8	67.4	62.3	(2%)	8%

On an adjusted basis, income from railway operations in 2024 increased due to lower adjusted railway operating expenses, with lower fuel prices, decreased costs of purchased services, and lower other expenses contributing significantly to the overall decline, and more than offsetting the decline in revenue. Lower other income-net and higher interest expense on debt contributed to net income and diluted earnings per share that were only up slightly compared to the prior year.

In 2023, on a non-GAAP basis excluding the impact of direct costs resulting from the Incident, income from railway operations decreased due to lower railway operating revenues and higher railway operating expenses. Railway operating revenues declined due to decreased fuel surcharge revenue, decreased intermodal storage revenues, and lower volume, partially offset by increased pricing and favorable mix compared to the prior year. Railway operating expenses increased due to inflationary pressures, investments in operational resiliency, and higher service-related costs, partially offset by lower fuel prices.

DETAILED RESULTS OF OPERATIONS

Railway Operating Revenues

The following tables present a three-year comparison of revenues, volumes (units), and average revenue per unit by commodity group.

	Revenues			2024	2023
	2024	2023	2022	vs. 2023	vs. 2022
	($ in millions)			*(% change)*	
Merchandise:					
Agriculture, forest and consumer products	$ 2,521	$ 2,530	$ 2,493	—%	1%
Chemicals	2,123	2,054	2,148	3%	(4%)
Metals and construction	1,682	1,634	1,652	3%	(1%)
Automotive	1,144	1,135	1,038	1%	9%
Merchandise	7,470	7,353	7,331	2%	—%
Intermodal	3,042	3,090	3,681	(2%)	(16%)
Coal	1,611	1,713	1,733	(6%)	(1%)
Total	$ 12,123	$ 12,156	$ 12,745	—%	(5%)

	Units			2024	2023
	2024	2023	2022	vs. 2023	vs. 2022
	(in thousands)			*(% change)*	
Merchandise:					
Agriculture, forest and consumer products	741.7	734.3	723.0	1%	2%
Chemicals	518.3	515.0	540.1	1%	(5%)
Metals and construction	641.6	634.1	634.6	1%	—%
Automotive	362.7	361.5	339.1	—%	7%
Merchandise	2,264.3	2,244.9	2,236.8	1%	—%
Intermodal	4,107.7	3,822.4	3,913.1	7%	(2%)
Coal	684.8	677.1	684.6	1%	(1%)
Total	7,056.8	6,744.4	6,834.5	5%	(1%)

	Revenue per Unit			2024	2023
	2024	2023	2022	vs. 2023	vs. 2022
	($ per unit)			*(% change)*	
Merchandise:					
Agriculture, forest and consumer products	$ 3,399	$ 3,445	$ 3,448	(1%)	—%
Chemicals	4,096	3,989	3,978	3%	—%
Metals and construction	2,621	2,577	2,604	2%	(1%)
Automotive	3,155	3,140	3,059	—%	3%
Merchandise	3,299	3,275	3,277	1%	—%
Intermodal	740	808	941	(8%)	(14%)
Coal	2,352	2,530	2,532	(7%)	—%
Total	1,718	1,802	1,865	(5%)	(3%)

Revenues decreased $33 million in 2024 and $589 million in 2023 compared to the prior years. Revenues decreased in 2024 as a result of lower average revenue per unit, driven by lower fuel surcharge revenue, adverse mix, and decreased pricing, partially offset by higher volume. Revenues declined in 2023 as a result of lower average revenue per unit, driven by decreases in fuel surcharge and intermodal storage revenues, and volume declines.

The table below reflects the components of the revenue change by major commodity group.

	2024 vs. 2023 Increase (Decrease)			2023 vs. 2022 Increase (Decrease)		
	($ in millions)					
	Merchandise	**Intermodal**	**Coal**	**Merchandise**	**Intermodal**	**Coal**
Volume	$ 64	$ 231	$ 19	$ 26	$ (85)	$ (19)
Fuel surcharge revenue	(131)	(101)	(29)	(119)	(208)	(23)
Rate, mix and other	184	(178)	(92)	115	(298)	22
Total	$ 117	$ (48)	$ (102)	$ 22	$ (591)	$ (20)

Approximately 95% of our revenue base is covered by contracts that include negotiated fuel surcharges. Fuel surcharge revenues totaled $962 million, $1.2 billion, and $1.6 billion in 2024, 2023, and 2022, respectively. The decline in fuel surcharge revenues in each period was primarily driven by fluctuations in fuel commodity prices.

For 2025, we expect that revenue will increase driven by higher volumes.

MERCHANDISE revenues increased in both 2024 and 2023 compared with the prior years. In 2024, revenues rose as volume was higher for all commodity groups and pricing gains more than offset lower fuel surcharge revenue. In 2023, revenues were slightly higher as pricing and volume gains were nearly offset by lower fuel surcharge revenue and unfavorable mix. Increased volumes in automotive and agriculture, forest and consumer shipments were partially offset by decreased chemicals shipments.

Agriculture, forest and consumer products revenues decreased slightly in 2024 but increased in 2023 compared with the prior years. In 2024, the decrease was the result of lower average revenue per unit driven by lower fuel surcharge revenue, partially offset by increased price, and increased volume. Increased volume in soybeans, corn, and feed were partially offset by lower volume in fertilizers and ethanol. Soybean volume increased due to spot opportunities. Increased corn and feed volumes were the result of customers shifting from truck to rail service to meet market demands. The decrease in fertilizer volume was driven by lower potash shipments due to customer operational issues and cost pressures. Ethanol volume declined primarily as a result of decreased demand. In 2023, higher revenues were the result of increased volume. Average revenue per unit was flat, the result of lower fuel surcharge revenue offset by pricing gains. Increases in ethanol and fertilizer shipments more than offset declines in shipments of wood chips and graphic paper. Increased market demand led to volume gains in ethanol and fertilizer. Volume declines in wood chips were due to customer mill closures, while lower market demand led to the decline in graphic paper.

Chemicals revenues increased in 2024 but decreased in 2023 compared with the prior years. In 2024, the increase in revenues was driven by higher average revenue per unit driven by increased price, partially offset by lower fuel surcharge revenue, and volume growth. Solid waste and organic chemicals volume increased due to stronger demand. These increases were slightly offset by declines in crude oil and petroleum products. Volume declines in crude oil were due to a market share shift, while declines in petroleum were related to the conclusion of a spot opportunity handled last year to support a customer during a refinery outage. In 2023, the decrease was as a result

of volume declines. Reduced shipments of crude oil, organic chemicals, and natural gas liquids, more than offset the increases in solid waste and other petroleum products. Volume declines for crude oil were driven by soft demand in the energy markets. Organic chemicals and natural gas liquids volume declined as a result of lower demand. Volume gains in solid waste were due to growth with existing customers, while the gains in petroleum products were due to growth with existing customers and new business opportunities.

Metals and construction revenues were higher in 2024 but lower in 2023 compared with the prior years. In 2024, the increase was driven by higher average revenue per unit due to favorable price, partially offset by lower fuel surcharge revenue, and higher volume. Increased volume was due to higher demand in aggregates, kaolin, miscellaneous construction, and scrap metal, partially offset by lower demand for coil steel shipments. In 2023, the decline in revenue was driven by lower average revenue per unit, the result of decreased fuel surcharge revenue partially offset by increased price. Volumes were nearly unchanged as reduced shipments of kaolin and construction materials were offset by volume gains in coil steel and scrap metal. The volume declines in kaolin were largely driven by lower demand, while the declines in construction materials were due to lower demand, extended cycle times and service challenges. Gains in coil steel volume were due to increased equipment available to handle demand, while scrap metal volume increased due to higher demand.

Automotive revenues rose in both 2024 and 2023 compared with the prior years. The increase in revenues in 2024 was driven by slightly higher average revenue per unit driven by increased price, partially offset by lower fuel surcharge revenue, and slightly higher volume. Volume increases were due to improvements in equipment availability and their cycle time paired with higher demand, mostly offset by reduced production and quality holds at certain manufacturers, and extended plant shutdowns. The increase in revenues in 2023 was driven by increased volume and higher average revenue per unit, driven by favorable price. Volume increases were due to higher finished vehicle inventory levels available for rail transportation and improved equipment cycle times.

INTERMODAL revenues decreased in both 2024 and 2023 compared with the prior years. The decrease in 2024 was the result of lower average revenue per unit, driven by decreased pricing, lower fuel surcharge revenue, adverse mix, and declines in storage service revenues, partially offset by higher volume. The decrease in 2023 was the result of lower average revenue per unit, driven by reduced storage service revenues and lower fuel surcharge revenue, and decreased volume.

Intermodal units by market were as follows:

	2024	2023	2022	2024 vs. 2023	2023 vs. 2022
	(units in thousands)			*(% change)*	
Domestic	2,500.0	2,371.6	2,573.6	5%	(8%)
International	1,607.7	1,450.8	1,339.5	11%	8%
Total	4,107.7	3,822.4	3,913.1	7%	(2%)

Domestic volume increased in 2024 but decreased in 2023 compared with the prior years. In 2024, volume increased due to growth in new and existing customers and improved service, partially offset by reduced demand for premium shipments. In 2023, volume declined due to a decrease in freight demand as a result of reduced consumer consumption combined with high inventories, and increased truck competition.

International volume increased in both 2024 and 2023. The increase in 2024 was driven by increased demand, growth in existing customers, and increased movements of empty containers. The increase in 2023 was driven by ocean carriers favoring inland point intermodal traffic, partially offset by a decrease in imports.

COAL revenues decreased in 2024 and 2023 compared with the prior years. The decrease in 2024 was a result of lower average revenue per unit, driven by decreased pricing and lower fuel surcharge revenue, partially offset by positive mix and increased volume. The decrease in 2023 was a result of decreased volumes. Average revenue per unit was flat as lower fuel surcharge revenue and pricing declines were offset by positive mix.

As shown in the following table, total tonnage increased in 2024 but decreased in 2023 compared to prior years.

	2024	2023	2022	2024 vs. 2023	2023 vs. 2022
	(tons in thousands)			*(% change)*	
Utility	29,577	30,419	35,705	(3%)	(15%)
Export	33,309	31,005	25,887	7%	20%
Domestic metallurgical	10,088	11,096	11,307	(9%)	(2%)
Industrial	3,728	3,372	3,765	11%	(10%)
Total	76,702	75,892	76,664	1%	(1%)

Utility coal tonnage decreased in both 2024 and 2023 compared with the prior years. The decline in 2024 was due to reduced demand from continued low natural gas prices and high stockpiles. The decrease in 2023 was due to low natural gas prices, high stockpiles, and unplanned customer outages.

Export coal tonnage increased in both 2024 and 2023 compared with the prior years. The increase in 2024 was due to growth with our customers and increased production. The increase in 2023 was a result of increased demand and coal supply.

Domestic metallurgical coal tonnage decreased in both 2024 and 2023 compared with the prior years. The decrease in 2024 was as a result of reduced customer demand. The decrease in 2023 was due to reduced coke shipments resulting from idled customer facilities.

Industrial coal tonnage increased in 2024 but decreased in 2023 compared with the prior years. The growth in 2024 was due to higher demand. The decrease in 2023 was due to reduced coal shipments related to customer sourcing changes.

Railway Operating Expenses

Railway operating expenses summarized by major classifications were as follows:

	2024	2023	2022	2024 vs. 2023	2023 vs. 2022
		($ in millions)		*(% change)*	
Compensation and benefits	$ 2,823	$ 2,819	$ 2,621	—%	8%
Purchased services	1,655	1,683	1,565	(2%)	8%
Equipment rents	393	387	357	2%	8%
Fuel	987	1,170	1,459	(16%)	(20%)
Depreciation	1,353	1,298	1,221	4%	6%
Materials	369	364	283	1%	29%
Claims	237	242	270	(2%)	(10%)
Other	(273)	226	160	(221%)	41%
Restructuring and other charges	183	—	—		
Eastern Ohio incident	325	1,116	—	(71%)	
Total	$ 8,052	$ 9,305	$ 7,936	(13%)	17%

In 2024, the decline in railway operating expenses reflects lower net expenses related to the Eastern Ohio incident (Note 18), higher gains on operating property sales, including certain gains on railway line sales (Note 8), and lower fuel prices, partially offset by restructuring and other charges (Note 3), and increased depreciation on our higher asset base. In 2023, expenses increased as we incurred $1.1 billion of costs related to environmental matters and legal proceedings resulting from the Incident (Note 18). Additionally, railway operating expenses reflected higher costs due to inflationary pressures, investments in operational resiliency, and higher service-related costs. Partially offsetting these increases were the impacts of lower fuel prices and the absence of retroactive wage increases recorded in 2022.

Compensation and benefits increased in 2024, reflecting changes in:

- pay rates (up $91 million),
- incentive and stock-based compensation (up $56 million),
- overtime (down $37 million),
- employee activity levels (down $68 million), and
- other (down $38 million).

In 2023, compensation and benefits increased, a result of changes in:

- employee activity levels (up $138 million),
- pay rates (up $86 million),
- overtime (up $9 million),
- incentive and stock-based compensation (down $30 million), and
- other (down $5 million).

Our employment averaged 20,200 in 2024, compared with 20,300 in 2023, and 18,900 in 2022.

Purchased services includes the costs of services purchased from external vendors and contractors, including the net costs of operating joint facilities with other railroads. The decrease in purchased services in 2024 was due to lower lease costs and declines in technology-related and operational expenses, partially offset by higher volume-related expenses and Conrail-related activity. The increase in purchased services in 2023 was due to higher technology-related costs, increased operational and transportation expenses, and higher engineering activity.

Equipment rents, which includes our cost of using equipment (mostly freight cars) owned by other railroads or private owners less the rent paid to us for the use of our equipment, increased in both periods. In 2024, the increase was due to increased automotive and intermodal equipment expenses as a result of higher volumes. In 2023, the increase was due to increased intermodal equipment expenses, higher freight car lease costs, and decreased equity in TTX Company's (TTX) earnings.

Fuel expense, which includes the cost of locomotive fuel as well as other fuel used in railway operations, decreased in both 2024 and 2023. The decrease in both periods was due to lower locomotive fuel prices (down 15% in 2024 and 20% in 2023), which decreased fuel expense by $159 million and $275 million in 2024 and 2023, respectively. Locomotive fuel consumption was down in 2024 and nearly flat in 2023 compared to prior periods. We consumed 373 million gallons of diesel fuel in 2024, compared with 377 million gallons in 2023 and 376 million gallons in 2022.

Depreciation expense increased in both periods compared to the prior years, reflecting reinvestment in our infrastructure, rolling stock, and technology.

Materials expense increased in both 2024 and 2023. The increase in 2024 was due to higher freight car repairs expense, partially offset by lower locomotive materials spending. The increase in 2023 was due to increased locomotive, freight car, and track materials costs.

Claims expense includes costs related to personal injury, property damage, and environmental matters. Claims expense decreased in both 2024 and 2023 compared to the prior years. The decrease in 2024 is the result of lower personal injury case development and declines in lading and property damage expenses. These were partially offset by the absence of a prior-year claims-related recovery and higher insurance costs. The decrease in 2023 was primarily the result of lower personal injury case development, lower costs related to environmental remediation matters unrelated to the Incident, and a claims-related recovery.

Other expense decreased in 2024 primarily due to increased gains from operating property sales, lower non-income-based taxes, and lower relocation and travel-related expenses. Gains from operating property sales includes $433 million of gains on the sale of railway lines in the states of Virginia and North Carolina. These transactions are described further in Note 8 in the Notes to Consolidated Financial Statements. The increase in 2023 was primarily due to lower gains from operating property sales and increased travel-related expenses. Gains from operating property sales amounted to $490 million, $43 million, and $76 million in 2024, 2023, and 2022, respectively.

Restructuring and other charges

In 2024, we recorded $183 million in restructuring and other charges. During the year, we completed voluntary and involuntary separation programs that reduced our management workforce. Additionally, we ceased development of certain technology projects that had not been placed into service. We also wrote down certain specialized equipment to its net realizable value, reflecting the planned disposition of that asset class. Additionally, we incurred costs associated the appointment of our chief operating officer. See Notes 3 and 13 in the Notes to Consolidated Financial Statements for additional information.

Eastern Ohio incident

During 2024, we incurred net expenses of $325 million associated with the Incident, including additional costs associated with environmental matters and legal proceedings. The total amount recorded in 2024 is net of $650 million of insurance recoveries, resulting from claims made under our insurance policies in effect at the time of the Incident. During 2023, we recorded $1.1 billion for costs primarily associated with environmental matters and legal proceedings. We recorded $101 million of recoveries from claims made under our insurance policies, which are included in the total amount recorded in 2023. Our cash expenditures attributable to the Incident, net of insurance proceeds received, were $119 million and $652 million in 2024 and 2023, respectively, and which are presented in "Net cash provided by operating activities" on the Consolidated Statements of Cash Flows. For further details regarding the Incident, see Note 18 in Notes to Consolidated Financial Statements.

Other Income – Net

Other income – net decreased in 2024 but increased in 2023. The decrease in 2024 reflects costs associated with shareholder matters, lower returns on corporate-owned life insurance (COLI), and higher pension and other postretirement benefits expense, partially offset by a $20 million curtailment gain on our other postretirement benefit plan as a result of our voluntary and involuntary separation programs (Note 3). The increase in 2023 was the result of higher net returns on COLI and increased interest income, partially offset by lower gains from non-operating property sales.

Income Taxes

The effective income tax rate was 21.2% in 2024, compared with 21.3% in 2023 and 20.8% in 2022. The current year reflects a $15 million deferred income tax benefit due to a change in a state corporate income tax rate and a $27 million deferred income tax benefit from subsidiary restructuring. These benefits were partially offset by the absence of certain business tax credits recognized in the prior year. The 2023 effective rate benefited from tax credits and higher COLI returns offset by reduced benefits from stock-based compensation. The effective income tax rate in 2022 reflects favorable benefits associated with stock-based compensation and various state law changes (Note 5).

For 2025, we expect an effective income tax rate between 23% and 24%.

FINANCIAL CONDITION, LIQUIDITY, AND CAPITAL RESOURCES

Cash provided by operating activities, our principal source of liquidity, was $4.1 billion in 2024, $3.2 billion in 2023, and $4.2 billion in 2022. The increase in 2024 reflects improved operating results. The decrease in 2023 reflects lower operating results, offset in part by changes in working capital. We had negative working capital of $357 million at December 31, 2024 and working capital of $639 million at December 31, 2023. Cash and cash equivalents totaled $1.6 billion at both December 31, 2024, and December 31, 2023. We expect that cash on hand combined with cash provided by operating activities will be sufficient to meet our ongoing obligations. In addition, we believe our currently-available borrowing capacity, access to additional financing, ability to reduce shareholder distributions, and ability to moderate or defer property additions provide additional flexibility to meet our ongoing obligations in the short- and long-term.

Contractual obligations at December 31, 2024, including those that may have material cash requirements, include interest on fixed-rate long-term debt, long-term debt (Note 10), unconditional purchase obligations (Note 18), long-term advances from Conrail Inc. (Conrail) (Note 7), operating leases (Note 11), agreements with Consolidated Rail Corporation (CRC) (Note 7), and unrecognized tax benefits (Note 5).

	Total	2025	2026 - 2027	2028 - 2029	2030 and Subsequent
			($ in millions)		
Interest on fixed-rate long-term debt	$ 19,413	$ 776	$ 1,472	$ 1,383	$ 15,782
Long-term debt principal	18,108	555	1,223	1,212	15,118
Unconditional purchase obligations	1,225	519	455	95	156
Long-term advances from Conrail	534	—	—	—	534
Operating leases	314	89	116	62	47
Agreements with CRC	209	47	94	68	—
Unrecognized tax benefits*	82	—	—	—	82
Total	$ 39,885	$ 1,986	$ 3,360	$ 2,820	$ 31,719

* This amount is shown in the 2030 and Subsequent column because the year of settlement cannot be reasonably estimated.

Off balance sheet arrangements consist primarily of unrecognized obligations, including future interest payments on fixed-rate long-term debt and unconditional purchase obligations, which are included in the table above. Additionally, in connection with our ownership of an equity method investment, we have the option to acquire an intermodal terminal located in the southern U.S. for an amount that will be determined subsequent to the potential exercise of that option. Our option to purchase the terminal expires in the second quarter of 2025.

Cash used in investing activities was $2.8 billion in 2024, $2.2 billion in 2023, and $1.6 billion in 2022. The increase in 2024 was driven by the acquisition of the assets of the CSR, partially offset by higher borrowings against our COLI policies and increased proceeds from property sales. Please see Note 8 in the Notes to Consolidated Financial Statements for additional details on certain railway line sales and a discussion of the acquisition of the CSR assets. In 2023, the increase was primarily driven by higher property additions and lower proceeds from property sales.

Capital spending and track and equipment statistics can be found within the "Railway Property" section of Part I of this report on Form 10-K. For 2025, we expect property additions to approximate $2.2 billion.

Cash used in financing activities was $1.2 billion in 2024, while cash provided by financing activities was $115 million in 2023, and cash used in financing activities was $3.0 billion in 2022. The increase in cash used in financing activities in 2024 reflects lower proceeds from borrowing partially offset by the absence of repurchases of Common Stock. In 2023, the increase in cash provided by financing activities reflects lower repurchases of Common Stock and increased proceeds from borrowings, partially offset by higher debt repayments.

We did not repurchase any Common Stock during 2024, while we repurchased $622 million in 2023 and $3.1 billion in 2022, which resulted in the retirement of 2.8 million and 12.6 million shares in 2023 and 2022, respectively. As of December 31, 2024, $6.9 billion remains authorized by our Board of Directors for repurchase. The timing and volume of future share repurchases will be guided by our assessment of market conditions and other pertinent factors. Repurchases may be executed in the open market, through derivatives, accelerated repurchase and other negotiated transactions and through plans designed to comply with Rule 10b5-1(c) and Rule 10b-18 under the

Securities and Exchange Act of 1934. Any near-term purchases under the program are expected to be made with internally-generated cash, cash on hand, or proceeds from borrowings.

In June 2024, we entered into an agreement that provides us the ability to issue up to $800 million of unsecured commercial paper and is backed by our credit agreement. The unsecured short-term commercial paper program provides for borrowing at prevailing rates and includes covenants. At December 31, 2024, we had no outstanding commercial paper.

In May 2024, we renewed our accounts receivable securitization program with a maximum borrowing capacity of $400 million. Amounts under our accounts receivable securitization program are borrowed and repaid from time to time in the ordinary course for general corporate and cash management purposes. The term of our accounts receivable securitization program expires in May 2025. We had no amounts outstanding under this program and our available borrowing capacity was $400 million at both December 31, 2024 and December 31, 2023.

In January 2024, we renewed and amended our $800 million credit agreement. The amended agreement expires in January 2029, and provides for borrowings at prevailing rates and includes covenants. We had no amounts outstanding under this facility at either December 31, 2024 or December 31, 2023, and we are in compliance with all of its covenants.

In January 2024, we also entered into a term loan credit agreement that established a 364-day, $1.0 billion, unsecured delayed draw term loan facility under which we could borrow for general corporate purposes. The term loan credit agreement provided for borrowing at prevailing rates and included covenants that align with the $800 million credit agreement. The term loan expired undrawn in October 2024.

In addition, we have investments in general purpose COLI policies and had the ability to borrow against these policies. We had borrowed $605 million against these policies at December 31, 2024 and no amounts borrowed at December 31, 2023. Our remaining borrowing capacity was $40 million and $640 million at December 31, 2024 and December 31, 2023, respectively. In January 2025, we repaid all amounts that were borrowed against these policies at December 31, 2024.

Our debt-to-total capitalization ratio was 54.6% at December 31, 2024, compared with 57.3% at December 31, 2023. We discuss our credit agreement and our accounts receivable securitization program in Note 10. Upcoming annual debt maturities are also disclosed in Note 10. Overall, our goal is to maintain a capital structure with appropriate leverage to support our business strategy and provide flexibility through business cycles.

CRITICAL ACCOUNTING ESTIMATES

The preparation of financial statements in accordance with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. These estimates and assumptions may require judgment about matters that are inherently uncertain, and future events are likely to occur that may require us to make changes to these estimates and assumptions. Accordingly, we regularly review these estimates and assumptions based on historical experience, changes in the business environment, and other factors we believe to be reasonable under the circumstances.

Incident Contingencies

We are currently involved in certain environmental response and remediation activities and subject to numerous legal proceedings and regulatory inquiries and investigations relating to the Incident. We have accrued estimates of the probable and reasonably estimable costs for the resolution of these matters. Our environmental estimates are based upon types of remediation efforts currently anticipated, the volume of contaminants in the impacted areas, and governmental oversight and other costs, amongst other factors. Estimates associated with the legal proceedings to

which we are subject are based on information that is currently available, including but not limited to an assessment of the proceedings and the potential and likely results of such proceedings.

Our current estimates of future environmental cleanup and remediation liabilities related to the Incident may change over time due to various factors, including but not limited to, the nature and extent of required future cleanup and removal activities (including those resulting from soil, water, sediment, and air assessment and investigative activities conducted at the site), and the extent and duration of governmental oversight, amongst other factors. Additionally, the final outcome of any of the legal proceedings and regulatory inquiries and investigations cannot be predicted with certainty, and developments related to the progress of such legal proceedings, inquiries, or investigations or other unfavorable or unexpected outcomes could result in additional costs or new or additionally accrued amounts that could be material to our results of operations in any particular year. Furthermore, certain costs may be recoverable under our insurance policies in effect at the date of the Incident or from third parties. Any amounts that are recoverable under our insurance policies or from third parties will be reflected in the period in which recovery is considered probable.

See Note 18 for more detailed information as it pertains to these contingencies.

Pensions and Other Postretirement Benefits

Accounting for pensions and other postretirement benefit plans requires us to make several estimates and assumptions (Note 13). These include the expected rate of return from investment of the plans' assets and the expected retirement age of employees as well as their projected earnings and mortality. In addition, the amounts recorded are affected by changes in the interest rate environment because the associated liabilities are discounted to their present value. We make these estimates based on our historical experience and other information we deem pertinent under the circumstances (for example, expectations of future stock market performance). We utilize an independent actuarial consulting firm's studies to assist us in selecting appropriate actuarial assumptions and valuing related liabilities.

For 2024, we assumed a long-term investment rate of return of 8.0%, which was supported by our long-term total rate of return on pension plan assets since inception, as well as our expectation of future returns. A one-percentage point decrease to this rate of return assumption would result in a $24 million increase in annual pension expense. We review assumptions related to our defined benefit plans annually, and while changes are likely to occur in assumptions concerning retirement age, projected earnings, and mortality, they are not expected to have a material effect on our net pension expense or net pension liability in the future. The net pension liability is recorded at net present value using discount rates that are based on the current interest rate environment in light of the timing of expected benefit payments. We utilize analyses in which the projected annual cash flows from the pension and postretirement benefit plans are matched with yield curves based on an appropriate universe of high-quality corporate bonds. We use the results of the yield curve analyses to select the discount rates that match the payment streams of the benefits in these plans. A one-percentage point decrease to this discount rate assumption would result in a $14 million increase in annual pension expense.

Properties and Depreciation

Most of our assets are long-lived railway properties (Note 8). "Properties" are stated principally at cost and are depreciated using the group method whereby assets with similar characteristics, use, and expected lives are grouped together in asset classes and depreciated using a composite depreciation rate. See Note 1 for a more detailed discussion of assumptions and estimates.

Expenditures, including those on leased assets, that extend an asset's useful life or increase its utility are capitalized. Expenditures capitalized include those that are directly related to a capital project and may include materials, labor, and other direct costs, in addition to an allocable portion of indirect costs that relate to a capital project. A significant portion of our annual capital spending relates to self-constructed assets. Costs related to repairs and

maintenance activities that, in our judgment, do not extend an asset's useful life or increase its utility are expensed when such repairs are performed.

Depreciation expense for 2024 totaled $1.4 billion. Our composite depreciation rates for 2024 are disclosed in Note 8; a one-year increase (or decrease) in the estimated average useful lives of depreciable assets would have resulted in an approximate $51 million decrease (or increase) to annual depreciation expense.

Personal Injury

Claims expense, included in "Materials and other" in the Consolidated Statements of Income, includes our estimate of costs for personal injuries.

To aid in valuing our personal injury liability and determining the amount to accrue with respect to such claims during the year, we utilize studies prepared by an independent actuarial consulting firm. The actuarial firm studies our historical patterns of reserving for claims and subsequent settlements, taking into account relevant outside influences. We adjust the liability quarterly based upon our assessment and the results of the study. The accuracy of our estimate of the liability is subject to inherent limitation given the difficulty of predicting future events and, as such, the ultimate loss sustained may vary from the estimated liability recorded.

See Note 18 for a more detailed discussion of the assumptions and estimates we use for personal injury.

Income Taxes

Our net deferred tax liability totaled $7.4 billion at December 31, 2024 (Note 5). This liability is estimated based on the expected future tax consequences of items recognized in the financial statements. After application of the federal statutory tax rate to book income, judgment is required with respect to the timing and deductibility of expenses in our income tax returns. For state income and other taxes, judgment is also required with respect to the apportionment among the various jurisdictions. A valuation allowance is recorded if we expect that it is more likely than not that deferred tax assets will not be realized. We have a $42 million valuation allowance on $467 million of deferred tax assets as of December 31, 2024, reflecting the expectation that substantially all of these assets will be realized.

OTHER MATTERS

Labor Agreements

Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions. Pursuant to the Railway Labor Act (RLA), these agreements remain in effect until new agreements are reached, or until the bargaining procedures mandated by the RLA are completed. Moratorium provisions in the labor agreements govern when the railroads and unions may propose changes to the agreements. We largely bargain nationally in concert with other major railroads, represented by the National Carriers' Conference Committee (NCCC).

Under current moratorium provisions, neither party was permitted to serve notice to compel a new round of mandatory collective bargaining until November 1, 2024. In the months prior to the opening of the current national bargaining round, we engaged in voluntary local discussions with our labor unions and, as a result, reached local tentative agreements with ten of our thirteen unions. A majority of those tentative agreements were subsequently ratified by union membership and became effective January 1, 2025, foreclosing the parties from serving new notices to compel mandatory bargaining until November 1, 2029.

For those unions with whom we have not yet reached a ratified agreement, the NCCC, on behalf of Norfolk Southern, sent bargaining notices on November 1, 2024, to commence mandatory direct negotiations as prescribed under the RLA. Even if the parties are unable to reach voluntary agreement during this first phase of RLA

bargaining, self-help (e.g., a strike or other work stoppage) related to this collective-bargaining process remains prohibited by law until a lengthy series of additional procedures mandated by the RLA, including federal mediation, are exhausted.

Market Risks

We manage overall exposure to fluctuations in interest rates by issuing both fixed- and floating- rate debt instruments. At December 31, 2024, we have no outstanding debt subject to interest rate fluctuations. Market risk for fixed-rate debt is estimated as the potential increase in fair value resulting from a one-percentage point decrease in interest rates as of December 31, 2024 and amounts to an increase of approximately $1.5 billion to the fair value of our debt at December 31, 2024. We consider it unlikely that interest rate fluctuations applicable to these instruments will result in a material adverse effect on our financial position, results of operations, or liquidity.

New Accounting Pronouncements

For a detailed discussion of new accounting pronouncements, see Note 1.

Inflation

In preparing financial statements, GAAP requires the use of historical cost that disregards the effects of inflation on the replacement cost of property. As a capital-intensive company, we have most of our capital invested in long-lived assets. The replacement cost of these assets, as well as the related depreciation expense, would be substantially greater than the amounts reported on the basis of historical cost.

FORWARD-LOOKING STATEMENTS

Certain statements in this report, including in Management's Discussion and Analysis of Financial Condition and Results of Operations, are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or our future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause our actual results, levels of activity, performance, or our achievements or those of our industry to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements can be identified by terminology such as "may," "will," "could," "would," "should," "expect," "plan," "anticipate," "intend," "believe," "estimate," "project," "consider," "predict," "potential," "feel," or other comparable terminology. We have based these forward-looking statements on our current expectations, assumptions, estimates, beliefs, and projections. While we believe these expectations, assumptions, estimates, beliefs, and projections are reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond our control. The following important

factors, including those discussed in Item 1A "Risk Factors," may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements:

- our ability to successfully implement our operational, productivity, and strategic initiatives;
- changes in domestic or international economic, political or business conditions, including those impacting the transportation industry;
- a significant adverse event on our network, including but not limited to a mainline accident, discharge of hazardous material, or climate-related or other network outage;
- the outcome of claims, litigation, governmental proceedings, and investigations involving the Company, including but not limited to the Incident Proceedings;
- the nature and extent of the Company's environmental remediation obligations with respect to the Incident;
- new or additional governmental regulation and/or operational changes resulting from or related to the Incident or the Incident Proceedings; and
- a significant cybersecurity incident or other disruption to our technology infrastructure.

The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, we disclaim any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

Additional Information

Investors and others should note that we routinely use the Investor Relations, Performance Metrics and Sustainability sections of our website (norfolksouthern.investorroom.com/key-investor-information, norfolksouthern.investorroom.com/weekly-performance-reports & www.norfolksouthern.com/sustainability) to post presentations to investors and other important information, including information that may be deemed material to investors. Information about us, including information that may be deemed material, may also be announced by posts on our social media channels, including X (formerly known as Twitter) (x.com/nscorp) and LinkedIn (www.linkedin.com/company/norfolk-southern). We may also use our website and social media channels for the purpose of complying with our disclosure obligations under Regulation FD. As a result, we encourage investors, the media, and others interested in Norfolk Southern to review the information posted on our website and social media channels. The information posted on our website and social media channels is not incorporated by reference in this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

The information required by this item is included in Item 7 "Management's Discussion and Analysis of Financial Condition and Results of Operations" under the heading "Market Risks."

Item 8. Financial Statements and Supplementary Data

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Report of Management

February 10, 2025

To the Stockholders
Norfolk Southern Corporation:

Management is responsible for establishing and maintaining adequate internal control over financial reporting. In order to ensure that Norfolk Southern's internal control over financial reporting is effective, management regularly assesses such controls and did so most recently as of December 31, 2024. This assessment was based on criteria for effective internal control over financial reporting described in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this assessment, management has concluded that we maintained effective internal control over financial reporting as of December 31, 2024.

KPMG LLP, independent registered public accounting firm, has audited our financial statements and issued an opinion on our internal control over financial reporting as of December 31, 2024.

/s/ Mark R. George	/s/ Jason A. Zampi	/s/ Claiborne L. Moore
Mark R. George President and Chief Executive Officer	Jason A. Zampi Executive Vice President and Chief Financial Officer	Claiborne L. Moore Vice President and Controller

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Norfolk Southern Corporation:

Opinions on the Consolidated Financial Statements and Internal Control Over Financial Reporting

We have audited the accompanying consolidated balance sheets of Norfolk Southern Corporation and subsidiaries (the Company) as of December 31, 2024 and 2023, the related consolidated statements of income, comprehensive income, cash flows, and changes in stockholders' equity for each of the years in the three-year period ended December 31, 2024, and the related notes and financial statement schedule of valuation and qualifying accounts as listed in Item 15(A)2 (collectively, the consolidated financial statements). We also have audited the Company's internal control over financial reporting as of December 31, 2024, based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2024 and 2023, and the results of its operations and its cash flows for each of the years in the three-year period ended December 31, 2024, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2024 based on criteria established in *Internal Control – Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control Over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the consolidated financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of a critical audit matter does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Sufficiency of audit evidence related to the capitalization of property expenditures

As discussed in Note 1 to the consolidated financial statements, expenditures that extend an asset's useful life or increase its utility are capitalized. The Company has recorded $35,831 million in net book value of properties at December 31, 2024 and has recorded $2,381 million in property additions for the year ended December 31, 2024. Expenditures capitalized include those that are directly related to a capital project and may include materials, labor and other direct costs, in addition to an allocable portion of indirect costs that relate to a capital project. A significant portion of the Company's annual capital spending relates to self-constructed assets. Costs related to repair and maintenance activities, that in the Company's judgment, do not extend an asset's useful life or increase its utility are expensed when such repairs are performed.

We identified the evaluation of the sufficiency of audit evidence related to capitalization of property expenditures as a critical audit matter. Subjective auditor judgment was required in determining procedures and evaluating audit results related to the capitalization of purchased services and compensation due to their usage for both self-constructed assets and repairs and maintenance.

The following are the primary procedures we performed to address the critical audit matter. We applied auditor judgment to determine the nature and extent of procedures to be performed over capitalized property expenditures. We evaluated the design and tested the operating effectiveness of certain internal controls over the Company's process to capitalize property expenditures, including controls over the determination of whether purchased services and compensation expenditures extend an asset's useful life or increase its utility. For a sample of property additions expenditures, we inquired and inspected support to evaluate that the expenditure extended an asset's useful life or increased its utility. We evaluated the sufficiency of audit evidence obtained by assessing the results of the procedures performed, including the appropriateness of the nature of such evidence.

/s/ KPMG LLP
KPMG LLP

We have served as the Company's auditor since 1982.

Atlanta, Georgia
February 10, 2025

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Income

	Years ended December 31,		
	2024	**2023**	**2022**
	($ in millions, except per share amounts)		
Railway operating revenues	$ 12,123	$ 12,156	$ 12,745
Railway operating expenses			
Compensation and benefits	2,823	2,819	2,621
Purchased services and rents	2,048	2,070	1,922
Fuel	987	1,170	1,459
Depreciation	1,353	1,298	1,221
Materials and other	333	832	713
Restructuring and other charges	183	—	—
Eastern Ohio incident	325	1,116	—
Total railway operating expenses	8,052	9,305	7,936
Income from railway operations	4,071	2,851	4,809
Other income – net	65	191	13
Interest expense on debt	807	722	692
Income before income taxes	3,329	2,320	4,130
Income taxes	707	493	860
Net income	$ 2,622	$ 1,827	$ 3,270
Earnings per share			
Basic	$ 11.58	$ 8.04	$ 13.92
Diluted	11.57	8.02	13.88

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Comprehensive Income

	Years ended December 31,		
	2024	**2023**	**2022**
	($ in millions)		
Net income	$ 2,622	$ 1,827	$ 3,270
Other comprehensive income, before tax:			
Pension and other postretirement benefits	70	36	51
Other comprehensive income of equity investees	7	4	17
Other comprehensive income, before tax	77	40	68
Income tax expense related to items of other comprehensive income	(19)	(9)	(17)
Other comprehensive income, net of tax	58	31	51
Total comprehensive income	$ 2,680	$ 1,858	$ 3,321

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Balance Sheets

	At December 31, 2024	2023
	($ in millions)	
Assets		
Current assets:		
Cash and cash equivalents	$ 1,641	$ 1,568
Accounts receivable – net	1,069	1,147
Materials and supplies	277	264
Other current assets	201	292
Total current assets	3,188	3,271
Investments	3,370	3,839
Properties less accumulated depreciation of $13,957 and $13,265, respectively	35,831	33,326
Other assets	1,293	1,216
Total assets	$ 43,682	$ 41,652
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 1,704	$ 1,638
Income and other taxes	337	262
Other current liabilities	949	728
Current maturities of long-term debt	555	4
Total current liabilities	3,545	2,632
Long-term debt	16,651	17,175
Other liabilities	1,760	1,839
Deferred income taxes	7,420	7,225
Total liabilities	29,376	28,871
Stockholders' equity:		
Common Stock $1.00 per share par value, 1,350,000,000 shares authorized; outstanding 226,320,894 and 225,681,254 shares, respectively, net of treasury shares	228	227
Additional paid-in capital	2,247	2,179
Accumulated other comprehensive loss	(262)	(320)
Retained income	12,093	10,695
Total stockholders' equity	14,306	12,781
Total liabilities and stockholders' equity	$ 43,682	$ 41,652

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Cash Flows

	Years ended December 31,		
	2024	**2023**	**2022**
	($ in millions)		
Cash flows from operating activities			
Net income	$ 2,622	$ 1,827	$ 3,270
Reconciliation of net income to net cash provided by operating activities:			
Depreciation	1,353	1,298	1,221
Deferred income taxes	176	(49)	83
Gains and losses on properties	(490)	(49)	(82)
Changes in assets and liabilities affecting operations:			
Accounts receivable	85	(2)	(171)
Materials and supplies	(13)	(11)	(35)
Other current assets	5	(54)	(18)
Current liabilities other than debt	548	435	23
Other – net	(234)	(216)	(69)
Net cash provided by operating activities	4,052	3,179	4,222
Cash flows from investing activities			
Property additions	(2,381)	(2,327)	(1,948)
Acquisition of assets of CSR	(1,643)	(22)	—
Property sales and other transactions	558	86	263
Investment purchases	(319)	(124)	(12)
Investment sales and other transactions	1,005	205	94
Net cash used in investing activities	(2,780)	(2,182)	(1,603)
Cash flows from financing activities			
Dividends	(1,221)	(1,225)	(1,167)
Common Stock transactions	26	3	(4)
Purchase and retirement of Common Stock	—	(622)	(3,110)
Proceeds from borrowings	1,051	3,293	1,832
Debt repayments	(1,055)	(1,334)	(553)
Net cash provided by (used in) financing activities	(1,199)	115	(3,002)
Net increase (decrease) in cash and cash equivalents	73	1,112	(383)
Cash and cash equivalents			
At beginning of year	1,568	456	839
At end of year	$ 1,641	$ 1,568	$ 456
Supplemental disclosures of cash flow information			
Cash paid during the year for:			
Interest (net of amounts capitalized)	$ 764	$ 653	$ 619
Income taxes (net of refunds)	305	681	750

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Changes in Stockholders' Equity

	Common Stock	Additional Paid-in Capital	Accum. Other Comprehensive Loss	Retained Income	Total
	($ in millions, except per share amounts)				
Balance at December 31, 2021	$ 242	$ 2,215	$ (402)	$ 11,586	$ 13,641
Comprehensive income:					
Net income				3,270	3,270
Other comprehensive income			51		51
Total comprehensive income					3,321
Dividends on Common Stock, $4.96 per share				(1,167)	(1,167)
Share repurchases	(13)	(108)		(2,989)	(3,110)
Stock-based compensation	1	50		(3)	48
Balance at December 31, 2022	230	2,157	(351)	10,697	12,733
Comprehensive income:					
Net income				1,827	1,827
Other comprehensive income			31		31
Total comprehensive income					1,858
Dividends on Common Stock, $5.40 per share				(1,225)	(1,225)
Share repurchases	(3)	(24)		(600)	(627)
Stock-based compensation		46		(4)	42
Balance at December 31, 2023	227	2,179	(320)	10,695	12,781
Comprehensive income:					
Net income				2,622	2,622
Other comprehensive income			58		58
Total comprehensive income					2,680
Dividends on Common Stock, $5.40 per share				(1,221)	(1,221)
Stock-based compensation	1	68		(3)	66
Balance at December 31, 2024	$ 228	$ 2,247	$ (262)	$ 12,093	$ 14,306

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Notes to Consolidated Financial Statements

The following Notes are an integral part of the Consolidated Financial Statements. Certain prior year information has been reclassified to conform to current year presentation.

1. Summary of Significant Accounting Policies

Description of Business and Operating Segments

Norfolk Southern Corporation is a Georgia-based holding company engaged principally in the rail transportation business, operating 19,200 route miles primarily in the Southeast, East, and Midwest. These consolidated financial statements include Norfolk Southern and its majority-owned and controlled subsidiaries (collectively, NS, we, us, and our). Norfolk Southern's major subsidiary is NSR. All significant intercompany balances and transactions have been eliminated in consolidation.

NSR and its railroad subsidiaries transport raw materials, intermediate products, and finished goods classified in the following commodity groups (percent of total railway operating revenues in 2024): intermodal (25%); agriculture, forest and consumer products (21%); chemicals (18%); metals and construction (14%); coal (13%); and automotive (9%). Although most of our customers are domestic, ultimate points of origination or destination for some of the products transported (particularly coal bound for export and some intermodal shipments) may be outside the U.S. Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions.

We manage our company as one reportable operating segment, railway operations, providing rail transportation to customers. We define our operating segment based on the way in which internally reported financial information is regularly reviewed by the chief operating decision maker, our chief executive officer, to analyze financial performance and allocate resources. Although we provide and analyze revenues by commodity group, the overall financial and operational performance of the railroad is analyzed as one operating segment due to the nature of our integrated rail network. Financial information and annual operating budgets and forecasts are prepared and reviewed by the chief operating decision maker at a consolidated level, making operational decisions to maximize consolidated financial results. The accounting policies of our railway operations segment are the same as those described in the summary of significant accounting policies herein.

The chief operating decision maker assesses performance for the railway operations segment and decides how to allocate resources based on "Net income" that is reported on the Consolidated Statements of Income. Net income is used to monitor budget versus actual results of the organization. Our consolidated financial results are used in assessing the performance of the segment and in establishing management's compensation. The measure of segment assets is reported on the Consolidated Balance Sheets as "Total assets." The chief operating decision maker uses net income generated from our railroad operations in determining capital allocations decisions, such as whether to reinvest profits into the rail network or into other parts of the entity or utilize them for other purposes, including paying dividends or repurchasing Common Stock.

Railway operations segment revenue, expenses, and profit and loss are disclosed below as reviewed and used by the chief operating decision maker. There are no other significant segment items or reconciling items to segment profit.

	2024	2023	2022
		($ in millions)	
Railway operating revenues (Note 2)	$ 12,123	$ 12,156	$ 12,745
Railway operating expenses			
Compensation and benefits	2,823	2,819	2,621
Purchased services	1,655	1,683	1,565
Equipment rents	393	387	357
Fuel	987	1,170	1,459
Depreciation	1,353	1,298	1,221
Materials	369	364	283
Claims	237	242	270
Other (Note 8)	(273)	226	160
Restructuring and other charges (Note 3)	183	—	—
Eastern Ohio incident (Note 18)	325	1,116	—
Total railway operating expenses	8,052	9,305	7,936
Income from railway operations	4,071	2,851	4,809
Other income – net (Note 4)	65	191	13
Interest expense on debt	807	722	692
Income before income taxes	3,329	2,320	4,130
Income taxes (Note 5)	707	493	860
Net income	$ 2,622	$ 1,827	$ 3,270

Total equity method investments are disclosed in Note 7 “Investments,” and total expenditures for long-lived assets are disclosed as “Property additions” on the Consolidated Statement of Cash Flows.

Use of Estimates

The preparation of financial statements in accordance with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. We periodically review our estimates, including those related to the recoverability and useful lives of assets, as well as liabilities for litigation, environmental remediation, casualty claims, income taxes and pension and other postretirement benefits. Changes in facts and circumstances may result in revised estimates.

Revenue Recognition

Transportation revenues are recognized proportionally as a shipment moves from origin to destination, and related expenses are recognized as incurred. Certain of our contract refunds (which are primarily volume-based incentives) are recorded as a reduction to revenues on the basis of our best estimate of projected liability, which is based on historical activity, current shipment counts and expectation of future activity. Certain ancillary services, such as switching, demurrage and other incidental activities, may be provided to customers under their transportation contracts. The revenues associated with these distinct performance obligations are recognized when the services are performed or as contractual obligations are met.

Cash Equivalents

"Cash equivalents" are highly liquid investments purchased three months or less from maturity.

Allowance for Doubtful Accounts

Our allowance for doubtful accounts was $8 million and $7 million at December 31, 2024 and 2023, respectively. To determine our allowance for doubtful accounts, we evaluate historical loss experience (which has not been significant), the characteristics of current accounts, and general economic conditions and trends.

Materials and Supplies

"Materials and supplies," consisting mainly of items for maintenance of property and equipment, are stated at the lower of average cost or net realizable value. The cost of materials and supplies expected to be used in property additions or improvements is included in "Properties."

Investments

Investments in entities over which we have the ability to exercise significant influence but do not control the entity are accounted for using the equity method, whereby the investment is carried at the cost of the acquisition plus our equity in undistributed earnings or losses since acquisition.

Properties

"Properties" are stated principally at cost and are depreciated using the group method whereby assets with similar characteristics, use, and expected lives are grouped together in asset classes and depreciated using a composite depreciation rate. This methodology treats each asset class as a pool of resources, not as singular items. We use approximately 75 depreciable asset classes.

Depreciation expense is based on our assumptions concerning expected service lives of our properties as well as the expected net salvage that will be received upon their retirement. In developing these assumptions, we utilize periodic depreciation studies that are performed by an independent outside firm of consulting engineers and approved by the STB. Our depreciation studies are conducted about every three years for equipment and every six years for track assets and other roadway property. The frequency of these studies is consistent with guidelines established by the STB. We adjust our rates based on the results of these studies and implement the changes prospectively. The studies may also indicate that the recorded amount of accumulated depreciation is deficient (or in excess) of the amount indicated by the study. Any such deficiency (or excess) is amortized as a component of depreciation expense over the remaining service lives of the affected class of property, as determined by the study.

Key factors that are considered in developing average service life and salvage estimates include:

- statistical analysis of historical retirement data and surviving asset records,
- review of historical salvage received and current market rates,

- review of our operations including expected changes in technology, customer demand, maintenance practices and asset management strategies,
- review of accounting policies and assumptions, and
- industry review and analysis.

The composite depreciation rate for rail in high density corridors is derived based on consideration of annual gross tons as compared to the total or ultimate capacity of rail in these corridors. Our experience has shown that traffic density is a leading factor in the determination of the expected service life of rail in high density corridors. In developing the respective depreciation rate, consideration is also given to several rail characteristics including age, weight, condition (new or second-hand), and type (curved or straight).

We capitalize interest on major projects during the period of their construction. Expenditures, including those on leased assets, that extend an asset's useful life or increase its utility are capitalized. Expenditures capitalized include those that are directly related to a capital project and may include materials, labor, and other direct costs, in addition to an allocable portion of indirect costs that relate to a capital project. A significant portion of our annual capital spending relates to self-constructed assets. Removal activities occur in conjunction with replacement and are estimated based on the average percentage of time employees replacing assets spend on removal functions. Costs related to repairs and maintenance activities that, in our judgment, do not extend an asset's useful life or increase its utility are expensed when such repairs are performed.

When depreciable operating road and equipment assets are sold or retired in the ordinary course of business, the cost of the assets, net of sales proceeds or salvage, is charged to accumulated depreciation, and no gain or loss is recognized in earnings. Actual historical cost values are retired when available, such as with most equipment assets. The use of estimates in recording the retirement of certain roadway assets is necessary based on the impracticality of tracking individual asset costs. When retiring rail, ties, and ballast, we use statistical curves that indicate the relative distribution of the age of the assets retired. The historical cost of other roadway assets is estimated using a combination of inflation indices specific to the rail industry and those published by the U.S. Bureau of Labor Statistics. The indices are applied to the replacement value based on the age of the retired assets. These indices are used because they closely correlate with the costs of roadway assets. Gains and losses on disposal of operating land are included in "Materials and other" expenses. Gains and losses on disposal of non-operating land and non-rail assets are included in "Other income – net" since such income is not a product of our railroad operations.

A retirement is considered abnormal if it does not occur in the ordinary course of business, if it relates to disposition of a large segment of an asset class, and if the retirement varies significantly from the retirement profile identified through our depreciation studies, which inherently consider the impact of normal retirements on expected service lives and depreciation rates. Gains or losses from abnormal retirements are recognized in income from railway operations.

We review the carrying amount of properties whenever events or changes in circumstances indicate that such carrying amount may not be recoverable based on future undiscounted cash flows. Assets that are deemed impaired as a result of such review are recorded at the lower of carrying amount or fair value.

New Accounting Pronouncements

In November 2023, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2023-07, "*Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures.*" This update requires additional reportable segment disclosures, primarily through enhanced disclosures about significant segment expenses and information used to assess performance. The ASU is effective for fiscal years beginning after December 15, 2023 and interim periods within fiscal years beginning after December 15, 2024. We adopted the ASU on January 1, 2024 and updated our segment disclosures in Note 1.

In December 2023, the FASB issued ASU 2023-09, "*Income Taxes (Topic 740): Improvements to Income Tax Disclosures.*" This update requires additional disclosures including greater disaggregation of information in the reconciliation of the statutory rate to the effective rate and income taxes paid disaggregated by jurisdiction. The ASU is effective for fiscal years beginning after December 15, 2024. We did not adopt the standard early and are currently evaluating the effect on our financial statements.

In November 2024, the FASB issued ASU 2024-03, "*Income Statement - Reporting Comprehensive Income - Expense Disaggregation Disclosures (Subtopic 220-40).*" This update requires an entity to disclose specific information about certain costs and expenses in the notes to its financial statements for interim and annual reporting periods. Entities are required to provide disaggregated information about expenses to help investors better understand performance, better assess prospects for future cash flows, and compare performance over time and with that of other entities. The ASU is effective for fiscal years beginning after December 15, 2026 and interim periods within fiscal years beginning after December 15, 2027. We will not early adopt the standard and are currently evaluating the effect on our financial statements.

2. Railway Operating Revenues

The following table disaggregates our revenues by major commodity group:

	2024	2023	2022
		($ in millions)	
Merchandise:			
Agriculture, forest and consumer products	$ 2,521	$ 2,530	$ 2,493
Chemicals	2,123	2,054	2,148
Metals and construction	1,682	1,634	1,652
Automotive	1,144	1,135	1,038
Merchandise	7,470	7,353	7,331
Intermodal	3,042	3,090	3,681
Coal	1,611	1,713	1,733
Total	$ 12,123	$ 12,156	$ 12,745

We recognize the amount of revenues to which we expect to be entitled for the transfer of promised goods or services to customers. A performance obligation is created when a customer under a transportation contract or public tariff submits a bill of lading to us for the transport of goods. These performance obligations are satisfied as the shipments move from origin to destination. As such, transportation revenues are recognized proportionally as a shipment moves, and related expenses are recognized as incurred. These performance obligations are generally short-term in nature with transit days averaging approximately one week or less for each commodity group. The customer has an unconditional obligation to pay for the service once the service has been completed. Estimated revenues associated with in-process shipments at period-end are recorded based on the estimated percentage of service completed. We had no material remaining performance obligations at December 31, 2024 and 2023.

We may provide customers ancillary services, such as switching, demurrage, and other incidental activities, under their transportation contracts. The revenues associated with these distinct performance obligations are recognized when the services are performed or as contractual obligations are met. These revenues are included within each of the commodity groups and represent approximately 4%, 5%, and 7%, respectively, of total "Railway operating revenues" on the Consolidated Statements of Income for the years ended December 31, 2024, 2023, and 2022.

Revenues related to interline transportation services that involve another railroad are reported on a net basis. Therefore, the portion of the amount that relates to another party is not reflected in revenues.

Under the typical terms of our freight contracts, payment for services is due within fifteen days of billing the customer, thus there are no significant financing components. "Accounts receivable – net" on the Consolidated Balance Sheets includes both customer and non-customer receivables as follows:

	December 31, 2024	2023
	($ in millions)	
Customer	$ 787	$ 882
Non-customer	282	265
Accounts receivable – net	$ 1,069	$ 1,147

Non-customer receivables include non-revenue-related amounts due from other railroads, governmental entities, insurers, and others. We do not have any material contract assets or liabilities at December 31, 2024 and 2023.

3. Restructuring and Other Charges

In 2024, we initiated voluntary and involuntary separation programs to reduce our management workforce. Through these programs, approximately 350 management employees were separated from service by May 2024. "Restructuring and other charges" reflects separation payments and other benefits to the impacted management employees and amounted to $69 million. Additionally, we evaluated the impact of these separation programs on our pension and other postretirement benefit plans, as further discussed in Note 13.

During 2024, we made strategic decisions to cease development of certain technology projects that had not been placed into service and which resulted in a write-down of these assets. Additionally, we discontinued the use of our Triple Crown Road Railer assets, and, with a planned disposition of the entire asset class, we incurred expenses to reflect these assets at their net realizable value. As a result, "Restructuring and other charges" includes an additional $79 million of expenses related to these efforts.

In March 2024, we appointed John Orr as Executive Vice President and Chief Operating Officer of the Company. "Restructuring and other charges" in 2024 also includes $35 million of costs related to this appointment, including an agreement with his previous employer, CPKC, that resulted in a $25 million payment and certain commercial considerations to CPKC in exchange for a waiver of his non-compete provisions.

4. Other Income – Net

	2024	2023	2022
	($ in millions)		
Pension and other postretirement benefits (Note 13)	$ 120	$ 117	$ 126
COLI – net	17	65	(77)
Shareholder advisory costs	(59)	—	—
Other	(13)	9	(36)
Total	$ 65	$ 191	$ 13

5. Income Taxes

	2024	2023	2022
	($ in millions)		
Current:			
Federal	$ 445	$ 437	$ 645
State	86	105	132
Total current taxes	531	542	777
Deferred:			
Federal	198	(27)	206
State	(22)	(22)	(123)
Total deferred taxes	176	(49)	83
Income taxes	$ 707	$ 493	$ 860

During 2024, we recorded a $27 million deferred income tax benefit as a result of a subsidiary restructuring.

Reconciliation of Statutory Rate to Effective Rate

"Income taxes" on the Consolidated Statements of Income differs from the amounts computed by applying the statutory federal corporate tax rate as follows:

	2024		2023		2022	
	Amount	%	Amount	%	Amount	%
	($ in millions)					
Federal income tax at statutory rate	$ 699	21.0	$ 487	21.0	$ 867	21.0
State income taxes, net of federal tax effect	66	2.0	65	2.9	143	3.5
Tax credits	(14)	(0.4)	(27)	(1.2)	(10)	(0.2)
State law changes	(15)	(0.4)	—	—	(136)	(3.3)
Other, net	(29)	(1.0)	(32)	(1.4)	(4)	(0.2)
Income taxes	$ 707	21.2	$ 493	21.3	$ 860	20.8

On July 8, 2022, House Bill 1342 was signed into law in the Commonwealth of Pennsylvania, which reduced its corporate income tax rate from 9.99% to 4.99%, through a series of phased reductions beginning each tax year from January 1, 2023 through January 1, 2031. GAAP requires companies to recognize the effect of tax law changes in the period of enactment. As a result, in 2022, we recognized a $136 million benefit in "Income taxes" with a corresponding reduction in "Deferred income taxes."

Deferred Tax Assets and Liabilities

Certain items are reported in different periods for financial reporting and income tax purposes. Deferred tax assets and liabilities are recorded in recognition of these differences. The tax effects of temporary differences that give rise to significant portions of the deferred tax assets and deferred tax liabilities are as follows:

	December 31, 2024	2023
	($ in millions)	
Deferred tax assets:		
Accruals, including casualty and other claims	$ 289	$ 360
Compensation and benefits, including postretirement benefits	21	55
Other	157	155
Total gross deferred tax assets	467	570
Less valuation allowance	(42)	(31)
Net deferred tax assets	425	539
Deferred tax liabilities:		
Property	(7,397)	(7,218)
Other	(448)	(546)
Total deferred tax liabilities	(7,845)	(7,764)
Deferred income taxes	$ (7,420)	$ (7,225)

Except for amounts for which a valuation allowance has been provided, we believe that it is more likely than not that the results of future operations will generate sufficient taxable income to realize the deferred tax assets. The valuation allowance at the end of each year primarily relates to subsidiary state income tax net operating losses and state investment tax credits that may not be utilized prior to their expiration. The total valuation allowance increased by $11 million in 2024, decreased by $10 million in 2023, and decreased by $19 million in 2022.

Uncertain Tax Positions

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	December 31, 2024	2023
	($ in millions)	
Balance at beginning of year	$ 55	$ 22
Additions based on tax positions related to the current year	26	30
Additions for tax positions of prior years	3	9
Reductions for tax positions of prior years	(1)	(1)
Lapse of statutes of limitations	(1)	(5)
Balance at end of year	$ 82	$ 55

Included in the balance of unrecognized tax benefits at December 31, 2024 are potential benefits of $66 million that would affect the effective tax rate if recognized. Unrecognized tax benefits are adjusted in the period in which new information about a tax position becomes available or the final outcome differs from the amount recorded.

The statute of limitations on Internal Revenue Service examinations has expired for all years prior to 2019. Our consolidated federal income tax returns for 2019 through 2021 are currently being audited by the IRS. We anticipate that the IRS will complete its examination in 2025. State income tax returns are generally subject to examination for a period of three to four years after the return. In addition, we are generally obligated to report changes in taxable income arising from federal income tax examinations to the states within a period of up to two years from the date the federal examination is final. We have various state income tax returns either under examination, administrative appeal, or litigation.

6. Fair Value Measurements

FASB Accounting Standards Codification (ASC) 820-10, "*Fair Value Measurements,*" established a framework for measuring fair value and a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels, as follows:

Level 1 Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that we have the ability to access.

Level 2 Inputs to the valuation methodology include:

- quoted prices for similar assets or liabilities in active markets,
- quoted prices for identical or similar assets or liabilities in inactive markets,
- inputs other than quoted prices that are observable for the asset or liability, and
- inputs that are derived principally from or corroborated by observable market data by correlation or other means.

If the asset or liability has a specified (contractual) term, the Level 2 input must be observable for substantially the full term of the asset or liability.

Level 3 Inputs to the valuation methodology are unobservable and significant to the fair value measurement.

The asset or liability's fair value measurement level within the hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

Fair Values of Financial Instruments

The fair values of "Cash and cash equivalents," "Accounts receivable – net," and "Accounts payable," approximate carrying values because of the short maturity of these financial instruments. The carrying value of COLI is recorded at cash surrender value and, accordingly, approximates fair value. There are no other assets or liabilities measured at fair value on a recurring basis at December 31, 2024 or 2023. The carrying amounts and estimated fair values, based on Level 1 inputs, of long-term debt consist of the following at December 31:

	2024		2023	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	($ in millions)			
Long-term debt, including current maturities	$ (17,206)	$ (15,656)	$ (17,179)	$ (16,631)

7. Investments

	December 31, 2024	2023
	($ in millions)	
Long-term investments:		
Equity method investments:		
Conrail	$ 1,748	$ 1,656
TTX	1,013	964
Other	423	428
Total equity method investments	3,184	3,048
COLI at net cash surrender value	161	774
Other investments	25	17
Total long-term investments	$ 3,370	$ 3,839

We had $605 million of borrowings against our COLI policies outstanding at December 31, 2024, with no amounts outstanding at December 31, 2023, which are included in the "Investment sales and other transactions" line item within investing activities in the Consolidated Statements of Cash Flows. In January 2025, we repaid all amounts that were borrowed against these policies at December 31, 2024.

Investment in Conrail

Through a limited liability company, we and CSX jointly own Conrail, whose primary subsidiary is CRC. We have a 58% economic and 50% voting interest in the jointly-owned entity, and CSX has the remainder of the economic and voting interests. We are amortizing the excess of the purchase price over Conrail's net equity using the principles of purchase accounting, based primarily on the estimated useful lives of Conrail's depreciable property and equipment, including the related deferred tax effect of the differences in book and tax accounting bases for such assets, as all of the purchase price at acquisition was allocable to Conrail's tangible assets and liabilities. At December 31, 2024, our investment in Conrail exceeds our share of Conrail's underlying net equity by $469 million.

CRC owns and operates certain properties (the Shared Assets Areas) for the joint and exclusive benefit of NSR and CSX Transportation, Inc. (CSXT). The costs of operating the Shared Assets Areas are borne by NSR and CSXT based on usage. In addition, NSR and CSXT pay CRC a fee for access to the Shared Assets Areas. "Purchased services and rents" and "Fuel" include expenses payable to CRC for operation of the Shared Assets Areas totaling $198 million in 2024, $164 million in 2023, and $156 million in 2022. Future payments for access fees due to CRC under the Shared Assets Areas agreements are as follows: $47 million in each of 2025 through 2028 and $21 million thereafter. We provide certain general and administrative support functions to Conrail, the fees for which are billed in accordance with several service-provider arrangements and approximate $7 million annually.

"Accounts payable" includes $243 million at December 31, 2024, and $198 million at December 31, 2023, due to Conrail for the operation of the Shared Assets Areas. "Other liabilities" includes $534 million at December 31, 2024 and 2023, respectively, for long-term advances from Conrail, maturing in 2050 that bear interest at an average rate of 1.31%.

Our equity in Conrail's earnings, net of amortization, was $89 million for 2024, $70 million for 2023, and $58 million for 2022. These amounts partially offset the costs of operating the Shared Assets Areas and are included in "Purchased services and rents." Equity in Conrail's earnings is included in the "Other – net" line item within operating activities in the Consolidated Statements of Cash Flows.

Investment in TTX

We and six other North American railroads collectively own TTX, a railcar pooling company that provides its owner-railroads with standardized fleets of intermodal, automotive, and general use railcars at stated rates. We have a 19.78% ownership interest in TTX.

Expenses incurred for use of TTX equipment are included in "Purchased services and rents." This amounted to $295 million, $274 million, and $256 million, respectively, for the years ended December 31, 2024, 2023 and 2022. Our equity in TTX's earnings partially offsets these costs and totaled $48 million for 2024, $47 million for 2023 and $53 million for 2022. Equity in TTX's earnings is included in the "Other – net" line item within operating activities in the Consolidated Statements of Cash Flows.

8. Properties

December 31, 2024	Cost	Accumulated Depreciation	Net Book Value	Depreciation Rate [1]
		($ in millions)		
Land	$ 4,125	$ —	$ 4,125	—
Roadway:				
Rail and other track material	8,402	(2,098)	6,304	2.44%
Ties	6,450	(1,860)	4,590	3.35%
Ballast	3,339	(1,005)	2,334	2.73%
Construction in process	680	—	680	—
Other roadway	15,038	(4,589)	10,449	2.73%
Total roadway	33,909	(9,552)	24,357	
Equipment:				
Locomotives	6,242	(2,180)	4,062	3.66%
Freight cars	2,733	(1,021)	1,712	2.45%
Computers and software	1,149	(570)	579	9.88%
Construction in process	236	—	236	—
Other equipment	1,304	(558)	746	4.60%
Total equipment	11,664	(4,329)	7,335	
Other property	90	(76)	14	2.48%
Total properties	$ 49,788	$ (13,957)	$ 35,831	

December 31, 2023	Cost	Accumulated Depreciation	Net Book Value	Depreciation Rate [1]
		($ in millions)		
Land	$ 2,439	$ —	$ 2,439	—
Roadway:				
Rail and other track material	8,011	(2,006)	6,005	2.41%
Ties	6,205	(1,773)	4,432	3.42%
Ballast	3,224	(937)	2,287	2.80%
Construction in process	522	—	522	—
Other roadway	14,663	(4,290)	10,373	2.72%
Total roadway	32,625	(9,006)	23,619	
Equipment:				
Locomotives	6,091	(2,105)	3,986	3.64%
Freight cars	2,792	(1,037)	1,755	2.42%
Computers and software	1,042	(542)	500	9.36%
Construction in process	271	—	271	—
Other equipment	1,241	(501)	740	4.61%
Total equipment	11,437	(4,185)	7,252	
Other property	90	(74)	16	2.48%
Total properties	$ 46,591	$ (13,265)	$ 33,326	

[1] Composite annual depreciation rate for the underlying assets, excluding the effects of the amortization of any deficiency (or excess) that resulted from our depreciation studies.

Acquisition of Assets of Cincinnati Southern Railway

On March 15, 2024, we completed the acquisition of a 337 mile railway line that extends from Cincinnati, Ohio to Chattanooga, Tennessee from the CSR for $1.7 billion. We previously operated this line subject to an operating lease agreement, which was terminated upon the close of the transaction. Lease expense associated with the prior operating lease agreement totaled $5 million, $26 million, and $25 million in 2024, 2023, and 2022, respectively. The purchase price was allocated to the assets acquired in the transaction. The asset purchase is reflected in "Properties less accumulated depreciation" on the Consolidated Balance Sheet and is distinctly identified in the "Cash flows from investing activities" section of the Consolidated Statement of Cash Flows.

Sales of Railway Lines

On September 5, 2024, we consummated a transaction with the VPRA to sell a railway line ("Manassas Line") to support the expansion of passenger rail service in the Commonwealth of Virginia. The total purchase price to be paid by the VPRA is $357 million and we received $315 million in cash proceeds at closing. The remainder of the proceeds are expected to be received by the end of 2027. The total gain recognized as a result of the transaction was $323 million. Additionally, the VPRA also agreed to exchange a railway line ("V-Line") in consideration for the land and above ground assets described as the "Seminary Passage." This transaction closed in November 2024 and

the gain recognized as a result of the transaction was $53 million.

On September 6, 2024, we consummated an agreement with the City of Charlotte to sell a railway line between Charlotte and Mecklenburg County, NC in exchange for $74 million. The cash proceeds from the transaction were received at closing and the transaction resulted in a gain of $57 million.

The gains from these transactions are reflected in "Gains and losses on properties" and cash proceeds are included in "Property sales and other transactions" on the Consolidated Statement of Cash Flows.

Capitalized Interest

Total interest cost incurred on debt was $833 million, $743 million, and $708 million during 2024, 2023, and 2022, respectively, of which $26 million, $21 million, and $16 million was capitalized during 2024, 2023, and 2022, respectively.

9. Current Liabilities

	December 31,	
	2024	**2023**
	($ in millions)	
Accounts payable:		
Accounts and wages payable	$ 985	$ 997
Due to Conrail (Note 7)	243	198
Casualty and other claims (Note 18)	216	186
Vacation liability	146	144
Other	114	113
Total	$ 1,704	$ 1,638
Other current liabilities:		
Current Eastern Ohio incident liability (Note 18)	$ 585	$ 346
Interest payable	204	193
Current operating lease liability (Note 11)	81	105
Pension benefit obligations (Note 13)	21	21
Other	58	63
Total	$ 949	$ 728

10. Debt

Debt maturities are presented below:

	December 31, 2024	December 31, 2023
	($ in millions)	
Notes and debentures, with weighted-average interest rates as of December 31, 2024:		
4.08% maturing to 2029	$ 2,981	$ 2,981
4.33% maturing 2030 to 2034	2,883	2,883
4.28% maturing 2037 to 2064	10,847	10,847
5.22% maturing 2097 to 2121	1,384	1,384
Finance leases	13	17
Discounts, premiums, and debt issuance costs	(902)	(933)
Total debt	17,206	17,179
Less current maturities and short-term debt	(555)	(4)
Long-term debt excluding current maturities and short-term debt	$ 16,651	$ 17,175

Long-term debt maturities subsequent to 2025 are as follows:	
2026	$ 602
2027	621
2028	602
2029	610
2030 and subsequent years	14,216
Total	$ 16,651

In June 2024, we entered into an agreement that provides us the ability to issue up to $800 million of unsecured commercial paper and is backed by our credit agreement. The unsecured short-term commercial paper program provides for borrowing at prevailing rates and includes covenants. At December 31, 2024, we had no outstanding commercial paper.

In May 2024, we renewed our accounts receivable securitization program with a maximum borrowing capacity of $400 million. Amounts under our accounts receivable securitization program are borrowed and repaid from time to time in the ordinary course for general corporate and cash management purposes. The term of our accounts receivable securitization program expires in May 2025. Amounts received under this facility are accounted for as borrowings. We had no amounts outstanding under this program and our available borrowing capacity was $400 million at both December 31, 2024, and December 31, 2023. Our accounts receivable securitization program was supported by $790 million and $903 million in receivables at December 31, 2024 and December 31, 2023, respectively, which are included in “Accounts receivable – net.”

Credit Agreement and Debt Covenants

In January 2024, we renewed and amended our $800 million credit agreement. The amended agreement expires in January 2029, and provides for borrowings at prevailing rates and includes covenants. We had no amounts outstanding under this facility at either December 31, 2024 or December 31, 2023, and we are in compliance with all of its covenants.

In January 2024, we entered into a term loan credit agreement that established a 364-day, $1.0 billion, unsecured delayed draw term loan facility under which we could borrow for general corporate purposes. The term loan credit agreement provided for borrowing at prevailing rates and included covenants that align with the $800 million credit agreement. The term loan expired undrawn in October 2024.

11. Leases

We are committed under long-term lease agreements for equipment, lines of road, and other property. We combine lease and non-lease components for new and reassessed leases. Some of these agreements are variable lease agreements that include usage-based payments. These agreements contain payment provisions that depend on an index or rate, initially measured using the index or rate at the lease commencement date, and are therefore not included in our future minimum lease payments. Our long-term lease agreements do not contain any material restrictive covenants.

Our equipment leases have remaining terms of less than 1 year to 7 years and our lines of road and land leases have remaining terms of less than 1 year to 133 years. Some of these leases include options to extend the leases for up to 99 years and some include options to terminate the leases within 30 days. Because we are not reasonably certain to exercise these renewal options, the options are not considered in determining the lease term, and associated payments are excluded from future minimum lease payments.

Leases with an initial term of twelve months or less are not recorded on the balance sheet. We recognize lease expense for these leases on a straight-line basis over the lease term.

Operating lease amounts included on the Consolidated Balance Sheets are as follows:

		December 31,	
		2024	2023
		($ in millions)	
	Classification		
Assets			
Right-of-use (ROU) assets	Other assets	$ 271	$ 390
Liabilities			
Current lease liabilities	Other current liabilities	$ 81	$ 105
Non-current lease liabilities	Other liabilities	191	287
Total lease liabilities		$ 272	$ 392

The components of total lease expense, primarily included in "Purchased services and rents," are as follows:

	2024	2023	2022
	($ in millions)		
Operating lease expense	$ 102	$ 115	$ 101
Variable lease expense	84	84	55
Short-term lease expense	10	15	18
Total lease expense	$ 196	$ 214	$ 174

In March 2019, we entered into a non-cancellable lease for an office building. In 2021, the construction of the office building was completed, and the lease commenced. The initial lease term is five years with options to renew, purchase, or sell the office building at the end of the lease term. The lease contains a residual value guarantee of up to eighty-three percent of the total construction cost of $499 million.

Other information related to operating leases is as follows:

	December 31, 2024	December 31, 2023
Weighted-average remaining lease term (years) on operating leases	6.64	6.12
Weighted-average discount rates on operating leases	3.96%	3.78%

As the rates implicit in most of our leases are not readily determinable, we use a collateralized incremental borrowing rate based on the information available at the lease commencement date in determining the present value of future payments. We use the portfolio approach and group leases into short-, medium-, and long-term categories, applying the corresponding incremental borrowing rates to these categories.

During 2024 and 2023, respectively, ROU assets obtained in exchange for new operating lease liabilities were $21 million and $65 million, respectively. Cash paid for amounts included in the measurement of lease liabilities was $102 million and $117 million in 2024 and 2023, respectively, and is included in operating cash flows.

Future minimum lease payments under non-cancellable operating leases are as follows:

	December 31, 2024 *($ in millions)*
2025	$ 89
2026	69
2027	47
2028	35
2029	27
2030 and subsequent years	47
Total lease payments	314
Less: Interest	42
Present value of lease liabilities	$ 272

	December 31, 2023
	($ in millions)
2024	$ 116
2025	105
2026	85
2027	42
2028	30
2029 and subsequent years	66
Total lease payments	444
Less: Interest	52
Present value of lease liabilities	$ 392

12. Other Liabilities

	December 31,	
	2024	2023
	($ in millions)	
Long-term advances from Conrail (Note 7)	$ 534	$ 534
Net pension obligations (Note 13)	252	279
Casualty and other claims (Note 18)	229	221
Non-current operating lease liability (Note 11)	191	287
Net other postretirement benefit obligations (Note 13)	133	172
Non-current Eastern Ohio incident liability (Note 18)	103	118
Deferred compensation	90	80
Other	228	148
Total	$ 1,760	$ 1,839

13. Pensions and Other Postretirement Benefits

We have both funded and unfunded defined benefit pension plans covering eligible employees. We also provide specified health care benefits to eligible retired employees; these plans can be amended or terminated at our option. Under our self-insured retiree health care plan, for those participants who are not Medicare-eligible, certain health care expenses are covered for retired employees and their dependents, reduced by any deductibles, coinsurance, and, in some cases, coverage provided under other group insurance policies. Eligible retired participants and their spouses who are Medicare-eligible are not covered under the self-insured retiree health care plan, but instead are provided with an employer-funded health reimbursement account which can be used for reimbursement of health insurance premiums or eligible out-of-pocket medical expenses.

Pension and Other Postretirement Benefit Obligations and Plan Assets

	Pension Benefits		Other Postretirement Benefits	
	2024	2023	2024	2023
	($ in millions)			
Change in benefit obligations:				
Benefit obligation at beginning of year	$ 2,151	$ 2,051	$ 310	$ 326
Service cost	26	25	4	4
Interest cost	107	108	15	17
Actuarial (gains) losses	(91)	122	(21)	1
Plan amendments	—	—	—	(5)
Benefits paid	(155)	(155)	(32)	(33)
Curtailment	—	—	2	—
Benefit obligation at end of year	2,038	2,151	278	310
Change in plan assets:				
Fair value of plan assets at beginning of year	2,503	2,260	138	122
Actual return on plan assets	181	375	21	21
Employer contributions	22	23	18	28
Benefits paid	(155)	(155)	(32)	(33)
Fair value of plan assets at end of year	2,551	2,503	145	138
Funded status at end of year	$ 513	$ 352	$ (133)	$ (172)
Amounts recognized in the Consolidated Balance Sheets:				
Other assets	$ 786	$ 652	$ —	$ —
Other current liabilities	(21)	(21)	—	—
Other liabilities	(252)	(279)	(133)	(172)
Net amount recognized	$ 513	$ 352	$ (133)	$ (172)
Amounts included in accumulated other comprehensive loss (before tax):				
Net (gain) loss	$ 488	$ 574	$ (56)	$ (28)
Prior service benefit	(4)	(5)	(113)	(156)

Our accumulated benefit obligation for our defined benefit pension plans is $1.9 billion and $2.0 billion at December 31, 2024 and 2023, respectively. Our unfunded pension plans, included above, which in all cases have no assets, had projected benefit obligations of $273 million and $300 million at December 31, 2024 and 2023, respectively, and had accumulated benefit obligations of $256 million and $273 million at December 31, 2024 and 2023, respectively.

Pension and Other Postretirement Benefit Cost Components

	2024	2023	2022
	($ in millions)		
Pension benefits:			
Service cost	$ 26	$ 25	$ 40
Interest cost	107	108	67
Expected return on plan assets	(203)	(208)	(213)
Amortization of net losses	17	4	49
Amortization of prior service benefit	(1)	(1)	—
Net benefit	$ (54)	$ (72)	$ (57)
Other postretirement benefits:			
Service cost	$ 4	$ 4	$ 6
Interest cost	15	17	9
Expected return on plan assets	(11)	(11)	(13)
Amortization of net gains	(1)	—	—
Amortization of prior service benefit	(23)	(26)	(25)
Curtailment gain	(20)	—	—
Net benefit	$ (36)	$ (16)	$ (23)

The service cost component of defined benefit pension cost and other postretirement benefit cost are reported within "Compensation and benefits" and all other components are presented in "Other income – net" on the Consolidated Statements of Income.

During 2024, we commenced voluntary and involuntary separation programs to reduce our nonagreement workforce. Through these programs, approximately 350 employees were separated from service by May 2024. In accordance with FASB ASC Topic 715, "*Compensation-Retirement Benefits*," we evaluated whether a curtailment of our pension and other postretirement benefit plans had occurred. While the reduction in our workforce did not result in a curtailment to our pension benefit plans, a curtailment to our other postretirement benefit plan did occur as the future years of service of plan participants were reduced in excess of 10%. As a result, we recognized a curtailment gain of $20 million in 2024 for the impacted portion of the prior service benefit previously recorded within accumulated other comprehensive loss.

Other Changes in Plan Assets and Benefit Obligations Recognized in Other Comprehensive Income

	2024	
	Pension Benefits	Other Postretirement Benefits
	($ in millions)	
Net gains arising during the year	$ (69)	$ (31)
Amortization of net gains (losses)	(17)	1
Amortization of prior service benefit	1	23
Prior service benefit due to curtailment	—	20
Effect of curtailment	—	2
Total recognized in other comprehensive income	$ (85)	$ 15
Total recognized in net periodic cost and other comprehensive income	$ (139)	$ (21)

Net gains arising during the year for both pension benefits and other postretirement benefits were due primarily to an increase in discount rates, in addition to higher actual returns on plan assets for our other postretirement benefit plan assets.

The estimated net losses and prior service credits for the pension plans that will be amortized from accumulated other comprehensive loss into net periodic cost over the next year are $22 million. The estimated prior service benefit and net gains for the other postretirement benefit plans that will be amortized from accumulated other comprehensive loss into net periodic benefit over the next year is $24 million.

Pension and Other Postretirement Benefits Assumptions

Costs for pension and other postretirement benefits are determined based on actuarial valuations that reflect appropriate assumptions as of the measurement date, ordinarily the beginning of each year. The funded status of the plans is determined using appropriate assumptions as of each year end. A summary of the major assumptions follows:

	2024	2023	2022
Pension funded status:			
Discount rate	5.73%	5.23%	5.56%
Future salary increases	4.44%	4.44%	4.44%
Other postretirement benefits funded status:			
Discount rate	5.52%	5.11%	5.45%
Pension cost:			
Discount rate - service cost	5.41%	5.75%	3.25%
Discount rate - interest cost	5.10%	5.40%	2.45%
Return on assets in plans	8.00%	8.00%	8.00%
Future salary increases	4.44%	4.44%	4.44%
Other postretirement benefits cost:			
Discount rate - service cost	5.81%	5.56%	3.01%
Discount rate - interest cost	5.58%	5.23%	2.13%
Return on assets in plans	7.75%	7.75%	7.75%
Health care trend rate	6.50%	7.00%	6.50%

To determine the discount rates used to measure our benefit obligations, we utilize analyses in which the projected annual cash flows from the pension and other postretirement benefit plans were matched with yield curves based on an appropriate universe of high-quality corporate bonds. We use the results of the yield curve analyses to select the discount rates that match the payment streams of the benefits in these plans.

We use a spot rate approach to estimate the service cost and interest cost components of net periodic benefit cost for our pension and other postretirement benefit plans.

Health Care Cost Trend Assumptions

For measurement purposes at December 31, 2024, increases in the per capita cost of pre-Medicare covered health care benefits were assumed to be 6.5% for 2025. We assume the rate will ratably decrease to an ultimate rate of 5.0% for 2031 and remain at that level thereafter.

Asset Management

Twelve investment firms manage our defined benefit pension plan’s assets under investment guidelines approved by our Benefits Investment Committee that is composed of members of our management. Investments are restricted to domestic and international equity securities, domestic and international fixed income securities, and unleveraged exchange-traded options and financial futures. Limitations restrict investment concentration and use of certain derivative investments. The target asset allocation for equity is 75% of the pension plan’s assets. Fixed income investments must consist predominantly of securities rated investment grade or higher. Equity investments must be in liquid securities listed on national exchanges. No investment is permitted in our securities (except through commingled pension trust funds).

Our pension plan's weighted-average asset allocations, by asset category, were as follows:

	Percentage of Plan Assets at December 31,	
	2024	2023
Domestic equity securities	52%	50%
Debt securities	25%	24%
International equity securities	22%	24%
Cash and cash equivalents	1%	2%
Total	100%	100%

The other postretirement benefit plan assets consist primarily of trust-owned variable life insurance policies with an asset allocation at December 31, 2024 of 65% in equity securities and 35% in debt securities compared with 66% in equity securities and 34% in debt securities at December 31, 2023. The target asset allocation for equity is between 50% and 75% of the plan's assets.

The plans' assumed future returns are based principally on the asset allocations and historical returns for the plans' asset classes determined from both actual plan returns and, over longer time periods, expected market returns for those asset classes. For 2025, we assume an 8.00% return on pension plan assets.

Fair Value of Plan Assets

The following is a description of the valuation methodologies used for pension plan assets measured at fair value.

Common stock: Shares held by the plan at year end are valued at the official closing price as defined by the exchange or at the most recent trade price of the security at the close of the active market.

Common collective trusts: The readily determinable fair value is based on the published fair value per unit of the trusts. The common collective trusts hold equity securities, fixed income securities and cash and cash equivalents.

Fixed income securities: Valued based on quotes received from independent pricing services or at an estimated price at which a dealer would pay for the security at year end using observable market-based inputs.

Commingled funds: The readily determinable fair value is based on the published fair value per unit of the funds. The commingled funds hold equity securities.

Cash and cash equivalents: Short-term Treasury bills or notes are valued at an estimated price at which a dealer would pay for the security at year end using observable market-based inputs; money market funds are valued at the closing price reported on the active market on which the funds are traded.

The following table sets forth the pension plan's assets by valuation technique level, within the fair value hierarchy. There were no level 3 valued assets at December 31, 2024 or 2023.

	December 31, 2024		
	Level 1	**Level 2**	**Total**
	($ in millions)		
Common stock	$ 1,054	$ —	$ 1,054
Common collective trusts:			
International equity securities	—	362	362
Debt securities	—	637	637
Domestic equity securities	—	346	346
Fixed income securities:			
Government and agencies securities	—	4	4
Commingled funds	—	123	123
Cash and cash equivalents	25	—	25
Total investments	$ 1,079	$ 1,472	$ 2,551

	December 31, 2023		
	Level 1	**Level 2**	**Total**
	($ in millions)		
Common stock	$ 1,192	$ —	$ 1,192
Common collective trusts:			
International equity securities	—	371	371
Debt securities	—	310	310
Domestic equity securities	—	166	166
Fixed income securities:			
Government and agencies securities	—	170	170
Corporate bonds	—	93	93
Mortgage and other asset-backed securities	—	32	32
Commingled funds	—	122	122
Cash and cash equivalents	47	—	47
Total investments	$ 1,239	$ 1,264	$ 2,503

The following is a description of the valuation methodologies used for other postretirement benefit plan assets measured at fair value.

> Trust-owned life insurance: Valued at our interest in trust-owned life insurance issued by a major insurance company. The underlying investments owned by the insurance company consist of a U.S. stock account and a U.S. bond account but may retain cash at times as well. The U.S. stock account and U.S. bond account are valued based on readily determinable fair values.

The other postretirement benefit plan assets consisted of trust-owned life insurance with fair values of $145 million and $138 million at December 31, 2024 and 2023, respectively, and are valued under level 2 of the fair value hierarchy. There were no level 1 or level 3 valued assets.

Contributions and Estimated Future Benefit Payments

In 2025, we expect to contribute approximately $21 million to our unfunded pension plans for payments to pensioners and approximately $30 million to our other postretirement benefit plans for retiree health and death benefits. We do not expect to contribute to our funded pension plan in 2025.

Benefit payments, which reflect expected future service, as appropriate, are expected to be paid as follows:

	Pension Benefits	Other Postretirement Benefits
	($ in millions)	
2025	$ 153	$ 30
2026	152	29
2027	150	27
2028	149	26
2029	148	25
Years 2030 – 2034	738	119

Other Postretirement Coverage

Under collective bargaining agreements, Norfolk Southern and certain subsidiaries participate in a multi-employer benefit plan, which provides certain postretirement health care and life insurance benefits to eligible craft employees. Premiums under this plan are expensed as incurred and totaled $9 million, $11 million, and $13 million in 2024, 2023, and 2022, respectively.

Section 401(k) Plans

Norfolk Southern and certain subsidiaries provide Section 401(k) savings plans for employees. Under the plans, we match a portion of employee contributions, subject to applicable limitations. Our matching contributions, recorded as an expense, totaled $25 million in both 2024 and 2023, and $22 million in 2022.

14. Stock-Based Compensation

Under the stockholder-approved LTIP, the Human Capital Management and Compensation Committee (Committee), which is made up of nonemployee members of the Board, or the Chief Executive Officer (when delegated authority by such Committee), may grant stock options, stock appreciation rights (SARs), restricted stock units (RSUs), restricted shares, performance share units (PSUs), and performance shares, up to a maximum of 104,125,000 shares of our Common Stock, of which 7,438,613 remain available for future grants as of December 31, 2024.

The number of shares remaining for issuance under the LTIP is reduced (i) by 1 for each award granted as a stock option or stock-settled SAR, or (ii) by 1.61 for an award made in the form other than a stock option or stock-settled SAR. Under the Board-approved Thoroughbred Stock Option Plan (TSOP), the Committee may grant stock options up to a maximum of 6,000,000 shares of Common Stock. We use newly issued shares to satisfy any exercises and awards under the LTIP and the TSOP.

The LTIP also permits the payment, on a current or a deferred basis and in cash or in stock, of dividend equivalents on shares of Common Stock covered by stock options, RSUs, or PSUs in an amount commensurate with regular quarterly dividends paid on Common Stock. With respect to stock options, if employment of the participant is terminated for any reason, including retirement, disability, or death, we have no further obligation to make any

dividend equivalent payments. Regarding RSUs, we have no further obligation to make any dividend equivalent payments unless employment of the participant is terminated as a result of qualifying retirement or disability. Should an employee terminate employment, they are not required to forfeit dividend equivalent payments already received. Outstanding PSUs do not receive dividend equivalent payments.

The Committee granted stock options, RSUs, and PSUs pursuant to the LTIP for the last three years as follows:

	2024		2023		2022	
	Granted	Weighted-Average Grant-Date Fair Value	Granted	Weighted-Average Grant-Date Fair Value	Granted	Weighted-Average Grant-Date Fair Value
Stock options	107,620	$ 77.38	69,580	$ 77.60	140,080	$ 61.32
RSUs	280,111	238.28	214,936	230.12	180,306	265.21
PSUs	64,990	258.60	59,200	236.16	58,945	272.22

Recipients of certain RSUs and PSUs pursuant to the LTIP who retire prior to December 31st will forfeit a portion of awards received in the current year. Receipt of certain LTIP awards is contingent on the recipient having executed a non-compete agreement with the company. Forfeitures are recognized as they occur.

We account for our grants of stock options, RSUs, PSUs, and dividend equivalent payments in accordance with FASB ASC 718, "*Compensation - Stock Compensation*." Accordingly, all awards result in charges to net income while dividend equivalent payments, which are all related to equity classified awards, are charged to retained income. Compensation cost for the awards is recognized on a straight-line basis over the requisite service period for the entire award. Related compensation costs and tax benefits during the years were:

	2024	2023	2022
		($ in millions)	
Stock-based compensation expense	$ 40	$ 40	$ 53
Total tax benefit	11	15	27

Stock Options

Option exercise prices will be at least the higher of (i) the average of the high and low prices at which Common Stock is traded on the grant date, or (ii) the closing price of Common Stock on the grant date. All options are subject to a vesting period of at least one year, and the term of the option will not exceed ten years. Holders of the options granted under the LTIP who remain actively employed receive cash dividend equivalent payments for four years in an amount equal to the regular quarterly dividends paid on Common Stock.

For all years prior to 2024, options granted under the LTIP and the TSOP may not be exercised prior to the fourth and third anniversaries of the date of grant, respectively, or if the optionee retires or dies before that anniversary date, may not be exercised before the later of one year after the grant date or the date of the optionee's retirement or death. Beginning in 2024, a prorated portion of the total LTIP award will vest on the first anniversary of the grant date continuing annually through the fourth anniversary of the grant date.

The fair value of each option awarded was measured on the date of grant using the Black-Scholes valuation model. Expected volatility is based on implied volatility from traded options on, and historical volatility of, Common Stock. Historical data is used to estimate option exercises and employee terminations within the valuation model. Historical exercise data is used to estimate the average expected option term. The average risk-free interest rate is based on the U.S. Treasury yield curve in effect at the time of grant. A dividend yield of zero was used for the LTIP

options during the vesting period. For 2024, 2023, and 2022, a dividend yield of 2.25%, 2.24%, and 1.85%, respectively, was used for the vested period during the remaining expected option term for LTIP options.

The assumptions for the LTIP grants for the last three years are shown in the following table:

	2024	2023	2022
Average expected volatility	28%	27%	27%
Average risk-free interest rate	3.93%	3.54%	1.80%
Average expected option term	6.7 years	7.0 years	6.5 years

A summary of changes in stock options is presented below:

	Stock Options	Weighted-Average Exercise Price
Outstanding at December 31, 2023	743,397	$ 155.17
Granted	107,620	242.06
Exercised	(348,533)	120.95
Forfeited	(129,820)	250.29
Outstanding at December 31, 2024	372,664	179.14

The aggregate intrinsic value of options outstanding at December 31, 2024 was $25 million with a weighted-average remaining contractual term of 4.5 years. Of these options outstanding, 247,725 were exercisable and had an aggregate intrinsic value of $25 million with a weighted-average exercise price of $141.19 and a weighted-average remaining contractual term of 2.7 years.

The following table provides information related to options exercised for the last three years:

	2024	2023	2022
		($ in millions)	
Options exercised	348,533	206,016	307,660
Total intrinsic value	$ 46	$ 27	$ 54
Cash received upon exercise	41	19	25
Related tax benefits realized	8	6	12

At December 31, 2024, total unrecognized compensation related to options granted under the LTIP was $3 million, and is expected to be recognized over a weighted-average period of approximately 2.6 years.

Restricted Stock Units

RSUs granted primarily have a four-year ratable restriction period and will be settled through the issuance of shares of Common Stock. Certain RSU grants include cash dividend equivalent payments during the restriction period in an amount equal to regular quarterly dividends paid on Common Stock. The fair value of each RSU was measured on the date of grant as the average of the high and low prices at which Common Stock is traded on the grant date, adjusted for the impact of dividend equivalent payments as applicable.

	2024	2023	2022
		($ in millions)	
RSUs vested	171,620	157,417	249,138
Common Stock issued net of tax withholding	118,365	110,069	175,781
Related tax benefits realized	$ 1	$ 1	$ 5

A summary of changes in RSUs is presented below:

	RSUs	Weighted-Average Grant-Date Fair Value
Nonvested at December 31, 2023	433,858	$ 239.21
Granted	280,111	238.28
Vested	(171,620)	234.80
Forfeited	(73,480)	235.84
Nonvested at December 31, 2024	468,869	240.80

At December 31, 2024, total unrecognized compensation related to RSUs was $52 million and is expected to be recognized over a weighted-average period of approximately 2.6 years.

Performance Share Units

PSUs provide for awards based on the achievement of certain predetermined corporate performance goals at the end of a three-year cycle and are settled through the issuance of shares of Common Stock. All PSUs will earn out based on the achievement of performance conditions and some will also earn out based on a market condition. The market condition fair value was measured on the date of grant using a Monte Carlo simulation model.

	2024	2023	2022
		($ in millions)	
PSUs earned	41,580	58,599	86,420
Common Stock issued net of tax withholding	26,056	40,255	54,651
Related tax benefits realized	$ —	$ —	$ 1

A summary of changes in PSUs is presented below:

	PSUs	Weighted-Average Grant-Date Fair Value
Balance at December 31, 2023	136,709	$ 247.28
Granted	64,990	258.60
Earned	(41,580)	240.64
Forfeited	(85,095)	251.40
Balance at December 31, 2024	75,024	256.08

At December 31, 2024, total unrecognized compensation related to PSUs granted under the LTIP was $2 million and is expected to be recognized over a weighted-average period of approximately 1.9 years.

Shares Available and Issued

Shares of Common Stock available for future grants and issued in connection with all features of the LTIP and the TSOP at December 31, were as follows:

	2024	2023	2022
Available for future grants:			
LTIP	7,438,613	7,731,573	8,238,993
TSOP	437,746	436,571	436,402
Issued:			
LTIP	444,189	315,700	503,090
TSOP	48,765	40,640	35,002

15. Stockholders' Equity

Common Stock

Common Stock is reported net of shares held by our consolidated subsidiaries (Treasury Shares). Treasury Shares at December 31, 2024 and 2023 amounted to 20,320,777, with a cost of $19 million at both dates.

Accumulated Other Comprehensive Loss

The components of "Other comprehensive income" reported in the Consolidated Statements of Comprehensive Income and changes in the cumulative balances of "Accumulated other comprehensive loss" reported in the Consolidated Balance Sheets consisted of the following:

	Balance at Beginning of Year	Net Income	Reclassification Adjustments	Balance at End of Year
		($ in millions)		
Year ended December 31, 2024				
Pensions and other postretirement liabilities	$ (292)	$ 74	$ (22)	$ (240)
Other comprehensive income of equity investees	(28)	6	—	(22)
Accumulated other comprehensive loss	$ (320)	$ 80	$ (22)	$ (262)
Year ended December 31, 2023				
Pensions and other postretirement liabilities	$ (319)	$ 44	$ (17)	$ (292)
Other comprehensive income of equity investees	(32)	4	—	(28)
Accumulated other comprehensive loss	$ (351)	$ 48	$ (17)	$ (320)

Other Comprehensive Income

"Other comprehensive income" reported in the Consolidated Statements of Comprehensive Income consisted of the following:

	Pretax Amount	Tax (Expense) Benefit	Net-of-Tax Amount
		($ in millions)	
Year ended December 31, 2024			
Net gain arising during the year:			
Pensions and other postretirement benefits	$ 98	$ (24)	$ 74
Reclassification adjustments for costs included in net income	(28)	6	(22)
Subtotal	70	(18)	52
Other comprehensive income of equity investees	7	(1)	6
Other comprehensive income	$ 77	$ (19)	$ 58
Year ended December 31, 2023			
Net gain arising during the year:			
Pensions and other postretirement benefits	$ 59	$ (15)	$ 44
Reclassification adjustments for costs included in net income	(23)	6	(17)
Subtotal	36	(9)	27
Other comprehensive income of equity investees	4	—	4
Other comprehensive income	$ 40	$ (9)	$ 31
Year ended December 31, 2022			
Net gain arising during the year:			
Pensions and other postretirement benefits	$ 27	$ (7)	$ 20
Reclassification adjustments for costs included in net income	24	(7)	17
Subtotal	51	(14)	37
Other comprehensive income of equity investees	17	(3)	14
Other comprehensive income	$ 68	$ (17)	$ 51

16. Stock Repurchase Programs

We did not repurchase any shares of Common Stock under our stock repurchase program in 2024, while we repurchased and retired 2.8 million and 12.6 million shares of Common Stock under our stock repurchase programs in 2023 and 2022, respectively, at a cost of $627 million and $3.1 billion, respectively, inclusive of excise taxes.

On March 29, 2022, our Board of Directors authorized a new program for the repurchase of up to $10.0 billion of Common Stock beginning April 1, 2022. As of December 31, 2024, $6.9 billion remains authorized for repurchase. Our previous share repurchase program terminated on March 31, 2022.

17. Earnings Per Share

The following table sets forth the calculation of basic and diluted earnings per share:

	Basic			Diluted		
	2024	**2023**	**2022**	**2024**	**2023**	**2022**
	($ in millions except per share amounts, shares in millions)					
Net income	$ 2,622	$ 1,827	$ 3,270	$ 2,622	$ 1,827	$ 3,270
Dividend equivalent payments	(3)	(3)	(2)	(2)	(3)	(1)
Income available to common stockholders	$ 2,619	$ 1,824	$ 3,268	$ 2,620	$ 1,824	$ 3,269
Weighted-average shares outstanding	226.1	226.9	234.8	226.1	226.9	234.8
Dilutive effect of outstanding options and share-settled awards				0.3	0.5	0.8
Adjusted weighted-average shares outstanding				226.4	227.4	235.6
Earnings per share	$ 11.58	$ 8.04	$ 13.92	$ 11.57	$ 8.02	$ 13.88

In each year, dividend equivalent payments were made to certain holders of stock options and RSUs. For purposes of computing basic earnings per share, dividend equivalent payments made to holders of stock options and RSUs were deducted from net income to determine income available to common stockholders. For purposes of computing diluted earnings per share, we evaluate on a grant-by-grant basis those stock options and RSUs receiving dividend equivalent payments under the two-class and treasury stock methods to determine which method is more dilutive for each grant. For those grants for which the two-class method was more dilutive, net income was reduced by dividend equivalent payments to determine income available to common stockholders. The dilution calculations exclude options having exercise prices exceeding the average market price of Common Stock as follows: 0.1 million for the years ended December 31, 2024, 2023, and 2022.

18. Commitments and Contingencies

Eastern Ohio Incident

Summary

On February 3, 2023, a train operated by us derailed in East Palestine, Ohio. The derailed equipment included 38 railcars, 11 of which were non-Company-owned tank cars containing hazardous materials. Fires associated with the derailment threatened certain tank cars. There was concern that the pressure inside of the tank cars carrying vinyl chloride was rising and that the pressure relief devices were no longer functioning properly, which would have

posed the risk of a catastrophic explosion. As a consequence, on February 6, 2023, the local incident commander (the East Palestine Fire Chief)—in consultation with the incident command that included, among others, federal, state and local officials and Norfolk Southern—opted to conduct a controlled vent and burn of five derailed tank cars, all of which contained vinyl chloride. This procedure involved creating holes in the five tank cars to drain the vinyl chloride into adjacent trenches that had been dug into the ground where the vinyl chloride was ignited and burned. Any remaining materials released from the derailment or during the vent and burn have been or are being remediated. The February 3rd derailment, the associated fire, and the resulting vent and burn of the tank cars containing vinyl chloride on February 6th is hereinafter referred to as the "Incident."

In response to the Incident, we have been working to clean the site safely and thoroughly, including those activities described in the Environmental Matters section below with respect to potentially impacted air, soil, and water and to monitor for any impact on public health and the environment. We are working with federal, state, and local officials to mitigate impacts from the Incident, including, among other efforts, conducting environmental monitoring and clean-up activities (as more fully described below), and operating a field office to provide support to members of East Palestine and the surrounding communities.

Financial Impact

Although we cannot predict the final outcome or estimate the reasonably possible range of loss related to the Incident with certainty, we have accrued amounts for probable and reasonably estimable liabilities for those environmental and non-environmental matters described below. Certain costs incurred thus far and related to the Incident may be recoverable under our insurance policies in effect at the date of the Incident or from third parties. For additional information about our insurance coverage, see "Insurance" below. Any additional amounts recoverable under our insurance policies or from third parties will be reflected in future periods when recovery is considered probable.

Amounts recorded related to the Incident, including outstanding liabilities at the end of each year, are summarized in the table below. Our current estimates of probable and reasonably estimable liabilities principally associated with environmental matters and legal proceedings are discussed in further detail below.

	Environmental Matters	Legal Contingencies and Other	Total	Insurance Recoveries	Total - Net of Recoveries
			($ in millions)		
At December 31, 2022	$ —	$ —	$ —	$ —	$ —
Expense/(Recoveries)	836	381	1,217	(101)	1,116
(Payments)/Receipts	(517)	(236)	(753)	101	(652)
At December 31, 2023	$ 319	$ 145	$ 464	$ —	$ 464
Expense/(Recoveries)	190	785	975	(650)	325
(Payments)/Receipts	(265)	(486)	(751)	632	(119)
At December 31, 2024	$ 244	$ 444	$ 688	$ (18)	$ 670

At December 31, 2024 and December 31, 2023, we have also recorded a deferred tax asset (Note 5) of $211 million and $249 million, respectively, related to the Incident expecting that certain expenses will be deductible for tax purposes in future periods or offset with insurance recoveries.

Environmental Matters – In response to the Incident, we have been working with federal, state, and local officials such as the U.S. Environmental Protection Agency (EPA), the Ohio EPA, the Pennsylvania Department of Environmental Protection (DEP), and the Columbiana County Health District to conduct environmental response and remediation activities, some of which have concluded and some which are continuing, including but not limited to, excavating and disposing of potentially affected soil (based on

sampling results), air monitoring, indoor air quality screenings, municipal water and private water well testing, residential, commercial, and agricultural soil sampling, surface water and groundwater sampling, re-routing a local waterway around the affected site, and capturing and shipping stormwater that enters the impacted derailment site to proper disposal facilities. The EPA issued a Unilateral Administrative Order (UAO) on February 21, 2023, containing various requirements, including the submission of numerous work plans to assess and remediate various environmental media and performance of certain removal actions at the affected site. On February 24, 2023, we submitted to the EPA our Notice of Intent to Comply with the UAO. We continue to conduct environmental assessment and remediation activities pursuant to the UAO and the directives issued thereunder, including sampling and excavating soil (if needed based on sampling results) at the affected site, including areas beneath our tracks. On October 18, 2023, the U.S. EPA issued a second unilateral order under Section 311(c) of the Clean Water Act (CWA Order), requiring preparation of additional environmental work plans to address local waterways. We timely submitted our Notice of Intent to Comply with the CWA Order and continue to complete environmental assessment and remediation as required by the EPA, as well as state agencies, in compliance with the CWA Order. Once approved by the court, the proposed Consent Decree (discussed below) will supersede the UAO and CWA Order.

We are also subject to the following legal proceedings that principally relate to the environmental impact of the Incident:

- The U.S. DOJ filed a civil complaint on behalf of the U.S. EPA (the DOJ Complaint) in the Northern District of Ohio (Eastern Division) seeking injunctive relief and civil penalties for alleged violations of the CWA and cost recovery under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Ohio Attorney General (AG) also filed a lawsuit (the Ohio Complaint) in the Northern District of Ohio (Eastern Division) seeking damages for a variety of common law and environmental statutory claims under CERCLA and various state laws. The DOJ and Ohio AG cases have been consolidated for discovery purposes. We have filed an answer, and discovery is ongoing in the Ohio AG case. On June 30, 2023, we filed third-party claims against certain railcar defendants and shippers involved in the Incident. The Court dismissed the third party claims on March 6, 2024, and on March 26, 2024, we filed a motion requesting the Court to enter partial final judgment as to the third party claims. On May 23, 2024, DOJ and the Company reached a settlement to resolve all of the government's civil claims against the Company related to the Incident, and jointly lodged a proposed Consent Decree with the court. As proposed, the Consent Decree will require the Company to pay for the federal government's oversight costs of $57 million through November 30, 2023 as well as additional oversight costs from December 1, 2023 until the remediation is complete. The proposed Consent Decree also requires the Company to pay a civil penalty of $15 million for alleged violations of the CWA. Other provisions of the proposed Consent Decree relate to injunctive relief for safety, community support including medical and mental health programs, and environmental support, which provisions, if approved by the court, will be in effect between five years to twenty years. The proposed Consent Decree was subject to a mandatory public comment period, which ended on August 2, 2024, and DOJ filed a motion on October 10, 2024 seeking entry of the Consent Decree. The Ohio AG did not join this settlement and its claims remain outstanding and are proceeding.

In accordance with FASB ASC 410-30 "*Environmental Liabilities,*" we have recognized probable and reasonably estimable liabilities in connection with the foregoing environmental matters. Our current estimate includes ongoing and future environmental cleanup activities and remediation efforts, governmental oversight costs (including those incurred by the EPA and the Ohio EPA), and other related costs, including those in connection with the proposed DOJ Consent Decree (including civil penalties related to alleged violations of the CWA). Our current estimates of future environmental cleanup and remediation liabilities related to the Incident may change over time due to various factors, including but not limited to, the nature and extent of required future cleanup and removal activities (including those resulting from soil, water, and sediment remediation activities that are currently being, and will continue to be, conducted at the site), and the extent and duration of governmental oversight, amongst other factors. As

clean-up efforts progress and more information is available, we will review these estimates and revise as appropriate.

Legal Proceedings and Claims (Non-Environmental) – To date, numerous non-environmental legal actions have commenced with respect to the Incident, including those more specifically set forth below.

- There is a consolidated putative class action pending in the Northern District of Ohio (Eastern Division) (the Ohio Class Action) in which plaintiffs allege various claims, including negligence, gross negligence, strict liability, and nuisance, and seeking as relief compensatory and punitive damages, medical monitoring and business losses. On July 12, 2023, we filed a third-party complaint bringing in multiple parties involved in the Incident. Fact discovery ended on February 5, 2024. The Court denied in part and granted in part all motions to dismiss, as to the plaintiffs' case and as to our third-party complaint, on March 13, 2024. On April 26, 2024, we entered into a class action settlement with the plaintiffs to resolve the Ohio Class Action for $600 million. The settlement agreement resolves all class action claims within a 20-mile radius from the derailment and, for those residents who choose to participate, personal injury claims within a 10-mile radius from the derailment. The settlement agreement does not resolve, and expressly preserves, our third-party claims in the third-party complaint. The district court granted final approval of the settlement on September 27, 2024, which was subsequently appealed. We made a partial payment of the settlement in 2024, in the amount of $315 million. Payment of the remaining balance, including timing, is dependent upon resolution of any appeals to the settlement.

  Another putative class action is pending in the Western District of Pennsylvania, brought by Pennsylvania school districts and students. On August 22, 2023, six Pennsylvania school districts and students filed a putative class action lawsuit alleging negligence, strict liability, nuisance, and trespass, and seeking damages and health monitoring. On December 8, 2023, the school districts amended their complaint to add additional companies as defendants in the action. On February 23, 2024, we and the other defendants filed motions to dismiss and those motions are fully briefed and currently pending before the court. Combined with the Ohio Class Action, these lawsuits are collectively referred to herein as the Incident Lawsuits.

  In accordance with FASB ASC 450, "*Contingencies,*" as of December 31, 2024 and December 31, 2023, we had accruals for probable and reasonably estimable liabilities principally associated with the Incident Lawsuits and related contingencies of $369 million and $82 million, respectively. For the reasons set forth below, our estimated loss or range of loss with respect to the Incident Lawsuits may change from time to time, and it is reasonably possible that we will incur actual losses in excess of the amounts currently accrued and such additional amounts may be material. While we continue to work with parties with respect to potential resolution, no assurance can be given that we will be successful in doing so and we cannot predict the outcome of these matters.

- We have received securities and derivative litigation and multiple shareholder document and litigation demand letters, including a securities class action lawsuit under the Securities Exchange Act of 1934 (Exchange Act) initially filed in the Southern District of Ohio alleging multiple securities law violations but since transferred to the Northern District of Georgia, a securities class action lawsuit under the Securities Act of 1933 (Securities Act) filed in the Southern District of New York alleging misstatements in association with our debt offerings, and six shareholder derivative complaints filed in Virginia state court asserting claims for breach of fiduciary duties, waste of corporate assets, and unjust enrichment in connection with safety of the Company's operations, among other claims (collectively, the Shareholder Matters). On February 2, 2024, defendants filed a motion to dismiss the complaint in the Securities Act lawsuit, and on July 26, 2024, the magistrate judge issued a Report and Recommendation to the district judge, recommending that the defendants' motion to dismiss be granted in part and denied in part. Defendants' objections to the Report and Recommendation were filed on August 9, 2024, and

plaintiffs' response to defendants' objections were filed on August 23, 2024. A decision on the motion to dismiss remains pending. The plaintiffs filed an amended complaint in the Exchange Act lawsuit on April 25, 2024, and the defendants filed a motion to dismiss on June 24, 2024. A decision on the motion to dismiss remains pending. No responsive pleadings have been filed yet with respect to the other Shareholder Matters.

- We are also named as a defendant in various other Incident-related lawsuits involving other potentially affected third parties, some of which were filed on or around February 3, 2025. We are continuing to assess the claims and any potential impact on the Company.

With respect to the Incident-related litigation and regulatory matters, we record a liability for loss contingencies through a charge to earnings when we conclude that it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated and disclose such liability if we conclude it to be material. Any adjustments to the recorded liability will be reflected in earnings in the periods in which such adjustments become known. Because the final outcome of any of these legal proceedings cannot be predicted with certainty, developments related to the progress of such legal proceedings or other unfavorable or unexpected developments or outcomes could result in additional costs or new or additionally accrued amounts that could be material to our results of operations in a particular year or quarter. In addition, if it is reasonably possible that we will incur Incident-related losses in excess of the amounts currently recorded as a loss contingency, we disclose the potential range of loss, if reasonably estimable, or we disclose that we cannot reasonably estimate such an amount at this time. For Incident-related litigation and regulatory matters where a loss may be reasonably possible, but not probable, or probable but not reasonably estimable, no accrual is established but the matter, if potentially material, is disclosed.

Our estimates of probable losses and reasonably possible losses are based upon currently available information and involve significant judgement and a variety of assumptions, given that (1) certain legal and regulatory proceedings are in early stages; (2) discovery may not be completed; (3) damages sought in these legal and regulatory proceedings can be unsubstantiated or indeterminate; (4) there are often significant facts in dispute; and/or (5) there is a wide range of possible outcomes. Accordingly, our estimated range of loss with respect to these matters may change from time to time, and actual losses may exceed current estimates. At this time, we are unable to estimate the possible loss or range of loss in excess of the amounts accrued with respect to the matters described above.

The amounts recorded do not include any estimate of loss for which we believe a loss is either not probable or not reasonably estimable for any fines or penalties (in excess of the liabilities established for CWA-related civil penalties) that may be imposed as a result of the Incident Inquiries and Investigations, as more specifically set forth and defined below (the outcome of which are uncertain at this time).

Inquiries and Investigations

As set forth above, we are subject to inquiries and investigations by numerous federal, state, and local government authorities and regulatory agencies regarding the Incident, including but not limited to, the NTSB, the FRA, the Occupational Safety and Health Administration, the Ohio AG, and the Pennsylvania AG. Further details regarding the NTSB and FRA investigations are set forth below. We are cooperating with all pending inquiries and investigations, including responding to civil and criminal subpoenas and other requests for information (the aforementioned inquiries and investigations, as well as the civil and criminal subpoenas are collectively referred to herein as the Incident Inquiries and Investigations). Aside from the FRA Safety Assessment (defined and described below), the outcome of any current or future Incident Inquiries and Investigations is uncertain at this time, including any related fines, penalties or settlements. Therefore, our accruals for probable and reasonably estimable liabilities related to the Incident do not include estimates of the total amount that we may incur for any such fines, penalties or settlements.

Subsequent to the Incident, investigators from the NTSB examined railroad equipment and track conditions; reviewed data from the signal system, wayside defect detectors, local surveillance cameras, and the lead locomotive's event recorder and forward-facing and inward-facing image recorders; and completed certain interviews (the NTSB Investigation). The NTSB concluded its investigation and adopted a final investigative report on June 25, 2024, then issued the final public report on July 12, 2024. The NTSB found that the probable cause of the derailment was the failure of a bearing which overheated and caused the axle to separate, derailing the train and leading to a post-derailment fire. The NTSB issued over 30 recommendations, of which four were issued to Norfolk Southern. The NTSB continues to work on a safety culture investigation, and a report on this part of the investigation is expected to be issued in the spring of 2025.

Concurrent with the NTSB Investigation, the FRA also investigated the Incident. Similar in scope to the NTSB Investigation, the FRA examined railroad equipment, track conditions, hazardous materials train placement and routing, and emergency response (the FRA Incident Investigation). The FRA Incident Investigation will likely result in the assessment of civil penalties, though the amount and materiality of these penalties cannot be reasonably estimated at this time. In addition to the FRA Incident Investigation, the FRA completed a 60-day supplemental safety assessment (the FRA Safety Assessment). The FRA Safety Assessment included a review of findings from a previously completed 2022 system audit and an assessment of operational elements including, but not limited to: track, signal, and rolling stock maintenance, inspection and repair practices; protection of employees; communications between transportation departments and mechanical and engineering staff; operation control center procedures and dispatcher training. The overall scope of the FRA Safety Assessment was to examine our safety culture. The FRA issued a public report in early August 2023 which included its findings and related corrective actions. We have launched initiatives to implement all of these items, and will monitor progress on these initiatives going forward.

Other Commitments and Contingencies

Lawsuits

We and/or certain subsidiaries are defendants in numerous lawsuits and other claims relating principally to railroad operations. When we conclude that it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated, it is accrued through a charge to earnings and, if material, disclosed below. While the ultimate amount of liability incurred in any of these lawsuits and claims is dependent on future developments, in our opinion, the recorded liability is adequate to cover the future payment of such liability and claims. However, the final outcome of any of these lawsuits and claims cannot be predicted with certainty, and unfavorable or unexpected outcomes could result in additional accruals that could be significant to results of operations in a particular year or quarter. Any adjustments to the recorded liability will be reflected in earnings in the periods in which such adjustments become known. For lawsuits and other claims where a loss may be reasonably possible, but not probable, or is probable but not reasonably estimable, no accrual is established but the matter, if potentially material, is disclosed below. We routinely review relevant information with respect to our lawsuits and other claims and update our accruals, disclosures and estimates of reasonably possible loss based on such reviews.

In 2007, various antitrust class actions filed against us and other Class I railroads in various Federal district courts regarding fuel surcharges were consolidated in the District of Columbia by the Judicial Panel on Multidistrict Litigation. In 2012, the court certified the case as a class action. The defendant railroads appealed this certification, and the Court of Appeals for the District of Columbia vacated the District Court's decision and remanded the case for further consideration. On October 10, 2017, the District Court denied class certification. The decision was upheld by the Court of Appeals on August 16, 2019. Since that decision, various individual cases have been filed in multiple jurisdictions and also consolidated in the District of Columbia. We intend to vigorously defend the cases and we believe that we will prevail. However, given that litigation is inherently unpredictable and subject to uncertainties, there can be no assurances that the final resolution of the litigation will not be material. At this time, we cannot reasonably estimate the potential loss or range of loss associated with this matter.

In 2018, a lawsuit was filed against one of our subsidiaries by the minority owner in a jointly-owned terminal railroad company in which our subsidiary has the majority ownership. The lawsuit alleged violations of various state laws and federal antitrust laws. On January 3, 2023, the court granted summary judgment to us on all of the compensatory claims but denied summary judgment for all equitable relief claims. On January 18, 2023, the court dismissed the federal equitable relief claims, leaving the state equitable relief claims as the sole remaining issue under consideration. On April 19, 2023, the court disposed of all remaining state equitable relief claims. On August 29, 2024, the United States Court of Appeals for the Fourth Circuit affirmed the opinion of the lower court. We will continue to vigorously defend the lawsuit and, although it is reasonably possible we could incur a loss in the case, we believe that we will prevail. However, given that litigation is inherently unpredictable and subject to uncertainties, there can be no assurances that the final outcome of the litigation (including the related appeal) will not be material. Until such appeal is final, we cannot reasonably estimate the potential loss or range of loss associated with this matter.

Casualty Claims

Casualty claims include employee personal injury and occupational claims as well as third-party claims, all exclusive of legal costs. To aid in valuing our personal injury liability and determining the amount to accrue with respect to such claims during the year, we utilize studies prepared by an independent consulting actuarial firm. Job-related personal injury and occupational claims are subject to the FELA, which is applicable only to railroads. The variability inherent in FELA's fault-based tort system could result in actual costs being different from the liability recorded. While the ultimate amount of claims incurred is dependent on future developments, in our opinion, the recorded liability is adequate to cover the future payments of claims and is supported by the most recent actuarial study. In all cases, we record a liability when the expected loss for the claim is both probable and reasonably estimable.

Employee personal injury claims – Other than Incident-related matters noted above, the largest component of claims expense is employee personal injury costs. The independent actuarial firm we engage provides quarterly studies to aid in valuing our employee personal injury liability and estimating personal injury expense. The actuarial firm studies our historical patterns of reserving for claims and subsequent settlements, taking into account relevant outside influences. The actuarial firm provides the results of these analyses to aid in our estimate of the ultimate amount of liability. We adjust the liability quarterly based upon our assessment and the results of the study. The accuracy of our estimate of the liability is subject to inherent limitation given the difficulty of predicting future events such as jury decisions, court interpretations, or legislative changes. As a result, actual claim settlements may vary from the estimated liability recorded.

Occupational claims – Occupational claims include injuries and illnesses alleged to be caused by exposures which occur over time as opposed to injuries or illnesses caused by a specific accident or event. Types of occupational claims commonly seen allege exposure to asbestos and other claimed toxic substances resulting in respiratory diseases or cancer. Many such claims are being asserted by former or retired employees, some of whom have not been employed in the rail industry for decades. The independent actuarial firm provides an estimate of the occupational claims liability based upon our history of claim filings, severity, payments, and other pertinent facts. The liability is dependent upon judgments we make as to the specific case reserves as well as judgments of the actuarial firm in the quarterly studies. Our estimate of ultimate loss includes a provision for those claims that have been incurred but not reported. This provision is derived by analyzing industry data and projecting our experience. We adjust the liability quarterly based upon our assessment and the results of the study. However, it is possible that the recorded liability may not be adequate to cover the future payment of claims. Adjustments to the recorded liability are reflected in operating expenses in the periods in which such adjustments become known.

Third-party claims – We record a liability for third-party claims including those for highway crossing accidents, trespasser and other injuries, property damage, and lading damage. The actuarial firm assists us with the calculation of potential liability for third-party claims, except lading damage, based upon our experience including the number and timing of incidents, amount of payments, settlement rates, number of open claims, and legal defenses. We adjust the liability quarterly based upon our assessment and the results of the study. Given the inherent uncertainty

in regard to the ultimate outcome of third-party claims, it is possible that the actual loss may differ from the estimated liability recorded.

Environmental Matters

We are subject to various jurisdictions' environmental laws and regulations. We record a liability where such liability or loss is probable and reasonably estimable. Environmental specialists regularly participate in ongoing evaluations of all known sites and in determining any necessary adjustments to liability estimates.

In addition to environmental claims associated with the Incident, our Consolidated Balance Sheets include liabilities for other environmental exposures of $65 million at December 31, 2024, and $60 million at December 31, 2023, of which $15 million is classified as a current liability at the end of both periods. At December 31, 2024, the liability represents our estimates of the probable cleanup, investigation, and remediation costs based on available information at 74 known locations and projects compared with 81 locations and projects at December 31, 2023. At December 31, 2024, twenty sites accounted for $56 million of the liability, and no individual site was considered to be material. We anticipate that most of this liability will be paid out over five years; however, some costs will be paid out over a longer period.

At eight locations, one or more of our subsidiaries in conjunction with a number of other parties have been identified as potentially responsible parties under CERCLA or comparable state statutes that impose joint and several liability for cleanup costs. We calculate our estimated liability for these sites based on facts and legal defenses applicable to each site and not solely on the basis of the potential for joint liability.

As set forth above, with respect to known environmental sites (whether identified by us or by the U.S. EPA or comparable state authorities), estimates of our ultimate potential financial exposure for a given site or in the aggregate for all such sites can change over time because of the widely varying costs of currently available cleanup techniques, unpredictable contaminant recovery and reduction rates associated with available cleanup technologies, the likely development of new cleanup technologies, the difficulty of determining in advance the nature and full extent of contamination and each potential participant's share of any estimated loss (and that participant's ability to bear it), and evolving statutory and regulatory standards governing liability.

The risk of incurring environmental liability for acts and omissions, past, present, and future, is inherent in the railroad business. Some of the commodities we transport, particularly those classified as hazardous materials, pose special risks that we work diligently to reduce. In addition, several of our subsidiaries own, or have owned, land used as operating property, or which is leased and operated by others, or held for sale. Because environmental problems that are latent or undisclosed may exist on these properties, there can be no assurance that we will not incur environmental liabilities or costs with respect to one or more of them, the amount and materiality of which cannot be estimated reliably at this time. Moreover, lawsuits and claims involving these and potentially other unidentified environmental sites and matters are likely to arise from time to time. The resulting liabilities could have a significant effect on financial position, results of operations, or liquidity in a particular year or quarter.

Based on our assessment of the facts and circumstances now known, we believe we have recorded the probable and reasonably estimable costs for dealing with those environmental matters of which we are aware. Further, we believe that it is unlikely that any known matters, either individually or in the aggregate, will have a material adverse effect on our financial position, results of operations, or liquidity.

Labor Agreements

Approximately 80% of our railroad employees are covered by collective bargaining agreements with various labor unions. Pursuant to the RLA, these agreements remain in effect until new agreements are reached, or until the bargaining procedures mandated by the RLA are completed. Moratorium provisions in the labor agreements govern

when the railroads and unions may propose changes to the agreements. We largely bargain nationally in concert with other major railroads, represented by the NCCC.

Under current moratorium provisions, neither party was permitted to serve notice to compel a new round of mandatory collective bargaining until November 1, 2024. In the months prior to the opening of the current national bargaining round, we engaged in voluntary local discussions with our labor unions and, as a result, reached local tentative agreements with ten of our thirteen unions. A majority of those tentative agreements were subsequently ratified by union membership and became effective January 1, 2025, foreclosing the parties from serving new notices to compel mandatory bargaining until November 1, 2029.

For those unions with whom we have not yet reached a ratified agreement, the NCCC, on behalf of Norfolk Southern, sent bargaining notices on November 1, 2024, to commence mandatory direct negotiations as prescribed under the RLA. Even if the parties are unable to reach voluntary agreement during this first phase of RLA bargaining, self-help (e.g., a strike or other work stoppage) related to this collective-bargaining process remains prohibited by law until a lengthy series of additional procedures mandated by the RLA, including federal mediation, are exhausted.

Insurance

We purchase insurance covering legal liabilities for bodily injury and property damage to third parties. Our current liability insurance provides limits for approximately 83% of covered losses above $75 million and below $734 million per occurrence and/or policy year. Above $800 million per occurrence and/or policy year, we maintain approximately $43 million additional liability insurance limits for certain types of pollution releases. We also purchase insurance for property damage to property owned by us or in our care, custody, or control. Our current property insurance provides limits for approximately 82% of covered losses above $75 million and below $275 million per occurrence and/or policy year. With respect to the Incident, our insurance in effect at such time provided coverage above $75 million and below $800 million (or up to $1.1 billion for specified types of pollution releases) per occurrence and/or policy year, and with respect to property owned by us or in our care, custody, or control, our insurance covered approximately 82% of potential losses above $75 million and below $275 million per occurrence and/or policy year.

Insurance coverage with respect to the Incident is subject to certain conditions, including but not limited to our insurers' reservation of rights to further investigate and contest coverage, the express restrictions and sub-limits of coverage, and various policy exclusions, including those for some governmental fines or penalties. Some (re)insurers have questioned certain payments we have made, for example, as part of our effort to respond to mitigate and compensate for the impact to the community and affected residents and businesses. We are pursuing coverage with respect to the Incident, and we have recognized $650 million and $101 million in insurance recoveries in 2024 and 2023, respectively, principally from excess liability (re)insurers. At December 31, 2024, $18 million was outstanding and is included in "Accounts receivable – net" on the Consolidated Balance Sheets while no amounts were outstanding at December 31, 2023.

With the exception of amounts that have been recognized, potential recoveries under our insurance coverage have not yet been recorded (given the insurers ongoing evaluation of our claims). In addition, no amounts have been recorded related to potential recoveries from other third parties, which may reduce amounts payable by our insurers under our applicable insurance coverage.

Purchase Commitments

At December 31, 2024, we had outstanding purchase commitments totaling $1.2 billion through 2053 for locomotive modernizations, long-term technology support and development contracts, track material, and vehicles.

Change-In-Control Arrangements

We have compensation agreements with certain officers and key employees that become operative only upon a change in control of Norfolk Southern, as defined in those agreements. The agreements provide generally for payments based on compensation at the time of a covered individual's involuntary or other specified termination and for certain other benefits.

Indemnifications

In a number of instances, we have agreed to indemnify lenders for additional costs they may bear as a result of certain changes in laws or regulations applicable to their loans. Such changes may include impositions or modifications with respect to taxes, duties, reserves, liquidity, capital adequacy, special deposits, and similar requirements relating to extensions of credit by, deposits with, or the assets or liabilities of such lenders. The nature and timing of changes in laws or regulations applicable to our financings are inherently unpredictable, and therefore our exposure in connection with the foregoing indemnifications cannot be quantified. No liability has been recorded related to these indemnifications.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

Disclosure Controls and Procedures

Our Chief Executive Officer and Chief Financial Officer, with the assistance of management, evaluated the effectiveness of our disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (Exchange Act)) at December 31, 2024. Based on such evaluation, our officers have concluded that, at December 31, 2024, our disclosure controls and procedures were effective to ensure that information required to be disclosed in our reports under the Exchange Act is recorded, processed, summarized, and reported, within the time period specified in the SEC's rules and forms, and that such information is accumulated and communicated to management, including the Chief Executive Officer and the Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Management's Annual Report on Internal Control Over Financial Reporting

We are responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting includes those policies and procedures that pertain to our ability to record, process, summarize, and report reliable financial data. We recognize that there are inherent limitations in the effectiveness of any internal control over financial reporting, including the possibility of human error and the circumvention or overriding of internal control. Accordingly, even effective internal control over financial reporting can provide only reasonable assurance with respect to financial statement preparation. Further, because of changes in conditions, the effectiveness of internal control over financial reporting may vary over time.

Our Board of Directors, acting through its Audit Committee, is responsible for the oversight of our accounting policies, financial reporting, and internal control. The Audit Committee of our Board of Directors is comprised of outside directors who are independent of management. The independent registered public accounting firm and our internal auditors have full and unlimited access to the Audit Committee, with or without management, to discuss the adequacy of internal control over financial reporting, and any other matters which they believe should be brought to the attention of the Audit Committee.

We have issued a report of our assessment of internal control over financial reporting, and our independent registered public accounting firm has issued an opinion on our internal control over financial reporting at December 31, 2024. These reports appear in Item 8 of this report on Form 10-K.

Changes in Internal Control Over Financial Reporting

During the fourth quarter of 2024, we have not identified any changes in internal control over financial reporting that have materially affected, or are reasonably likely to materially effect, our internal control over financial reporting.

Item 9B. Other Information

Director and Officer Trading Arrangements

None of our directors or officers (as defined in Rule 16a-1(f) of the Exchange Act) adopted or terminated a contract, instruction or written plan for the purchase or sale of our securities intended to satisfy the affirmative defense conditions of Rule 10b5-1(c) or a non-Rule 10b5-1 trading arrangement (as defined in Item 408(c) of Regulation S-K) during the fourth quarter of 2024.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 10. Directors, Executive Officers and Corporate Governance

In accordance with General Instruction G(3), information called for by Part III, Item 10, is incorporated herein by reference to our definitive Proxy Statement for our 2025 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A. The information regarding executive officers called for by Item 401 of Regulation S-K is included in Part I hereof beginning under "Information about our Executive Officers."

Item 11. Executive Compensation

In accordance with General Instruction G(3), information called for by Part III, Item 11, is incorporated herein by reference to our definitive Proxy Statement for our 2025 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

In accordance with General Instruction G(3), information on security ownership of certain beneficial owners and management called for by Part III, Item 12, is incorporated herein by reference to our definitive Proxy Statement for our 2025 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

Equity Compensation Plan Information (at December 31, 2024)

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans [1]
	(a)	(b)	(c)
Equity compensation plans approved by securities holders[2]	929,041 [3]	$ 194.78 [5]	7,438,613
Equity compensation plans not approved by securities holders	59,266 [4]	96.39	437,746 [6]
Total	988,307		7,876,359

(1) Excludes securities reflected in column (a).
(2) LTIP.
(3) Includes options, RSUs, and PSUs granted under LTIP that will be settled in shares of Common Stock.
(4) TSOP.
(5) Calculated without regard to 615,643 outstanding RSUs and PSUs at December 31, 2024.
(6) Reflects shares remaining available for grant under TSOP.

Norfolk Southern Corporation Long-Term Incentive Plan

Established on June 28, 1983, and approved by our stockholders at their Annual Meeting held on May 10, 1984, LTIP was adopted to promote the success of our company by providing an opportunity for non-employee Directors, officers, and other key employees to acquire a proprietary interest in Norfolk Southern Corporation (the Corporation). The Board of Directors amended LTIP on January 23, 2015, which amendment was approved by shareholders on May 14, 2015, to include the reservation for issuance of an additional 8,000,000 shares of authorized but unissued Common Stock.

The amended LTIP adopted a fungible share reserve ratio so that, for awards granted after May 13, 2010, the number of shares remaining for issuance under the amended LTIP will be reduced (i) by 1 for each award granted as an option or stock-settled SAR, or (ii) by 1.61 for an award made in the form other than an option or stock-settled SAR. Any shares of Common Stock subject to options, PSUs, restricted shares, or RSUs which are not issued as Common Stock will again be available for award under LTIP after the expiration or forfeiture of an award.

Non-employee Directors, officers, and other key employees residing in the U.S. or Canada are eligible for selection to receive LTIP awards. Under LTIP, the Committee, or the Corporation's chief executive officer to the extent the Committee delegates award-making authority pursuant to LTIP, may grant incentive stock options, nonqualified stock options, SARs, RSUs, restricted shares, PSUs and performance shares. In addition, dividend equivalent payments may be awarded for options, RSUs and PSUs. Awards under LTIP may be made subject to forfeiture under certain circumstances and the Committee may establish such other terms and conditions for the awards as provided in LTIP.

The option price is at least the higher of (i) the average of the high and low prices at which Common Stock is traded on the date of grant, or (ii) the closing price of Common Stock on the date of the grant. All options are subject to a vesting period of at least one year, and the term of the option will not exceed ten years. LTIP specifically prohibits option repricing without stockholder approval, except that adjustments may be made in the event of changes in our capital structure or Common Stock.

PSUs entitle a recipient to receive performance-based compensation at the end of a three-year cycle based on our performance during that period. For the 2024 PSU awards, corporate performance will be based directly on return on average capital invested, with total return to stockholders and revenue growth serving as modifiers, and will be settled in shares of Common Stock.

RSUs are payable in cash or in shares of Common Stock at the end of a restriction period. During the restriction period, the holder of the RSUs has no beneficial ownership interest in the Common Stock represented by the RSUs and has no right to vote the shares represented by the units or to receive dividends (except for dividend equivalent payment rights that may be awarded with respect to the RSUs). The Committee at its discretion may waive the restriction period, but settlement of any RSUs will occur on the same settlement date as would have applied absent a waiver of restrictions, if no performance goals were imposed. RSUs will be settled in shares of Common Stock.

Norfolk Southern Corporation Thoroughbred Stock Option Plan

Our Board of Directors adopted TSOP on January 26, 1999, to promote the success of our company by providing an opportunity for management employees to acquire a proprietary interest in our company and thereby to provide an additional incentive to management employees to devote their maximum efforts and skills to the advancement, betterment, and prosperity of our company and our stockholders. Under TSOP there were 6,000,000 shares of authorized but unissued Common Stock reserved for issuance. TSOP has not been and is not required to have been approved by our stockholders.

Active full-time management employees residing in the U.S. or Canada are eligible for selection to receive TSOP awards. Under TSOP, the Committee, or the Corporation's chief executive officer to the extent the Committee delegates award-making authority pursuant to TSOP, may grant nonqualified stock options subject to such terms and conditions as provided in TSOP.

The option price may not be less than the average of the high and low prices at which Common Stock is traded on the date of the grant. All options are subject to a vesting period of at least one year, and the term of the option will not exceed ten years. TSOP specifically prohibits repricing without stockholder approval, except for capital adjustments.

Norfolk Southern Corporation Directors' Restricted Stock Plan

The Plan was adopted on January 1, 1994, and was designed to increase ownership of Common Stock by our non-employee Directors so as to further align their ownership interest in our company with that of our stockholders. The Plan has not been and is not required to have been approved by our stockholders.

Effective January 23, 2015, the Board amended the Plan to provide that no additional awards will be made under the Plan. Prior to that amendment, only non-employee Directors who are not and never have been employees of our company were eligible to participate in the Plan. Upon becoming a Director, each eligible Director received a one-time grant of 3,000 restricted shares of Common Stock. No additional shares may be granted under the Plan. No individual member of the Board exercised discretion concerning the eligibility of any Director or the number of shares granted.

The restriction period applicable to restricted shares granted under the Plan begins on the date of the grant and ends on the earlier of the recipient's death or the day after the recipient ceases to be a Director by reason of disability or retirement. During the restriction period, shares may not be sold, pledged, or otherwise encumbered. Directors forfeit the restricted shares if they cease to serve as a Director of our company for reasons other than their disability, retirement, or death.

Item 13. Certain Relationships and Related Transactions, and Director Independence

In accordance with General Instruction G(3), information called for by Part III, Item 13, is incorporated herein by reference to our definitive Proxy Statement for our 2025 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

Item 14. Principal Accountant Fees and Services

Our independent registered public accounting firm is KPMG LLP, Atlanta, GA, Auditor Firm ID: 185.

In accordance with General Instruction G(3), information called for by Part III, Item 14, is incorporated herein by reference to our definitive Proxy Statement for our 2025 Annual Meeting of Stockholders, which definitive Proxy Statement will be filed electronically with the SEC pursuant to Regulation 14A.

NORFOLK SOUTHERN CORPORATION AND SUBSIDIARIES

Item 15. Exhibits and Financial Statement Schedules

		Page
(A)	The following documents are filed as part of this report:	
	1. Index to Financial Statements	
	Report of Management	K42
	Report of Independent Registered Public Accounting Firm	K43
	Consolidated Statements of Income, Years ended December 31, 2024, 2023, and 2022	K46
	Consolidated Statements of Comprehensive Income, Years ended December 31, 2024, 2023, and 2022	K47
	Consolidated Balance Sheets at December 31, 2024 and 2023	K48
	Consolidated Statements of Cash Flows, Years ended December 31, 2024, 2023, and 2022	K49
	Consolidated Statements of Changes in Stockholders' Equity, Years ended December 31, 2024, 2023, and 2022	K50
	Notes to Consolidated Financial Statements	K51
	2. Financial Statement Schedules:	
	The following consolidated financial statement schedule should be read in connection with the consolidated financial statements:	
	Index to Consolidated Financial Statement Schedules	
	Schedule II – Valuation and Qualifying Accounts	K109
	Schedules other than the one listed above are omitted either because they are not required or are inapplicable, or because the information is included in the consolidated financial statements or related notes.	
	3. Exhibits	

Exhibit Number	Description
2.1	Distribution Agreement, dated as of July 26, 2004, by and among CSX Corporation, CSX Transportation, Inc., CSX Rail Holding Corporation, CSX Northeast Holdings Corporation, Norfolk Southern Corporation, Norfolk Southern Railway Company, CRR Holdings LLC, Green Acquisition Corp., Conrail Inc., Consolidated Rail Corporation, New York Central Lines LLC, Pennsylvania Lines LLC, NYC Newco, Inc., and PRR Newco, Inc., is incorporated by reference to Exhibit 2.1 to Norfolk Southern Corporation's Form 8-K filed on September 2, 2004. (SEC File No. 001-08339)
3	Articles of Incorporation and Bylaws –
(i)(a)	The Restated Articles of Incorporation of Norfolk Southern Corporation are incorporated by reference to Exhibit 3(i) to Norfolk Southern Corporation's 10-K filed on March 5, 2001. (SEC File No. 001-08339)
(i)(b)	An amendment to the Articles of Incorporation of Norfolk Southern Corporation is incorporated by reference to Exhibit 3(i) to Norfolk Southern Corporation's Form 8-K filed on May 18, 2010. (SEC File No. 001-08339)
(i)(c)	An amendment to the Articles of Incorporation of Norfolk Southern Corporation is incorporated by reference to Exhibit 3(i) to Norfolk Southern Corporation's Form 10-Q filed on July 29, 2020. (SEC File No. 001-08339)
(ii)	The Bylaws of Norfolk Southern Corporation, as amended July 25, 2023, are incorporated by reference to Exhibit 3(ii) to the Registrant's Form 8-K filed on July 27, 2023. (SEC File No. 001-08339)

4 Instruments Defining the Rights of Security Holders, Including Indentures:

(a) Indenture, dated as of January 15, 1991, from Norfolk Southern Corporation to First Trust of New York, National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Registration Statement on Form S-3 (SEC File No. 33-38595)

(b) First Supplemental Indenture, dated May 19, 1997, between Norfolk Southern Corporation and First Trust of New York, National Association, as Trustee, related to the issuance of notes in the principal amount of $4.3 billion, is incorporated by reference to Exhibit 1.1(d) to Norfolk Southern Corporation's Form 8-K filed on May 21, 1997. (SEC File No. 001-08339)

(c) Fourth Supplemental Indenture, dated as of February 6, 2001, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $1 billion, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on February 7, 2001. (SEC File No. 001-08339)

(d) Indenture, dated August 27, 2004, among PRR Newco, Inc., as Issuer, and Norfolk Southern Railway Company, as Guarantor, and The Bank of New York, as Trustee, is incorporated by reference to Exhibit 4(1) to Norfolk Southern Corporation's Form 10-Q filed on October 28, 2004. (SEC File No. 001-08339)

(e) First Supplemental Indenture, dated August 27, 2004, among PRR Newco, Inc., as Issuer, and Norfolk Southern Railway Company, as Guarantor, and The Bank of New York, as Trustee, related to the issuance of notes in the principal amount of approximately $451.8 million, is incorporated by reference to Exhibit 4(m) to Norfolk Southern Corporation's Form 10-Q filed on October 28, 2004. (SEC File No. 001-08339)

(f) Ninth Supplemental Indenture, dated as of March 11, 2005, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $300 million, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on March 15, 2005. (SEC File No. 001-08339)

(g) Tenth Supplemental Indenture, dated as of May 17, 2005, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $366.6 million, is incorporated by reference to Exhibit 99.1 to Norfolk Southern Corporation's Form 8-K filed on May 18, 2005. (SEC File No. 001-08339)

(h) Eleventh Supplemental Indenture, dated as of May 17, 2005, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $350 million, is incorporated by reference to Exhibit 99.2 to Norfolk Southern Corporation's Form 8-K filed on May 18, 2005. (SEC File No. 001-08339)

(i) Twelfth Supplemental Indenture, dated as of August 26, 2010, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $250 million, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on August 26, 2010. (SEC File No. 001-08339)

(j) Indenture, dated as of June 1, 2009, between Norfolk Southern Corporation and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on June 1, 2009. (SEC File No. 001-08339)

(k) Second Supplemental Indenture, dated as of May 23, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $400 million, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on May 23, 2011. (SEC File No. 001-08339)

(l) Indenture, dated as of September 14, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $595,504,000, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on September 15, 2011. (SEC File No. 001-08339)

(m) Third Supplemental Indenture, dated as of September 14, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $4,492,000, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on September 15, 2011. (SEC File No. 001-08339)

(n) Fourth Supplemental Indenture, dated as of November 17, 2011, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of two series of notes, one in the principal amount of $500 million and one in the principal amount of $100 million, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on November 17, 2011. (SEC File No. 001-08339)

(o) Indenture, dated as of March 15, 2012, between the Registrant and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on March 15, 2012. (SEC File No. 001-08339)

(p) Second Supplemental Indenture, dated as of September 7, 2012, between the Registrant and U.S. Bank Trust National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on September 7, 2012. (SEC File No. 001-08339)

(q) Third Supplemental Indenture, dated as of August 13, 2013, between the Registrant and U.S. Bank Trust National Association, as Trustee, related to the issuance of notes in the principal amount of $500,000,000, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on August 13, 2013. (SEC File No. 001-08339)

(r) Indenture, dated as of June 2, 2015, between Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on June 2, 2015. (SEC File No. 001-08339)

(s) First Supplemental Indenture, dated as of June 2, 2015, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed on June 2, 2015. (SEC File No. 001-08339)

(t) Second Supplemental Indenture, dated as of November 3, 2015, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on November 3, 2015. (SEC File No. 001-08339)

(u) Third Supplemental Indenture, dated as of June 3, 2016, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed on June 3, 2016. (SEC File No. 001-08339)

(v) Fourth Supplemental Indenture, dated as of May 31, 2017, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to the Corporation's Form 8-K filed May 31, 2017. (SEC File No. 001-08339)

(w) Indenture, dated as of August 15, 2017, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference herein to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed August 15, 2017. (SEC File No. 001-08339)

(x) Indenture, dated as of February 28, 2018 between the Registrant and U.S. Bank National Association, as Trustee. The Indenture is incorporated by reference herein to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed February 28, 2018. (SEC File No. 001-08339)

(y) First Supplemental Indenture, dated as of February 28, 2018, between the Registrant and U.S. Bank National Association, as Trustee. The Indenture is incorporated by reference herein to Exhibit 4.2 to Norfolk Southern Corporation's Form 8-K filed February 28, 2018. (SEC File No. 001-08339)

(z) Second Supplemental Indenture, dated as of August 2, 2018, between the Registrant and U.S. Bank National Association, as Trustee. The Indenture is incorporated by reference herein to Exhibit 4.1 to Norfolk Southern Corporation's Form 8-K filed August 2, 2018. (SEC File No. 001-08339)

(aa) Third Supplemental Indenture, dated as of May 8, 2019, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on May 8, 2019 (SEC File No. 001-08339)

(bb) Fourth Supplemental Indenture, dated as of November 4, 2019, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on November 4, 2019. (SEC File No. 001-08339)

(cc) Description of the Registrant's Common Stock Registered Under Section 12 of the Securities Exchange Act of 1934, is incorporated by reference to Exhibit 4(hh) to Norfolk Southern Corporation's Form 10-K filed on February 6, 2020. (SEC File No. 001-08339)

(dd) Fifth Supplemental Indenture, dated as of May 11, 2020, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on May 11, 2020. (SEC File No. 001-08339)

(ee) Indenture dated as of May 15, 2020, between the Registrant and U.S. Bank National Association, as Trustee is incorporated by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on May 15, 2020. (SEC File No. 001-08339)

(ff) Sixth Supplemental Indenture, dated as of May 12, 2021, between the Registrant and U.S. Bank National Association, as Trustee, is incorporated by reference to Exhibit 4.2 to the Registrant's Form 8-K filed on May 12, 2021. (SEC File No. 001-08339)

(gg) Seventh Supplemental Indenture, dated as of August 25, 2021, between the Registrant and U.S. Bank National Association, as trustee, is incorporated by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on August 25, 2021. (SEC File No. 001-08339)

(hh) Eighth Supplemental Indenture, dated as of February 25, 2022, between the Registrant and U.S. Bank Trust Company, National Association (as successor to U.S. Bank National Association), as trustee, is incorporated by reference to Exhibit 4.1 of the Registrant's Form 8-K filed on February 25, 2022. (SEC File No. 001-08339)

(ii) Ninth Supplemental Indenture, dated June 13, 2022, between the Registrant and U.S. Bank Trust Company, National Association (as successor to U.S. Bank National Association), as trustee, is incorporated by reference to Exhibit 4.1 of the Registrant's Form 8-K filed on June 15, 2022. (SEC File No. 001-08339)

(jj) Tenth Supplemental Indenture, dated as of February 2, 2023, between the Registrant and U.S. Bank Trust Company, National Association (as successor to U.S. Bank National Association), as trustee, is incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on February 2, 2023. (SEC File No. 001-08339)

(kk) Eleventh Supplemental Indenture, dated as of August 2, 2023, between the Registrant and U.S. Bank Trust Company, National Association (as successor to U.S. Bank National Association), as trustee is incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on August 2, 2023. (SEC File No. 001-08339)

(ll) Twelfth Supplemental Indenture, dated as of November 22, 2023, between the Registrant and U.S. Bank Trust Company, National Association (as successor to U.S. Bank National Association), as trustee is incorporated by reference to Exhibit 4.1 of the Registrant's Current Report on Form 8-K filed on November 22, 2023. (SEC File No. 001-08339)

In accordance with Item 601(b)(4)(iii) of Regulation S-K, copies of other instruments of Norfolk Southern Corporation and its subsidiaries with respect to the rights of holders of long-term debt are not filed herewith, or incorporated by reference, but will be furnished to the Commission upon request.

10 Material Contracts -

(a) The Transaction Agreement, dated as of June 10, 1997, by and among CSX and CSX Transportation, Inc., Registrant, Norfolk Southern Railway Company, Conrail Inc., Consolidated Rail Corporation, and CRR Holdings LLC, with certain schedules thereto, previously filed, is incorporated by reference to Exhibit 10(a) to Norfolk Southern Corporation's Form 10-K filed on February 24, 2003. (SEC File No. 001-08339)

(b) Amendment No. 1 dated as of August 22, 1998, to the Transaction Agreement, dated as of June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference from Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

(c) Amendment No. 2 dated as of June 1, 1999, to the Transaction Agreement, dated June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference from Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

(d) Amendment No. 3 dated as of June 1, 1999, and executed in April 2004, to the Transaction Agreement, dated June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference from Exhibit 10(dd) to Norfolk Southern Corporation's Form 10-Q filed on July 30, 2004. (SEC File No. 001-08339)

(e) Amendment No. 5 to the Transaction Agreement, dated as of August 27, 2004, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Corporation, Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on September 2, 2004. (SEC File No. 001-08339)

(f) Amendment No. 6 dated as of April 1, 2007, to the Transaction Agreement, dated June 10, 1997, by and among CSX Corporation, CSX Transportation, Inc., Norfolk Southern Railway Company, Conrail, Inc., Consolidated Rail Corporation, and CRR Holdings LLC, is incorporated by reference to Exhibit 10.5 to Norfolk Southern Corporation's Form 10-Q filed on July 27, 2007. (SEC File No. 001-08339)

(g) Shared Assets Area Operating Agreement for North Jersey, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibit thereto, is incorporated by reference from Exhibit 10.4 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

(h) Shared Assets Area Operating Agreement for Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibit thereto, is incorporated by reference from Exhibit 10.6 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

(i) Shared Assets Area Operating Agreement for South Jersey/Philadelphia, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibit thereto, is incorporated by reference from Exhibit 10.5 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

(j) Amendment No. 1, dated as of June 1, 2000, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 10(h) to Norfolk Southern Corporation's Form 10-K filed on March 5, 2001. (SEC File No. 001-08339)

(k) Amendment No. 2, dated as of January 1, 2001, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 10(j) to Norfolk Southern Corporation's Form 10-K filed on February 21, 2002. (SEC File No. 001-08339)

(l) Amendment No. 3, dated as of June 1, 2001, and executed in May of 2002, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 10(k) to Norfolk Southern Corporation's Form 10-K filed on February 24, 2003. (SEC File No. 001-08339)

(m) Amendment No. 4, dated as of June 1, 2005, and executed in late June 2005, to the Shared Assets Area Operating Agreements for North Jersey, South Jersey/Philadelphia, and Detroit, dated as of June 1, 1999, by and among Consolidated Rail Corporation, CSX Transportation, Inc., and Norfolk Southern Railway Company, with exhibits thereto, is incorporated by reference to Exhibit 99 to Norfolk Southern Corporation's Form 8-K filed on July 1, 2005. (SEC File No. 001-08339)

(n) Monongahela Usage Agreement, dated as of June 1, 1999, by and among CSX Transportation, Inc., Norfolk Southern Railway Company, Pennsylvania Lines LLC, and New York Central Lines LLC, with exhibit thereto, is incorporated by reference from -Exhibit 10.7 to Norfolk Southern Corporation's Form 10-Q filed on August 11, 1999. (SEC File No. 001-08339)

(o) The Agreement, entered into as of July 27, 1999, between North Carolina Railroad Company and Norfolk Southern Railway Company, is incorporated by reference from Exhibit 10(i) to Norfolk Southern Corporation's Form 10-K filed on March 6, 2000. (SEC File No. 001-08339)

(p) Second Amendment, dated December 28, 2009, to the Master Agreement dated July 27, 1999, by and between North Carolina Railroad Company and Norfolk Southern Railway Company, is incorporated by reference to Exhibit 10(q) to Norfolk Southern Corporation's Form 10-K filed on February 17, 2010 (Exhibits, annexes and schedules omitted. The Registrant will furnish supplementary copies of such materials to the SEC upon request). (SEC File No. 001-08339)

(q) The Supplementary Agreement, entered into as of January 1, 1987, between the Trustees of the Cincinnati Southern Railway and The Cincinnati, New Orleans and Texas Pacific Railway Company (the latter a wholly owned subsidiary of Norfolk Southern Railway Company) – extending and amending a Lease, dated as of October 11, 1881 – is incorporated by reference to Exhibit 10(k) to Norfolk Southern Corporation's Form 10-K filed on March 5, 2001. (SEC File No. 001-08339)

(r)* Norfolk Southern Corporation Executive Management Incentive Plan, as approved by shareholders May 14, 2015, and as amended effective March 27, 2018, November 17, 2020, November 17, 2023, and April 2, 2024 is incorporated by reference to Exhibit 10.4 to Norfolk Southern Corporation's 10-Q filed on April 24, 2024. (SEC File No. 001-08339)

(s)* The Norfolk Southern Corporation Directors' Restricted Stock Plan, adopted January 1, 1994, and amended and restated effective as of January 23, 2015, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on October 25, 2017. (SEC File No. 001-08339)

(t)* Supplemental Benefit Plan of Norfolk Southern Corporation and Participating Subsidiary Companies, adopted June 1, 1982, as amended and restated effective as of December 31, 2023 is incorporated by reference to Exhibit 10(t) to Norfolk Southern Corporation's Form 10-K filed on February 5, 2024. (SEC File No. 001-08339)

(u)* The Norfolk Southern Corporation Directors' Charitable Award Program, as amended effective July 2007, is incorporated by reference to Exhibit 10.6 to Norfolk Southern Corporation's Form 10-Q filed on July 27, 2007. (SEC File No. 001-08339)

(v)* The Norfolk Southern Corporation Thoroughbred Stock Option Plan, as amended effective July 22, 2013, is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on July 24, 2013. (SEC File No. 001-08339)

(w)* The Norfolk Southern Corporation Executive Life Insurance Plan, as amended and restated effective November 30, 2022 and executed as of February 21, 2023, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on April 26, 2023. (SEC File No. 001-08339)

(x)* The Norfolk Southern Corporation Long-Term Incentive Plan, as approved by shareholders May 14, 2015, and as amended July 29, 2016, November 29, 2016, November 28, 2017, November 27, 2018, and November 19, 2019, November 17, 2023, and December 20, 2023 is incorporated by reference to Exhibit 10(x) to Norfolk Southern Corporation's Form 10-K filed on February 5, 2024. (SEC File No. 001-08339)

(y) Amended and Restated Transfer and Administration Agreement dated as of May 28, 2021 is incorporated by reference to Exhibit 10.1 on Norfolk Southern Corporation's Form 8-K filed on May 28, 2021. (SEC File No. 001-08339)

(z) Amendment No. 1 dated as of May 27, 2022, to the Amended and Restated Transfer and Administration Agreement, dated as of May 28, 2021 is incorporated by reference to Exhibit 10.1 on Norfolk Southern Corporation's Form 10-Q filed on October 26, 2022. (SEC File No. 001-08339)

(aa) Amendment No. 2 dated as of June 30, 2022, to the Amended and Restated Transfer and Administration Agreement, dated as of May 28, 2021 is incorporated by reference to Exhibit 10.2 on Norfolk Southern Corporation's Form 10-Q filed on October 26, 2022. (SEC File No. 001-08339)

(bb) Amendment No.3 dated as of May 24, 2024, to the Amended and Restated Transfer and Administration Agreement, dated as of May 28, 2021 is incorporated by reference to Exhibit 10.1 of Norfolk Southern Corporation's Form 10-Q on July 26, 2024. (SEC File No. 001-8339)

(cc) Commitment Termination Date Extension Request effective as of May 26, 2023 to the Amended and Restated Transfer and Administrative Agreement dated as of May 28, 2021 is incorporated by reference to Exhibit 10.2 on the Registrant's Form 10-Q filed on July 27, 2023. (SEC File No. 001-08339)

(dd)	Asset Purchase and Sale Agreement dated November 21, 2022, by and among the Registrant as purchaser, the Cincinnati, New Orleans and Texas Pacific Railway Company, and the Board of Trustees of the Cincinnati Southern Railway as seller is incorporated by reference to Exhibit 2.1 on Norfolk Southern Corporation's Form 8-K filed on November 21, 2022. (SEC File No. 001-08339)
(ee)	First Amended and Restated Asset Purchase and Sale Agreement dated as of June 28, 2023 between Board of Trustees of the Cincinnati Southern Railway, Norfolk Southern Railway Company and The Cincinnati, New Orleans and Texas Pacific Railway Company is incorporated by reference to Exhibit 10.3 on the Registrant's Form 10-Q filed on July 27, 2023. (SEC File No. 001-08339)
(ff)*	Directors' Deferred Fee Plan of Norfolk Southern Corporation, adopted June 1, 1982 and as amended and restated effective December 1, 2019, is incorporated by referenced to Exhibit 10(xx) to Norfolk Southern Corporation's Form 10-K filed on February 6, 2020. (SEC File No. 001-08339)
(gg)*	Norfolk Southern Corporation Executives' Deferred Compensation Plan, as amended and restated effective January 1, 2019, is incorporated by reference to Exhibit 10(ww) to Norfolk Southern Corporation's Form 10-K filed on February 8, 2019. (SEC File No. 001-08339)
(hh)*	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for Outside Directors for Restricted Stock Units and deferral election form as approved by the Human Capital Management and Compensation Committee on November 18, 2021, is incorporated by reference to Exhibit 10(cc) to Norfolk Southern Corporation's Form 10-K filed on February 4, 2022. (SEC File No. 001-08339)
(ii)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for Non-Qualified Stock Options approved by the Human Capital Management and Compensation Committee on January 28, 2025.
(jj)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for Restricted Stock Units approved by the Human Capital Management and Compensation Committee on January 28, 2025.
(kk)*,**	Form of Norfolk Southern Corporation Long-Term Incentive Plan, Award Agreement for Performance Share Units approved by the Human Capital Management and Compensation Committee on January 28, 2025.
(ll)*	Form of Change in Control Agreement between Norfolk Southern Corporation and executive officers who entered into a change in control agreement after 2015 is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on July 29, 2020. (SEC File No. 001-08339)
(mm)	Amended and Restated Credit Agreement dated as of January 26, 2024, establishing a 5-year, $800 million unsecured revolving credit facility of the Registrant, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on January 26, 2024. (SEC File No. 001-08339)
(nn)*	Amended and Restated Offer Letter for Mark R. George, dated September 11, 2024, is incorporated by reference to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on September 12, 2024. (SEC File No. 001-08339)
(oo)*	Offer Letter for John Orr dated March 18, 2024 is incorporated by reference to Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on April 24, 2024. (SEC File No. 001-08339)
(pp)*	Retention Agreement for Ann A. Adams dated January 29, 2024 is incorporated by reference to Exhibit 10.3 to Norfolk Southern Corporation's Form 10-Q filed on April 24, 2024. (SEC File No. 001-08339)
(qq)*	Norfolk Southern Corporation Long-Term Incentive Plan Inducement Award Agreement for Performance-Based Restricted Stock Units is incorporated by reference to Exhibit 99.2 to Norfolk Southern Corporation's Form 8-K filed on August 28, 2019. (SEC File No. 001-08339)
(rr)*	Norfolk Southern Corporation Long-Term Incentive Plan Inducement Award Agreement for Restricted Stock Units is incorporated by reference to Exhibit 99.3 to Norfolk Southern Corporation's Form 8-K filed on August 28, 2019. (SEC File No. 001-08339)

(ss)*	Norfolk Southern Corporation Long-Term Incentive Plan Inducement Award Agreement for Non-Qualified Stock Options is incorporated by reference to Exhibit 99.4 to Norfolk Southern Corporation's Form 8-K filed on August 28, 2019. (SEC File No. 001-08339)
(tt)	A Lease Agreement, dated March 1, 2019, between NSRC and BA Leasing BSC, LLC. This Agreement is incorporated by reference herein to Exhibit 10.2 to Norfolk Southern Corporation's Form 8-K filed March 5, 2019. (SEC File No. 001-08339)
(uu)	A Participation Agreement, dated March 1, 2019, between NSRC, BA Leasing BSC, LLC, Bank of America, N.A. as Administrative Agent, and each of the Rent Assignees listed on Schedule II thereto. This Agreement is incorporated by reference herein to Exhibit 10.3 to Norfolk Southern Corporation's Form 8-K filed March 5, 2019. (SEC File No. 001-08339)
(vv)	Guaranty of NSRC's obligations under the Participation Agreement, Construction Agency Agreement, Lease Agreement and related documents by Norfolk Southern Corporation. This Agreement is incorporated by reference herein to Exhibit 10.4 to Norfolk Southern Corporation's Form 8-K filed March 5, 2019. (SEC File No. 001-08339)
(ww)	Consent and First Omnibus Amendment dated May 14, 2021 between NSRC, BA Leasing, BSC, LLC, Bank of America, N.A as Administrative Agent, and each of the Rent Assignees (the Registrant will furnish supplementally to the Securities and Exchange Commission upon request, a copy of any omitted exhibit or schedule). (SEC File No. 001-08339)
(xx)	Consent and Second Omnibus Amendment dated September 10, 2021 between NSRC, BA Leasing, BSC, LLC, Bank of America, N.A as Administrative Agent, and each of the Rent Assignees (the Registrant will furnish supplementally to the Securities and Exchange Commission upon request, a copy of any omitted exhibit or schedule). (SEC File No. 001-08339)
(yy)	Third Omnibus Amendment Agreement dated January 23, 2023 between NSRC, BA Leasing, BSC, LLC, Bank of America, N.A as Administrative Agent, and each of the Rent Assignees is incorporated by reference herein to Exhibit 10.2 to Norfolk Southern Corporation's Form 10-Q filed on April 26, 2023. (SEC File No. 001-08339)
(zz)	Fourth Omnibus Amendment Agreement dated February 28, 2024 between NSRC, BA Leasing, BSC, LLC, Bank of America, N.A as Administrative Agent, and each of the Rent Assignees is incorporated by reference herein to Exhibit 10.1 to Norfolk Southern Corporation's Form 10-Q filed on April 24, 2024. (SEC File No. 001-08339)
(aaa)*	Norfolk Southern Executive Severance Plan as adopted on May 14, 2020, and as amended July 28, 2020, and November 17, 2022, is incorporated by reference herein to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on November 21, 2022. (SEC File No. 001-08339)
(bbb)	Cooperation Agreement dated November 13, 2024, by and among Norfolk Southern Corporation, Ancora Catalyst Institutional LP and certain of its affiliates is incorporated by reference herein to Exhibit 10.1 to Norfolk Southern Corporation's Form 8-K filed on November 14, 2024. (SEC File No. 001-08339)
19 **	Norfolk Southern Corporation Insider Trading policies and procedures.
21**	Subsidiaries of the Registrant.
23**	Consent of Independent Registered Public Accounting Firm.
31-A**	Rule 13a-14(a)/15d-14(a) CEO Certification.
31-B**	Rule 13a-14(a)/15d-14(a) CFO Certification.
32**	Section 1350 Certifications.
97*	Norfolk Southern Corporation Incentive-Based Compensation Recovery Policy as adopted by Human Capital Management and Compensation Committee on November 17, 2023 is incorporated by reference to Exhibit 97 to Norfolk Southern Corporation's Form 10-K filed on February 5, 2024. (SEC File No. 001-08339)

101** The following financial information from Norfolk Southern Corporation's Annual Report on Form 10-K for the year ended December 31, 2024, formatted in Inline Extensible Business Reporting Language (iXBRL) includes: (i) the Consolidated Statements of Income for each of the years ended December 31, 2024, 2023, and 2022; (ii) the Consolidated Statements of Comprehensive Income for each of the years ended December 31, 2024, 2023, and 2022; (iii) the Consolidated Balance Sheets at December 31, 2024 and 2023; (iv) the Consolidated Statements of Cash Flows for each of the years ended December 31, 2024, 2023, and 2022; (v) the Consolidated Statements of Changes in Stockholders' Equity for each of the years ended December 31, 2024, 2023, and 2022; and (vi) the Notes to Consolidated Financial Statements.

104** Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101).

** Management contract or compensatory arrangement.*

*** Filed herewith.*

(B) Exhibits.

The Exhibits required by Item 601 of Regulation S-K as listed in Item 15(A)3 are filed herewith or incorporated by reference.

(C) Financial Statement Schedules.

Financial statement schedules and separate financial statements specified by this Item are included in Item 15(A)2 or are otherwise not required or are not applicable.

Exhibits 23, 31, and 32 are included in copies assembled for public dissemination. All exhibits are included in the 2024 Form 10-K posted on our website at www.norfolksouthern.com under "Investors" "Financial Reports" and "SEC Filings" or you may request copies by writing to:

Office of Corporate Secretary
Norfolk Southern Corporation
650 West Peachtree Street NW
Atlanta, Georgia 30308-1925

Item 16. Form 10-K Summary

Not applicable.

POWER OF ATTORNEY

Each person whose signature appears on the next page under SIGNATURES hereby authorizes Jason M. Morris and Jason A. Zampi, or any one of them, to execute in the name of each such person, and to file, any amendments to this report, and hereby appoints Jason M. Morris and Jason A. Zampi, or any one of them, as attorneys-in-fact to sign on her or his behalf, individually and in each capacity stated below, and to file, any and all amendments to this report.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, Norfolk Southern Corporation has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 10th day of February, 2025.

/s/ Mark R. George
By: Mark R. George
(President and Chief Executive Officer)

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below on this 10th day of February, 2025, by the following persons on behalf of Norfolk Southern Corporation and in the capacities indicated.

Signature	**Title**
/s/ Mark R. George (Mark R. George)	President and Chief Executive Officer (Principal Executive Officer)
/s/ Jason A. Zampi (Jason A. Zampi)	Executive Vice President and Chief Financial Officer (Principal Financial Officer)
/s/ Claiborne L. Moore (Claiborne L. Moore)	Vice President and Controller (Principal Accounting Officer)
/s/ Claude Mongeau (Claude Mongeau)	Independent Chair and Director
/s/ Richard H. Anderson (Richard H. Anderson)	Director
/s/ William Clyburn, Jr. (William Clyburn, Jr.)	Director
/s/ Philip S. Davidson (Philip S. Davidson)	Director
/s/ Francesca A. DeBiase (Francesca A. DeBiase)	Director
/s/ Marcela E. Donadio (Marcela E. Donadio)	Director
/s/ Sameh Fahmy (Sameh Fahmy)	Director
/s/ Mary Kathryn Heitkamp (Mary Kathryn Heitkamp)	Director
/s/ John C. Huffard, Jr. (John C. Huffard, Jr.)	Director
/s/ Christopher T. Jones (Christopher T. Jones)	Director
/s/ Thomas C. Kelleher (Thomas C. Kelleher)	Director
/s/ Gilbert H. Lamphere (Gilbert H. Lamphere)	Director
/s/ Lori J. Ryerkerk (Lori J. Ryerkerk)	Director

Schedule II

Norfolk Southern Corporation and Subsidiaries
Valuation and Qualifying Accounts
Years ended December 31, 2024, 2023, and 2022
($ in millions)

	Beginning Balance	Additions charged to: Expenses	Additions charged to: Other Accounts	Deductions	Ending Balance
Year ended December 31, 2024					
Current portion of casualty and other claims included in accounts payable	$ 186	$ 72	$ 109 [2]	$ (151) [3]	$ 216
Casualty and other claims included in other liabilities	221	152 [1]	—	(144) [4]	229
Year ended December 31, 2023					
Current portion of casualty and other claims included in accounts payable	$ 170	$ 51	$ 84 [2]	$ (119) [3]	$ 186
Casualty and other claims included in other liabilities	218	153 [1]	—	(150) [4]	221
Year ended December 31, 2022					
Current portion of casualty and other claims included in accounts payable	$ 166	$ 43	$ 88 [2]	$ 127 [3]	$ 170
Casualty and other claims included in other liabilities	170	147 [1]	—	99 [4]	218

(1) Includes adjustments for changes in estimates for prior years' claims.
(2) Includes revenue refunds and overcharges provided through deductions from operating revenues and transfers from other accounts.
(3) Payments and reclassifications to/from accounts payable.
(4) Payments and reclassifications to/from other liabilities.

STOCK INFORMATION

COMMON STOCK

Ticker symbol: **NSC**

Our common stock is listed and traded on the New York Stock Exchange.

DIVIDENDS

At its January 2025 meeting, our Board of Directors declared a quarterly dividend of $1.35 per share on the company's common stock, payable on Feb. 20, 2025, to shareholders of record on Feb. 7, 2025.

We usually pay quarterly dividends on our common stock on or about Feb. 20, May 20, Aug. 20, and Nov. 20, when and if declared by our Board of Directors to shareholders of record. Through the end of 2024, we have paid 170 consecutive quarterly dividends since our inception in 1982.

ACCOUNT ASSISTANCE

For assistance with lost stock certificates, transfer requirements, the INVESTORS CHOICE Plan, address changes, dividend checks, and direct deposit of dividends, contact:

Equiniti Trust Company, LLC
6201 15th Avenue
Brooklyn, NY 11219
(877) 864-4750

INVESTORS CHOICE

We and our transfer agent, Equiniti Trust Company, LLC, offer the INVESTORS CHOICE Plan for investors wishing to purchase or sell Norfolk Southern Corporation common stock. This plan is available to both present shareholders of record and individual investors wishing to make an initial purchase of Norfolk Southern Corporation common stock. Once enrolled in the plan, you can invest cash dividends when paid and make optional cash investments simply and conveniently.

To take advantage of the INVESTORS CHOICE Plan, contact Equiniti Trust Company, LLC at (877) 864-4750 or visit **https://amstock.mobular.net/Amstock/NSC/** to learn more about the INVESTORS CHOICE Plan.

PUBLICATIONS

The following reports and publications are available on our website at **www.NorfolkSouthern.com** and, upon written request, will be furnished in printed form to shareholders free of charge:

- Annual Reports on Form 10-K
- Quarterly Reports on Form 10-Q
- Corporate Governance Guidelines
- Board Committee Charters
- Thoroughbred Code of Ethics
- Code of Ethical Conduct for Senior Financial Officers
- Categorical Independence Standards for Directors
- Norfolk Southern Corporation Bylaws

Shareholders desiring a printed copy of one or more of these reports and publications should send their request to our corporate secretary:

Jeremy Ballard
GC Corporate & Corporate Secretary
Norfolk Southern Corporation
650 W. Peachtree St. NW
Atlanta, GA 30308
corporate_secretary@nscorp.com

A notice and proxy statement for the annual meeting of shareholders are furnished to shareholders in advance of the meeting.

Amendments to or waivers of the Thoroughbred Code of Ethics and/or the Code of Ethical Conduct for Senior Financial Officers that are required to be disclosed pursuant to Item 5.05 of the current report on Form 8-K will be disclosed on our website.

ETHICS & COMPLIANCE HOTLINE

High ethical standards are the key to our success. Anyone who might be aware of a violation of our corporation's Thoroughbred Code of Ethics is required to contact our Ethics & Compliance Hotline at (800) 732-9279.

FINANCIAL INQUIRIES

Jason A. Zampi
Executive Vice President & Chief Financial Officer

Norfolk Southern Corporation 650 W. Peachtree St. NW
Atlanta, GA 30308
financial.inquiries@nscorp.com

INVESTOR INQUIRIES

Michael T. Barr
Vice President Treasurer, Investor Relations & Integrated Resource Planning

Norfolk Southern Corporation
650 W. Peachtree St. NW
Atlanta, GA 30308
investor.relations@nscorp.com

CORPORATE OFFICE

Norfolk Southern Corporation
650 W. Peachtree St. NW
Atlanta, GA 30308
(855) NORFOLK or
(855) 667-3655

SHAREHOLDER SERVICES INFORMATION

Norfolk Southern Corporation
Requests & Information
shareholder@nscorp.com
(800) 531-6757



FORWARD-LOOKING STATEMENTS

Certain statements in this Annual Report are "forward-looking statements" within the meaning of the "safe harbor" provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or financial performance and involve known and unknown risks, uncertainties, and other factors that may cause our actual results or performance to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements can be identified by terminology such as "may," "will," "could," or other comparable terminology. We have based these forward-looking statements on our current expectations, assumptions, estimates, beliefs, and projections, which we believe are reasonable. However, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond our control. These and other important factors, including those discussed in Item 1A "Risk Factors," in the Form 10-K set forth herein, may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, we disclaim any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

NORFOLK SOUTHERN

www.NorfolkSouthern.com

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EXHIBIT 29

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILWAY COMPANY

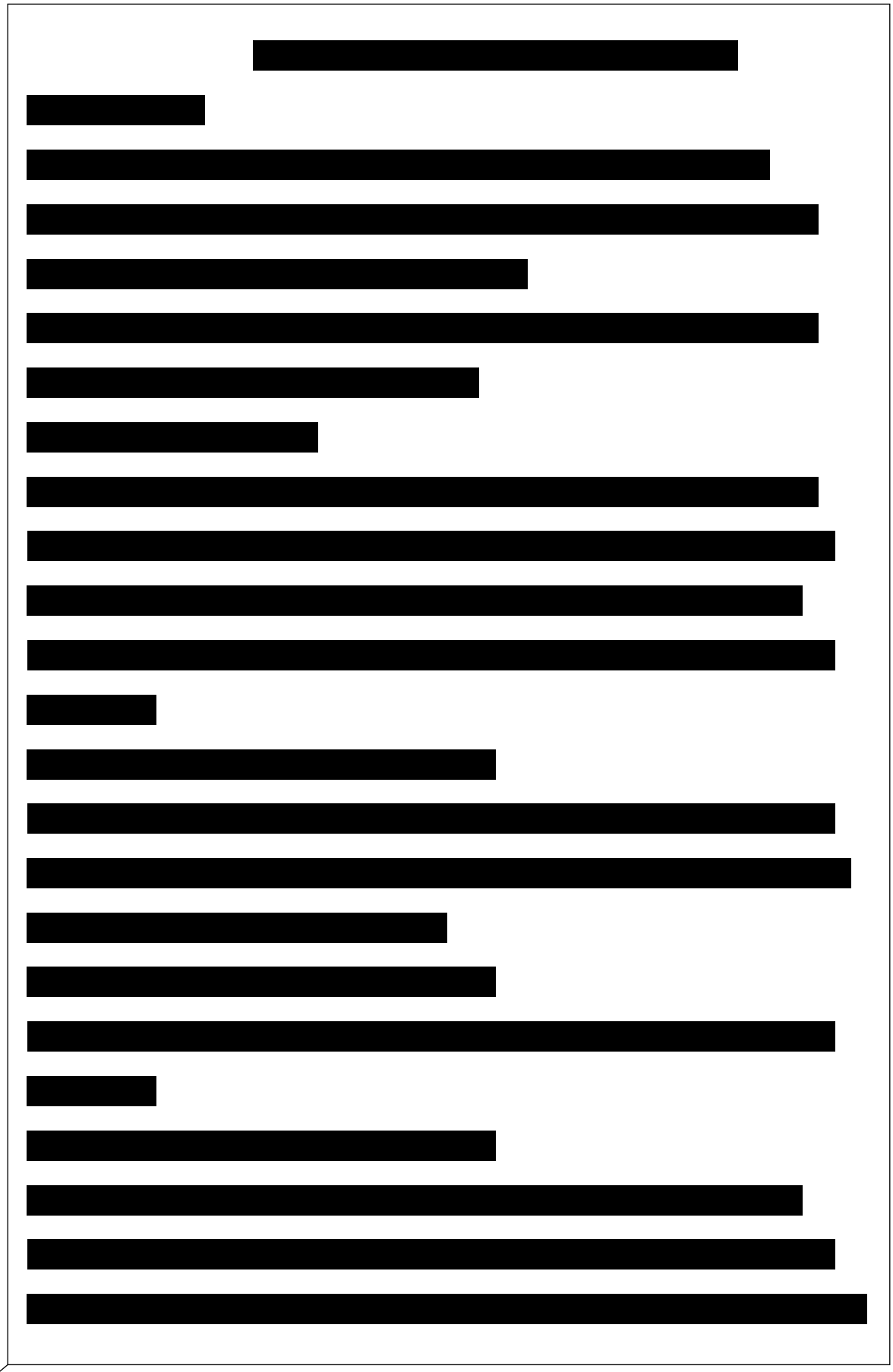
--CONTROL--

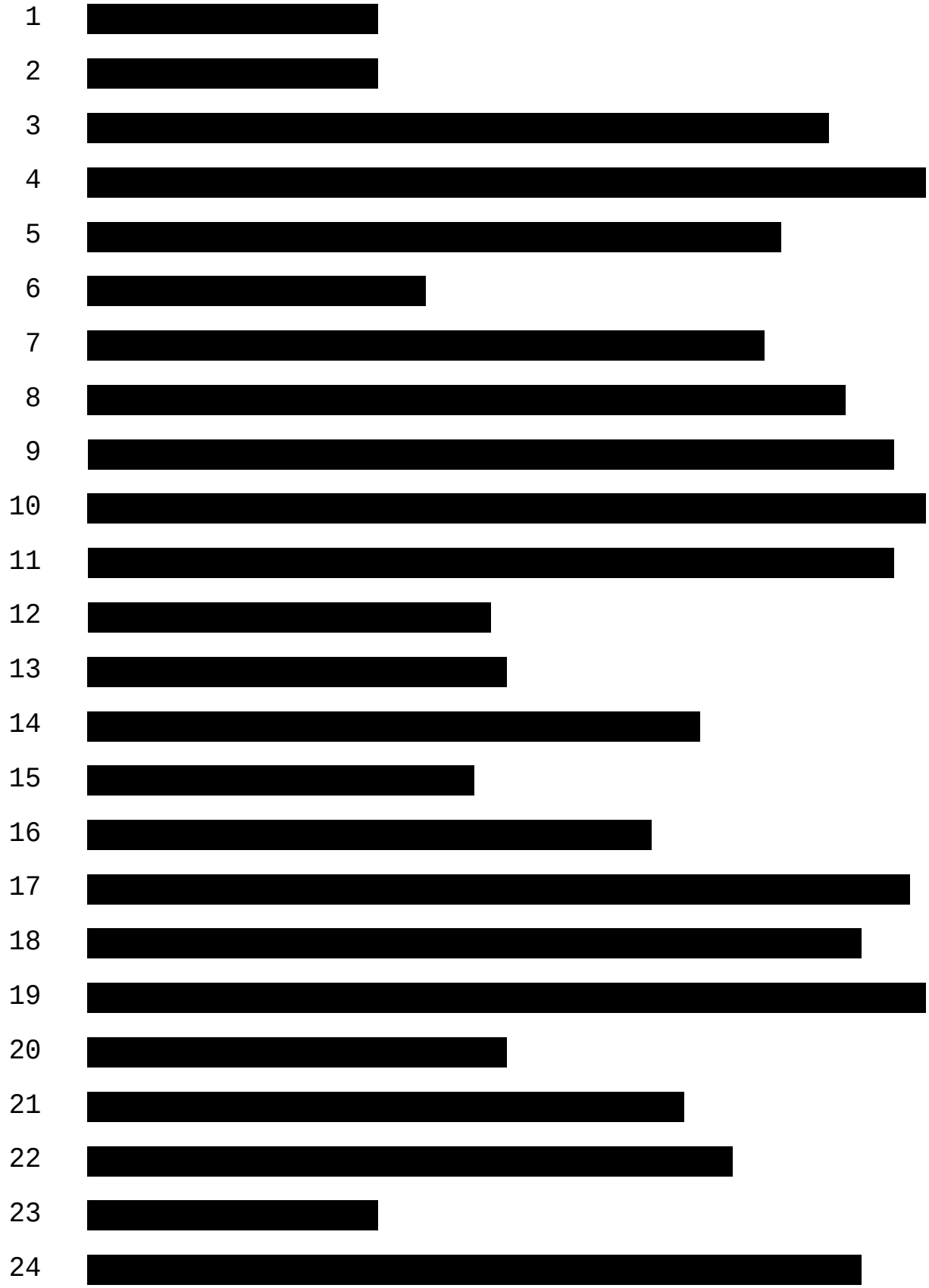
NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

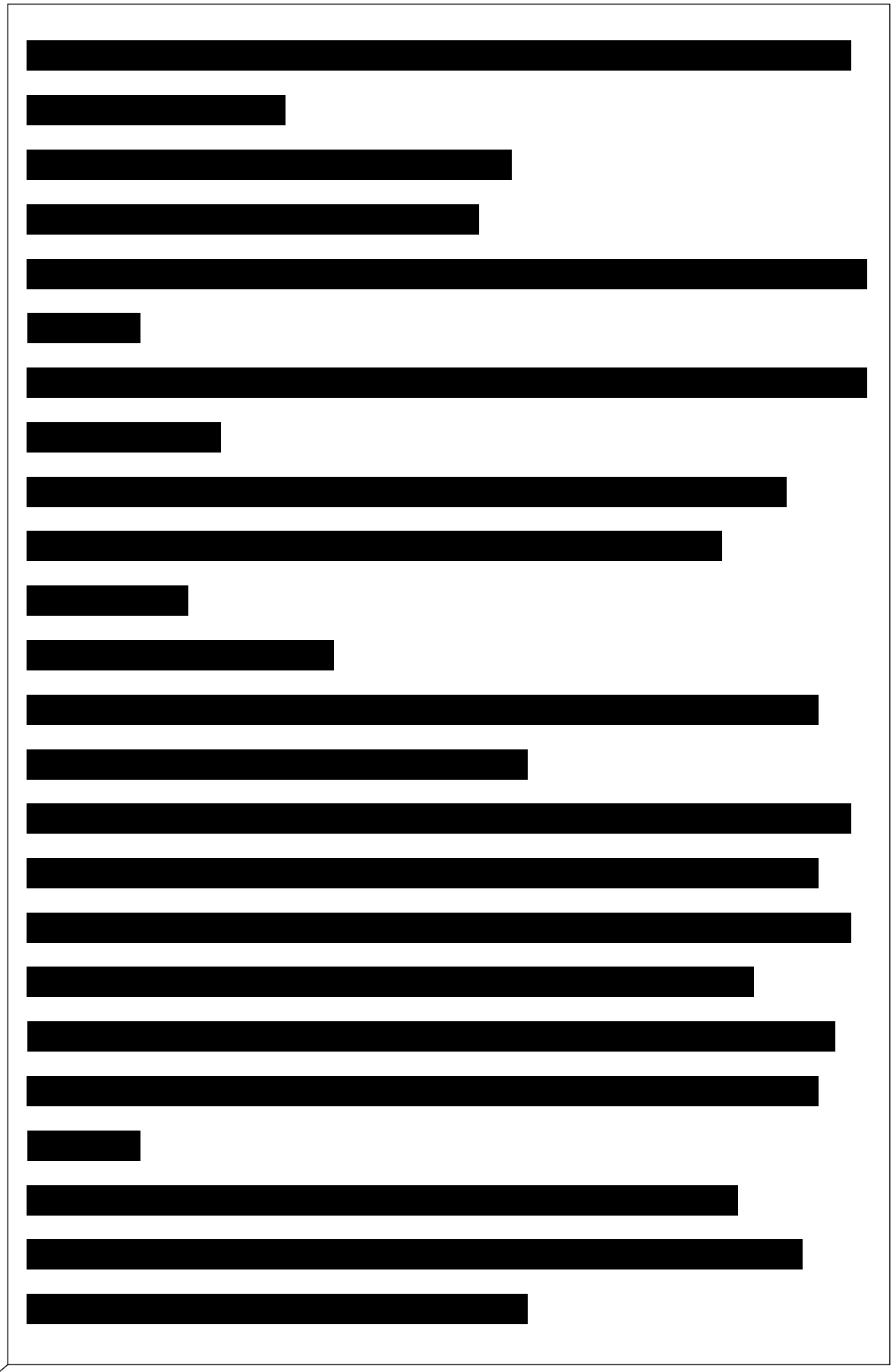
Highly Confidential
Pursuant to the Protective Order

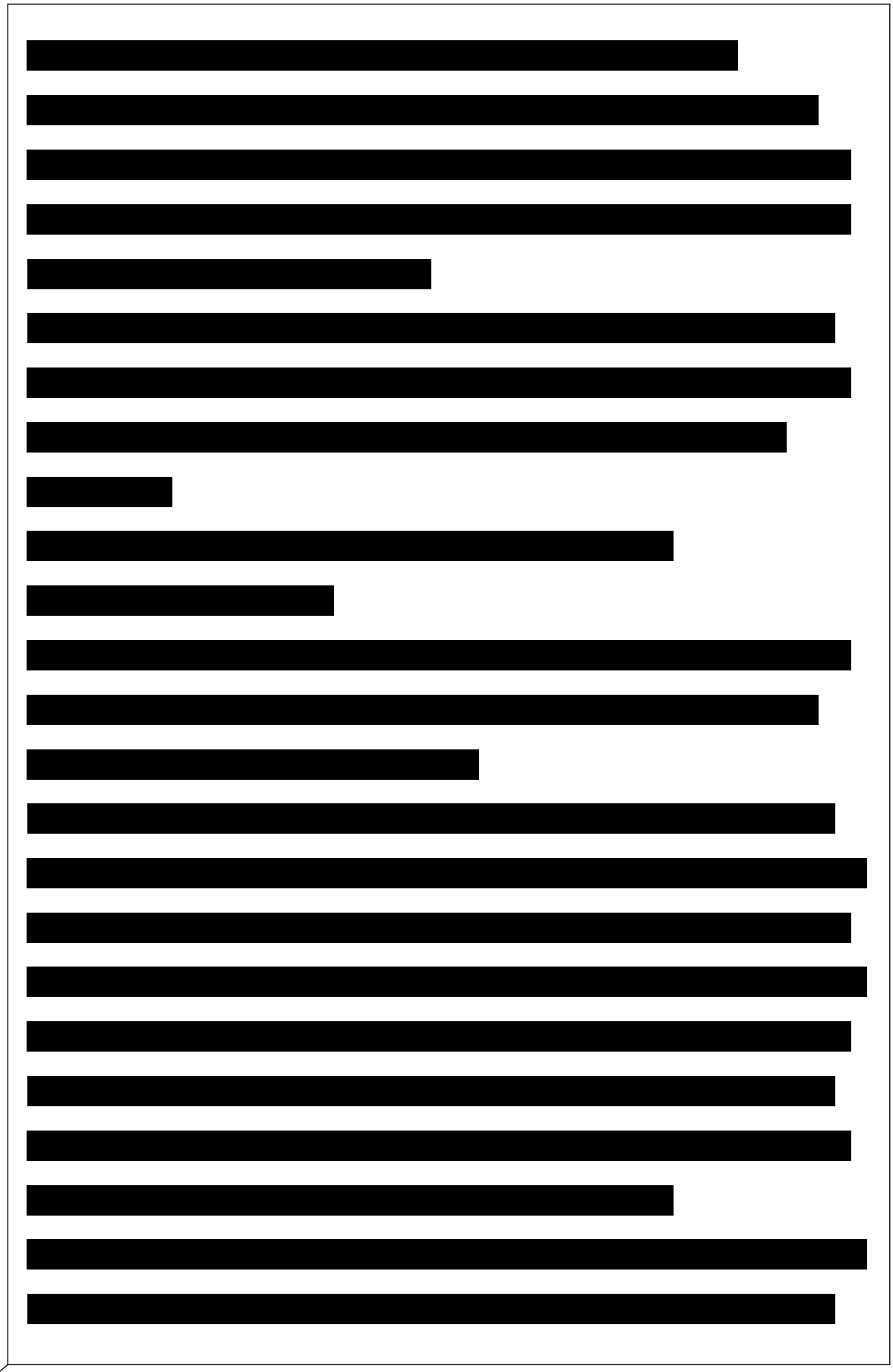
VIDEOTAPED DEPOSITION

The DEPOSITION OF MARK R. GEORGE, taken on behalf of Burlington Northern Santa Fe Railway Company, at the Law Offices of Sidley Austin LLP, 1501 K Street, NW, Washington, DC 20005, on the 17th day of September, 2026, at 8:59 a.m. EST.









[redacted]

MS. MAHAN: Object to the form.

THE WITNESS: Sorry.

MS. MAHAN: It's okay.

You'll be coming back to that one. We'll keep it separate.

THE WITNESS: Okay.

Q. (By Mr. Donovan) So in 2024 you said you became CEO, correct?

A. That's correct.

Q. And you also implemented a new senior management team, correct?

A. That is correct.

Q. In 2024, Norfolk Southern had a new chief financial officer, correct?

A. That's right.

Q. A new chief operating officer,

correct?

A. No. The operating officer was in place prior to my ascension.

Q. Right. But during 2024, Norfolk Southern had a new chief operating officer --

A. That is correct.

Q. -- compared to 2023?

A. Absolutely correct.

Q. Okay. And in 2024, Norfolk Southern had a new chief human resources officer compared to 2023, correct?

A. So if you're looking end of year to end of year, that may not be true, but Annie Adams had been the CHRO. I'm not sure when she was pushed aside, if it was at the end of '23 or if it was early '24, but she is reinstated as the chief HR officer.

MR. DONOVAN: Can I get Tab 2, please.

(Exhibit 229 was marked for identification.)

Q. (By Mr. Donovan) Sir, I'm going to hand you you what we've marked as Exhibit 229 which is Norfolk Southern's 2024 annual report.

A. The 2024 annual report.

MS. MAHAN: Thank you, sir.

Q. (By Mr. Donovan) And feel free to look at the back, but the 2024 annual report you signed as the CEO, correct?

A. I do see my signature here on page 3. Okay.

Q. Okay. If you look at page 2 of the report under governance and leadership transformation.

Do you see that?

A. Okay.

Q. Okay. As it states in the Norfolk Southern annual report, it identifies that in 2024, Norfolk Southern had a new senior management team, correct?

A. That's correct.

Q. Okay. And it identifies those new positions as a new CEO, you, CFO, COO, CHRO, CLO, and CIDO.

Do you see that?

A. I do.

Q. Okay. And that's true. Those were all new management positions filling those positions since 2023, correct?

MS. MAHAN: Object to the form.

A. Yes. That's true.

Q. (By Mr. Donovan) Okay. During 2024, Norfolk Southern also had seven new board members, correct, as stated at the top of that paragraph?

A. Yes. That's correct.

Q. So compared to 2023, Norfolk Southern has seven new board members and a new senior management team, correct?

A. That's correct.

Q. And fair to say 2024 was a year of transformation for Norfolk Southern, correct?

A. Absolutely.

Q. And in 2024, Norfolk Southern's network was fluid, correct?

MS. MAHAN: Object to the form. I'm sorry; I didn't hear the last word.

MR. DONOVAN: Fluid.

A. Maybe less at the outset but more so as the year progressed.

Q. (By Mr. Donovan) Okay. Norfolk Southern's terminals operated efficiently in 2024, correct?

A. Yes.

Q. And in 2024, your service levels were at an all-time high, correct?
A. That's correct.
Q. In 2024, compared to 2023, Norfolk Southern accelerated its entire network, correct?
A. That's correct.
Q. You improved network train speeds in 2024 compared to 2023 by 10 percent?
A. Sounds right, yes.
Q. Okay. Norfolk Southern in 2024 improved its merchandise train speed 11 percent compared to 2023, correct?
A. Correct.
Q. And Norfolk Southern improved its unit train speed compared to 2023 -- withdrawn.
In 2024, Norfolk Southern improved its unit train speed by 17 percent over 2023, correct?
A. That was in our last quarter, correct.
Q. And in 2024, Norfolk Southern improved its intermodal train efficiency by 3.1 percent in the last quarter, correct?
A. That's correct.
Q. Even as the Norfolk Southern team handled 7 percent more parcel volume, correct?

Palestine, correct?

MS. MAHAN: Object to the form.

A. In 2023, we still had network challenges.

Q. (By Mr. Donovan) Okay.

A. Many were exacerbated by the East Palestine accident.

Q. Right. Okay. And for the full year of 2024, Norfolk Southern achieved an operating ratio of 66.4 percent, correct?

A. That's correct.

Q. And that was a material improvement on a year-to-year basis, correct?

A. That is correct.

Q. So let's look at -- on the same page, income from railway operations in 2024 --

A. Uh-huh.

Q. -- materially increased from 2023, correct?

A. Correct.

Q. And as listed in the annual report here, from '23 to '24, income from railway operations had an increase of 43 percent, correct?

A. Yes. That's correct.

Q. And as shown here, from '22 to '23, income from railway operations went down 41 percent, correct?

A. Correct.

Q. So in looking at '22, '23, and '24, fair to say 2023 was the aberrational year with respect to income from railway operations, correct?

MS. MAHAN: Object to the form.

A. 2023 was impacted by the East Palestine events and the consequential damage to our business.

Q. (By Mr. Donovan) So in other words, 2023 was not like 2022 or 2024, correct?

A. Every year is different, correct.

Q. Okay. Let's cut through it. 2023 was a historically challenging year for Norfolk Southern, correct?

A. Yes.

Q. Okay.

A. East Palestine was a historically bad event.

Q. And it wasn't just East Palestine. Norfolk Southern was having service issues even before that event that then were exacerbated by the

East Palestine incident, correct?

A. The service issues were actually recovering from '22. They were improving until East Palestine happened.

Q. And then after that, for the -- for the total year of 2023, fair to say, Mr. Shaw said in analyst reports, that those network service issues really impacted the financial results, correct?

MS. MAHAN: Object to the form; foundation.

A. Yes.

Q. (By Mr. Donovan) So as we look for income from railway operations, from 2022 to 2023, it went down 41 percent, correct?

A. That's correct.

Q. Okay. And from 2023 to 2024, it went up 43 percent, correct?

A. Correct.

Q. Okay. Let's look at net income.

Net income from 2022 to 2023 went down 44 percent, correct?

A. Yes.

Q. From 2023 to 2024, net income went up

freight recession.

Do you see that?

A. Yes.

Q. Okay. And this is the freight recession in which volumes were stagnant or going down and very little pricing power, especially compared to trucks.

Correct?

MS. MAHAN: Object to the form.

A. I'm sorry. Can you re-ask --

Q. (By Mr. Donovan) Sure.

A. -- the question?

Q. Yeah. Yeah.

A. I was reading.

Q. Yeah. No problem.

The four years of the freight recession is referring to both stagnant or lower volumes plus a lack of pricing power compared to trucks, correct?

MS. MAHAN: Object to the form.

A. Yes. That's correct.

Q. (By Mr. Donovan) Okay. You then go on later there to say some things you said this morning: So it does feel like this confluence of

higher fuel prices and also some of the enforcement on commercial drivers licenses and drug and alcohol testing, all of these things maybe have had an impact, finally, on the trucking side of things where we're coming out of this in a much more rail competitive environment.

Do you see that?

A. I do see that, yes.

Q. Okay. And as you used that term, what did you mean by a much more rail competitive environment?

A. I mean compared to truck; rail being more competitive compared to truck. And you can see on that next paragraph: We have to keep our eyes on what happens long term if fuel stays high for long --

Q. Yeah.

A. -- which is what we talked about.

Q. And that's your point. There's kind of a sweet spot, but if you go too far, it will tip?

A. Yes. Correct.

Q. So as of July 23rd, 2006, year to date, fair to say throughout 2026, Norfolk Southern has been taking, at least on the intermodal side,

share from the trucking business, correct?

A. In the second quarter of 2026.

Q. And year to date 2026, correct?

A. Because of that, it translates to year to date.

Q. Correct. And because you get reports the same, it seems to be true in your business for July and August of 2026, correct?

A. Yes.

MR. DONOVAN: Tab 25, please.

(Exhibit 230 was marked for identification.)

Q. (By Mr. Donovan) Sir, I'm going to hand you what's been marked as Exhibit 230 which is the AAR September 2026 Rail Industry Overview.

A. Thank you.

MS. MAHAN: Thank you.

Q. (By Mr. Donovan) Go ahead and take a look at that and just let me know when you're ready.

A. Okay.

Q. Okay. Norfolk Southern is a member of the AAR, correct?

A. Yes, we are.

Q. Okay. And the Rail Industry Overview

is a publication of the AAR that you review, is that correct?

A. No. This is not something I read.

Q. Who on your team reviews this?

MS. MAHAN: Object to foundation.

A. I don't know.

Q. (By Mr. Donovan) The beginning of the AAR Rail Industry Overview for 2026 says: Record intermodal and broad-based carload gains point to continued economic momentum.

Do you see that?

A. I'm sorry. What -- what paragraph?

Q. Yeah. Sure. It's right underneath Rail Industry Overview.

A. Sorry. A subheading.

Q. Where it says: Record intermodal and broad-based carload gains point to continued economic momentum --

A. I see that.

Q. Do you see that?

A. Yes.

Q. It then goes on -- well, withdrawn.

The second paragraph provides that total US rail carloads averaged more than 235,000

REPORTER CERTIFICATE

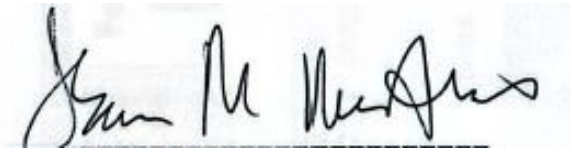
I, TRACI M. MERTENS, RDR, CRR, do hereby certify that there came before me

MARK R. GEORGE

who was by me first duly sworn to testify to the truth and nothing but the truth of all knowledge touching and concerning the matters in controversy in this cause; that the witness was thereupon carefully examined under oath and said examination was reduced to writing by me; and that this deposition is a true and correct record of the testimony given by the witness and that signature by the witness is reserved.

I further certify that I am neither attorney nor counsel for nor related nor employed by any of the parties to the action in which this deposition is taken; further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in this action.

Dated September 22, 2026.



TRACI M. MERTENS, RDR, CRR

EXHIBIT 30

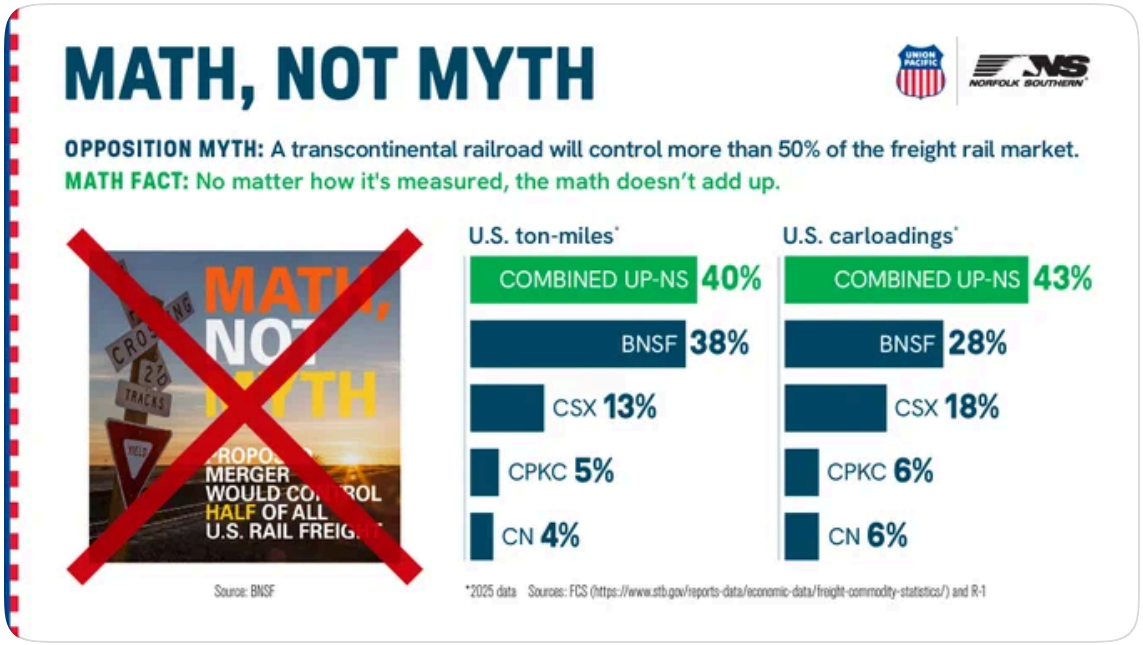
PUBLIC VERSION - REDACTED

Post

Log in Sign up

Union Pacific
@UnionPacific

Math, not myth. The "50% market share" claim doesn't hold up when you look at the actual data. Using standard industry measurements and removing duplicate Union Pacific-@nscorp traffic, a combined railroad will account for approximately 40% of U.S. ton-miles and 43% of U.S. carloadings. The numbers aren't in dispute. The narrative is. That's why we're showing our work and sharing the calculations behind the facts. Learn more at AmericasGreatConnection.com.



5:33 PM · Sep 28, 2026 · **2,254** Views

2 3 23

Union Pacific @UnionPacific · Sep 28
Please review Union Pacific's cautionary note regarding forward-looking statements at UP.com/CautionaryNote .

PUBLIC VERSION - REDACTED



From up.com

4 717

doby5 @doby5_ · Sep 28

Whoever is anti the great connection is anti freight/commerce for this great nation.

2 32

EXHIBIT 31

Organisation for Economic Co-operation and Development

DAF/COMP/WP3/WD(2024)34

Unclassified English - Or. English

3 December 2024

DIRECTORATE FOR FINANCIAL AND ENTERPRISE AFFAIRS
COMPETITION COMMITTEE

Working Party No. 3 on Co-operation and Enforcement

The Use of Structural Presumptions in Antitrust – Note by the United States

4 December 2024

This document reproduces a written contribution from the United States submitted for Item 2 of the 140th meeting of Working Party 3 on 4 December 2024.

Antonio CAPOBIANCO
Antonio.Capobianco@oecd.org, +(33-1) 45 24 98 08.

JT03556831

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

United States

1. Introduction

1. For decades, courts in the United States have relied on the so-called "structural presumption" that a merger that significantly increases concentration in a highly concentrated market can be presumed unlawful absent a rebuttal showing from the merging parties that other evidence establishes that there is no violation of law. In the experience of the Antitrust Division of the U.S. Department of Justice ("DOJ") and the Federal Trade Commission ("FTC") (collectively, the "Agencies" or the "government"), this rebuttable presumption offers a practical, efficient, and analytically sound method for the Agencies to identify harmful mergers and for courts to adjudicate illegality. Where concentration levels and market shares indicate a significant risk of harm, the structural presumption allows enforcers to focus resources on mergers that pose the greatest risk, while placing the burden on merging firms to show that their transaction would not substantially lessen competition in violation of U.S. law.

2. The Agencies recently had the opportunity to conduct a robust review of the legal and theoretical support for the structural presumption as part of the Agencies' 2023 update to the U.S. Merger Guidelines.[1] Starting in January 2022, the Agencies undertook a comprehensive review of the then-current guidelines to ensure that they accurately reflect the governing statutes and judicial precedent, current economic thinking, and modern market realities. This review included a fresh look at the structural presumption, which has been recognized in some form in U.S. merger guidelines since the guidelines were first created in 1968.[2]

3. As this paper explains, the Agencies' review affirmed that there is strong legal and economic support for continued reliance on a rebuttable structural presumption. In the following sections, we first provide an overview of the role that concentration and market shares play in judicial adjudication of mergers in the United States. We then describe the widespread recognition of the utility of the structural presumption among economists. We then explain the Agencies' approach to the structural presumption as an analytical framework in merger review, as reflected in the 2023 Merger Guidelines. Finally, we explore the interaction of structural presumptions with other tools and frameworks used for analyzing mergers.

[1] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines* (2023), *available at* https://www.justice.gov/atr/2023-merger-guidelines. The Agencies issue merger guidelines to enhance transparency and promote awareness of how the Agencies undertake merger analysis when deciding whether to challenge an acquisition. The first merger guidelines were issued in 1968, and periodically over the years, the Agencies have worked collaboratively to update them, including in 1982, 1992, 1997, 2010, and 2020.

[2] The 1968 Merger Guidelines explained that the goal of merger enforcement was to "preserve and promote market structures conducive to competition," setting forth market-share based presumptions prohibiting mergers that raised concentration. U.S. Dep't of Justice, *1968 Merger Guidelines*, 1 (1968), *available at*

https://www.justice.gov/sites/default/files/atr/legacy/2007/07/11/11247.pdf.

2. The Role of the Structural Presumption in Judicial Adjudication of Mergers

4. The structural presumption plays an important role in the legal analysis of whether a merger violates Section 7 of the Clayton Act, the primary law governing mergers in the United States. In making this assessment, U.S. federal courts follow a burden-shifting approach. If the government can show a reasonable probability that the challenged transaction would lead to "undue concentration" in a properly defined relevant market, this creates "a presumption that the merger would substantially lessen competition" and establishes a *prima facie* case of an anticompetitive effect in violation of Section 7.[3] This *prima facie* case is referred to as the "structural presumption," as it rests on measures of market structure—the level and increase in market concentration—resulting from the merger. Application of the structural presumption based on undue concentration is well-established and accepted in U.S. case law.[4]

5. The U.S. Supreme Court has urged "simplify[ing] the test of illegality" by "dispensing, in certain cases, with elaborate proof of market structure, market behavior, or probable anticompetitive effects."[5] Therefore, the government can establish its *prima facie* case based on market share statistics alone.[6] For example, in the 1963 *Philadelphia National Bank* case, the U.S. Supreme Court found a relevant market unduly

[3] *United States v. Baker Hughes Inc.*, 908 F.2d 981, at 982 (D.C. Cir. 1990) (internal quotation marks omitted).

[4] *See FTC v. Hackensack Meridian Health, Inc.*, 30 F.4th 160, 173 (3d Cir. 2022) ("The District Court correctly concluded that these numbers [showing that the market was highly concentrated and the merger would result in a significant increase in concentration] demonstrate the merger is presumptively anticompetitive."); *FTC v. Penn State Hershey Medical Center*, 838 F.3d 327, 347 (3d Cir. 2016) ("The government can establish a *prima facie* case simply by showing a high market concentration based on HHI numbers."); *Saint Alphonsus Med. Ctr.-Nampa Inc. v. St. Luke's Health Sys., Ltd.*, 778 F.3d 775, 788 (9th Cir. 2015) ("The extremely high HHI on its own establishes the *prima facie* case."); *ProMedica Health Sys. Inc v. FTC*, 749 F.3d 559, 570 (6th Cir. 2014) (applying the structural presumption based on "the strong correlation between market share and price, and the degree to which this merger would further concentrate markets that are already highly concentrated"); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 716

(D.C. Cir. 2001) ("Sufficiently large HHI figures establish the FTC's *prima facie* case that a merger is anticompetitive"); *FTC v. Elders Grain*, 868 F.2d 901, 906 (7th Cir. 1989) ("[A]n acquisition which reduces the number of significant sellers in a market already highly concentrated and prone to collusion by reason of its history and circumstances is unlawful in the absence of special circumstances."); *FTC v. IQVIA Holdings Inc.*, No. 23 CIV. 06188 (ER), 2024 WL 81232, at *33 (S.D.N.Y. Jan. 8, 2024) (holding that the FTC met its *prima facie* burden by establishing the structural presumption by both HHI levels and a relevant market share above 30 percent and noting that defendants' arguments that the presumption had been "repudiated" were "directly contradict[ed]" by Second Circuit precedent).

[5] *United States v. Philadelphia National Bank*, 374 U.S. 321, 362-63 (1963).

[6] *See United States v. General Dynamics Corp.*, 415 U.S. 486, 497 (1974) ("The effect of adopting this approach to a determination of a 'substantial' lessening of competition is to allow the government to rest its case on a showing of even small increases of market share or market concentration in those industries or markets where concentration is already great or has been recently increasing. . . ."); *FTC v. Hackensack Meridian Health*, 30 F.4th 160, 173 (3d. Cir. 2022) (holding, after reviewing the FTC's evidence on market shares and concentration in the relevant market, that "the District Court needed no further evidence to find the FTC had established its *prima facie* case."); *FTC v. IQVIA Holdings Inc.*, No. 23 CIV. 06188 (ER), 2024 WL 81232, at *33 (S.D.N.Y. Jan. 8, 2024)("The high post-merger levels of market concentration alone would be sufficient for the FTC to state a *prima facie* case.")

concentrated—and therefore the merger unlawful—where the merging parties controlled 30% of the market and the merger increased market concentration by 33%.[7] The Court explained:

> *[A] merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market is so inherently likely to lessen competition substantially that it must be enjoined in the absence of evidence clearly showing that the merger is not likely to have such anticompetitive effects.*[8]

6. Importantly, even when the structural presumption is applied, defendants have the opportunity to rebut the presumption by producing evidence that shows that the market-share measures give an inaccurate account of the merger's probable effects on competition in the relevant market.[9] For example, defendants may produce evidence demonstrating "unique economic circumstances that undermine the predictive value of the government's statistics."[10] However, the "more compelling the *prima facie* case, the more evidence the defendant must present to rebut it successfully."[11] If the defendant succeeds in its rebuttal, then the burden shifts back to the government to provide additional evidence of harm to competition. The ultimate burden of persuasion remains with the government at all times.

7. This approach recognizes that merger enforcement is a forward-looking exercise involving difficult predictions of future market behavior. Section 7 was designed to arrest anticompetitive tendencies in their incipiency and before harmful effects fully materialize.[12] Thus, to show that a merger is unlawful, a plaintiff need only "prove that its effect '*may be* substantially to lessen competition'" or to tend to create a monopoly.[13] As the U.S. Supreme Court has explained, this standard "creates a relatively expansive definition of antitrust liability."[14] The law does not require proof that a merger will certainly harm competition, but rather that there is an "appreciable danger" of such harm.[15] By shifting the burden to the merging firms to show that increased concentration will not harm competition, the presumption helps protect markets without demanding unreasonable levels of certainty.

8. Although not legally binding, courts often treat the Agencies' merger guidelines as persuasive authority and rely on them to assist in determining whether a merger is unlawful.

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[7] *United States v. Philadelphia National Bank*, 374 U.S. 321, 362-63 (1963).

[8] *United States v. Philadelphia National Bank*, 374 U.S. 321, 363 (1963).

[9] See *United States v. General Dynamics Corp.*, 415 U.S. 486 (1974); *United States v. Baker Hughes Inc.*, 908 F.2d 981 (D.C. Cir. 1990).

[10] *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 715 n.7 (internal quotation marks omitted); *see also United States v. Baker Hughes Inc.*, 908 F.2d at 985–86 (listing additional factors that can rebut the government's *prima facie* case).

[11] *Baker Hughes*, 908 F.2d 981, 991.

[12] *See, e.g., Brown Shoe Co. v. United States*, 370 U.S. 294, 318 nn.32-33 (1962).

[13] *California v. Am. Stores Co.*, 495 U.S. 271, 284 (1990) (quoting 15 U.S.C. § 18 with emphasis) (citing *Brown Shoe Co. v. United States*, 370 U.S. 294, 323).

[14] *Id.*

[15] *Hospital Corp. of America v. FTC.*, 807 F.2d 1381, 1389 (7th Cir. 1986).

For example, courts have looked to the guidelines when determining the appropriate measures of concentration that trigger whether the structural presumption is warranted.[16]

3. Economic Support for the Presumption

9. In reviewing the recent literature, the Agencies found strong economic support for the presumption.[17] There has long been recognition of the theoretical support for the presumption, and recent research has reinforced this foundation. In addition, a growing body of empirical studies, including a number of merger retrospectives, show that there is significant risk of harm from a merger combining two firms with substantial market shares in a concentrated market.

3.1. Theoretical Basis for the Structural Presumption

10. Economic theory provides a longstanding basis for the structural presumption, showing that mergers that are accretive to market concentration increase market power and, absent efficiencies, are harmful.[18] Recent economic research reinforced the structural presumption's consideration of change in concentration metrics as a tool to assess the potential impact of mergers.[19] As a result, there is a strong economic foundation to presume that market share indicators provide a reliable signal, or "red flag," suggesting the risk of elimination of substantial competition between merging firms (sometimes referred to as "unilateral effects") or increased risk of coordination among the remaining firms in the market ("coordinated effects"). As explained by one leading economist:

> *[V]arious theories of oligopoly conduct—both static and dynamic models of firm interaction—are consistent with the view that competition with fewer significant firms on average is associated with higher prices. In general, the smaller the number of firms, the more likely the firms will be able to reach a mutually satisfactory outcome at a higher-than-competitive price. Unilateral price increases or output restraints also are more likely to be profitable when the merged*

[16] *See Federal Trade Commission v. Tapestry, Inc., & Capri Holdings Ltd.*, No. 1:24-CV-03109 (JLR), 2024 WL 4564523, at *37 (S.D.N.Y. Oct. 24, 2024) (finding the 2023 Merger Guidelines "persuasive" on the appropriate HHI levels notwithstanding that they had recently been updated); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 716 ("This creates, by a wide margin, a presumption that the merger will lessen competition in the domestic jarred baby food market. *See* Horizontal Merger Guidelines, *supra*, § 1.51 (stating that HHI increase of more than 100 points, where post-merger HHI exceeds 1800, is "presumed ... likely to create or enhance market power or facilitate its exercise").

[17] For additional discussion, *see* Susan Athey & David Lawrence, *The 2023 Merger Guidelines: Lessons in the Importance of Incipiency, Modern Economics, and Monopsony*, Competition Policy International Antitrust Chronicle (2024), https://ssrn.com/abstract=4813045; Michael Kades, *Deputy Assistant Attorney General Michael Kades Delivers Remarks at GCR Live: Law Leaders Global 2024* (2024), https://www.justice.gov/opa/speech/deputy-assistant-attorney-general-michael-kades-delivers-remarks-gcr-live-law-leaders.

[18] *See, e.g.*, Keith Cowling & Michael Waterson, Price-Cost Margins and Market Structure, 43 Economica 267 (1976).

[19] *See, e.g.*,Volker Nocke & Michael D. Whinston, *Concentration Thresholds for Horizontal Mergers*, 112 American Economic Review 1915 (2022); Nathan H. Miller and Gloria Sheu, *Quantitative Methods for Evaluating the Unilateral Effects of Mergers*, Review of Industrial Organization 58, no. 1 (2021): 143–177.

> *firms have higher market shares, ceteris paribus. Accordingly, a horizontal merger reducing the number of rivals from four to three, or three to two, would be more likely to raise competitive concerns than one reducing the number from ten to nine, ceteris paribus.*[20]

11. A number of prominent economists have written in support of maintaining the presumption.[21] For example, in a recent paper co-authored by 26 economists, including leaders of Agency economic teams from a range of administrations, the authors stated that "Economic theory provides support for the established legal presumption that a merger in a market is likely to have adverse competitive effects when it occurs in a concentrated market and makes it more concentrated . . . ."[22] Likewise, a forthcoming article in the Oxford Review of Economic Policy observes that "presumptions are grounded on solid economics and also acknowledge the real-world limitations in enforcement resources and information asymmetries between companies and regulators."[23]

3.2. Empirical Evidence from Merger Retrospectives

12. The structural presumption is strongly supported by evidence from recent merger retrospectives, which link increased concentration to post-merger anticompetitive effects such as increased prices and decreased product availability. Those studies cover a wide range of industries. For example, a study of 50 mergers in the consumer packaged goods industry found that these mergers raised prices by 1.5 percent and decreased quantities sold by 2.3 percent, on average.[24] Moreover, it found that mergers that resulted in higher changes in concentration led to larger price increases.[25] Likewise, a study of grocery store mergers found that the majority of grocery mergers in highly concentrated markets resulted in price increases of more than 2 percent.[26] Similarly, a study focused on mergers in the health insurance industry found the mean increase in local market HHI during the studied period raised premiums by roughly 7 percent.[27]

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[20] Steven C. Salop, *The Evolution and Vitality of Merger Presumptions: A Decision-Theoretic Approach*, 80 Antitrust Law Journal, 269, 276-78 (2015).

[21] *See* Susan Athey & David Lawrence, *The 2023 Merger Guidelines: Lessons in the Importance of Incipiency, Modern Economics, and Monopsony*, Competition Policy International Antitrust Chronicle, 5-6, (2024), https://ssrn.com/abstract=4813045 (summarizing scholarship).

[22] *See* Nathan Miller et al., *On The Misuse of Regressions of Price on the HHI in Merger Review*, 10 Journal of Antitrust Enforcement, 248, 251 (2022).

[23] Filippo Lancieri & Tommaso Valletti, "A Defence of Rebuttable Structural Presumptions," Forthcoming: Oxford Review of Economic Policy, Vol. 40 No. 4: New Directions in Competition Policy (Winter 2024), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4945868.

[24] Vivek Bhattacharya, Gaston Illanes, & David Stillerman, *Merger Effects and Antitrust Enforcement: Evidence from US Consumer Packaged Goods* (National Bureau of Economic Research, Working Paper No. 31123, 2023), *available at* https://www.nber.org/papers/w31123.

[25] Id. at 30.

[26] Daniel Hosken, Luke Olson, & Loren Smith, *Do Retail Mergers Affect Competition? Evidence from Grocery Retailing*, 27 Journal of Economics and Management Strategy, 3 (2018).

[27] Leemore Dafny, Mark Duggan, & Subramaniam Ramanarayanan, *Paying a Premium on Your Premium? Consolidation in the US Health Insurance Industry*, 102 American Economic Association, 1161 (2012). The term "HHI" means the Herfindahl–Hirschman Index, a commonly

13. Studies that more broadly examine oligopoly markets yielded similar results. In one study, the author considered 40 mergers analyzed in prior retrospectives, examining price changes reported from the prior retrospective studies and comparing these to the changes in concentration and number of significant competitors after a merger.[28] The author found that HHI thresholds correctly predicted the anticompetitive effects stemming from the vast majority of the analyzed mergers.[29]

3.3. Structural Presumption as a Tool to Assess Risks of Increased Coordination

14. Theoretical and empirical literature in economics supports the proposition that merger enforcement in concentrated markets is particularly important as a prophylactic measure because "greater concentration inherently makes coordination more likely, stronger, or more effective."[30] In their recent paper on oligopoly coordination, Jonathan Baker and Joseph Farrell explain that coordinated conduct can come in the form of "purposive" and "non-purposive" behavior.[31] Purposive conduct includes intentional acts, like a price-fixing conspiracy, but also tacit collusion between firms built on mutual understanding. Non-purposive conduct refers to coordination without collusive intent but that still results in organically anticompetitive conduct—the typical example being truly non-collusive parallel conduct whereby firms choose prices independently, but in recognition of the likely reaction of rivals, organically coalesce around similarly elevated prices. Baker and Farrell posit that both types of coordination are relevant concerns for antitrust enforcement. They state, "Whether through purposive or nonpurposive conduct, greater concentration can be expected to make coordination more likely, stronger, or more effective. Accordingly, our analysis supports a structural merger policy, by which mergers between rivals that increase concentration significantly in a concentrated market are presumed to harm competition."[32]

15. This evidence supports the Agencies' recognition that merger enforcement is critically important given that some form of harmful coordinated effects is likely in many concentrated markets and some of this conduct may not be reachable because, for example,

accepted measure of market concentration. The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers.

[28] John E. Kwoka, Jr., *The Structural Presumption and the Safe Harbor in Merger Review: False Positives or Unwarranted Concerns?*, 81 ANTITRUST L.J. 837 (2017).

[29] "Anticompetitive" mergers were those that had an increase in price post-merger, "procompetitive" mergers were those that had no change or a decrease in price post-merger. *See also* Orley Ashenfelter & Daniel Hosken, *The Effect of Mergers on Consumer Prices: Evidence from Five Mergers on the Enforcement Margin*, 53 Journal of Law and Economics J.L. & Econ. 417 (2010) (examining a set of mergers that were unchallenged by the government finding that the majority resulted in a significant increase in consumer prices in the short run).

[30] This literature is summarized in Jonathan B. Baker & Joseph Farrell, *Oligopoly Coordination, Economic Analysis, and the Prophylactic Role of Horizontal Merger Enforcement*, 168 University of Pennsylvania Law Review, 1985, 1991 (2020).

[31] Jonathan B. Baker and Joseph Farrell, *Oligopoly Coordination, Economic Analysis, and the Prophylactic Role of Horizontal Merger Enforcement*, 3 (2020).

[32] Id. at 7.

tacit coordination often cannot be addressed under Section 1 of the Sherman Act, which prohibits anticompetitive agreements.[33]

16. Mergers that may create or exacerbate coordinated interaction can be missed through over-reliance on unilateral-effects focused tools. For example, in 2008 SABMiller and Molson Coors created a joint venture to combine their U.S. operations. The DOJ in 2007 had focused on a theory of unilateral effects rather than potential coordinated effects. The unilateral effects analysis found that the joint venture would result in cost savings that would better enable the joint entity to compete against Anheuser-Busch, its largest competitor. Empirical work in recent years has found that the impacts from coordinated effects have been substantial, and they have outweighed any potential unilateral benefits. For example, an empirical study in the retail beer industry found that, following the joint venture between MillerCoors and Anheuser-Busch, prices increased by 6 percent to 8 percent, and markups increased by 17 percent -to 18 percent.[34] Importantly, those prices and markups increased for both MillerCoors and Anheuser-Busch, suggesting that the consolidation made coordination easier and thus allowed supra-competitive prices.

4. The Structural Presumption in the 2023 U.S. Merger Guidelines

17. The 2023 Merger Guidelines recognize the structural presumption as the first of six distinct frameworks the Agencies use to identify mergers that present competitive concerns. Guideline 1 states that "Mergers Raise a Presumption of Illegality When They Significantly Increase Concentration in a Highly Concentrated Market." Reflecting the economic consensus cited above, it states that "in highly concentrated markets, a merger that eliminates a significant competitor creates significant risk that the merger may substantially lessen competition or tend to create a monopoly."[35] Thus, a "significant increase in concentration in a highly concentrated market can indicate that a merger may substantially lessen competition, depriving the public of the benefits of competition."[36]

18. Guideline 1 explains that an analysis of market concentration involves calculating pre-merger market shares within a relevant market.[37] The 2023 Merger Guidelines advise that the Agencies generally measure concentration levels using the Herfindahl-Hirschman Index ("HHI"), defined as the sum of the squares of the market shares. Market HHI is small when there are many small firms and grows larger as the market becomes more concentrated, reaching 10,000 in a market with a single firm. Markets with an HHI greater than 1,800 are highly concentrated, and a change of more than 100 points is a significant increase.

19. Merger guidelines have used HHI as a measure of concentration dating back to 1982. Under the 1982 Merger Guidelines, markets with an HHI greater than 1,800 were

[33] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 8 (2023) ("Because tacit coordination often cannot be addressed under Section 1 of the Sherman Act, the Agencies vigorously enforce Section 7 of the Clayton Act to prevent market structures conducive to such coordination.").

[34] Nathan H. Miller & Matthew C. Weinberg, *Understanding the Price Effects of the MillerCoors Joint Venture*, 85 Econometrica 1763, 1763 (2017).

[35] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 5 (2023).

[36] Id.

[37] Market definition and market share calculation are explained in §§ 4.3 and 4.4 of the 2023 Merger Guidelines.

referred to as "highly concentrated." These thresholds were routinely applied by courts for the decades that followed. Despite no change in the prevailing precedent of the time, the 2010 Merger Guidelines increased the structural presumption thresholds. Informed by the Agencies' experience and market realities alongside the economic evidence, the Agencies chose to return to the prior thresholds as they both reflect prevailing law and are more likely to accurately assess potential harm to competition.[38] Thus, under Guideline 1, a merger is presumed to risk substantially lessening competition when it (1) results in a market HHI greater than 1,800 and (2) the merger increases the concentration by more than one hundred points.[39]

20. Guideline 1 also establishes an indicator based primarily on the market shares of the merging parties rather than overall market concentration. If a merger creates a firm with a share over thirty percent, it is presumed to be illegal if it also involves an increase in HHI of more than 100 points.[40] This directly follows the guidance of the U.S. Supreme Court in the *Philadelphia National Bank* case described above, which continues to be validated by modern courts.[41] It also reflects the long-standing recognition in the economics literature that a large *increase* in concentration can be a strong indicator that a merger creates a risk of substantial harm to competition, independent of the overall *level* of concentration.[42]

21. Consistent with the case law described above, the presumption can be rebutted or disproved. However, the higher the concentration metrics over these thresholds, the greater the risk to competition and the stronger the evidence needed to rebut or disprove it.[43]

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[38] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 6, n.15 (2023).

[39] Id. at 6.

[40] Id.

[41] *See* Remarks of David Lawrence, Policy Director, Antitrust Division, Georgetown Center for Business & Public Policy (July 2023), *available at* https://www.justice.gov/opa/speech/policy-director-david-lawrence-antitrust-division-delivers-remarks-georgetown-center; *FTC v. IQVIA Holdings Inc.*, No. 23 CIV. 06188 (ER), 2024 WL 81232, at *33 (S.D.N.Y. Jan. 8, 2024) (holding that the FTC met its *prima facie* burden by establishing the structural presumption by both HHI levels and a relevant market share above 30 percent and noting that defendants' arguments that the presumption had been "repudiated" were "directly contradict[ed]" by Second Circuit precedent); *United States v. Bertelsmann SE & Co. KGaA*, 646 F. Supp. 3d 1, at 36 (D.D.C. Nov. 15, 2022) ("In *Philadelphia National Bank*, the U.S. Supreme Court held that a significant change in concentration that results in a combined market share of at least 30 percent is sufficient to establish the legal presumption that a merger violates Section 7.") (citing *Phila. Nat'l Bank*, 374 U.S. at 331, 364); *Fed. Trade Comm'n v. Peabody Energy Corp.*, 492 F. Supp. 3d 865, 907 (E.D. Mo. 2020) (noting that a proposed JV that would create a single entity with 68 percent market share "far exceeds what the U.S. Supreme Court has held to be a concerning level of concentration" and finding a presumption of anticompetitive effects created by FTC's showing of both market share and HHI levels) (citing *Phila. Nat'l Bank*, 374 U.S. at 364-65).

[42] In particular, an increase in HHI, based on the shares of the merging firms, is an important indicator of competitive harm under both unilateral and coordinated effects theories, while the level of HHI, based on the shares of all firms in the market, is most relevant to coordinated effects theories. *See*, e.g., Volker Nocke & Michael D. Whinston, *Concentration Thresholds for Horizontal Mergers*, 112 American Economic Review 1915 (2022) ("there is both a theoretical and an empirical basis for focusing solely on the change in the HHI, and ignoring its level, in screening mergers for whether their unilateral effects will harm consumers.").

[43] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 6 (2023).

22. Beyond Guideline 1, the 2023 Merger Guidelines reflect recent scholarship that discusses the ways that market concentration can be indicative of the potential for coordinated effects—whether explicit, through collusive agreements, or tacit, through observation and response to rivals.[44] Guideline 3 states that "Mergers Can Violate the Law When They Increase the Risk of Coordination," and explains that the fewer the number of competitively significant rivals prior to the merger, the greater the likelihood that merging two competitors will facilitate coordination.[45] Modern scholarship emphasizes the various ways in which market concentration influences competitive outcomes as firms consider the strategic reactions of their competitors.[46] For example, in a concentrated market, a firm may forego or soften an aggressive competitive action because it anticipates rivals responding in kind. This research is reflected in the 2023 Merger Guidelines, which explain that "[t]his harmful behavior is more common the more concentrated markets become, as it is easier to predict the reactions of rivals when there are fewer of them."[47]

23. In developing the 2023 Merger Guidelines, the Agencies sought input from members of the public. Thousands of stakeholders meaningfully contributed to the process by submitting public comments on a draft version of the 2023 Merger Guidelines or participating in listening forums and workshops.[48] The Agencies reviewed and considered every comment they received during this process.

24. The approach to the structural presumption described in the Draft Merger Guidelines was similar in many respects to the approach that was ultimately adopted. Like the final Guidelines, it proposed HHI thresholds in line with relevant case law and the 1982 Guidelines. It proposed two tests indicating an undue risk that the merger may substantially lessen competition: (1) if the market HHI is greater than 1,800 and the change in HHI is greater than 100; or (2) if a merger creates a firm with a share over thirty percent and it involves an increase in HHI of more than 100 points.[49] It also removed a "safe harbor" for

[44] *See* Jonathan B. Baker & Joseph Farrell, *Oligopoly Coordination, Economic Analysis, and the Prophylactic Role of Horizontal Merger Enforcement*, 168 University Pennsylvania Law Review, 3 (2020) ("[G]reater concentration can be expected to make coordination more likely, stronger, or more effective. Accordingly, our analysis supports a structural merger policy, by which mergers between rivals that increase concentration significantly in a concentrated market are presumed to harm competition.").

[45] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 8 (2023).

[46] Joseph Farrell & Jonathan B. Baker, *Natural Oligopoly Responses, Repeated Games, and Coordinated Effects in Merger Analysis: A Perspective and Research Agenda*, 58 Review of Industrial Organization103 (2021); Simon Loertscher & Leslie M. Marx, *Coordinated Effects in Merger Review*, 64 Journal of Law & Economics, 705 (2021).

[47] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 8 (2023).

[48] *See* Fed. Trade Comm'n & Dep't of Justice, Request for Information on Merger Enforcement, FTC-2022-0003 (Jan. 18, 2022); Fed. Trade Comm'n & Dep't of Justice, Four Listening Forums on Firsthand Effects of Mergers and Acquisitions (describing forums on food and agriculture, health care, media and entertainment, and technology); Fed. Trade Comm'n & Dep't of Justice, Draft Merger Guidelines for Public Comment, FTC-2023-0043-0001 (July 19, 2023) (release of 2023 Draft Merger Guidelines for public comment); Fed. Trade Comm'n & Dep't of Justice, Public Workshops on 2023 Draft Merger Guidelines (describing three public workshops on the 2023 Draft Merger Guidelines).

[49] Fed. Trade Comm'n & Dep't of Justice, Draft Merger Guidelines (July 2023).

transactions in unconcentrated markets that had been included in the 2010 Horizontal Merger Guidelines.[50]

25. Many commenters expressed support for a strong role for structural presumptions in the 2023 Draft Merger Guidelines. These commenters included academic experts, state attorneys general, and advocacy groups. For example, economist Joseph Farrell supported a "strong concentration-based presumption."[51] A joint comment from 23 State Attorneys General "urge[d] federal enforcers to adopt a modern and nuanced set of structural presumptions establishing that concentration exceeding certain thresholds reliably predicts that anticompetitive effects will flow from a transaction."[52] The attorneys general of Colorado and Nebraska similarly supported a strengthened presumption.[53] A number of advocacy groups weighed in in support of the presumption, including the American Antitrust Institute, which "encourage[d] the Agencies to consider making the existing concentration thresholds 'hard' guidance, signaling an intention to challenge all mergers that violate the structural presumption, thus forcing the abandonment or restructuring of more deals."[54]

[50] Fed. Trade Comm'n & Dep't of Justice, Horizontal Merger Guidelines (2010) (stating that "mergers resulting in unconcentrated markets are unlikely to have adverse competitive effects and ordinarily require no further analysis.").

[51] Comments of Joseph Farrell on Draft Merger Guidelines, FTC-2023-0043-1558 at 2 (Sept. 19, 2023) (Noting that concentration can be linked to other indicators of unilateral effects, such as diversion ratios and margins, and explaining that "Concentration also facilitates coordinated oligopoly conduct, such that high levels and increases in concentration substantially raise the risk of conscious and purposive coordination" and pointing to his research showing that horizontal mergers may tend to worsen non-purposive coordination as well).

[52] Request for Information on Merger Enforcement, Public Comments of 23 State Attorneys General, FTC-2022-0003-0807 at 23 (April 27, 2022) (offering suggestions for expanding the presumption, emphasizing that "If strengthened and implemented correctly, presumptions can be a tool to help enforcers identify problematic concentration in its incipiency. This is a better approach than having to address anticompetitive harms flowing from problematic concentration by attempting to unwind transactions after the fact. Further, presumptions can provide market participants with the clear guidance that they require.")

[53] Public Comments of the Colorado and Nebraska Attorneys General in Response to the Request for Information on Merger Enforcement, FTC-2022-0003-0767 (April 27, 2022).

[54] Comments of the American Antitrust Institute, FTC-2022-0003-1155 (April 28, 2022); *see also, e.g.*, Comment from Open Markets Institute, Athena Coalition, 14 other groups, and four individuals, FTC-2023-0043-1502 (Sept. 19, 2023); Comment from Consumer Federation of America, FTC-2023-0043-1486 (Sept. 19, 2023); Comment from American Economic Liberties Project, FTC-2023-0043-1521 (Sept. 19, 2023).

26. A number of commenters supported using even lower HHI thresholds compared to the thresholds used in the 2010 HMGs.[55] Had the thresholds been in place since 2010, they asserted that several industries would not be as concentrated as they are today.[56]

27. A number of commenters also supported adding the indicator based on the merging parties' market shares without a minimum market concentration level. Supporters of this metric point out that in highly concentrated industries, the emergence of a new competitor may pressure dominant firms when it comes to price, service, or selection, and that mergers that eliminate small competitors may affect competition more than the acquired firm's market share might suggest.[57]

28. The Agencies also heard from commenters with opposing views. There were some who questioned the lowering of the HHI level from 2500 to 1800, setting the change-in-HHI level at 100,[58] and including the 30 percent threshold.[59] Some critics also expressed concern that the Guidelines' approach is inconsistent with modern district court cases, particularly with respect to the addition of the 30% market share threshold.[60]

29. In fact, however, courts consistently endorse these thresholds.[61] Indeed, in October in *Federal Trade Commission v. Tapestry, Inc., & Capri Holdings Ltd.*, the court credited

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[55] *See, e.g.*, Comment from Attorneys General of 19 States and Territories, FTC-2023-0043-1568 at 2, 4 (Sept. 19, 2023); Comment from Sen. Warren, Rep. Balint, 20 Members of Congress, FTC-2023-0043-1542 at 10, (Sept. 19, 2023); Comments of Professors of Law and Economics, Economists, and Health Policy Researchers on the Draft Merger Guidelines, FTC-2023-0043-1493 at 2 (Sept. 19, 2023); Comment from Salop, Steven, FTC-2023-0043-1364 at 17–18 (Sept. 13, 2023) (pointing to Nocke and Whinston, *Concentration Thresholds for Horizontal Mergers*, 112 American Economic Review 1915 (June 2022)); Comment from Sen. Warren, Rep. Balint, 20 Members of Congress, FTC-2023-0043-1542 at 9, (Sept. 19, 2023) (stating the 30 percent threshold may be "too high"); Comment from Writers Guild of America West and American Federation of Musicians, FTC-2023-0043-1460 at 3 (Sept. 18, 2023) (a Netflix/Warner Bros. Discovery Merger would not trigger the presumptions).

[56] Comment from American Medical Association, FTC-2023-0043-1438 at 5 (Sept. 18, 2023) (referring to concentration in health insurance). The American College of Emergency Physicians express similar concerns about insurer concentration in local markets. Comment from American College of Emergency Physicians, FTC-2023-0043-1534 at 3-4 (Sept. 19, 2023); Comment from Natural Resources Defense Council, FTC-2023-0043-1540 at 5 (Sept. 19, 2023).

[57] See, e.g., Comment of Brewers Association, FTC-2023-0043-1491 at 3 (Sept. 18, 2023).

[58] *See, e.g.*, Comment from Werden, Gregory, FTC-2023-0043-0624 at 6–7 (Aug. 14, 2023) ("A mere 100-point increase in the HHI represents an insignificant increase in concentration in that it moves the market only 1 percent of the way to monopoly.").

[59] *See, e.g.*, Comment from Tennessee Attorney General, FTC-2023-0043-1566 at 16 (Sept. 19, 2023); Comment of International Center for Law & Econ, FTC-2023-0043-1555 at 8–26 (Sept. 19, 2023); Comment from Francis, Daniel FTC-2023-0043-1358 at 18–19 (Sept. 12, 2023) ("[A] mere share-based presumption applied to the post-merger firm is largely untethered to market concentration. … Nor does a merged-firm share threshold have much to do with the logic of unilateral effects". However, Francis recognizes "that the 30% threshold has been repeatedly endorsed by courts, … [so] my concern is muted.").

[60] Comment from Missouri Chamber of Commerce and Industry, FTC-2023-0043-1421 at 2 (citing *United States v. General Dynamics Corp.*, 415 U.S. 486, 497-98 (1974)).

[61] See, e.g., *Federal Trade Commission v. Tapestry, Inc., & Capri Holdings Ltd.*, No. 1:24-CV-03109 (JLR), 2024 WL 4564523, at *37 (S.D.N.Y. Oct. 24, 2024); *see also FTC v. IQVIA Holdings Inc.*, No. 23 CIV. 06188 (ER), 2024 WL 81232, at *33 (S.D.N.Y. Jan. 8, 2024).

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the 2023 Merger Guidelines' approach to the structural presumption in ruling in favor of the FTC that a merger between competing affordable-luxury handbag brands was anticompetitive. With respect to HHI levels, the Court deemed the 2023 Guidelines "persuasive on this point."[62] It noted that although the 2010 Merger Guidelines had raised the thresholds, "Since the introduction of the HHI to the Merger Guidelines in 1982, nearly every iteration has used [the 2023] thresholds, . . . and courts have routinely cited them in assessing the effects of a merger on market concentration." [63] It went on to state that the 2010 Horizontal Merger Guidelines "were an outlier by adopting higher thresholds."[64] It also endorsed the 30% structural presumption from *Philadelphia National Bank*.[65] Here, the court found that the merger would result in a combined firm with a market share of approximately 59 percent and a market concentration of 3,646, an increase in HHI of 1,499.[66] The court found that these levels were "far greater" than the 2023 Guidelines' thresholds and "more than enough to create a presumption – *indeed, a strong presumption* – of anticompetitive effects."[67] The parties abandoned their proposed merger shortly after the court granted the FTC's request for a preliminary injunction.

30. Although the final 2023 Merger Guidelines retained the market structure indicators proposed in the Draft Merger Guidelines, feedback from commenters prompted the Agencies to clarify a key point pertaining to the role of the presumption. Some commenters expressed concern that the Draft Merger Guidelines implied that if the structural presumption is triggered, it is unrebuttable, making such mergers *per se* illegal.[68] In the final 2023 Merger Guidelines, the Agencies clarified that the structural presumption is a "useful indicator" of the risk of harm to competition and explicitly stated that the "presumption of illegality can be rebutted or disproved."[69] Moreover, "the higher the concentration metrics over these thresholds, the greater the risk to competition suggested by this market structure analysis and the stronger the evidence needed to rebut or disprove it."[70]

5. The Structural Presumption and Modern Markets

31. The structural presumption can be a useful tool for assessing mergers in a wide range of contexts, including markets where new technologies and business models complicate the use of other enforcement tools. For example, in zero-price markets such as certain digital platforms, measures such as predicted post-merger price increases may not

[62] *Federal Trade Commission v. Tapestry, Inc., & Capri Holdings Ltd.*, No. 1:24-CV-03109 (JLR), 2024 WL 4564523, at *39 (S.D.N.Y. Oct. 24, 2024).

[63] Id.

[64] Id.

[65] Id., at *37 (S.D.N.Y. Oct. 24, 2024).

[66] Id. at *38-39.

[67] Id. at *39 (emphasis added).

[68] Comment from ACT | The App Association, FTC-2023-0043-1579 at 3 (Sept. 18, 2023); Comment from Technology Councils of North America (TECNA), FTC-2023-0043-1409 at 3 (Sept. 15, 2023); Comment from Consumer Technology Association, FTC-2023-0043-1504 at 4-5 (Sept. 19, 2023); Comment from American Bar Assoc., FTC-2023-0043-1494, at 2 (Sept. 18, 2023).

[69] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 6 (2023).

[70] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 6 (2023).

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capture the competitive dynamics at play. Mergers in these markets might instead raise competition issues such as reduced competitive pressure to innovate or to improve consumer services, for example.[71] The structural presumption may provide a useful signal as to these non-price competitive risks.

32. Likewise, mergers in markets where algorithmic pricing tools may be used present another modern challenge where the structural presumption provides a versatile framework. In markets where firms use algorithms to set prices, the risk of tacit coordination is a growing concern because algorithms can quickly react to competitors' price changes and optimize strategies. Since algorithmic pricing can make anticompetitive behavior more opaque and harder to detect, the structural presumption may be particularly useful for identifying mergers that may exacerbate these conditions by increasing concentration.

6. Relationship with Other Tools and Evidence

33. While the structural presumption serves as a valuable tool, it is just one of many tools that the Agencies may flexibly employ to assess the risk of harm to competition from a merger. It can be used both independently and in conjunction with other tools and evidence to evaluate the risks to competition from a transaction. As explained above, mergers that result in "undue concentration" are presumed to be anticompetitive without needing further detailed evidence.[72] In many cases, however, the structural presumption is used alongside other indicators and tools.

34. Illustrative of how the Agencies have used the structural presumption alongside other tools is *United States v. Bertelsmann SE & Co. KGaA*, in which the DOJ successfully blocked the proposed merger of Penguin Random House (owned by Bertelsmann) and Simon & Schuster, two of the largest book publishers in the United States. The proposed acquisition would have put the combined firm in control of nearly half of the market for acquiring publishing rights to anticipated top-selling books, leaving hundreds of individual authors with fewer options and less leverage. In enjoining the merger, the U.S. District Court for the District of Columbia stated that "the substantial market share of the proposed combined entity justifies a strong presumption of anticompetitive effects."[73] The court also pointed to direct evidence, such as internal documents and economic analysis, showing how the merged entity would have the power to unilaterally lower advances paid to authors, harming the competitive process. The court was also persuaded by concerns about

[71] *FTC v. Meta Platforms, Inc.*, No. 20-3590, 2024 WL 4772423, at *14, *17 (D.D.C. Nov. 13, 2024).

[72] For example, the FTC's investigation of the proposed acquisition of Martin Marietta Materials, Inc. by CalPortland Company showed that the merger would have been presumptively unlawful, because it would have reduced the number of cement suppliers in Southern California from five to four and increased concentration in an already concentrated market. Press Release, Fed. Trade Comm'n, Statement Regarding the Termination of CalPortland Company's Attempted Acquisition of Assets Owned by Rival Cement Producer Martin Marietta Materials, Inc. (Apr. 28, 2023), https://www.ftc.gov/news-events/news/press-releases/2023/04/statement-regarding-termination-calportland-companys-attempted-acquisition-assets-owned-rival-cement (quoting Bureau of Competition Director Holly Vedova's statement that "The transaction would have reduced the number of cement suppliers in Southern California from five to four, further concentrating an already concentrated market, and was presumptively illegal"). The merging parties abandoned the transaction before the FTC initiated an enforcement action.

[73] *United States v. Bertelsmann SE & Co. KGaA*, 646 F. Supp. 3d 1, 37 (D.D.C. 2022).

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coordinated effects, where the reduced number of major publishers would make tacit coordination on lower bids for author advances more likely. A history of collusion provided a "backdrop" for continued tacit coordination on terms such as audiobook rights, installment payments to authors, and royalties. This combination of structural and qualitative evidence led the court to conclude that the merger would result in both unilateral and coordinated effects.

35. Similarly, in *FTC v. IQVIA Holdings Inc.*, the FTC successfully blocked the proposed acquisition of Propel Media by IQVIA, two of the top three providers of programmatic advertising platforms that specifically target healthcare professionals with advertising for pharmaceutical drugs and other healthcare products.[74] In evaluating evidence of market shares and concentration, the court found that, even under conservative estimates, the combined firm's market share would exceed 30 percent and the merger would increase concentration by 893 points and result in a highly concentrated market with an HHI of 3,320.[75] The court concluded that these levels were "well above the thresholds set forth in the [2010] Merger Guidelines" and therefore established a presumption that the merger would have anticompetitive effects.[76] Notwithstanding this presumption of harm, the court also found that the FTC was likely to succeed on its claim that the merger would eliminate substantial head-to-head competition based on a variety of evidence. First, the court found that "time and again" IQVIA's and Propel Media's ordinary course business documents showed that the two firms engaged in fierce competition with each other.[77] Additionally, testimony from the merging parties' customers and other third parties supported the conclusion that the merger would eliminate substantial direct competition between the parties.[78] Finally, the court found that economic modeling provided further support for the conclusion that the merger would eliminate head-to-head competition.[79] Altogether, the court found that the FTC's structural, qualitative, and economic evidence demonstrated that it would be likely to succeed on the merits and that the merging parties' rebuttals could not overcome the FTC's strong showing.[80] IQVIA and Propel abandoned their proposed acquisition shortly after the court granted a preliminary injunction.

36. Notwithstanding its value in many cases, use of concentration metrics may not always be necessary. For example, evidence that the merging parties have tried to win business from each other by offering lower prices, new or better products or services, more attractive features, higher wages, improved benefits, or otherwise shaped one another's behavior can provide a stand-alone basis to conclude that the merger may substantially lessen competition.[81] As the 2023 Merger Guidelines explain, "[a]lthough a change in market structure can indicate risk of competitive harm, . . . an analysis of the existing

[74] 710 F. Supp. 3d 329 (S.D.N.Y. 2024).

[75] Id. at 382.

[76] Id.

[77] Id. at 383.

[78] Id. at 384-85.

[79] Id. at 386-89.

[80] Id. at 399.

[81] *See* Remarks of Henry Liu, Director of the FTC's Bureau of Competition, *Guideline 2: The Importance of Direct Indicators of Competition in Merger Review*, Crowell and Bates White 13th Annual Luncheon, (April 11, 2024).

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competition between the merging firms can demonstrate that a merger threatens competitive harm *independent from an analysis of market shares*."[82]

7. Conclusion

37. In the Agencies' experience, the structural presumption provides a highly administrable and useful tool for identifying mergers that may harm competition. Modern economics and empirical research strongly support the predictive value of market structure measures as an indicator of harm from a merger. These insights are reflected in the approach to the structural presumption outlined by the Agencies in the 2023 Merger Guidelines.

[82] U.S. Dep't of Justice & Federal Trade Comm'n, *2023 Merger Guidelines*, 7 (2023) (emphasis added).

EXHIBIT 32





Merger Guidelines

U.S. Department of Justice and the Federal Trade Commission

Issued: December 18, 2023

1. Overview

These Merger Guidelines identify the procedures and enforcement practices the Department of Justice and the Federal Trade Commission (the "Agencies") most often use to investigate whether mergers violate the antitrust laws. The Agencies enforce the federal antitrust laws, specifically Sections 1 and 2 of the Sherman Act, 15 U.S.C. §§ 1, 2; Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45; and Sections 3, 7, and 8 of the Clayton Act,[1] 15 U.S.C. §§ 14, 18, 19.[2] Congress has charged the Agencies with administering these statutes as part of a national policy to promote open and fair competition, including by preventing mergers and acquisitions that would violate these laws. "Federal antitrust law is a central safeguard for the Nation's free market structures" that ensures "the preservation of economic freedom and our free-enterprise system."[3] It rests on the premise that "[t]he unrestrained interaction of competitive forces will yield the best allocation of our economic resources, the lowest prices, the highest quality and the greatest material progress, while at the same time providing an environment conducive to the preservation of our democratic political and social institutions."[4]

Section 7 of the Clayton Act ("Section 7") prohibits mergers and acquisitions where "in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may be substantially to lessen competition, or to tend to create a monopoly." Competition is a process of rivalry that incentivizes businesses to offer lower prices, improve wages and working conditions, enhance quality and resiliency, innovate, and expand choice, among many other benefits. Mergers that substantially lessen competition or tend to create a monopoly increase, extend, or entrench market power and deprive the public of these benefits. Mergers can lessen competition when they diminish competitive constraints, reduce the number or attractiveness of alternatives available to trading partners, or reduce the intensity with which market participants compete.

Section 7 was designed to arrest anticompetitive tendencies in their incipiency.[5] The Clayton Act therefore requires the Agencies to assess whether mergers present risk to competition. The Supreme Court has explained that "Section 7 itself creates a relatively expansive definition of antitrust liability: To show that a merger is unlawful, a plaintiff need only prove that its effect '*may be* substantially to lessen competition'" or to tend to create a monopoly.[6] Accordingly, the Agencies do not attempt to

[1] As amended under the Celler-Kefauver Antimerger Act of 1950, Pub. L. No. 81-899, 64 Stat. 1125 (1950), and the Hart-Scott-Rodino Antitrust Improvements Act of 1976, 15 U.S.C. § 18a.

[2] Although these Guidelines focus primarily on Section 7 of the Clayton Act, the Agencies consider whether any of these statutes may be violated by a merger. The various provisions of the Sherman, Clayton, and FTC Acts each have separate standards, and one may be violated when the others are not.

[3] *North Carolina State Bd. of Dental Examiners v. FTC*, 574 U.S. 494, 502 (2015).

[4] *NCAA v. Board of Regents*, 468 U.S. 85, 104 n.27 (1984) (quoting *Northern Pac. R. Co. v. United States*, 356 U.S. 1, 4-5 (1958)); *see also NCAA v. Alston*, 141 S. Ct. 2141, 2147 (2021) (quoting *Board of Regents*, 468 U.S. at 104 n.27).

[5] *See, e.g.*, *Brown Shoe Co. v. United States*, 370 U.S. 294, 318 nn.32-33 (1962); *see also United States v. AT&T, Inc.*, 916 F.3d 1029, 1032 (D.C. Cir. 2019) (Section 7 "halt[s] incipient monopolies and trade restraints outside the scope of the Sherman Act." (quoting *Brown Shoe*, 370 U.S. at 318 n.32)); *Saint Alphonsus Medical Center-Nampa v. St. Luke's*, 778 F.3d 775, 783 (9th Cir. 2015) (Section 7 "intended to arrest anticompetitive tendencies in their incipiency." (quoting *Brown Shoe*, 370 U.S. at 322)); *Polypore Intern., Inc. v. FTC*, 686 F.3d 1208, 1213-14 (11th Cir. 2012) (same). Some other aspects of *Brown Shoe* have been subsequently revisited.

[6] *California v. Am. Stores Co.*, 495 U.S. 271, 284 (1990) (quoting 15 U.S.C. § 18 with emphasis) (citing *Brown Shoe*, 370 U.S. at 323).

predict the future or calculate precise effects of a merger with certainty. Rather, the Agencies examine the totality of the evidence available to assess the risk the merger presents.

Competition presents itself in myriad ways. To assess the risk of harm to competition in a dynamic and complex economy, the Agencies begin the analysis of a proposed merger by asking: how do firms in this industry compete, and does the merger threaten to substantially lessen competition or to tend to create a monopoly?

The Merger Guidelines set forth several different analytical frameworks (referred to herein as "Guidelines") to assist the Agencies in assessing whether a merger presents sufficient risk to warrant an enforcement action. These frameworks account for industry-specific market realities and use a variety of indicators and tools, ranging from market structure to direct evidence of the effect on competition, to examine whether the proposed merger may harm competition.

How to Use These Guidelines: When companies propose a merger that raises concerns under one or more Guidelines, the Agencies closely examine the evidence to determine if the facts are sufficient to infer that the effect of the merger may be to substantially lessen competition or to tend to create a monopoly (sometimes referred to as a "prima facie case").[7] **Section 2** describes how the Agencies apply these Guidelines. Specifically, Guidelines 1-6 describe distinct frameworks the Agencies use to identify that a merger raises prima facie concerns, and Guidelines 7-11 explain how to apply those frameworks in several specific settings. In all of these situations, the Agencies will also examine relevant evidence to determine if it disproves or rebuts the prima facie case and shows that the merger does not in fact threaten to substantially lessen competition or tend to create a monopoly. **Section 3** identifies rebuttal evidence that the Agencies consider, and that merging parties can present, to rebut an inference of potential harm under these frameworks.[8] **Section 4** sets forth a non-exhaustive discussion of analytical, economic, and evidentiary tools the Agencies use to evaluate facts, understand the risk of harm to competition, and define relevant markets.

These Guidelines are not mutually exclusive, as a single transaction can have multiple effects or raise concerns in multiple ways. To promote efficient review, for any given transaction the Agencies may limit their analysis to any one Guideline or subset of Guidelines that most readily demonstrates the risks to competition from the transaction.

Guideline 1: Mergers Raise a Presumption of Illegality When They Significantly Increase Concentration in a Highly Concentrated Market. Market concentration is often a useful indicator of a merger's likely effects on competition. The Agencies therefore presume, unless sufficiently disproved or rebutted, that a merger between competitors that significantly increases concentration and creates or further consolidates a highly concentrated market may substantially lessen competition.

Guideline 2: Mergers Can Violate the Law When They Eliminate Substantial Competition Between Firms. The Agencies examine whether competition between the merging parties is substantial since their merger will necessarily eliminate any competition between them.

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[7] *See, e.g.*, *United States v. AT&T, Inc.*, 916 F.3d at 1032 (explaining that a *prima facie* case can demonstrate a "reasonable probability" of harm to competition either through "statistics about the change in market concentration" or a "fact-specific" showing (quoting *Brown Shoe*, 370 U.S. at 323 n.39)); *United States v. Baker Hughes*, 908 F.2d 981, 982-83 (D.C. Cir. 1990).

[8] These Guidelines pertain only to the Agencies' consideration of whether a merger or acquisition may substantially lessen competition or tend to create a monopoly. The consideration of remedies appropriate for mergers that pose that risk is beyond the Merger Guidelines' scope. The Agencies review proposals to revise a merger in order to alleviate competitive concerns consistent with applicable law regarding remedies.

Guideline 3: Mergers Can Violate the Law When They Increase the Risk of Coordination. The Agencies examine whether a merger increases the risk of anticompetitive coordination. A market that is highly concentrated or has seen prior anticompetitive coordination is inherently vulnerable and the Agencies will infer, subject to rebuttal evidence, that the merger may substantially lessen competition. In a market that is not highly concentrated, the Agencies investigate whether facts suggest a greater risk of coordination than market structure alone would suggest.

Guideline 4: Mergers Can Violate the Law When They Eliminate a Potential Entrant in a Concentrated Market. The Agencies examine whether, in a concentrated market, a merger would (a) eliminate a potential entrant or (b) eliminate current competitive pressure from a perceived potential entrant.

Guideline 5: Mergers Can Violate the Law When They Create a Firm That May Limit Access to Products or Services That Its Rivals Use to Compete. When a merger creates a firm that can limit access to products or services that its rivals use to compete, the Agencies examine the extent to which the merger creates a risk that the merged firm will limit rivals' access, gain or increase access to competitively sensitive information, or deter rivals from investing in the market.

Guideline 6: Mergers Can Violate the Law When They Entrench or Extend a Dominant Position. The Agencies examine whether one of the merging firms already has a dominant position that the merger may reinforce, thereby tending to create a monopoly. They also examine whether the merger may extend that dominant position to substantially lessen competition or tend to create a monopoly in another market.

Guideline 7: When an Industry Undergoes a Trend Toward Consolidation, the Agencies Consider Whether It Increases the Risk a Merger May Substantially Lessen Competition or Tend to Create a Monopoly. A trend toward consolidation can be an important factor in understanding the risks to competition presented by a merger. The Agencies consider this evidence carefully when applying the frameworks in Guidelines 1-6.

Guideline 8: When a Merger is Part of a Series of Multiple Acquisitions, the Agencies May Examine the Whole Series. If an individual transaction is part of a firm's pattern or strategy of multiple acquisitions, the Agencies consider the cumulative effect of the pattern or strategy when applying the frameworks in Guidelines 1-6.

Guideline 9: When a Merger Involves a Multi-Sided Platform, the Agencies Examine Competition Between Platforms, on a Platform, or to Displace a Platform. Multi-sided platforms have characteristics that can exacerbate or accelerate competition problems. The Agencies consider the distinctive characteristics of multi-sided platforms when applying the frameworks in Guidelines 1-6.

Guideline 10: When a Merger Involves Competing Buyers, the Agencies Examine Whether It May Substantially Lessen Competition for Workers, Creators, Suppliers, or Other Providers. The Agencies apply the frameworks in Guidelines 1-6 to assess whether a merger between buyers, including employers, may substantially lessen competition or tend to create a monopoly.

Guideline 11: When an Acquisition Involves Partial Ownership or Minority Interests, the Agencies Examine Its Impact on Competition. The Agencies apply the frameworks in Guidelines 1-6 to assess if an acquisition of partial control or common ownership may substantially lessen competition.

* * *

This edition of the Merger Guidelines consolidates, revises, and replaces the various versions of Merger Guidelines previously issued by the Agencies. The revision builds on the learning and experience reflected in those prior Guidelines and successive revisions. These Guidelines reflect the collected experience of the Agencies over many years of merger review in a changing economy and have been refined through an extensive public consultation process.

As a statement of the Agencies' law enforcement procedures and practices, the Merger Guidelines create no independent rights or obligations, do not affect the rights or obligations of private parties, and do not limit the discretion of the Agencies, including their staff, in any way. Although the Merger Guidelines identify the factors and frameworks the Agencies consider when investigating mergers, the Agencies' enforcement decisions will necessarily continue to require prosecutorial discretion and judgment. Because the specific standards set forth in these Merger Guidelines will be applied to a broad range of factual circumstances, the Agencies will apply them reasonably and flexibly to the specific facts and circumstances of each merger.

Similarly, the factors contemplated in these Merger Guidelines neither dictate nor exhaust the range of theories or evidence that the Agencies may introduce in merger litigation. Instead, they set forth various methods of analysis that may be applicable depending on the availability and/or reliability of information related to a given market or transaction. Given the variety of industries, market participants, and acquisitions that the Agencies encounter, merger analysis does not consist of uniform application of a single methodology. The Agencies assess any relevant and meaningful evidence to evaluate whether the effect of a merger may be substantially to lessen competition or to tend to create a monopoly. Merger review is ultimately a fact-specific exercise. The Agencies follow the facts and the law in analyzing mergers as they do in other areas of law enforcement.

These Merger Guidelines include references to applicable legal precedent. References to court decisions do not necessarily suggest that the Agencies would analyze the facts in those cases identically today. While the Agencies adapt their analytical tools as they evolve and advance, legal holdings reflecting the Supreme Court's interpretation of a statute apply unless subsequently modified. These Merger Guidelines therefore reference applicable propositions of law to explain core principles that the Agencies apply in a manner consistent with modern analytical tools and market realities. References herein do not constrain the Agencies' interpretation of the law in particular cases, as the Agencies will apply their discretion with respect to the applicable law in each case in light of the full range of precedent pertinent to the issues raised by each enforcement action.

2. Applying the Merger Guidelines

This section discusses the frameworks the Agencies use to assess whether a merger may substantially lessen competition or tend to create a monopoly.

2.1. Guideline 1: Mergers Raise a Presumption of Illegality When They Significantly Increase Concentration in a Highly Concentrated Market.

Market concentration and the change in concentration due to the merger are often useful indicators of a merger's risk of substantially lessening competition. In highly concentrated markets, a merger that eliminates a significant competitor creates significant risk that the merger may substantially lessen competition or tend to create a monopoly. As a result, a significant increase in concentration in a highly concentrated market can indicate that a merger may substantially lessen competition, depriving the public of the benefits of competition.

The Supreme Court has endorsed this view and held that "a merger which produces a firm controlling an undue percentage share of the relevant market, and results in a significant increase in the concentration of firms in that market[,] is so inherently likely to lessen competition substantially that it must be enjoined in the absence of [rebuttal] evidence."[9] In the Agencies' experience, this legal presumption provides a highly administrable and useful tool for identifying mergers that may substantially lessen competition.

An analysis of concentration involves calculating pre-merger market shares of products[10] within a relevant market (see Section 4.3 for a discussion of market definition and Section 4.4 for more details on computing market shares). The Agencies assess whether the merger creates or further consolidates a highly concentrated market and whether the increase in concentration is sufficient to indicate that the merger may substantially lessen competition or tend to create a monopoly.[11]

The Agencies generally measure concentration levels using the Herfindahl-Hirschman Index ("HHI").[12] The HHI is defined as the sum of the squares of the market shares; it is small when there are many small firms and grows larger as the market becomes more concentrated, reaching 10,000 in a market with a single firm. Markets with an HHI greater than 1,800 are highly concentrated, and a change of more than 100 points is a significant increase.[13] A merger that creates or further consolidates a highly

[9] *United States v. Phila. Nat'l Bank*, 374 U.S. 321, 363 (1963); *see, e.g.*, *FTC v. v. Hackensack Meridian Health, Inc.*, 30 F.4th 160, 172-73 (3d Cir. 2022); *United States v. AT&T, Inc.*, 916 F.3d at 1032.

[10] These Guidelines use the term "products" to encompass anything that is traded between firms and their suppliers, customers, or business partners, including physical goods, services, or access to assets. Products can be as narrow as an individual brand, a specific version of a product, or a product that includes specific ancillary services such as the right to return it without cause or delivery to the customer's location.

[11] Typically, a merger eliminates a competitor by bringing two market participants under common control. Similar concerns arise if the merger threatens to cause the exit of a current market participant, such as a leveraged buyout that puts the target firm at significant risk of failure.

[12] The Agencies may instead measure market concentration using the number of significant competitors in the market. This measure is most useful when there is a gap in market share between significant competitors and smaller rivals or when it is difficult to measure shares in the relevant market.

[13] For illustration, the HHI for a market of five equal firms is 2,000 ($5 \times 20^2 = 2{,}000$) and for six equal firms is 1,667 ($6 \times 16.67^2 = 1667$).

concentrated market that involves an increase in the HHI of more than 100 points[14] is presumed to substantially lessen competition or tend to create a monopoly.[15] The Agencies also may examine the market share of the merged firm: a merger that creates a firm with a share over thirty percent is also presumed to substantially lessen competition or tend to create a monopoly if it also involves an increase in HHI of more than 100 points.[16]

Indicator	Threshold for Structural Presumption
Post-merger HHI	Market HHI greater than 1,800 AND Change in HHI greater than 100
Merged Firm's Market Share	Share greater than 30% AND Change in HHI greater than 100

When exceeded, these concentration metrics indicate that a merger's effect may be to eliminate substantial competition between the merging parties and may be to increase coordination among the remaining competitors after the merger. This presumption of illegality can be rebutted or disproved. The higher the concentration metrics over these thresholds, the greater the risk to competition suggested by this market structure analysis and the stronger the evidence needed to rebut or disprove it.

2.2. Guideline 2: Mergers Can Violate the Law When They Eliminate Substantial Competition Between Firms.

A merger eliminates competition between the merging firms by bringing them under joint control.[17] If evidence demonstrates substantial competition between the merging parties prior to the

[14] The change in HHI from a merger of firms with shares a and b is equal to $2ab$. For example, in a merger between a firm with 20% market share and a firm with 5% market share, the change in HHI is 2 x 20 x 5 = 200.

[15] The first merger guidelines to reference an HHI threshold were the merger guidelines issued in 1982. These guidelines referred to mergers with HHI above 1,000 as concentrated markets, with HHI between 1,000 and 1,800 as "moderately concentrated" and above 1,800 as "highly concentrated," while they referred to an increase in HHI of 100 as a "significant increase." Each subsequent iteration until 2010 maintained those thresholds. *See* Fed. Trade Comm'n & U.S. Dep't of Justice, Horizontal Merger Guidelines § 1.51 (1997); Fed. Trade Comm'n & U.S. Dep't of Justice, Horizontal Merger Guidelines § 1.51 (1992); U.S. Dep't of Justice, Merger Guidelines § 3(A) (1982). During this time, courts routinely cited to the guidelines and these HHI thresholds in decisions. *See, e.g.*, *Chicago Bridge & Iron Co. N.V. v. FTC*, 534 F.3d 410, 431 (5th Cir. 2008); *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 716 (D.C. Cir. 2001); *FTC v. Univ. Health, Inc.*, 938 F.2d 1206, 1211 (11th Cir. 1991). Although the Agencies raised the thresholds for the 2010 guidelines, based on experience and evidence developed since, the Agencies consider the original HHI thresholds to better reflect both the law and the risks of competitive harm suggested by market structure and have therefore returned to those thresholds.

[16] *Phila. Nat'l Bank*, 374 U.S. at 364-65 ("Without attempting to specify the smallest market share which would still be considered to threaten undue concentration, we are clear that 30% presents that threat.").

[17] The competitive harm from the elimination of competition between the merging firms, without considering the risk of coordination, is sometimes referred to as unilateral effects. The elimination of competition between the merging firms can also lessen competition with and among other competitors. When the elimination of competition between the merging firms

merger, that ordinarily suggests that the merger may substantially lessen competition.[18] Although a change in market structure can also indicate risk of competitive harm (see Guideline 1), an analysis of the existing competition between the merging firms can demonstrate that a merger threatens competitive harm independent from an analysis of market shares.

Competition often involves firms trying to win business by offering lower prices, new or better products and services, more attractive features, higher wages, improved benefits, or better terms relating to various additional dimensions of competition. This can include competition to research and develop products or services, and the elimination of such competition may result in harm even if such products or services are not yet commercially available. The more the merging parties have shaped one another's behavior, or have affected one another's sales, profits, valuation, or other drivers of behavior, the more significant the competition between them.

The Agencies examine a variety of indicators to identify substantial competition. For example:

Strategic Deliberations or Decisions. The Agencies may analyze the extent of competition between the merging firms by examining evidence relating to strategic deliberations or decisions in the regular course of business. For example, in some markets, the firms may monitor each other's pricing, marketing campaigns, facility locations, improvements, products, capacity, output, input costs, and/or innovation plans. This can provide evidence of competition between the merging firms, especially when they react by taking steps to preserve or enhance the competitiveness or profitability of their own products or services.

Prior Merger, Entry, and Exit Events. The Agencies may look to historical events to assess the presence and substantiality of direct competition between the merging firms. For example, the Agencies may examine the competitive impact of recent relevant mergers, entry, expansion, or exit events.

Customer Substitution. Customers' willingness to switch between different firms' products is an important part of the competitive process. Firms are closer competitors the more that customers are willing to switch between their products. The Agencies use a variety of tools, detailed in Section 4.2, to assess customer substitution.

Impact of Competitive Actions on Rivals. When one firm takes competitive actions to attract customers, this can benefit the firm at the expense of its rivals. The Agencies may gauge the extent of competition between the merging firms by considering the impact that competitive actions by one of the merging firms has on the other merging firm. The impact of a firm's competitive actions on a rival is generally greater when customers consider the firm's products and the rival's products to be closer substitutes, so that a firm's competitive action results in greater lost sales for the rival, and when the profitability of the rival's lost sales is greater.

Impact of Eliminating Competition Between the Firms. In some instances, evidence may be available to assess the impact of competition from one firm on the other's actions, such as firm choices

leads them to compete less aggressively with one another, other firms in the market can in turn compete less aggressively, decreasing the overall intensity of competition.

[18] *See also United States v. First Nat'l Bank & Trust Co. of Lexington*, 376 U.S. 665, 669-70 (1964) (per curiam) ("[I]t [is] clear that the elimination of significant competition between [merging parties] constitutes an unreasonable restraint of trade in violation of § 1 of the Sherman Act. . . . It [can be] enough that the two . . . compete[], that their competition [is] not insubstantial and that the combination [would] put an end to it."); *ProMedica Health Sys., Inc. v. FTC*, 749 F.3d 559, 568-70 (6th Cir. 2014), *cert. denied*, 575 U.S. 996 (2015).

about price, quality, wages, or another dimension of competition. Section 4.2 describes a variety of approaches to measuring such impacts.

Additional Evidence, Tools, and Metrics. The Agencies may use additional evidence, tools, and metrics to assess the loss of competition between the firms. Depending on the realities of the market, different evidence, tools, or metrics may be appropriate.

Section 4.2 provides additional detail about the approaches that the Agencies use to assess competition between or among firms.

2.3. Guideline 3: Mergers Can Violate the Law When They Increase the Risk of Coordination.

The Agencies determine that a merger may substantially lessen competition when it meaningfully increases the risk of coordination among the remaining firms in a relevant market or makes existing coordination more stable or effective.[19] Firms can coordinate across any or all dimensions of competition, such as price, product features, customers, wages, benefits, or geography. Coordination among rivals lessens competition whether it occurs explicitly—through collusive agreements between competitors not to compete or to compete less—or tacitly, through observation and response to rivals. Because tacit coordination often cannot be addressed under Section 1 of the Sherman Act, the Agencies vigorously enforce Section 7 of the Clayton Act to prevent market structures conducive to such coordination.

Tacit coordination can lessen competition even when it does not rise to the level of an agreement and would not itself violate the law. For example, in a concentrated market a firm may forego or soften an aggressive competitive action because it anticipates rivals responding in kind. This harmful behavior is more common the more concentrated markets become, as it is easier to predict the reactions of rivals when there are fewer of them.

To assess the extent to which a merger may increase the likelihood, stability, or effectiveness of coordination, the Agencies often consider three primary factors and several secondary factors. The Agencies may consider additional factors depending on the market.

2.3.A. Primary Factors

The Agencies may conclude that post-merger market conditions are susceptible to coordinated interaction and that the merger materially increases the risk of coordination if any of the three primary factors are present.

Highly Concentrated Market. By reducing the number of firms in a market, a merger increases the risk of coordination. The fewer the number of competitively meaningful rivals prior to the merger, the greater the likelihood that merging two competitors will facilitate coordination. Markets that are highly concentrated after a merger that significantly increases concentration (see Guideline 1) are presumptively susceptible to coordination. If merging parties assert that a highly concentrated market is not susceptible to coordination, the Agencies will assess this rebuttal evidence using the framework

[19] *See Brooke Grp. Ltd. v. Brown & Williamson Tobacco Corp.,* 509 U.S. 209, 229-30 (1993) ("In the § 7 context, it has long been settled that excessive concentration, and the oligopolistic price coordination it portends, may be the injury to competition the Act prohibits.").

described below. Where a market is not highly concentrated, the Agencies may still consider other risk factors.

Prior Actual or Attempted Attempts to Coordinate. Evidence that firms representing a substantial share in the relevant market appear to have previously engaged in express or tacit coordination to lessen competition is highly informative as to the market's susceptibility to coordination. Evidence of failed attempts at coordination in the relevant market suggest that successful coordination was not so difficult as to deter attempts, and a merger reducing the number of rivals may tend to make success more likely.

Elimination of a Maverick. A maverick is a firm with a disruptive presence in a market. The presence of a maverick, however, only reduces the risk of coordination so long as the maverick retains the disruptive incentives that drive its behavior. A merger that eliminates a maverick or significantly changes its incentives increases the susceptibility to coordination.

2.3.B. Secondary Factors

The Agencies also examine whether secondary factors demonstrate that a merger may meaningfully increase the risk of coordination, even absent the primary risk factors. Not all secondary factors must be present for a market to be susceptible to coordination.

Market Concentration. Even in markets that are not highly concentrated, coordination becomes more likely as concentration increases. The more concentrated a market, the more likely the Agencies are to conclude that the market structure suggests susceptibility to coordination.

Market Observability. A market is more susceptible to coordination if a firm's behavior can be promptly and easily observed by its rivals. Rivals' behavior is more easily observed when the terms offered to customers are readily discernible and relatively observable (that is, known to rivals). Observability can refer to the ability to observe prices, terms, the identities of the firms serving particular customers, or any other competitive actions of other firms. Information exchange arrangements among market participants, such as public exchange of information through announcements or private exchanges through trade associations or publications, increase market observability. Regular monitoring of one another's prices or customers can indicate that the terms offered to customers are relatively observable. Pricing algorithms, programmatic pricing software or services, and other analytical or surveillance tools that track or predict competitor prices or actions likewise can increase the observability of the market.

Competitive Responses. A market is more susceptible to coordination if a firm's prospective competitive reward from attracting customers away from its rivals will be significantly diminished by its rivals' likely responses. This is more likely to be the case the stronger and faster the responses from its rivals because such responses reduce the benefits of competing more aggressively. Some factors that increase the likelihood of strong or rapid responses by rivals include: (1) the market has few significant competitors, (2) products in the relevant market are relatively homogeneous, (3) customers find it relatively easy to switch between suppliers, (4) suppliers use algorithmic pricing, or (5) suppliers use meeting-competition clauses. The more predictable are rivals' responses to strategic actions or changing competitive conditions, and the more interactions firms have across multiple markets, the greater the susceptibility to coordination.

Aligned Incentives. Removing a firm that has different incentives from most other firms in a market can increase the risk of coordination. For example, a firm with a small market share may have

less incentive to coordinate because it has more to gain from winning new business than other firms. The same issue can arise when a merger more closely aligns one or both merging firms' incentives with the other firms in the market. In some cases, incentives might be aligned or strengthened when firms compete with one another in multiple markets ("multi-market contact"). For example, firms might compete less aggressively in some markets in anticipation of reciprocity by rivals in other markets. The Agencies examine these and any other market realities that suggest aligned incentives increase susceptibility to coordination.

Profitability or Other Advantages of Coordination for Rivals. The Agencies regard coordinated interaction as more likely to occur when participants in the market stand to gain more from successful coordination. Coordination generally is more profitable or otherwise advantageous for the coordinating firms the less often customers substitute outside the market when firms offer worse terms.

Rebuttal Based on Structural Barriers to Coordination Unique to the Industry. When market structure evidence suggests that a merger may substantially lessen competition through coordination, the merging parties sometimes argue that anticompetitive coordination is nonetheless impossible due to structural market barriers to coordinating. The Agencies consider this rebuttal evidence using the framework in Section 3. In so doing, the Agencies consider whether structural market barriers to coordination are "so much greater in the [relevant] industry than in other industries that they rebut the normal presumption" of coordinated effects.[20] In the Agencies' experience, structural conditions that prevent coordination are exceedingly rare in the modern economy. For example, coordination is more difficult when firms are unable to observe rivals' competitive offerings, but technological change has made this situation less common than in the past and reduced many traditional barriers or obstacles to observing the behavior of rivals in a market. The greater the level of concentration in the relevant market, the greater must be the structural barriers to coordination in order to show that no substantial lessening of competition is threatened.

2.4. Guideline 4: Mergers Can Violate the Law When They Eliminate a Potential Entrant in a Concentrated Market.

Mergers can substantially lessen competition by eliminating a potential entrant. For instance, a merger can eliminate the possibility that entry or expansion by one or both firms would have resulted in new or increased competition in the market in the future. A merger can also eliminate current competitive pressure exerted on other market participants by the mere perception that one of the firms might enter. Both of these risks can be present simultaneously.

A merger that eliminates a potential entrant into a concentrated market can substantially lessen competition or tend to create a monopoly.[21] The more concentrated the market, the greater the magnitude of harm to competition from any lost potential entry and the greater the tendency to create a monopoly. Accordingly, for mergers involving one or more potential entrants, the higher the market concentration, the lower the probability of entry that gives rise to concern.

[20] *See H.J. Heinz Co.*, 246 F.3d at 724.
[21] *United States v. Marine Bancorp.*, 418 U.S. 602, 630 (1974). A concentrated market is one with an HHI greater than 1,000 (See Guideline 1, n.15).

2.4.A. Actual Potential Competition: Eliminating Reasonably Probable Future Entry

In general, expansion into a concentrated market via internal growth rather than via acquisition benefits competition.[22] Merging a current and a potential market participant eliminates the possibility that the potential entrant would have entered on its own—entry that, had it occurred, would have provided a new source of competition in a concentrated market.

To determine whether an acquisition that eliminates a potential entrant into a concentrated market may substantially lessen competition,[23] the Agencies examine (1) whether one or both[24] of the merging firms had a reasonable probability of entering the relevant market other than through an anticompetitive merger, and (2) whether such entry offered a substantial likelihood of ultimately producing deconcentration of the market or other significant procompetitive effects.[25]

Reasonable Probability of Entry. The Agencies' starting point for assessment of a reasonable probability of entry is objective evidence regarding the firm's available feasible means of entry, including its capabilities and incentives. Relevant objective evidence can include, for example, evidence that the firm has sufficient size and resources to enter; evidence of any advantages that would make the firm well-situated to enter; evidence that the firm has successfully expanded into similarly situated markets in the past or already participates in adjacent or related markets; evidence that the firm has an incentive to enter; or evidence that industry participants recognize the company as a potential entrant. This analysis is not limited to whether the company could enter with its pre-merger production facilities, but also considers overall capability, which can include the ability to expand or add to its capabilities on its own or in collaboration with someone other than the acquisition target.

Subjective evidence that the company considered entering absent the merger can also indicate a reasonable probability that the company would have entered without the merger. Subjective evidence that the company considered organic entry as an alternative to merging generally suggests that, absent the merger, entry would be reasonably probable.

Likelihood of Deconcentration or Other Significant Procompetitive Effects. New entry can yield a variety of procompetitive effects, including increased output or investment, higher wages or improved working conditions, greater innovation, higher quality, and lower prices. If the merging firm had a reasonable probability of entering a highly concentrated relevant market, this suggests benefits that would have resulted from its entry would be competitively significant, unless there is substantial direct evidence that the competitive effect would be *de minimis*. To supplement the suggestion that new entry yields procompetitive effects, the Agencies will consider projections of the potential entrant's

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[22] *See Ford Motor Co. v. United States*, 405 U.S. 562, 587 (1972) (referring to the "typical[]" competitive concern when "a potential entrant enters an oligopolistic market by acquisition rather than internal expansion" as being "that such a move has deprived the market of the pro-competitive effect of an increase in the number of competitors").

[23] Harm from the elimination of a potential entrant can occur in markets that do not yet consist of commercial products, even if the market concentration of the future market cannot be measured using traditional means. Where there are few equivalent potential entrants, including one or both of the merging firms, that indicates that the future market, once commercialized, will be concentrated. The Agencies will consider other potential entrants' capabilities and incentives in comparison to the merging potential entrant to assess equivalence.

[24] *United States v. Penn-Olin Chemical Co.*, 378 U.S. 158 (1964) (holding that a merger between two firms, each or both of which might have entered the relevant market, could violate Section 7).

[25] *See id.* at 175-76; *Marine Bancorp.*, 418 U.S. at 622, 633 ("[T]he proscription expressed in § 7 against mergers 'when a "tendency" toward monopoly or [a] "reasonable likelihood" of a substantial lessening of competition in the relevant market is shown' applies alike to actual- and potential-competition cases." (quoting *Penn-Olin*, 378 U.S. at 171)); *see also Yamaha Motor Co. v. FTC*, 657 F.2d 971, 980-981 (8th Cir. 1981) (acquisition of potential entrant violated Section 7).

competitive significance, such as market share, its business strategy, the anticipated response of competitors, or customer preferences or interest.

A merger of two potential entrants can also result in a substantial lessening of competition. The merger need not involve a firm that has a commercialized product in the market or an existing presence in the same geographic market. The Agencies analyze similarly mergers between two potential entrants and those involving a current market participant and a potential entrant.

2.4.B. Perceived Potential Competition: Lessening of Current Competitive Pressure

A perceived potential entrant can stimulate competition among incumbents. That pressure can prompt current market participants to make investments, expand output, raise wages, increase product quality, lower product prices, or take other procompetitive actions. The acquisition of a firm that is perceived by market participants as a potential entrant can substantially lessen competition by eliminating or relieving competitive pressure.

To assess whether the acquisition of a perceived potential entrant may substantially lessen competition, the Agencies consider whether a current market participant could reasonably consider one of the merging companies to be a potential entrant and whether that potential entrant has a likely influence on existing competition.[26]

Market Participant Could Reasonably Consider a Firm to Be a Potential Entrant. The starting point for this analysis is evidence regarding the company's capability of entering or applying competitive pressure. Objective evidence is highly probative and includes evidence of feasible means of entry or communications by the company indicating plans to expand or reallocate resources in a way that could increase competition in the relevant market. Objective evidence can be sufficient to find that the firm is a potential entrant; it need not be accompanied by any subjective evidence of current market participants' internal perceptions or direct evidence of strategic reactions to the potential entrant. If such evidence is available, it can weigh in favor of finding that a current market participant could reasonably consider the firm to be a potential entrant.

Likely Influence on Existing Rivals. Direct evidence that the firm's presence or behavior has affected or is affecting current market participants' strategic decisions is not necessary but can establish a showing of a likely influence. Even without such direct evidence, circumstantial evidence that the firm's presence or behavior had an effect on the competitive reactions of firms in the market may also show likely influence. Objective evidence establishing that a current market participant could reasonably consider one of the merging firms to be a potential entrant can also establish that the firm has a likely influence on existing market participants. Subjective evidence indicating that current market participants—including, for example, customers, suppliers, or distributors—internally perceive the merging firm to be a potential entrant can also establish a likely influence.

2.4.C. Distinguishing Potential Entry from Entry as Rebuttal

When evaluating a potentially unlawful merger of current competitors, the Agencies will assess whether entry by other firms would be timely, likely, and sufficient to replace the lost competition using the standards discussed in Section 3.2. The existence of a perceived or actual potential entrant may not meet that standard when considering a merger between firms that already participate in the relevant market. The competitive impact of perceived and actual potential entrants is typically attenuated

[26] *See United States v. Falstaff Brewing Corp.*, 410 U.S. 526, 533-36 (1973); *Marine Bancorp.*, 418 U.S. at 624-25.

compared to competition between two current market participants. However, because concentrated markets often lack robust competition, the loss of even an attenuated source of competition such as a potential entrant may substantially lessen competition in such markets. Moreover, because the Agencies seek to prevent threats to competition in their incipiency, the likelihood of potential entry that could establish that a merger's effect "may be" to substantially lessen competition will generally not equal the likelihood of entry that would rebut a demonstrated risk that competition may be substantially lessened.

2.5. Guideline 5: Mergers Can Violate the Law When They Create a Firm that May Limit Access to Products or Services That Its Rivals Use to Compete.

The Agencies evaluate whether a merger may substantially lessen competition when the merged firm can limit access to a product, service, or route to market[27] that its rivals may use to compete. Mergers involving products or services rivals may use to compete can threaten competition in several ways, for example: (A) the merged firm could limit rivals' access to the products or services, thereby weakening or excluding them, lessening competition; (B) the merged firm may gain or increase access to rivals' competitively sensitive information, thereby facilitating coordination or undermining their incentives to compete; or (C) the threat of limited access can deter rivals and potential rivals from investing.

These problems can arise from mergers involving access to any products, services, or routes to market that rivals use to compete, and that are competitively significant to those rivals, whether or not they involve a traditional vertical relationship such as a supplier and distributor relationship. Many types of related products can implicate these concerns, including products rivals currently or may in the future use as inputs, products that provide distribution services for rivals or otherwise influence customers' purchase decisions, products that provide or increase the merged firm's access to competitively sensitive information about its rivals, or complements that increase the value of rivals' products. Even if the related product is not currently being used by rivals, it might be competitively significant because, for example, its availability enables rivals to obtain better terms from other providers in negotiations. The Agencies refer to any product, service, or route to market that rivals use to compete in that market as a "related product."

The Agencies analyze competitive effects in the relevant market in which the merged firm competes with rivals that use the related product. The Agencies do not always define a market around the related product, although they may do so (see Section 2.5.A.2).

2.5.A. The Risk that the Merged Firm May Limit Access

A merger involving products, services, or routes to market that rivals use to compete may substantially lessen competition when the merged firm has both the ability and incentive to limit access to the related product so as to weaken or exclude some of its rivals (the "dependent" rivals) in the relevant market.

The merged firm could limit access to the related product in different ways. It could deny rivals access altogether, deny access to some features, degrade its quality, worsen the terms on which rivals

[27] A "route to market" refers to any way a firm accesses its trading partners, such as distribution channels, marketplaces, or customers.

can access the related product, limit interoperability, degrade the quality of complements, provide less reliable access, tie up or obstruct routes to market, or delay access to product features, improvements, or information relevant to making efficient use of the product. All these ways of limiting access are sometimes referred to as "foreclosure."[28]

Dependent rivals can be weakened if limiting their access to the related product would make it harder or more costly for them to compete; for example, if it would lead them to charge higher prices or offer worse terms in the relevant market, reduce the quality of their products so that they were less attractive to trading partners, or interfere with distribution so that those products were less readily available. Competition can also be weakened if the merger facilitates coordination among the merged firm and its rivals, for example by giving the merged firm the ability to threaten to limit access to uncooperative rivals.

Rivals or potential rivals may be excluded from the relevant market if limiting their access to the related product could lead them to exit the market or could deter them from entering. For example, potential rivals may not enter if the merged firm ties up or obstructs so many routes to market that the remaining addressable market is too small. Exclusion can arise when a new entrant would need to invest not only in entering the relevant market, but also in supplying its own substitute for the related product, sometimes referred to as two-stage entry or multi-level entry.

Because the merged firm could use its ability to limit access to the related product in a range of ways, the Agencies focus on the overall risk that the merged firm will do so, and do not necessarily identify which precise actions the merged firm would take to lessen competition.

2.5.A.1. Ability and Incentive to Foreclose Rivals

The Agencies assess the merged firm's ability and incentive to substantially lessen competition by limiting access to the related product for a group of dependent rivals in the relevant market by examining four factors.

1. Availability of Substitutes. The Agencies assess the availability of substitutes for the related product. The merged firm is more able to limit access when there are few alternative options to the merged firm's related product, if these alternatives are differentiated in quality, price, or other characteristics, or if competition to supply them is limited.

2. Competitive Significance of the Related Product. The Agencies consider how important the related product is for the dependent firms and the extent to which they would be weakened or excluded from the relevant market if their access was limited.

3. Effect on Competition in the Relevant Market. The Agencies assess the importance of the dependent firms for competition in the relevant market. Competition can be particularly affected when the dependent firms would be excluded from the market altogether.

4. Competition Between the Merged Firm and the Dependent Firms. The merged firm's incentive to limit the dependent firms' access depends on how strongly it competes with them. If the dependent firms are close competitors, the merged firm may benefit from higher sales or prices in the relevant market when it limits their access. The Agencies may also assess the potential for the merged

[28] *See Illumina, Inc. v. FTC*, No. 23-60167, slip op. at 17 (5th Cir. Dec. 15, 2023) ("[T]here are myriad ways in which [the merged firm] could engage in foreclosing behavior . . . such as by making late deliveries or subtly reducing the level of support services.").

firm to benefit from facilitating coordination by threatening to limit dependent rivals' access to the related product. These benefits can make it profitable to limit access to the related product and thereby substantially lessen competition, even though it would not have been profitable for the firm that controlled the related product prior to the merger.

The Agencies assess the extent of competition with rivals and the risk of coordination using analogous methods to the ones described in Guidelines 2 and 3, and Section 4.2.

* * *

In addition to the evidentiary, analytical, and economic tools in Section 4, the following additional considerations and evidence may be important to this assessment:

Barriers to Entry and Exclusion of Rivals. The merged firm may benefit more from limiting access to dependent rivals or potential rivals when doing so excludes them from the market, for example by creating a need for the firm to enter at multiple levels and to do so with sufficient scale and scope (multi-level entry).

Prior Transactions or Prior Actions. If firms used prior acquisitions or engaged in prior actions to limit rivals' access to the related product, or other products its rivals use to compete, that suggests that the merged firm has the ability and incentive to do so. However, lack of past action does not necessarily indicate a lack of incentive in the present transaction because the merger can increase the incentive to foreclose.

Internal Documents. Information from business planning and merger analysis documents prepared by the merging firms might identify instances where the firms believe they have the ability and incentive to limit rivals' access. Such documents, where available, are highly probative. The lack of such documents, however, is less informative.

Market Structure. Evidence of market structure can be informative about the availability of substitutes for the related product and the competition in the market for the related product or the relevant market. (See Section 2.5.A.2)

2.5.A.2. Analysis of Industry Factors and Market Structure

The Agencies also sometimes determine, based on an analysis of factors related to market structure, that a merger may substantially lessen competition by allowing the merged firm to limit access to a related product.[29] The Agencies' assessment can include evidence about the structure, history, and probable future of the market.

Structure of the Related Market. In some cases, the market structure of the related product market can give an indication of the merged firm's ability to limit access to the related product. In these cases, the Agencies define a market (termed the "related market") around the related product (see Section 4.3). The Agencies then define the "foreclosure share" as the share of the related market to which the merged firm could limit access. If the share or other evidence show that the merged firm is

[29] *See Brown Shoe*, 370 U.S. at 328-34; *Illumina*, slip op. at 20-22 ("There is no precise formula when it comes to applying these factors. Indeed, the Supreme Court has found a vertical merger unlawful by examining only three of the *Brown Shoe* factors." (cleaned up)); *Fruehauf Corp. v. FTC*, 603 F.2d 345, 353 (2d Cir. 1979); *U.S. Steel Corp. v. FTC*, 426 F.2d 592, 599 (6th Cir. 1970).

approaching or has monopoly power over the related product, and the related product is competitively significant, those factors alone are a sufficient basis to demonstrate that the dependent firms do not have adequate substitutes and the merged firm has the ability to weaken or exclude them by limiting their access to the related product. (See Considerations 1 and 2 in Section 2.5.A.1).[30]

Structure of the Relevant Market. Limiting rivals' access to the related product will generally have a greater effect on competition in the relevant market if the merged firm and the dependent rivals face less competition from other firms. In addition, the merged firm has a greater incentive to limit access to the dependent firms when it competes more closely with them. Market share and concentration measures for the merged firm, the dependent rivals, and the other firms, can sometimes provide evidence about both issues.

Nature and Purpose of the Merger. When the nature and purpose of the merger is to foreclose rivals, including by raising their costs, that suggests the merged firm is likely to foreclose rivals.

Trend Toward Vertical Integration. The Agencies will generally consider evidence about the degree of integration between firms in the relevant and related markets, as well as whether there is a trend toward further vertical integration and how that trend or the factors driving it may affect competition. A trend toward vertical integration may be shown through, for example: a pattern of vertical integration following mergers by one or both of the merging companies; or evidence that a merger was motivated by a desire to avoid having its access limited due to similar transactions among other companies that occurred or may occur in the future.

* * *

If the parties offer rebuttal evidence, the Agencies will assess it under the approach laid out in Section 3.[31] When assessing rebuttal evidence focused on the reduced profits of the merged firm from limiting access from rivals, the Agencies examine whether the reduction in profits would prevent the full range of reasonably probable strategies to limit access. When evaluating whether this rebuttal evidence is sufficient to conclude that no substantial lessening of competition is threatened by the merger, the Agencies will give little weight to claims that are not supported by an objective analysis, including, for example, speculative claims about reputational harms. Moreover, the Agencies are unlikely to credit claims or commitments to protect or otherwise avoid weakening the merged firm's rivals that do not align with the firm's incentives. The Agencies' assessment will be consistent with the principle that firms act to maximize their overall profits and valuation rather than the profits of any particular business

[30] *See Brown Shoe*, 370 U.S. at 328 ("If the share of the market foreclosed is so large that it approaches monopoly proportions, the Clayton Act will, of course, have been violated . . . ."). The Agencies will generally infer, in the absence of countervailing evidence, that the merging firm has or is approaching monopoly power in the related product if it has a share greater than 50% of the related product market. A merger involving a related product with share of less than 50% may still substantially lessen competition, particularly when that related product is important to its trading partners.

[31] A common rebuttal argument is that the merger would lead to vertical integration of complementary products and as a result, "eliminate double marginalization," since in specific circumstances such a merger can confer on the merged firm an incentive to decrease prices to purchasers. The Agencies examine whether elimination of double marginalization satisfies the approach to evaluating procompetitive efficiencies in Section 3.3, including examining: (a) whether the merged firm will be more vertically integrated as a result of the merger, for example because it increases the extent to which it uses internal production of an input when producing output for the relevant market; (b) whether contracts short of a merger have eliminated or could eliminate double marginalization such that it would not be merger-specific, and (c) whether the merged firm has the incentive to reduce price in the relevant market given that such a reduction would reduce sales by the merged firm's rivals in the relevant market, which would in turn lead to reduced revenue and margin on sales of the related product to the dependent rivals.

unit. A merger may substantially lessen competition or tend to create a monopoly regardless of the claimed intent of the merging companies or their executives. (See Section 4.1)

If the merged firm has the ability and incentive to limit access to the related product and lessen competition in the relevant market, there are many ways it could act on those incentives. The merging parties may put forward evidence that there are no reasonably probable ways in which they could profitably limit access to the related product and thereby make it harder for rivals to compete, or that the merged firm will be more competitive because of the merger.

2.5.B. Mergers Involving Visibility into Rivals' Competitively Sensitive Information

If rivals would continue to access or purchase a related product controlled by the merged firm post-merger, the merger can substantially lessen competition if the merged firm would gain or increase visibility into rivals' competitively sensitive information. This situation could arise in many settings, including, for example, if the merged firm learns about rivals' sales volumes or projections from supplying an input or a complementary product; if it learns about promotion plans and anticipated product improvements or innovations from its role as a distributor; or if it learns about entry plans from discussions with potential rivals about compatibility or interoperability with a complementary product it controls. A merger that gives the merged firm increased visibility into competitively sensitive information could undermine rivals' ability or incentive to compete aggressively or could facilitate coordination.

Undermining Competition. The merged firm might use visibility into a rival's competitively sensitive information to undermine competition from the rival. For example, the merged firm's ability to preempt, appropriate, or otherwise undermine the rival's procompetitive actions can discourage the rival from fully pursuing competitive opportunities. Relatedly, rivals might refrain from doing business with the merged firm rather than risk that the merged firm would use their competitively sensitive business information to undercut them. Those rivals might become less-effective competitors if they must rely on less-preferred trading partners or accept less favorable trading terms because their outside options have worsened or are more limited.

Facilitating Coordination. A merger that provides access to rivals' competitively sensitive information might facilitate coordinated interaction among firms in the relevant market by allowing the merged firm to observe its rivals' competitive strategies faster and more confidently. (See Guideline 3.)

2.5.C. Mergers that Threaten to Limit Rivals' Access and Thereby Create Barriers to Entry and Competition

When a merger gives a firm the ability and incentive to limit rivals' access, or where it gives the merged firm increased visibility into its rivals' competitively sensitive information, the merger may create entry barriers as described above. In addition, the merged firm's rivals might change their behavior because of the risk that the merged firm could limit their access. That is, the risk that the merger will give a firm the ability and incentive to limit rivals' access or will give the merged firm increased visibility into sensitive information can dissuade rivals from entering the market or expanding their operations.

Rivals or potential rivals that face the threat of foreclosure, or the risk of sharing sensitive information with rivals, may reduce investment or adjust their business strategies in ways that lessen competition. Firms may be reluctant to invest in a market if their success is dependent on continued supply from a rival, particularly because the merged firm may become more likely to foreclose its

competitor as that competitor becomes more successful. Firms may use expensive strategies to try to reduce their dependence on the merged firm, weakening the competitiveness of their products and services. Even if the merged firm does not deliberately seek to weaken rivals, rivals or potential rivals may fear that their access will be limited if the merged firm decides to use its own products exclusively. These effects may occur irrespective of the merged firm's incentive to limit access and are greater as the merged firm gains greater control over more important inputs that those rivals use to compete.

2.6. Guideline 6: Mergers Can Violate the Law When They Entrench or Extend a Dominant Position.

The Agencies consider whether a merger may entrench or extend an already dominant position. The effect of such mergers "may be substantially to lessen competition" or "may be . . . to tend to create a monopoly" in violation of Section 7 of the Clayton Act. Indeed, the Supreme Court has explained that a merger involving an "already dominant[] firm may substantially reduce the competitive structure of the industry by raising entry barriers."[32] The Agencies also evaluate whether the merger may extend that dominant position into new markets.[33] Mergers that entrench or extend a dominant position can also violate Section 2 of the Sherman Act.[34] At the same time, the Agencies distinguish anticompetitive entrenchment from growth or development as a consequence of increased competitive capabilities or incentives.[35] The Agencies therefore seek to prevent those mergers that would entrench or extend a dominant position through exclusionary conduct, weakening competitive constraints, or otherwise harming the competitive process.

To undertake this analysis, the Agencies first assess whether one of the merging firms has a dominant position based on direct evidence or market shares showing durable market power. For example, the persistence of market power can indicate that entry barriers exist, that further entrenchment may tend to create a monopoly, and that there would be substantial benefits from the emergence of new competitive constraints or disruptions. The Agencies consider mergers involving dominant firms in the context of evidence about the sources of that dominance, focusing on the extent to which the merger relates to, reinforces, or supplements these sources.

Creating or preserving dominance and the profits it brings can be an important motivation for a firm to undertake an acquisition as well as a driver of the merged firm's behavior after the acquisition. In particular, a firm may be willing to undertake costly short-term strategies in order to increase the chance that it can enjoy the longer-term benefits of dominance. A merger that creates or preserves dominance may also reduce the merged firm's longer-term incentives to improve its products and services.

A merger can result in durable market power and long-term harm to competition even when it initially provides short-term benefits to some market participants. Thus, the Agencies will consider not just the impact of the merger holding fixed factors like product quality and the behavior of other industry participants, but they may also consider the (often longer term) impact of the merger on market

[32] *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 577-578 (1967); *see, e.g.*, *Fruehauf*, 603 F.2d at 353 (the "entrenchment of a large supplier or purchaser" can be an "essential" showing of a Section 7 violation).
[33] *Ford*, 405 U.S. at 571 (condemning acquisition by dominant firm to obtain a foothold in another market when coupled with incentive to create and maintain barriers to entry into that market).
[34] *See, e.g.*, *United States v. Grinnell Corp.*, 384 U.S. 563 (1966) (acquisitions are among the types of conduct that may violate the Sherman Act).
[35] *See*, *e.g.*, *id.* at 570-71.

power and industry dynamics. Important dynamic competitive effects can arise through the entry, investment, innovation, and terms offered by the merged firm and other industry participants, even when the Agencies cannot predict specific reactions and responses with precision. If the ultimate result of the merger is to protect or preserve dominance by limiting opportunities for rivals, reducing competitive constraints, or preventing competitive disruption, then the Agencies will approach the merger with a heightened degree of scrutiny. The degree of scrutiny and concern will increase in proportion to the strength and durability of the dominant firm's market power.

2.6.A. Entrenching a Dominant Position

Raising Barriers to Entry or Competition. A merger may create or enhance barriers to entry or expansion by rivals that limit the capabilities or competitive incentives of other firms. Barriers to entry can entrench a dominant position even if the nature of future entry is uncertain, if the identities of future entrants are unknown, or if there is more than one mechanism through which the merged firm might create entry barriers. Some examples of ways in which a merger may raise barriers to entry or competition include:

- *Increasing Switching Costs.* The costs associated with changing suppliers (often referred to as switching costs) can be an important barrier to competition. A merger may increase switching costs if it makes it more difficult for customers to switch away from the dominant firm's product or service, or when it gives the dominant firm control of something customers use to switch providers or of something that lowers the overall cost to customers of switching providers. For example, if a dominant firm merges with a complementary product that interoperates with the dominant firm's competitors, it could reduce interoperability, harming competition for customers who value the complement.

- *Interfering With the Use of Competitive Alternatives.* A dominant position may be threatened by a service that customers use to work with multiple providers of similar or overlapping bundles of products and services. If a dominant firm acquires a service that supports the use of multiple providers, it could degrade its utility or availability or could modify the service to steer customers to its own products, entrenching its dominant position. For example, a closed messaging communication service might acquire a product that allowed users to send and receive messages over several competing services through a single user interface, which facilitates competition. The Agencies would examine whether the acquisition would entrench the messaging service's market power by leading the merged firm to degrade the product or otherwise reduce its effectiveness as a cross-service tool, thus reducing competition.

- *Depriving Rivals of Scale Economies or Network Effects.* Scale economies and network effects can serve as a barrier to entry and competition. Depriving rivals of access to scale economies and network effects can therefore entrench a dominant position. If a merger enables a dominant firm to reduce would-be rivals' access to additional scale or customers by acquiring a product that affects access such as a customer acquisition channel, the merged firm can limit the ability of rivals to improve their own products and compete more effectively.[36] Limiting access by rivals to customers in the short run can lead to long run entrenchment of a dominant position and tend to create monopoly power.

[36] The Agencies' focus here is on the artificial acquisition of network participants that occurs directly as a result of the merger, as opposed to future network growth that may occur through competition on the merits.

> For example, if two firms operate in a market in which network effects are significant but in which rivals voluntarily interconnect, their merger can create an entity with a large enough user base that it may have the incentive to end voluntary interconnection. Such a strategy can lessen competition and harm trading partners by creating or entrenching dominance in this market. This can be the case even if the merging firms did not appear to have a dominant position prior to the merger because their interoperability practices strengthened rivals.

Eliminating a Nascent Competitive Threat. A merger may involve a dominant firm acquiring a nascent competitive threat—namely, a firm that could grow into a significant rival, facilitate other rivals' growth, or otherwise lead to a reduction in its power.[37] In some cases, the nascent threat may be a firm that provides a product or service similar to the acquiring firm that does not substantially constrain the acquiring firm at the time of the merger but has the potential to grow into a more significant rival in the future. In other cases, factors such as network effects, scale economies, or switching costs may make it extremely difficult for a new entrant to offer all of the product features or services at comparable quality and terms that an incumbent offers. The most likely successful threats in these situations can be firms that initially avoid directly entering the dominant firm's market, instead specializing in (a) serving a narrow customer segment, (b) offering services that only partially overlap with those of the incumbent, or (c) serving an overlapping customer segment with distinct products or services.

Firms with niche or only partially overlapping products or customers can grow into longer-term threats to a dominant firm. Once established in its niche, a nascent threat may be able to add features or serve additional customer segments, growing into greater overlap of customer segments or features over time, thereby intensifying competition with the dominant firm. A nascent threat may also facilitate customers aggregating additional products and services from multiple providers that serve as a partial alternative to the incumbent's offering. Thus, the success and independence of the nascent threat may both provide for a direct threat of competition by the niche or nascent firm and may facilitate competition or encourage entry by other, potentially complementary providers that may provide a partial competitive constraint. In this way, the nascent threat supports what may be referred to as "ecosystem" competition. In this context, ecosystem competition refers to a situation where an incumbent firm that offers a wide array of products and services may be partially constrained by other combinations of products and services from one or more providers, even if the business model of those competing services is different.

Nascent threats may be particularly likely to emerge during technological transitions. Technological transitions can render existing entry barriers less relevant, temporarily making incumbents susceptible to competitive threats. For example, technological transitions can create temporary opportunities for entrants to differentiate or expand their offerings based on their alignment with new technologies, enabling them to capture network effects that otherwise insulate incumbents from competition. A merger in this context may lessen competition by preventing or delaying any such beneficial shift or by shaping it so that the incumbent retains its dominant position. For example, a dominant firm might seek to acquire firms to help it reinforce or recreate entry barriers so that its dominance endures past the technological transition. Or it might seek to acquire nascent threats that might otherwise gain sufficient customers to overcome entry barriers. In evaluating the potential for entrenching dominance, the Agencies take particular care to preserve opportunities for more competitive markets to emerge during such technological shifts.

[37] The Agencies assess acquisitions of nascent competitive threats by non-dominant firms under the other Guidelines.

Separate from and in addition to its Section 7 analysis, the Agencies will consider whether the merger violates Section 2 of the Sherman Act. For example, under Section 2 of the Sherman Act, a firm that may challenge a monopolist may be characterized as a "nascent threat" even if the impending threat is uncertain and may take several years to materialize.[38] The Agencies assess whether the merger is reasonably capable of contributing significantly to the preservation of monopoly power in violation of Section 2, which turns on whether the acquired firm is a nascent competitive threat.[39]

2.6.B. Extending a Dominant Position into Another Market

The Agencies also examine the risk that a merger could enable the merged firm to extend a dominant position from one market into a related market, thereby substantially lessening competition or tending to create a monopoly in the related market. For example, the merger might lead the merged firm to leverage its position by tying, bundling, conditioning, or otherwise linking sales of two products. A merger may also raise barriers to entry or competition in the related market, or eliminate a nascent competitive threat, as described above. For example, prior to a merger, a related market may be characterized by scale economies but still experience moderate levels of competition. If the merged firm takes actions to induce customers of the dominant firm's product to also buy the related product from the merged firm, the merged firm may be able to gain dominance in the related market, which may be supported by increased barriers to entry or competition that result from the merger.

These concerns can arise notwithstanding that the acquiring firm already enjoys the benefits associated with its dominant position. The prospect of market power in the related market may strongly affect the merged firm's incentives in a way that does not align with the interests of its trading partners, both in terms of strategies that create dominance for the related product and in the form of reduced incentives to invest in its products or provide attractive terms for them after dominance is attained. In some cases, the merger may also further entrench the firm's original dominant position, for example if future competition requires the provision of both products.

* * *

If the merger raises concerns that its effect may be to entrench or extend a dominant position, then any claim that the merger also provides competitive benefits will be evaluated under the rebuttal framework in Section 3. For example, the framework of Section 3 would be used to evaluate claims that a merger would generate cost savings or quality improvements that would be passed through to make their products more competitive or would otherwise create incentives for the merged firm to offer better terms. The Agencies' analysis will consider the fact that the incentives to pass through benefits to customers or offer attractive terms are affected by competition and the extent to which entry barriers insulate the merged firm from effective competition. It will also consider whether any claimed benefits are specific to the merger, or whether they could be instead achieved through contracting or other means.

[38] *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001) (en banc) (per curiam).
[39] *See id*. at 79 ("[I]t would be inimical to the purpose of the Sherman Act to allow monopolists free reign to squash nascent, albeit unproven, competitors at will. . . .").

2.7. Guideline 7: When an Industry Undergoes a Trend Toward Consolidation, the Agencies Consider Whether It Increases the Risk a Merger May Substantially Lessen Competition or Tend to Create a Monopoly.

The recent history and likely trajectory of an industry can be an important consideration when assessing whether a merger presents a threat to competition. The Supreme Court has explained that "a trend toward concentration in an industry, whatever its causes, is a highly relevant factor in deciding how substantial the anticompetitive effect of a merger may be."[40] It has also underscored that "Congress intended Section 7 to arrest anticompetitive tendencies in their incipiency.[41] The Agencies therefore examine whether a trend toward consolidation in an industry would heighten the competition concerns identified in Guidelines 1-6.

The Agencies therefore closely examine industry consolidation trends in applying the frameworks above. For example:

***Trend Toward Concentration*.** If an industry has gone from having many competitors to becoming concentrated, it may suggest greater risk of harm, for example, because new entry may be less likely to replace or offset the lessening of competition the merger may cause. Among other implications, in the context of a trend toward concentration, the Agencies identify a stronger presumption of harm from undue concentration (see Guideline 1), and a greater risk of substantially lessening competition when a merger eliminates competition between the merging parties (see Guideline 2) or increases the risk of coordination (see Guideline 3).

Trend Toward Vertical Integration. The Agencies will generally consider evidence about the degree of integration between firms in the relevant and related markets and whether there is a trend toward further vertical integration. If a merger occurs amidst or furthers a trend toward vertical integration, the Agencies consider the implications for the competitive dynamics of the industry moving forward. For example, a trend toward vertical integration could magnify the concerns discussed in Guideline 5 by making entry at a single level more difficult and thereby preventing the emergence of new competitive threats over time.

***Arms Race for Bargaining Leverage*.** The Agencies sometimes encounter mergers through which the merging parties would, by consolidating, gain bargaining leverage over other firms that they transact with. This can encourage those other firms to consolidate to obtain countervailing leverage, encouraging a cascade of further consolidation. This can ultimately lead to an industry where a few powerful firms have leverage against one another and market power over would-be entrants or over trading partners in various parts of the value chain. For example, distributors might merge to gain leverage against suppliers, who then merge to gain leverage against distributors, spurring a wave of mergers that lessen competition by increasing the market power of both. This can exacerbate the problems discussed in Guidelines 1-6, including by increasing barriers to single-level entry, encouraging coordination, and discouraging disruptive innovation.

[40] *United States v. Pabst Brewing*, 384 U.S. 546, 552-53 (1966).
[41] *Phila. Nat'l Bank*, 374 U.S. at 362 (quoting *Brown Shoe*, 370 U.S. at 317).

***Multiple Mergers*.** The Agencies sometimes see multiple mergers at once or in succession by different players in the same industry. In such cases, the Agencies may examine multiple deals in light of the combined trend toward concentration.

2.8. Guideline 8: When a Merger is Part of a Series of Multiple Acquisitions, the Agencies May Examine the Whole Series.

A firm that engages in an anticompetitive pattern or strategy of multiple acquisitions in the same or related business lines may violate Section 7.[42] In these situations, the Agencies may evaluate the series of acquisitions as part of an industry trend (see Guideline 7) or evaluate the overall pattern or strategy of serial acquisitions by the acquiring firm collectively under Guidelines 1-6.

In expanding antitrust law beyond the Sherman Act through passage of the Clayton Act, Congress intended "to permit intervention in a cumulative process when the effect of an acquisition may be a significant reduction in the vigor of competition, even though this effect may not be so far-reaching as to amount to a combination in restraint of trade, create a monopoly, or constitute an attempt to monopolize."[43] As the Supreme Court has recognized, a cumulative series of mergers can "convert an industry from one of intense competition among many enterprises to one in which three or four large [companies] produce the entire supply."[44] Accordingly, the Agencies will consider individual acquisitions in light of the cumulative effect of related patterns or business strategies.

The Agencies may examine a pattern or strategy of growth through acquisition by examining both the firm's history and current or future strategic incentives. Historical evidence focuses on the strategic approach taken by the firm to acquisitions (consummated or not), both in the markets at issue and in other markets, to reveal any overall strategic approach to serial acquisitions. Evidence of the firm's current incentives includes documents and testimony reflecting its plans and strategic incentives both for the individual acquisition and for its position in the industry more broadly. Where one or both of the merging parties has engaged in a pattern or strategy of pursuing consolidation through acquisition, the Agencies will examine the impact of the cumulative strategy under any of the other Guidelines to determine if that strategy may substantially lessen competition or tend to create a monopoly.

2.9. Guideline 9: When a Merger Involves a Multi-Sided Platform, the Agencies Examine Competition Between Platforms, on a Platform, or to Displace a Platform.

Platforms provide different products or services to two or more different groups or "sides" who may benefit from each other's participation. Mergers involving platforms can threaten competition, even when a platform merges with a firm that is neither a direct competitor nor in a traditional vertical relationship with the platform. When evaluating a merger involving a platform, the Agencies apply Guidelines 1-6 while accounting for market realities associated with platform competition. Specifically,

[42] Such strategies may also violate Section 2 of the Sherman Act and Section 5 of the FTC Act. Fed. Trade Comm'n, *Policy Statement Regarding the Scope of Unfair Methods of Competition Under Section 5 of the Federal Trade Commission Act*, at 12-14 & nn.73 & 82 (Nov. 10, 2022) (noting that "a series of . . . acquisitions . . . that tend to bring about the harms that the antitrust laws were designed to prevent" has been subject to liability under Section 5).
[43] H.R. Rep. No. 81-1191, at 8 (1949).
[44] *See Brown Shoe*, 370 U.S. at 334 (citing S. Rep. No. 81-1775, at 5 (1950); H.R. Rep. No. 81-1191, at 8 (1949)).

the Agencies consider competition *between* platforms, competition *on* a platform, and competition to *displace* the platform.

Multi-sided platforms generally have several attributes in common, though they can also vary in important ways. Some of these attributes include:

- Platforms have multiple sides. On each side of a platform, platform participants provide or use distinct products and services.[45] Participants can provide or use different types of products or services on each side.
- A platform operator provides the core services that enable the platform to connect participant groups across multiple sides. The platform operator controls other participants' access to the platform and can influence how interactions among platform participants play out.
- Each side of a platform includes platform participants. Their participation might be as simple as using the platform to find other participants, or as involved as building platform services that enable other participants to connect in new ways and allow new participants to join the platform.
- Network effects occur when platform participants contribute to the value of the platform for other participants and the operator. The value for groups of participants on one side may depend on the number of participants either on the same side (direct network effects) or on the other side(s) (indirect network effects).[46] Network effects can create a tendency toward concentration in platform industries. Indirect network effects can be asymmetric and heterogeneous; for example, one side of the market or segment of participants may place relatively greater value on the other side(s).
- A conflict of interest can arise when a platform operator is also a platform participant. The Agencies refer to a "conflict of interest" as the divergence that can arise between the operator's incentives to operate the platform as a forum for competition and its incentive to operate as a competitor on the platform itself. As discussed below, a conflict of interest sometimes exacerbates competitive concerns from mergers.

Consistent with the Clayton Act's protection of competition "in any line of commerce," the Agencies will seek to prohibit a merger that harms competition within a relevant market for any product or service offered on a platform to any group of participants—i.e., around one side of the platform (see Section 4.3).[47]

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[45] For example, on 1990s operating-system platforms for personal computer (PC) software, software developers were on one side, PC manufacturers on another, and software purchasers on another.

[46] For example, 1990s PC manufacturers, software developers, and consumers all contributed to the value of the operating system platform for one another.

[47] In the limited scenario of a "special type of two-sided platform known as a 'transaction' platform," under Section 1 of the Sherman Act, a relevant market encompassing both sides of a two-sided platform may be warranted. *Ohio v. American Express Co.*, 138 S. Ct. 2274, 2280 (2018). This approach to Section 1 of the Sherman Act is limited to platforms with the "key feature . . . that they cannot make a sale to one side of the platform without simultaneously making a sale to the other." *Id.* Because "they cannot sell transaction services to [either user group] individually . . . transaction platforms are better understood as supplying only one product—transactions." *Id.* at 2286. This characteristic is not present for many types of two-sided or multi-sided platforms; in addition, many platforms offer simultaneous transactions as well as other products and services, and further they may bundle these products with access to transact on the platform or offer quantity discounts.

The Agencies protect competition *between* platforms by preventing the acquisition or exclusion of other platform operators that may substantially lessen competition or tend to create a monopoly. This scenario can arise from various types of mergers:

A. Mergers involving two platform operators eliminate the competition between them. In a market with a platform, entry or growth by smaller competing platforms can be particularly challenging because of network effects. A common strategy for smaller platforms is to specialize, providing distinctive features. Thus, dominant platforms can lessen competition and entrench their position by systematically acquiring firms competing with one or more sides of a multi-sided platform while they are in their infancy. The Agencies seek to stop these trends in their incipiency.

B. A platform operator may acquire a platform participant, which can entrench the operator's position by depriving rivals of participants and, in turn, depriving them of network effects. For example, acquiring a major seller on a platform may make it harder for rival platforms to recruit buyers. The long-run benefits to a platform operator of denying network effects to rival platforms create a powerful incentive to withhold or degrade those rivals' access to platform participants that the operator acquires. The more powerful the platform operator, the greater the threat to competition presented by mergers that may weaken rival operators or increase barriers to entry and expansion.

C. Acquisitions of firms that provide services that facilitate participation on multiple platforms can deprive rivals of platform participants. Many services can facilitate such participation, such as tools that help shoppers compare prices across platforms, applications that help sellers manage listings on multiple platforms, or software that helps users switch among platforms.

D. Mergers that involve firms that provide other important inputs to platform services can enable the platform operator to deny rivals the benefits of those inputs. For example, acquiring data that helps facilitate matching, sorting, or prediction services may enable the platform to weaken rival platforms by denying them that data.

The Agencies protect competition *on* a platform in any markets that interact with the platform. When a merger involves a platform operator and platform participants, the Agencies carefully examine whether the merger would create conflicts of interest that would harm competition. A platform operator that is also a platform participant may have a conflict of interest whereby it has an incentive to give its own products and services an advantage over other participants competing on the platform. Platform operators must often choose between making it easy for users to access their preferred products and directing those users to products that instead provide greater benefit to the platform operator. Merging with a firm that makes a product offered on the platform may change how the platform operator balances these competing interests. For example, the platform operator may find it is more profitable to give its own product greater prominence even if that product is inferior or is offered on worse terms after the merger—and even if some participants leave the platform as a result.[48] This can harm competition in

[48] However, few participants will leave if, for example, the switching costs are relatively high or if the advantaged product is a small component of the overall set of services those participants access on the platform. Moreover, in the long run few participants will leave if scale economies, network effects, or entry barriers enable the advantaged product to eventually gain market power of its own, with rivals of the advantaged product exiting or becoming less attractive. After these dynamics play

the product market for the advantaged product, where the harm to competition may be experienced both on the platform and in other channels.

The Agencies protect competition to *displace* the platform or any of its services. For example, new technologies or services may create an important opportunity for firms to replace one or more services the incumbent platform operator provides, shifting some participants to partially or fully meet their needs in different ways or through different channels. Similarly, a non-platform service can lessen dependence on the platform by providing an alternative to one or more functions provided by the platform operators. When platform owners are dominant, the Agencies seek to prevent even relatively small accretions of power from inhibiting the prospects for displacing the platform or for decreasing dependency on the platform.

In addition, a platform operator that advantages its own products that compete *on* the platform can lessen competition *between* platforms and to *displace* the platform, as the operator may both advantage its own product or service, and also deprive rival platforms of access to it, limiting those rivals' network effects.

2.10. Guideline 10: When a Merger Involves Competing Buyers, the Agencies Examine Whether It May Substantially Lessen Competition for Workers, Creators, Suppliers, or Other Providers.

A merger between competing buyers may harm sellers just as a merger between competing sellers may harm buyers.[49] The same—or analogous—tools used to assess the effects of a merger of sellers can be used to analyze the effects of a merger of buyers, including employers as buyers of labor. Firms can compete to attract contributions from a wide variety of workers, creators, suppliers, and service providers. The Agencies protect this competition in all its forms.

A merger of competing buyers can substantially lessen competition by eliminating the competition between the merging buyers or by increasing coordination among the remaining buyers. It can likewise lead to undue concentration among buyers or entrench or extend the position of a dominant buyer. Competition among buyers can have a variety of beneficial effects analogous to competition among sellers. For example, buyers may compete by raising the payments offered to suppliers, by expanding supply networks, through transparent and predictable contracting, procurement, and payment practices, or by investing in technology that reduces frictions for suppliers. In contrast, a reduction in competition among buyers can lead to artificially suppressed input prices or purchase volume, which in turn reduces incentives for suppliers to invest in capacity or innovation. Labor markets are important buyer markets. The same general concerns as in other markets apply to labor markets where employers are the buyers of labor and workers are the sellers. The Agencies will consider whether workers face a risk that the merger may substantially lessen competition for their labor.[50] Where a merger between

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out, the platform operator could advantage its own products without losing as many participants, as there would be fewer alternative products available through other channels.

[49] *See, e.g.*, *Mandeville Island Farms, Inc. v. Am. Crystal Sugar Co.*, 334 U.S. 219, 235-36 (1948) ("The [Sherman Act] does not confine its protection to consumers, or to purchasers, or to competitors, or to sellers. . . . The Act is comprehensive in its terms and coverage, protecting all who are made victims of the forbidden practices by whomever they may be perpetrated.").
[50] *See, e.g.*, *Alston*, 141 S. Ct. 2141 (applying the Sherman Act to protect workers from an employer-side agreement to limit compensation).

employers may substantially lessen competition for workers, that reduction in labor market competition may lower wages or slow wage growth, worsen benefits or working conditions, or result in other degradations of workplace quality.[51] When assessing the degree to which the merging firms compete for labor, evidence that a merger may have any one or more of these effects can demonstrate that substantial competition exists between the merging firms.

Labor markets frequently have characteristics that can exacerbate the competitive effects of a merger between competing employers. For example, labor markets often exhibit high switching costs and search frictions due to the process of finding, applying, interviewing for, and acclimating to a new job. Switching costs can also arise from investments specific to a type of job or a particular geographic location. Moreover, the individual needs of workers may limit the geographical and work scope of the jobs that are competitive substitutes.

In addition, finding a job requires the worker and the employer to agree to the match. Even within a given salary and skill range, employers often have specific demands for the experience, skills, availability, and other attributes they desire in their employees. At the same time, workers may seek not only a paycheck but also work that they value in a workplace that matches their own preferences, as different workers may value the same aspects of a job differently. This matching process often narrows the range of rivals competing for any given employee. The level of concentration at which competition concerns arise may be lower in labor markets than in product markets, given the unique features of certain labor markets. In light of their characteristics, labor markets can be relatively narrow.

The features of labor markets may in some cases put firms in dominant positions. To assess this dominance in labor markets (see Guideline 6), the Agencies often examine the merging firms' power to cut or freeze wages, slow wage growth, exercise increased leverage in negotiations with workers, or generally degrade benefits and working conditions without prompting workers to quit.

If the merger may substantially lessen competition or tend to create a monopoly in upstream markets, that loss of competition is not offset by purported benefits in a separate downstream product market. Because the Clayton Act prohibits mergers that may substantially lessen competition or tend to create a monopoly in *any* line of commerce and in *any* section of the country, a merger's harm to competition among buyers is not saved by benefits to competition among sellers. That is, a merger can substantially lessen competition in one or more buyer markets, seller markets, or both, and the Clayton Act protects competition in any one of them.[52] If the parties claim any benefits to competition in a relevant buyer market, the Agencies will assess those claims using the frameworks in Section 3.

Just as they do when analyzing competition in the markets for products and services, the Agencies will analyze labor market competition on a case-by-case basis.

[51] A decrease in wages is understood as relative to what would have occurred in the absence of the transaction; in many cases, a transaction will not reduce wage levels, but rather slow wage growth. Wages encompass all aspects of pecuniary compensation, including benefits. Job quality encompasses non-pecuniary aspects that workers value, such as working conditions and terms of employment.

[52] Often, mergers that harm competition among buyers also harm competition among sellers as a result. For example, when a monopsonist lowers purchase prices by decreasing input purchases, they will generally decrease sales in downstream markets as well. (See Section 4.2.D)

2.11. Guideline 11: When an Acquisition Involves Partial Ownership or Minority Interests, the Agencies Examine Its Impact on Competition.

In many acquisitions, two companies come under common control. In some situations, however, the acquisition of less-than-full control may still influence decision-making at the target firm or another firm in ways that may substantially lessen competition. Acquisitions of partial ownership or other minority interests may give the investor rights in the target firm, such as rights to appoint board members, observe board meetings, influence the firm's ability to raise capital, impact operational decisions, or access competitively sensitive information. The Agencies have concerns with both cross-ownership, which refers to holding a non-controlling interest in a competitor, as well as common ownership, which occurs when individual investors hold non-controlling interests in firms that have a competitive relationship that could be affected by those joint holdings.

Partial acquisitions that do not result in control may nevertheless present significant competitive concerns. The acquisition of a minority position may permit influence of the target firm, implicate strategic decisions of the acquirer with respect to its investment in other firms, or change incentives so as to otherwise dampen competition. The post-acquisition relationship between the parties and the independent incentives of the parties outside the acquisition may be important in determining whether the partial acquisition may substantially lessen competition. Such partial acquisitions are subject to the same legal standard as any other acquisition.[53]

The Agencies recognize that cross-ownership and common ownership can reduce competition by softening firms' incentives to compete, even absent any specific anticompetitive act or intent. While the Agencies will consider any way in which a partial acquisition may affect competition, they generally focus on three principal effects:

First, a partial acquisition can lessen competition by giving the partial owner the ability to influence the competitive conduct of the target firm.[54] For example, a voting interest in the target firm or specific governance rights, such as the right to appoint members to the board of directors, influence capital budgets, determine investment return thresholds, or select particular managers, can create such influence. Additionally, a nonvoting interest may, in some instances, provide opportunities to prevent, delay, or discourage important competitive initiatives, or otherwise impact competitive decision making. Such influence can lessen competition because the partial owner could use its influence to induce the target firm to compete less aggressively or to coordinate its conduct with that of the acquiring firm.

Second, a partial acquisition can lessen competition by reducing the incentive of the acquiring firm to compete.[55] Acquiring a minority position in a rival might blunt the incentive of the partial owner to compete aggressively because it may profit through dividend or other revenue share even when it loses business to the rival. For example, the partial owner may decide not to develop a new product feature to win market share from the firm in which it has acquired an interest, because doing so will

[53] *See United States v. E. I. du Pont de Nemours & Co.*, 353 U.S. 586, 592 (1957) ("[A]ny acquisition by one corporation of all or any part of the stock of another corporation, competitor or not, is within the reach of [Section 7 of the Clayton Act] whenever the reasonable likelihood appears that the acquisition will result in a restraint of commerce or in the creation of a monopoly of any line of commerce.").
[54] *See United States v. Dairy Farmers of Am., Inc.*, 426 F.3d 850, 860-61 (6th Cir. 2005).
[55] *See Denver & Rio Grande v. United States*, 387 U.S. 485, 504 (1967) (identifying Section 7 concerns with a 20% investment).

reduce the value of its investment in its rival. This reduction in the incentive of the acquiring firm to compete arises even when it cannot directly influence the conduct or decision making of the target firm.

Third, a partial acquisition can lessen competition by giving the acquiring firm access to non-public, competitively sensitive information from the target firm. Even absent any ability to influence the conduct of the target firm, access to competitively sensitive information can substantially lessen competition through other mechanisms. For example, it can enhance the ability of the target and the partial owner to coordinate their behavior and make other accommodating responses faster and more targeted. The risk of coordinated effects is greater if the transaction also facilitates the flow of competitively sensitive information from the investor to the target firm. Even if coordination does not occur, the partial owner may use that information to preempt or appropriate a rival's competitive business strategies for its own benefit. If rivals know their efforts to win trading partners can be immediately appropriated, they may see less value in taking competitive actions in the first place, resulting in a lessening of competition.

* * *

The analyses above address common scenarios that the Agencies use to assess the risk that a merger may substantially lessen competition or tend to create a monopoly. However, they are not exhaustive. The Agencies have in the past encountered mergers that lessen competition through mechanisms not covered above. For example:

A. A merger that would enable firms to avoid a regulatory constraint because that constraint was applicable to only one of the merging firms;

B. A merger that would enable firms to exploit a unique procurement process that favors the bids of a particular competitor who would be acquired in the merger; or

C. In a concentrated market, a merger that would dampen the acquired firm's incentive or ability to compete due to the structure of the acquisition or the acquirer.

As these scenarios and these Guidelines indicate, a wide range of evidence can show that a merger may lessen competition or tend to create a monopoly. Whatever the sources of evidence, the Agencies look to the facts and the law in each case.

Whatever frameworks the Agencies use to identify that a merger may substantially lessen competition or tend to create a monopoly, they also examine rebuttal evidence under the framework in Section 3.

3. Rebuttal Evidence Showing that No Substantial Lessening of Competition is Threatened by the Merger

The Agencies may assess whether a merger may substantially lessen competition or tend to create a monopoly based on a fact-specific analysis under any one or more of the Guidelines discussed above.[56] The Supreme Court has determined that analysis should consider "other pertinent factors" that may "mandate[] a conclusion that no substantial lessening of competition [is] threatened by the acquisition."[57] The factors pertinent to rebuttal depend on the nature of the threat to competition or tendency to create a monopoly resulting from the merger.

Several common types of rebuttal and defense evidence are subject to legal tests established by the courts. The Agencies apply those tests consistent with prevailing law, as described below.

3.1. Failing Firms

When merging parties suggest the weak or weakening financial position of one of the merging parties will prevent a lessening of competition, the Agencies examine that evidence under the "failing firm" defense established by the Supreme Court. This defense applies when the assets to be acquired would imminently cease playing a competitive role in the market even absent the merger.

As set forth by the Supreme Court, the failing firm defense has three requirements:

A. "[T]he evidence show[s] that the [failing firm] face[s] the grave probability of a business failure."[58] The Agencies typically look for evidence in support of this element that the allegedly failing firm would be unable to meet its financial obligations in the near future. Declining sales and/or net losses, standing alone, are insufficient to show this requirement.

B. "The prospects of reorganization of [the failing firm are] dim or nonexistent."[59] The Agencies typically look for evidence suggesting that the failing firm would be unable to reorganize successfully under Chapter 11 of the Bankruptcy Act, taking into account that "companies reorganized through receivership, or through [the Bankruptcy Act] often emerge[] as strong competitive companies."[60] Evidence of the firm's actual attempts to resolve its debt with creditors is important.

C. "[T]he company that acquires the failing [firm] or brings it under dominion is the only available purchaser."[61] The Agencies typically look for evidence that a company has made unsuccessful good-faith efforts to elicit reasonable alternative offers that pose a less severe danger to competition than does the proposed merger.[62]

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[56] *See United States v. AT&T, Inc.*, 916 F.3d at 1032.
[57] *See United States v. Gen. Dynamics Corp.*, 415 U.S. 486, 498 (1974); *Baker Hughes*, 908 F.2d at 990 (quoting *General Dynamics* and describing its holding as permitting rebuttal based on a "finding that 'no substantial lessening of competition occurred or was threatened by the acquisition'").
[58] *Citizen Publ'g Co. v. United States*, 394 U.S. 131, 138 (1969).
[59] *Id*.
[60] *Id*.
[61] *Id.* at 136-39 (quoting *Int'l Shoe Co. v. FTC*, 280 U.S. 291, 302 (1930)).
[62] Any offer to purchase the assets of the failing firm for a price above the liquidation value of those assets will be regarded as a reasonable alternative offer. Parties must solicit reasonable alternative offers before claiming that the business is failing.

Although merging parties sometimes argue that a poor or weakening position should serve as a defense even when it does not meet these elements, the Supreme Court has "confine[d] the failing company doctrine to its present narrow scope."[63] The Agencies evaluate evidence of a failing firm consistent with this prevailing law.[64]

3.2. Entry and Repositioning

Merging parties sometimes raise a rebuttal argument that a reduction in competition resulting from the merger would induce entry or repositioning[65] into the relevant market, preventing the merger from substantially lessening competition or tending to create a monopoly in the first place. This argument posits that a merger may, by substantially lessening competition, make the market more profitable for the merged firm and any remaining competitors, and that this increased profitability may induce new entry. To evaluate this rebuttal evidence, the Agencies assess whether entry induced by the merger would be "timely, likely, and sufficient in its magnitude, character, and scope to deter or counteract the competitive effects of concern."[66]

Timeliness. To show that no substantial lessening of competition is threatened by a merger, entry must be rapid enough to replace lost competition before any effect from the loss of competition due to the merger may occur. Entry in most industries takes a significant amount of time and is therefore insufficient to counteract any substantial lessening of competition that is threatened by a merger. Moreover, the entry must be durable: an entrant that does not plan to sustain its investment or that may exit the market would not ensure long-term preservation of competition.

Likelihood. Entry induced by lost competition must be so likely that no substantial lessening of competition is threatened by the merger. Firms make entry decisions based on the market conditions they expect once they participate in the market. If the new entry is sufficient to counteract the merger's effect on competition, the Agencies analyze why the merger would induce entry that was not planned in pre-merger competitive conditions.

The Agencies also assess whether the merger may increase entry barriers. For example, the merging firms may have a greater ability to discourage or block new entry when combined than they would have as separate firms. Mergers may enable or incentivize unilateral or coordinated exclusionary

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Liquidation value is the highest value the assets could command outside the market. If a reasonable alternative offer was rejected, the parties cannot claim that the business is failing.

[63] *Citizen Publ'g*, 394 U.S. at 139.

[64] The Agencies do not normally credit claims that the assets of a division would exit the relevant market in the near future unless: (1) applying cost allocation rules that reflect true economic costs, the division has a persistently negative cash flow on an operating basis, and such negative cash flow is not economically justified for the firm by benefits such as added sales in complementary markets or enhanced customer goodwill; and (2) the owner of the failing division has made unsuccessful good-faith efforts to elicit reasonable alternative offers that would keep its assets in the relevant market and pose a less severe danger to competition than does the proposed acquisition. Because firms can allocate costs, revenues, and intra-company transactions among their subsidiaries and divisions, the Agencies require evidence that is not solely based on management plans that could have been prepared for the purpose of demonstrating negative cash flow or the prospect of exit from the relevant market.

[65] Repositioning is a supply-side response that is evaluated like entry. If repositioning requires movement of assets from other markets, the Agencies will consider the costs and competitive effects of doing so. Repositioning that would reduce competition in the markets from which products or services are moved is not a cognizable rebuttal for a lessening of competition in the relevant market.

[66] *FTC v. Sanford Health*, 926 F.3d 959, 965 (8th Cir. 2019).

strategies that make entry more difficult. Entry can be particularly challenging when a firm must enter at multiple levels of the market at sufficient scale to compete effectively.

Sufficiency. Even where timely and likely, the prospect of entry may not effectively prevent a merger from threatening a substantial lessening of competition. Entry may be insufficient due to a wide variety of constraints that limit an entrant's effectiveness as a competitor. Entry must at least replicate the scale, strength, and durability of one of the merging parties to be considered sufficient. The Agencies typically do not credit entry that depends on lessening competition in other markets.

As part of their analysis, the Agencies will consider the economic realities at play. For example, lack of successful entry in the past will likely suggest that entry may be slow or difficult. Recent examples of entry, whether successful or unsuccessful, provide the starting point for identifying the elements of practical entry barriers and the features of the industry that facilitate or interfere with entry. The Agencies will also consider whether the parties' entry arguments are consistent with the rationale for the merger or imply that the merger itself would be unprofitable.

3.3. Procompetitive Efficiencies

The Supreme Court has held that "possible economies [from a merger] cannot be used as a defense to illegality."[67] Competition usually spurs firms to achieve efficiencies internally, and firms also often work together using contracts short of a merger to combine complementary assets without the full anticompetitive consequences of a merger.

Merging parties sometimes raise a rebuttal argument that, notwithstanding other evidence that competition may be lessened, evidence of procompetitive efficiencies shows that no substantial lessening of competition is in fact threatened by the merger. This argument asserts that the merger would not substantially lessen competition in any relevant market in the first place.[68] When assessing this argument, the Agencies will not credit vague or speculative claims, nor will they credit benefits outside the relevant market that would not prevent a lessening of competition in the relevant market. Rather, the Agencies examine whether the evidence[69] presented by the merging parties shows each of the following:

Merger Specificity. The merger will produce substantial competitive benefits that could not be achieved without the merger under review.[70] Alternative ways of achieving the claimed benefits are considered in making this determination. Alternative arrangements could include organic growth of one of the merging firms, contracts between them, mergers with others, or a partial merger involving only those assets that give rise to the procompetitive efficiencies.

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[67] *Phila. Nat'l Bank*, 374 U.S. at 371; *Procter & Gamble Co.*, 386 U.S. at 580 ("Congress was aware that some mergers which lessen competition may also result in economies but it struck the balance in favor of protecting competition.").

[68] *United States v. Anthem*, 855 F.3d 345, 353-55 (D.C. Cir. 2017) (although efficiencies not a "defense" to antitrust liability, evidence sometimes used "to rebut a prima facie case"); *Saint Alphonsus Medical Center-Nampa*, 778 F.3d at 791 ("The Clayton Act focuses on competition, and the claimed efficiencies therefore must show that the prediction of anticompetitive effects from the prima facie case is inaccurate.").

[69] In general, evidence related to efficiencies developed prior to the merger challenge is much more probative than evidence developed during the Agencies' investigation or litigation.

[70] If inter-firm collaborations are achievable by contract, they are not merger specific. The Agencies will credit the merger specificity of efficiencies only in the presence of evidence that a contract to achieve the asserted efficiencies would not be practical. *See Anthem*, 855 F.3d at 357.

Verifiability. These benefits are verifiable, and have been verified, using reliable methodology and evidence not dependent on the subjective predictions of the merging parties or their agents. Procompetitive efficiencies are often speculative and difficult to verify and quantify, and efficiencies projected by the merging firms often are not realized. If reliable methodology for verifying efficiencies does not exist or is otherwise not presented by the merging parties, the Agencies are unable to credit those efficiencies.

Prevents a Reduction in Competition. To the extent efficiencies merely benefit the merging firms, they are not cognizable. The merging parties must demonstrate through credible evidence that, within a short period of time, the benefits will prevent the risk of a substantial lessening of competition in the relevant market.

Not Anticompetitive. Any benefits claimed by the merging parties are cognizable only if they do not result from the anticompetitive worsening of terms for the merged firm's trading partners.[71]

Procompetitive efficiencies that satisfy each of these criteria are called cognizable efficiencies. To successfully rebut evidence that a merger may substantially lessen competition, cognizable efficiencies must be of a nature, magnitude, and likelihood that no substantial lessening of competition is threatened by the merger in any relevant market. Cognizable efficiencies that would not prevent the creation of a monopoly cannot justify a merger that may tend to create a monopoly.

[71] The Agencies will not credit efficiencies if they reflect or require a decrease in competition in a separate market. For example, if input costs are expected to decrease, the cost savings will not be treated as an efficiency if they reflect an increase in monopsony power.

4. Analytical, Economic, and Evidentiary Tools

The analytical, economic, and evidentiary tools that follow can be applicable to many parts of the Agencies' evaluation of a merger as they apply the factors and frameworks discussed in Sections 2 and 3.

4.1. Sources of Evidence

This subsection describes the most common sources of evidence the Agencies draw on in a merger investigation. The evidence the Agencies rely upon to evaluate whether a merger *may* substantially lessen competition or tend to create a monopoly is weighed based on its probative value. In assessing the available evidence, the Agencies consider documents, testimony, available data, and analysis of those data, including credible econometric analysis and economic modeling.

Merging Parties. The Agencies often obtain substantial information from the merging parties, including documents, testimony, and data. Across all of these categories, evidence created in the normal course of business is more probative than evidence created after the company began anticipating a merger review. Similarly, the Agencies give less weight to predictions by the parties or their employees, whether in the ordinary course of business or in anticipation of litigation, offered to allay competition concerns. Where the testimony of outcome-interested merging party employees contradicts ordinary course business records, the Agencies typically give greater weight to the business records.

Evidence that the merging parties intend or expect the merger to lessen competition, such as plans to coordinate with other firms, raise prices, reduce output or capacity, reduce product quality or variety, lower wages, cut benefits, exit a market, cancel plans to enter a market without a merger, withdraw products or delay their introduction, or curtail research and development efforts after the merger, can be highly informative in evaluating the effects of a merger on competition. The Agencies give little weight, however, to the lack of such evidence or the expressed contrary intent of the merging parties.

Customers, Workers, Industry Participants, and Observers. Customers can provide a variety of information to the Agencies, ranging from information about their own purchasing behavior and choices to their views about the effects of the merger itself. The Agencies consider the relationship between customers and the merging parties in weighing customer evidence. The ongoing business relationship between a customer and a merging party may discourage the customer from providing evidence inconsistent with the interests of the merging parties.

Workers and representatives from labor organizations can provide information regarding, among other things, wages, non-wage compensation, working conditions, the individualized needs of workers in the market in question, the frictions involved in changing jobs, and the industry in which they work.

Similarly, other suppliers, indirect customers, distributors, consultants, and industry analysts can also provide information helpful to a merger inquiry. As with other interested parties, the Agencies give less weight to evidence created in anticipation of a merger investigation and more weight to evidence developed in the ordinary course of business.

Market Effects in Consummated Mergers. Evidence of observed post-merger price increases or worsened terms is given substantial weight. A consummated merger, however, may substantially lessen competition even if such effects have not yet been observed, perhaps because the merged firm may be aware of the possibility of post-merger antitrust review and is therefore moderating its conduct.

Consequently, in evaluating consummated mergers, the Agencies also consider the same types of evidence when evaluating proposed mergers.

***Econometric Analysis and Economic Modeling*.** Econometric analysis of data and other types of economic modeling can be informative in evaluating the potential effects of a merger on competition. The Agencies give more weight to analysis using high quality data and adhering to rigorous standards. But the Agencies also take into account that in some cases, the availability or quality of data or reliable modeling techniques might limit the availability and relevance of econometric modeling. When data is available, the Agencies recognize that the goal of economic modeling is not to create a perfect representation of reality, but rather to inform an assessment of the likely change in firm incentives resulting from a merger.

Transaction Terms. The financial terms of the transaction may also be informative regarding a merger's impact on competition. For example, a purchase price that exceeds the acquired firm's stand-alone market value can sometimes indicate that the acquiring firm is paying a premium because it expects to be able to benefit from reduced competition.

4.2. Evaluating Competition Among Firms

This subsection discusses evidence and tools the Agencies look to when assessing competition among firms. The evidence and tools in this section can be relevant to a variety of settings, for example: to assess competition between rival firms (Guideline 2); the ability and incentive to limit access to a product rivals use to compete (Guideline 5); or for market definition (Section 4.3), for example when carrying out the Hypothetical Monopolist Test (Section 4.3.A).

For clarity, the discussion in this subsection often focuses on competition between two suppliers of substitute products that set prices. Analogous analytic tools may also be relevant in more general settings, for example when considering: competition among more than two suppliers; competition among buyers or employers to procure inputs and labor; competition that derives from customer willingness to buy in different locations; and competition that takes place in dimensions other than price or when terms are determined through, for example, negotiations or auctions.

Guideline 2 describes how different types of evidence can be used in assessing the potential harm to competition from a merger; some portions of Guideline 2 that are relevant in other settings are repeated below.

4.2.A. Generally Applicable Considerations

The Agencies may consider one or more of the following types of evidence, tools, and metrics when assessing the degree of competition among firms:

***Strategic Deliberations or Decisions*.** The Agencies may analyze the extent of competition among firms, for example between the merging firms, by examining evidence of their strategic deliberations or decisions in the regular course of business. For example, in some markets, the firms may monitor each other's pricing, marketing campaigns, facility locations, improvements, products, capacity, output, input costs, and/or innovation plans. This can provide evidence of competition between the merging firms, especially when they react by taking steps to preserve or enhance the competitiveness or profitability of their own products or services.

Prior Merger, Entry, and Exit Events. The Agencies may look to historical events to assess the presence and substantiality of direct competition between the merging firms. For example, the Agencies may examine the impact of recent relevant mergers, entry, expansion, or exit events on the merging parties or their competitive behavior.

Customer Substitution. Customers' willingness to switch between different firms' products is an important part of the competitive process. Firms are closer competitors the more that customers are willing to switch between their products, for example because they are more similar in quality, price, or other characteristics.

Evidence commonly analyzed to show the extent of substitution among firms' products includes: how customers have shifted purchases in the past in response to relative changes in price or other terms and conditions; documentary and testimonial evidence such as win/loss reports, evidence from discount approval processes, switching data, customer surveys, as well as information from suppliers of complementary products and distributors; objective information about product characteristics; and market realities affecting the ability of customers to switch.

Impact of Competitive Actions on Rivals. When one firm takes competitive actions to attract customers, this can benefit the firm at the expense of its rivals. The Agencies may gauge the extent of competition among firms by considering the impact that competitive actions by one firm have on the others. The impact of a firm's competitive actions on a rival generally depends on how many sales a rival would lose as a result of the competitive actions, as well as the profitability of those lost sales. The Agencies may use margins to measure the profitability of the sale a rival would have made.[72]

Impact of Eliminating Competition Between the Firms. In some instances, evidence may be available to assess the impact of competition from one or more firms on the other firms' actions, such as firm choices about price, quality, wages, or another dimension of competition. This can be gauged by comparing the two firms' actions when they compete and make strategic choices independently against the actions the firms might choose if they acted jointly. Actual or predicted changes in these results of competition, when available, can indicate the degree of competition between the firms.

To make this type of comparison, the Agencies sometimes rely on economic models. Often, such models consider the firms' incentives to change their actions in one or more selected dimensions, such as price, in a somewhat simplified scenario. For example, a model might focus on the firms' short-run incentives to change price, while abstracting from a variety of additional competitive forces and dimensions of competition, such as the potential for firms to reposition their products or for the merging firms to coordinate with other firms. Such a model may incorporate data and evidence in order to produce quantitative estimates of the impact of the merger on firm incentives and corresponding choices. This type of exercise is sometimes referred to by economists as "merger simulation" despite the fact that the hypothetical setting considers only selected aspects of the loss of competition from a merger. The Agencies use such models to give an indication of the scale and importance of competition, not to precisely predict outcomes.

[72] The margin on incremental units is the difference between incremental revenue (often equal to price) and incremental cost on those units. The Agencies may use accounting data to measure incremental costs, but they do not necessarily rely on accounting margins recorded by firms in the ordinary course of business because such margins often do not align with the concept of incremental cost that is relevant in economic analysis of a merger.

4.2.B. Considerations When Terms Are Set by Firms

The Agencies may use various types of evidence and metrics to assess the strength of competition among firms that set terms to their customers. Firms might offer the same terms to different customers or different terms to different groups of customers.

Competition in this setting can lead firms to set lower prices or offer more attractive terms when they act independently than they would in a setting where that competition was eliminated by a merger. When considering the impact of competition on the incentives to set price, to the extent price increases on one firm's products would lead customers to switch to products from another firm, their merger will enable the merged firm to profit by unilaterally raising the price of one or both products above the pre-merger level. Some of the sales lost because of the price increase will be diverted to the products of the other firm, and capturing the value of these diverted sales can make the price increase profitable even though it would not have been profitable prior to the merger.

A measure of customer substitution between firms in this setting is the diversion ratio. The diversion ratio from one product to another is a metric of how customers likely would substitute between them. The diversion ratio is the fraction of unit sales lost by the first product due to a change in terms, such as an increase in its price, that would be diverted to the second product. The higher the diversion ratio between two products made by different firms, the stronger the competition between them.

A high diversion ratio between the products owned by two firms can indicate strong competition between them even if the diversion ratio to another firm is higher. The diversion ratio from one of the products of one firm to a group of products made by other firms, defined analogously, is sometimes referred to as the aggregate diversion ratio or the recapture rate.

A measure of the impact on rivals of competitive actions is the value of diverted sales from a price increase. The value of sales diverted from one firm to a second firm, when the first firm raises its price on one of its products, is equal to the number of units that would be diverted from the first firm to the second, multiplied by the difference between the second firm's price and the incremental cost of the diverted sales. To interpret the magnitude of the value of diverted sales, the Agencies may use as a basis of comparison either the incremental cost to the second firm of making the diverted sales, or the revenues lost by the first firm as a result of the price increase. The ratio of the value of diverted sales to the revenues lost by the first firm can be an indicator of the upward pricing pressure that would result from the loss of competition between the two firms. Analogous concepts can be applied to analyze the impact on rivals of worsening terms other than price.

4.2.C. Considerations When Terms Are Set Through Bargaining or Auctions

In some industries, buyers and sellers negotiate prices and other terms of trade. In bargaining, buyers commonly negotiate with more than one seller and may play competing sellers off against one another. In other industries, sellers might sell their products, or buyers might procure inputs, using an auction. Negotiations may involve aspects of an auction as well as aspects of one-on-one negotiation. Competition among sellers can significantly enhance the ability of a buyer to obtain a result more favorable to it, and less favorable to the sellers, compared to a situation where the elimination of competition through a merger prevents buyers from playing those sellers off against each other in negotiations.

Sellers may compete even when a customer does not directly play their offers against each other. The attractiveness of alternative options influences the importance of reaching an agreement to the

negotiating parties and thus the terms of the agreement. A party that has many attractive alternative trading partners places less importance on reaching an agreement with any one particular trading partner than a party with few attractive alternatives. As alternatives for one party are eliminated (such as through a merger), the trading partner gains additional bargaining leverage reflecting that loss of competition. A merger between sellers may lessen competition even if the merged firm handles negotiations for the merging firms' products separately.

Thus, qualitative or quantitative evidence about the leverage provided to buyers by competing suppliers may be used to assess the extent of competition among firms in this setting. Analogous evidence may be used when analyzing a setting where terms are set using auctions, for example, procurement auctions where suppliers bid to serve a buyer. If, for some categories of procurements, certain suppliers are often among the most attractive to the buyer, competition among that group of suppliers is likely to be strong.

Firms sometimes keep records of the progress and outcome of individual sales efforts, and the Agencies may use these data to generate measures of the extent to which customers would likely substitute between the two firms. Examples of such measures might include a diversion ratio based on the rate at which customers would buy from one firm if the other one was not available, or the frequency with which the two firms bid on contracts with the same customer.

4.2.D. Considerations When Firms Determine Capacity and Output

In some markets, the choice of how much to produce (output decisions) or how much productive capacity to maintain (capacity decisions) are key strategic variables. When a firm decreases output, it may lose sales to rivals, but also drive up prices. Because a merged firm will account for the impact of higher prices across all of the merged firms' sales, it may have an incentive to decrease output as a result of the merger. The loss of competition through a merger of two firms may lead the merged firm to leave capacity idle, refrain from building or obtaining capacity that would have been obtained absent the merger, lay off or stop hiring workers, or eliminate pre-existing production capabilities. A firm may also divert the use of capacity away from one relevant market and into another market so as to raise the price in the former market. The analysis of the extent to which firms compete may differ depending on how a merger between them might create incentives to suppress output.

Competition between merging firms is greater when (1) the merging firms' market shares are relatively high; (2) the merging firms' products are relatively undifferentiated from each other; (3) the market elasticity of demand is relatively low; (4) the margin on the suppressed output is relatively low; and (5) the supply responses of non-merging rivals are relatively small. Qualitative or quantitative evidence may be used to evaluate and weigh each of these factors.

In some cases, competition between firms—including one firm with a substantial share of the sales in the market and another with significant excess capacity to serve that market—can prevent an output suppression strategy from being profitable. This can occur even if the firm with the excess capacity has a relatively small share of sales, as long as that firm's ability to expand, and thus keep prices from rising, makes an output suppression strategy unprofitable for the firm with the larger market share.

4.2.E. Considerations for Innovation and Product Variety Competition

Firms can compete for customers by offering varied and innovative products and features, which could range from minor improvements to the introduction of a new product category. Features can include new or different product attributes, services offered along with a product, or higher-quality services standing alone. Customers value the variety of products or services that competition generates, including having a variety of locations at which they can shop.

Offering the best mix of products and features is an important dimension of competition that may be harmed as a result of the elimination of competition between the merging parties.

When a firm introduces a new product or improves a product's features, some of the sales it gains may be at the expense of its rivals, including rivals that are competing to develop similar products and features. As a result, competition between firms may lead them to make greater efforts to offer a variety of products and features than would be the case if the firms were jointly owned, for example, if they merged. The merged firm may have a reduced incentive to continue or initiate development of new products that would have competed with the other merging party, but post-merger would "cannibalize" what would be its own sales.[73] A service provider may have a reduced incentive to continue valuable upgrades offered by the acquired firm. The merged firm may have a reduced incentive to engage in disruptive innovation that would threaten the business of one of the merging firms. Or it may have the incentive to change its product mix, such as by ceasing to offer one of the merging firms' products, leaving worse off the customers who previously chose the product that was eliminated. For example, competition may be harmed when customers with a preference for a low-price option lose access to it, even if remaining products have higher quality.

The incentives to compete aggressively on innovation and product variety depend on the capabilities of the firms and on customer reactions to the new offerings. Development of new features depends on having the appropriate expertise and resources. Where firms are two of a small number of companies with specialized employees, development facilities, intellectual property, or research projects in a particular area, competition between them will have a greater impact on their incentives to innovate.

Innovation may be directed at outcomes beyond product features; for example, innovation may be directed at reducing costs or adopting new technology for the distribution of products.

4.3. Market Definition

The Clayton Act protects competition "in any line of commerce in any section of the country."[74] The Agencies engage in a market definition inquiry in order to identify whether there is any line of commerce or section of the country in which the merger may substantially lessen competition or tend to create a monopoly. The Agencies identify the "area of effective competition" in which competition may be lessened "with reference to a product market (the 'line of commerce') and a geographic market (the 'section of the country.')."[75] The Agencies refer to the process of identifying market(s) protected by the Clayton Act as a "market definition" exercise and the markets so defined as "relevant antitrust markets,"

[73] Sales "cannibalization" refers to a situation where customers of a firm substitute away from one of the firm's products to another product offered by the same firm.
[74] 15 U.S.C. § 18.
[75] *Brown Shoe*, 370 U.S. at 324.

or simply "relevant markets." Market definition can also allow the Agencies to identify market participants and measure market shares and market concentration.

A relevant antitrust market is an area of effective competition, comprising both product (or service) and geographic elements. The outer boundaries of a relevant product market are determined by the "reasonable interchangeability of use or the cross-elasticity of demand between the product itself and substitutes for it."[76] Within a broad relevant market, however, effective competition often occurs in numerous narrower relevant markets.[77] Market definition ensures that relevant antitrust markets are sufficiently broad, but it does not always lead to a single relevant market. Section 7 of the Clayton Act prohibits any merger that may substantially lessen competition "in any line of commerce" and in "any section of the country," and the Agencies protect competition by challenging a merger that may lessen competition in any one or more relevant markets.

Market participants often encounter a range of possible substitutes for the products of the merging firms. However, a relevant market cannot meaningfully encompass that infinite range of substitutes.[78] There may be effective competition among a narrow group of products, and the loss of that competition may be harmful, making the narrow group a relevant market, even if competitive constraints from significant substitutes are outside the group. The loss of both the competition between the narrow group of products and the significant substitutes outside that group may be even more harmful, but that does not prevent the narrow group from being a market in its own right.

Relevant markets need not have precise metes and bounds. Some substitutes may be closer, and others more distant, and defining a market necessarily requires including some substitutes and excluding others. Defining a relevant market sometimes requires a line-drawing exercise around product features, such as size, quality, distances, customer segment, or prices. There can be many places to draw that line and properly define a relevant market. The Agencies recognize that such scenarios are common, and indeed "fuzziness would seem inherent in any attempt to delineate the relevant . . . market."[79] Market participants may use the term "market" colloquially to refer to a broader or different set of products than those that would be needed to constitute a valid relevant antitrust market.

The Agencies rely on several tools to demonstrate that a market is a relevant antitrust market. For example, the Agencies may rely on any one or more of the following to identify a relevant antitrust market.

A. Direct evidence of substantial competition between the merging parties can demonstrate that a relevant market exists in which the merger may substantially lessen competition and can be sufficient to identify the line of commerce and section of the country affected by a merger, even if the metes and bounds of the market are only broadly characterized.

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[76] *Id.* at 325.

[77] *Id.* ("[W]ithin [a] broad market, well-defined submarkets may exist which, in themselves, constitute product markets for antitrust purposes."). Multiple overlapping markets can be appropriately defined relevant markets. For example, a merger to monopoly for food worldwide would lessen competition in well-defined relevant markets for, among others, food, baked goods, cookies, low-fat cookies, and premium low-fat chocolate chip cookies. Illegality in any of these in any city or town comprising a relevant geographic market would suffice to prohibit the merger, and the fact that one area comprises a relevant market does not mean a larger, smaller, or overlapping area could not as well.

[78] *United States v. Cont'l Can Co.*, 378 U.S. 441, 449 (1964); *see also FTC v. Advoc. Health Care Network*, 841 F.3d 460, 469 (7th Cir. 2016) ("A geographic market does not need to include all of the firm's competitors; it needs to include the competitors that would substantially constrain the firm's price-increasing ability." (cleaned up)).

[79] *Phila. Nat'l Bank*, 374 U.S. at 360 n.37.

B. Direct evidence of the exercise of market power can demonstrate the existence of a relevant market in which that power exists. This evidence can be valuable when assessing the risk that a dominant position may be entrenched, maintained, or extended, since the same evidence identifies market power and can be sufficient to identify the line of commerce and section of the country affected by a merger, even if the metes and bounds of the market are only broadly characterized.

C. A relevant market can be identified from evidence on observed market characteristics ("practical indicia"), such as industry or public recognition of the submarket as a separate economic entity, the product's peculiar characteristics and uses, unique production facilities, distinct customers, distinct prices, sensitivity to price changes, and specialized vendors.[80] Various practical indicia may identify a relevant market in different settings.

D. Another common method employed by courts and the Agencies is the hypothetical monopolist test.[81] This test examines whether a proposed market is too narrow by asking whether a hypothetical monopolist over this market could profitably worsen terms significantly, for example, by raising price. An analogous hypothetical monopsonist test applies when considering the impact of a merger on competition among buyers.

The Agencies use these tools to define relevant markets because they each leverage market realities to identify an area of effective competition.

Section 4.3.A below describes the Hypothetical Monopolist Test in greater detail. Section 4.3.B addresses issues that may arise when defining relevant markets in several specific scenarios.

4.3.A. The Hypothetical Monopolist Test

This Section describes the Hypothetical Monopolist Test, which is a method by which the Agencies often define relevant antitrust markets. As outlined above, a relevant antitrust market is an area of effective competition. The Hypothetical Monopolist/Monopsonist Test ("HMT") evaluates whether a group of products is sufficiently broad to constitute a relevant antitrust market. To do so, the HMT asks whether eliminating the competition among the group of products by combining them under the control of a hypothetical monopolist likely would lead to a worsening of terms for customers. The Agencies generally focus their assessment on the constraints from competition, rather than on constraints from regulation, entry, or other market changes. The Agencies are concerned with the impact on economic incentives and assume the hypothetical monopolist would seek to maximize profits.

When evaluating a merger of sellers, the HMT asks whether a hypothetical profit-maximizing firm, not prevented by regulation from worsening terms, that was the only present and future seller of a group of products ("hypothetical monopolist") likely would undertake at least a small but significant and non-transitory increase in price ("SSNIP") or other worsening of terms ("SSNIPT") for at least one

[80] *Brown Shoe*, 370 U.S. at 325, *quoted in United States v. U.S. Sugar Corp.*, 73 F.4th 197, 204-07 (3d Cir. 2023) (affirming district court's application of *Brown Shoe* practical indicia to evaluate relevant product market that included, based on the unique facts of the industry, those distributors who "could counteract monopolistic restrictions by releasing their own supplies").

[81] *See FTC v. Penn State Hershey Med. Center*, 838 F.3d 327, 338 (3d Cir. 2016). While these guidelines focus on applying the hypothetical monopolist test in analyzing mergers, the test can be adapted for similar purposes in cases involving alleged monopolization or other conduct. *See, e.g.*, *McWane, Inc. v. FTC*, 783 F.3d 814, 829-30 (11th Cir. 2015).

product in the group.[82] For the purpose of analyzing this issue, the terms of sale of products outside the candidate market are held constant. Analogously, when considering a merger of buyers, the Agencies ask the equivalent question for a hypothetical monopsonist. This Section often focuses on merging sellers to simplify exposition.

4.3.B. Implementing the Hypothetical Monopolist Test

The SSNIPT. A SSNIPT may entail worsening terms along any dimension of competition, including price (SSNIP), but also other terms (broadly defined) such as quality, service, capacity investment, choice of product variety or features, or innovative effort.

Input and Labor Markets. When the competition at issue involves firms buying inputs or employing labor, the HMT considers whether the hypothetical monopsonist would undertake at least a SSNIPT, such as a decrease in the offered price or a worsening of the terms of trade offered to suppliers, or a decrease in the wage offered to workers or a worsening of their working conditions or benefits.

The Geographic Dimension of the Market. The hypothetical monopolist test is generally applied to a group of products together with a geographic region to determine a relevant market, though for ease of exposition the two dimensions are discussed separately, with geographic market definition discussed in Section 4.3.D.2.

Negotiations or Auctions. The HMT is stated in terms of a hypothetical monopolist *undertaking* a SSNIPT. This covers settings where the hypothetical monopolist sets terms and makes them worse. It also covers settings where firms bargain, and the hypothetical monopolist would have a stronger bargaining position that would likely lead it to extract a SSNIPT during negotiations, or where firms sell their products in an auction, and the bids submitted by the hypothetical monopolist would result in the purchasers of its products experiencing a SSNIPT.

Benchmark for the SSNIPT. The HMT asks whether the hypothetical monopolist likely would worsen terms relative to those that likely would prevail absent the proposed merger. In some cases, the Agencies will use as a benchmark different outcomes than those prevailing prior to the merger. For example, if outcomes are likely to change absent the merger, e.g., because of innovation, entry, exit, or exogenous trends, the Agencies may use anticipated future outcomes as the benchmark. Or, if suppliers in the market are coordinating prior to the merger, the Agencies may use a benchmark that reflects conditions that would arise if coordination were to break down. When evaluating whether a merging firm is dominant (Guideline 6), the Agencies may use terms that likely would prevail in a more competitive market as a benchmark.[83]

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[82] If the pricing incentives of the firms supplying the products in the group differ substantially from those of the hypothetical monopolist, for reasons other than the latter's control over a larger group of substitutes, the Agencies may instead employ the concept of a hypothetical profit-maximizing cartel comprised of the firms (with all their products) that sell the products in the candidate market. This approach is most likely to be appropriate if the merging firms sell products outside the candidate market that significantly affect their pricing incentives for products in the candidate market. This could occur, for example, if the candidate market is one for durable equipment and the firms selling that equipment derive substantial net revenues from selling spare parts and service for that equipment. Analogous considerations apply when considering a SSNIPT for terms other than price.

[83] In the entrenchment context, if the inquiry is being conducted after market or monopoly power has already been exercised, using prevailing prices can lead to defining markets too broadly and thus inferring that dominance does not exist when, in

Magnitude of the SSNIPT. What constitutes a "small but significant" worsening of terms depends upon the nature of the industry and the merging firms' positions in it, the ways that firms compete, and the dimension of competition at issue. When considering price, the Agencies will often use a SSNIP of five percent of the price charged by firms for the products or services to which the merging firms contribute value. The Agencies, however, may consider a different term or a price increase that is larger or smaller than five percent.[84]

The Agencies may base a SSNIP on explicit or implicit prices for the firms' specific contribution to the value of the product sold, or an upper bound on the firms' specific contribution, where these can be identified with reasonable clarity. For example, the Agencies may derive an implicit price for the service of transporting oil over a pipeline as the difference between the price the pipeline firm paid for oil at one end and the price it sold the oil for at the other and base the SSNIP on this implicit price.

4.3.C. Evidence and Tools for Carrying Out the Hypothetical Monopolist Test

Section 4.2 describes some of the qualitative and quantitative evidence and tools the Agencies can use to assess the extent of competition among firms. The Agencies can use similar evidence and analogous tools to apply the HMT, in particular to assess whether competition among a set of firms likely leads to better terms than a hypothetical monopolist would undertake.

To assess whether the hypothetical monopolist likely would undertake at least a SSNIP on one or more products in the candidate market, the Agencies sometimes interpret the qualitative and quantitative evidence using an economic model of the profitability to the hypothetical monopolist of undertaking price increases; the Agencies may adapt these tools to apply to other forms of SSNIPTs.

One approach utilizes the concept of a "recapture rate" (the percentage of sales lost by one product in the candidate market, when its price alone rises, that is recaptured by other products in the candidate market). A price increase is profitable when the recapture rate is high enough that the incremental profits from the increased price plus the incremental profits from the recaptured sales going to other products in the candidate market exceed the profits lost when sales are diverted outside the candidate market. It is possible that a price increase is profitable even if a majority of sales are diverted outside the candidate market, for example if the profits on the lost sales are relatively low or the profits on the recaptured sales are relatively high.

Sometimes evidence is presented in the form of "critical loss analysis," which can be used to assess whether undertaking at least a SSNIPT on one or more products in a candidate market would raise or lower the hypothetical monopolist's profits. Critical loss analysis compares the magnitude of the two offsetting effects resulting from the worsening of terms. The "critical loss" is defined as the number of lost unit sales that would leave profits unchanged. The "predicted loss" is defined as the number of unit sales that the hypothetical monopolist is predicted to lose due to the worsening of terms. The worsening of terms raises the hypothetical monopolist's profits if the predicted loss is less than the

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fact, it does. The problem with using prevailing prices to define the market when a firm is already dominant is known as the "Cellophane Fallacy."

[84] The five percent price increase is not a threshold of competitive harm from the merger. Because the five percent SSNIP is a minimum expected effect of a hypothetical monopolist of an *entire* market, the actual predicted effect of a merger within that market may be significantly lower than five percent. A merger within a well-defined market that causes undue concentration can be illegal even if the predicted price increase is well below the SSNIP of five percent.

critical loss. While this "breakeven" analysis differs somewhat from the profit-maximizing analysis called for by the HMT, it can sometimes be informative.

The Agencies require that estimates of the predicted loss be consistent with other evidence, including the pre-merger margins of products in the candidate market used to calculate the critical loss. Unless the firms are engaging in coordinated interaction, high pre-merger margins normally indicate that each firm's product individually faces demand that is not highly sensitive to price. Higher pre-merger margins thus indicate a smaller predicted loss as well as a smaller critical loss. The higher the pre-merger margin, the smaller the recapture rate[85] necessary for the candidate market to satisfy the hypothetical monopolist test. Similar considerations inform other analyses of the profitability of a price increase.

4.3.D. Market Definition in Certain Specific Settings

This Section provides details on market definition in several specific common settings. In much of this section, concepts are presented for the scenario where the merger involves sellers. In some cases, clarifications are provided as to how the concepts apply to merging buyers; in general, the concepts apply in an analogous way.

4.3.D.1. Targeted Trading Partners

If the merged firm could profitably target a subset of customers for changes in prices or other terms, the Agencies may identify relevant markets defined around those targeted customers. The Agencies may do so even if firms are not currently targeting specific customer groups but could do so after the merger.

For targeting to be feasible, two conditions typically must be met. First, the suppliers engaging in targeting must be able to set different terms for targeted customers than other customers. This may involve identification of individual customers to which different terms are offered or offering different terms to different types of customers based on observable characteristics.[86] Markets for targeted customers need not have precise metes and bounds. In particular, defining a relevant market for targeted customers sometimes requires a line-drawing exercise on observable characteristics. There can be many places to draw that line and properly define a relevant market. Second, the targeted customers must not be likely to defeat a targeted worsening of terms by arbitrage (e.g., by purchasing indirectly from or through other customers). Arbitrage may be difficult if it would void warranties or make service more difficult or costly for customers, and it is inherently impossible for many services. Arbitrage on a modest scale may be possible but sufficiently costly or limited, for example due to transaction costs or search costs, that it would not deter or defeat a discriminatory pricing strategy.

If prices are negotiated or otherwise set individually, for example through a procurement auction, there may be relevant markets that are as narrow as an individual customer. Nonetheless, for analytic convenience, the Agencies may define cluster markets for groups of targeted customers for whom the

[85] The recapture rate is sometimes referred to as the aggregate diversion ratio, defined in Section 4.2.B.

[86] In some cases, firms offer one or more versions of products or services defined by their characteristics (where brand might be a characteristic). When customers can select among these products and terms do not vary by customer, the Agencies will typically define markets based on products rather than the targeted customers. In such cases, relevant antitrust markets may include only some of the differentiated products, for example products with only "basic" features, or products with "premium features." The tools described in Section 4.2 can be used to assess competition among differentiated products.

conditions of competition are reasonably similar. (See Section 4.3.D.4 for further discussion of cluster markets.)

Analogous considerations arise for a merger involving one or more buyers or employers. In this case, the analysis considers whether buyers target suppliers, for example by paying targeted suppliers or workers less, or by degrading the terms of supply contracts for targeted suppliers. Arbitrage would involve a targeted supplier selling to the buyer indirectly, through a different supplier who could obtain more favorable terms from the buyer.

If the HMT is applied in a setting where targeting of customers is feasible, it requires that a hypothetical profit-maximizing firm that was the only present or future seller of the relevant product(s) to customers in the targeted group would undertake at least a SSNIPT on some, though not necessarily all, customers in that group. The products sold to those customers form a relevant market if the hypothetical monopolist likely would undertake at least a SSNIPT despite the potential for customers to substitute away from the product or to take advantage of arbitrage. In this exercise, the terms of sale for products sold to all customers outside the region are held constant.

4.3.D.2. Geographic Markets

A relevant antitrust market is an area of effective competition, comprising both product (or service) and geographic elements. A market's geography depends on the limits that distance puts on some customers' willingness or ability to substitute to some products, or some suppliers' willingness or ability to serve some customers. Factors that may limit the geographic scope of the market include transportation costs, language, regulation, tariff and non-tariff trade barriers, custom and familiarity, reputation, and local service availability.

4.3.D.2.a. Geographic Markets Based on the Locations of Suppliers

The Agencies sometimes define geographic markets as regions encompassing a group of supplier locations. When they do, the geographic market's scope is determined by customers' willingness to switch between suppliers. Geographic markets of this type often apply when customers receive goods or services at suppliers' facilities, for example when customers buy in-person from retail stores. A single firm may offer the same product in a number of locations, both within a single geographic market or across geographic markets; customers' willingness to substitute between products may depend on the location of the supplier. When calculating market shares, sales made from supplier locations in the geographic market are included, regardless of whether the customer making the purchase travelled from outside the boundaries of the geographic market (see Section 4.4 for more detail about calculating market shares).

If the HMT is used to evaluate the geographic scope of the market, it requires that a hypothetical profit-maximizing firm that was the only present or future supplier of the relevant product(s) at supplier locations in the region likely would undertake at least a SSNIPT in at least one location. In this exercise, the terms of sale for products sold to all customers at facilities outside the region are typically held constant.[87]

[87] In some circumstances, as when the merging parties operate in multiple geographies, if applying the HMT, the Agencies may apply a "Hypothetical Cartel" framework for market definition, following the approach outlined in Section 4.3.A, n.81.

4.3.D.2.b. Geographic Markets Based on Targeting of Customers by Location

When targeting based on customer location is feasible (see Section 4.3.D.1), the Agencies may define geographic markets as a region encompassing a group of customers.[88] For example, geographic markets may sometimes be defined this way when suppliers deliver their products or services to customers' locations, or tailor terms of trade based on customers' locations. Competitors in the market are firms that sell to customers that are located in the specified region. Some suppliers may be located outside the boundaries of the geographic market, but their sales to customers located within the market are included when calculating market shares (see Section 4.4 for more detail about calculating market shares).

If prices are negotiated individually with customers that may be targeted, geographic markets may be as narrow as individual customers. Nonetheless, the Agencies often define a market for a cluster of customers located within a region if the conditions of competition are reasonably similar for these customers. (See Section 4.3.D.4 for further discussion of cluster markets.)

A firm's attempt to target customers in a particular area with worsened terms can sometimes be undermined if some customers in the region substitute by travelling outside it to purchase the product. Arbitrage by customers on a modest scale may be possible but sufficiently costly or limited that it would not deter or defeat a targeting strategy.[89]

If the HMT is used to evaluate market definition when customers may be targeted by location, it requires that a hypothetical profit-maximizing firm that was the only present or future seller of the relevant product(s) to customers in the region likely would undertake at least a SSNIPT on some, though not necessarily all, customers in that region. The products sold in that region form a relevant market if the hypothetical monopolist would undertake at least a SSNIPT despite the potential for customers to substitute away from the product or to locations outside the region. In this exercise, the terms of sale for products sold to all customers outside the region are held constant.[90]

4.3.D.3. Supplier Responses

Market definition focuses solely on demand substitution factors, that is, on customers' ability and willingness to substitute away from one product or location to another in response to a price increase or other worsening of terms. Supplier responses may be considered in the analysis of competition between firms (Guideline 2 and Section 4.2), entry and repositioning (Section 3.2), and in calculating market shares and concentration (Section 4.4).

4.3.D.4. Cluster Markets

A relevant antitrust market is generally a group of products that are substitutes for each other. However, when the competitive conditions for multiple relevant markets are reasonably similar, it may be appropriate to aggregate the products in these markets into a "cluster market" for analytic convenience, even though not all products in the cluster are substitutes for each other. For example, competing hospitals may each provide a wide range of acute health care services. Acute care for one health issue is not a substitute for acute care for a different health issue. Nevertheless, the Agencies may

[88] For customers operating in multiple locations, only those customer locations within the targeted region are included in the market.
[89] Arbitrage by suppliers is a type of supplier response and is thus not considered in market definition. (See Section 4.3.D.3)
[90] In some circumstances, as when the merging parties operate in multiple geographies, the Agencies may apply a "Hypothetical Cartel" framework for market definition, as described in Section 4.3.A, n.81.

aggregate them into a cluster market for acute care services if the conditions of competition are reasonably similar across the services in the cluster.

The Agencies need not separately analyze market definition for each product included in the cluster market, and market shares will typically be calculated for the cluster market as a whole.

Analogously, the Agencies sometimes define a market as a cluster of targeted customers (see Section 4.3.D.1) or a cluster of customers located in a region (see Section 4.3.D.2.b).

4.3.D.5. Bundled Product Markets

Firms may sell a combination of products as a bundle or a "package deal," rather than offering products "*a la carte*," that is, separately as standalone products. Different bundles offered by the same or different firms might package together different combinations of component products and therefore be differentiated according to the composition of the bundle. If the components of a bundled product are also available separately, the bundle may be offered at a price that represents a discount relative to the sum of the *a la carte* product prices.

The Agencies take a flexible approach based on the specific circumstances to determine whether a candidate market that includes one or more bundled products, standalone products, or both is a relevant antitrust market. In some cases, a relevant market may consist of only bundled products. A market composed of only bundled products might be a relevant antitrust market even if there is significant competition from the unbundled products. In other cases, a relevant market may include both bundled products and some unbundled component products.

Even in cases where firms commonly sell combinations of products or services as a bundle or a "package deal," relevant antitrust markets do not necessarily include product bundles. In some cases, a relevant market may be analyzed as a cluster market, as discussed in Section 4.3.D.4.

4.3.D.6. One-Stop Shop Markets

In some settings, the Agencies may consider a candidate market that includes one or more "one-stop shops," where customers can select a combination of products to purchase from a single seller, either in a single purchase instance or in a sequence of purchases. Products are commonly sold at a one-stop shop when customers value the convenience, which might arise because of transaction costs or search costs, savings of time, transportation costs, or familiarity with the store or web site.

A multi-product retailer such as a grocery store or online retailer is an example of a one-stop shop. Customers can select a particular basket of groceries from a range of available goods and different customers may select different baskets. Some customers may make multiple stops at specialty shops (e.g., butcher, baker, greengrocer), or they may do the bulk of their shopping at a one-stop shop (the grocery store) but also shop at specialty shops for particular product categories.

There are several ways in which markets may be defined in one-stop shop settings, depending on market realities, and the Agencies may further define more than one relevant antitrust market for a particular merger. For example, a relevant market may consist of only one-stop shops, even if there is significant competition from specialty shops; or it may include both one-stop shops and specialty shops. When a product category is sold by both one-stop shops and specialty suppliers (such as a type of produce sold in grocery stores and produce stands), the Agencies may define relevant antitrust markets for the product category sold by a particular type of supplier, or it may include multiple types of suppliers.

4.3.D.7. Market Definition When There is Harm to Innovation

When considering harm to competition in innovation, market definition may follow the same approaches that are used to analyze other dimensions of competition. In the case where a merger may substantially lessen competition by decreasing incentives to innovate, the Agencies may define relevant antitrust markets around the products that would result from that innovation if successful, even if those products do not yet exist.[91] In some cases, the Agencies may analyze different relevant markets when considering innovation than when considering other dimensions of competition.

4.3.D.8. Market Definition for Input Markets and Labor Markets

The same market definition tools and principles discussed above can be used for input markets and labor markets, where labor is a particular type of input. In input markets, firms compete with each other to attract suppliers, including workers. Therefore, input suppliers are analogous to customers in the discussions above about market definition. In defining relevant markets, the Agencies focus on the alternatives available to input suppliers. An antitrust input market consists of a group of products and a geographic area defined by the location of the buyers or input suppliers. Just as buyers of a product may consider products to be differentiated according to the brand or the identity of the seller, suppliers of a product or service may consider different buyers to be differentiated. For example, if the suppliers are contractors, they may have distinct preferences about who they provide services to, due to different working conditions, location, reliability of buyers in terms of paying invoices on time, or the propensity of the buyer to make unexpected changes to specifications.

The HMT considers whether a hypothetical monopsonist likely would undertake a SSNIPT, such as a reduction in price paid for inputs, or imposing less favorable terms on suppliers. (See Section 4.2.C for more discussion about competition in settings where terms are set through auctions and negotiations, as is common for input markets.)

When defining a market for labor the Agencies will consider the job opportunities available to workers who supply a relevant type of labor service, where worker choice among jobs or between geographic areas is the analog of consumer choices among products and regions when defining a product market. The Agencies may consider workers' willingness to switch in response to changes to wages or other aspects of working conditions, such as changes to benefits or other non-wage compensation, or adoption of less flexible scheduling. Depending on the occupation, alternative job opportunities might include the same occupation with alternative employers, or alternative occupations. Geographic market definition may involve considering workers' willingness or ability to commute, including the availability of public transportation. The product and geographic market definition may involve assessing whether workers may be targeted for less favorable wages or other terms of employment according to factors such as education, experience, certifications, or work locations. The Agencies may define cluster markets for different jobs when firms employ workers in a variety of jobs characterized by similar competitive conditions (see Section 4.3.D.4).

4.4. Calculating Market Shares and Concentration

This subsection further describes how the Agencies calculate market shares and concentration metrics.

[91] *See Illumina*, slip op. at 12 (affirming a relevant market defined around "what . . . developers reasonably sought to achieve, not what they currently had to offer").

As discussed above, the Agencies may use evidence about market shares and market concentration as part of their analysis. These structural measures can provide insight into the market power of firms as well as into the extent to which they compete. Although any market that is properly identified using the methods in Section 4.3 is valid, the extent to which structural measures calculated in that market are probative in any given context depends on a number of considerations. The following market considerations affect the extent to which structural measures are probative in any given context.[92]

First, structural measures may be probative if the market used to estimate them includes the products that are the focus of the competitive concern that the structural inquiry intends to address. For example, the concentration measures discussed in Guideline 1 will be most probative about whether the merger eliminates substantial competition between the merging parties when calculated on a market that includes at least one competing product from each merging firm.

Second, the market used to estimate shares should be broad enough that it contains sufficient additional products so that a loss of competition among all the suppliers of the products in the market would lead to significantly worse terms for at least some customers of at least one product. Markets identified using the various tools in Section 4.3 can satisfy this condition—for example, all markets that satisfy the HMT do so.

Third, the competitive significance of the parties may be understated by their share when calculated on a market that is broader than needed to satisfy the considerations above, particularly when the market includes products that are more distant substitutes, either in the product or geographic dimension, for those produced by the parties.

4.4.A. Market Participants

All firms that currently supply products (or consume products, when buyers merge) in a relevant market are considered participants in that market. Vertically integrated firms are also included to the extent that their inclusion accurately reflects their competitive significance. Firms not currently supplying products in the relevant market, but that have committed to entering the market in the near future, are also considered market participants.

Firms that are not currently active in a relevant market, but that very likely would rapidly enter with direct competitive impact in the event of a small but significant change in competitive conditions, without incurring significant sunk costs, are also considered market participants. These firms are termed "rapid entrants." Sunk costs are entry or exit costs that cannot be recovered outside a relevant market. Entry that would take place more slowly in response to a change in competitive conditions, or that requires firms to incur significant sunk costs, is considered in Section 3.2.

Firms that are active in the relevant product market but not in the relevant geographic market may be rapid entrants. Other things equal, such firms are most likely to be rapid entrants if they are already active in geographies that are close to the geographic market. Factors such as transportation

[92] For simplicity, the discussion in the text focuses on the case where concerns arise that involve competition among the suppliers of products; analogous considerations may also arise for suppliers of services, or when concerns arise about competition among buyers of a product or service, or when analyzing market shares in certain specific settings (see Section 4.3.D).

costs are important; or for services or digital goods, other factors may be important, such as language or regulation.

In markets for relatively homogeneous goods where a supplier's ability to compete depends predominantly on its costs and its capacity, and not on other factors such as experience or reputation in the relevant market, a supplier with efficient idle capacity, or readily available "swing" capacity currently used in adjacent markets that can easily and profitably be shifted to serve the relevant market, may be a rapid entrant. However, idle capacity may be inefficient, and capacity used in adjacent markets may not be available, so a firm's possession of idle or swing capacity alone does not make that firm a rapid entrant.

4.4.B. Market Shares

The Agencies normally calculate product market shares for all firms that currently supply products (or consume products, when buyers merge) in a relevant market, subject to the availability of data. The Agencies measure each firm's market share using metrics that are informative about the market realities of competition in the particular market and firms' future competitive significance. When interpreting shares based on historical data, the Agencies may consider whether significant recent or reasonably foreseeable changes to market conditions suggest that a firm's shares overstate or understate its future competitive significance.

How market shares are calculated may further depend on the characteristics of a particular market, and on the availability of data. Moreover, multiple metrics may be informative in any particular case. For example:

- Revenues in a relevant market often provide a readily available basis on which to compute shares and are often a good measure of attractiveness to customers.
- Unit sales may provide a useful measure of competitive significance in cases where one unit of a low-priced product can serve as a close substitute for one unit of a higher-priced product. For example, a new, much less expensive product may have great competitive significance if it substantially erodes the revenues earned by older, higher-priced products, even if it earns relatively low revenues.
- Revenues earned from recently acquired customers (or paid to recently acquired buyers, in the case of merging buyers) may provide a useful measure of competitive significance of firms in cases where trading partners sign long-term contracts, face switching costs, or tend to re-evaluate their relationships only occasionally.
- Measures based on capacities or reserves may be used to calculate market shares in markets for homogeneous products where a firm's competitive significance may derive principally from its ability and incentive to rapidly expand production in a relevant market in response to a price increase or output reduction by others in that market (or to rapidly expand its purchasing in the case of merging buyers).
- Non-price indicators, such as number of users or frequency of use, may be useful indicators in markets where price forms a relatively small or no part of the exchange of value.

EXHIBIT 33 (REDACTED)

EXHIBIT 34

BEFORE THE SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

--CONTROL--

NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

Highly Confidential
Pursuant to Protective Order

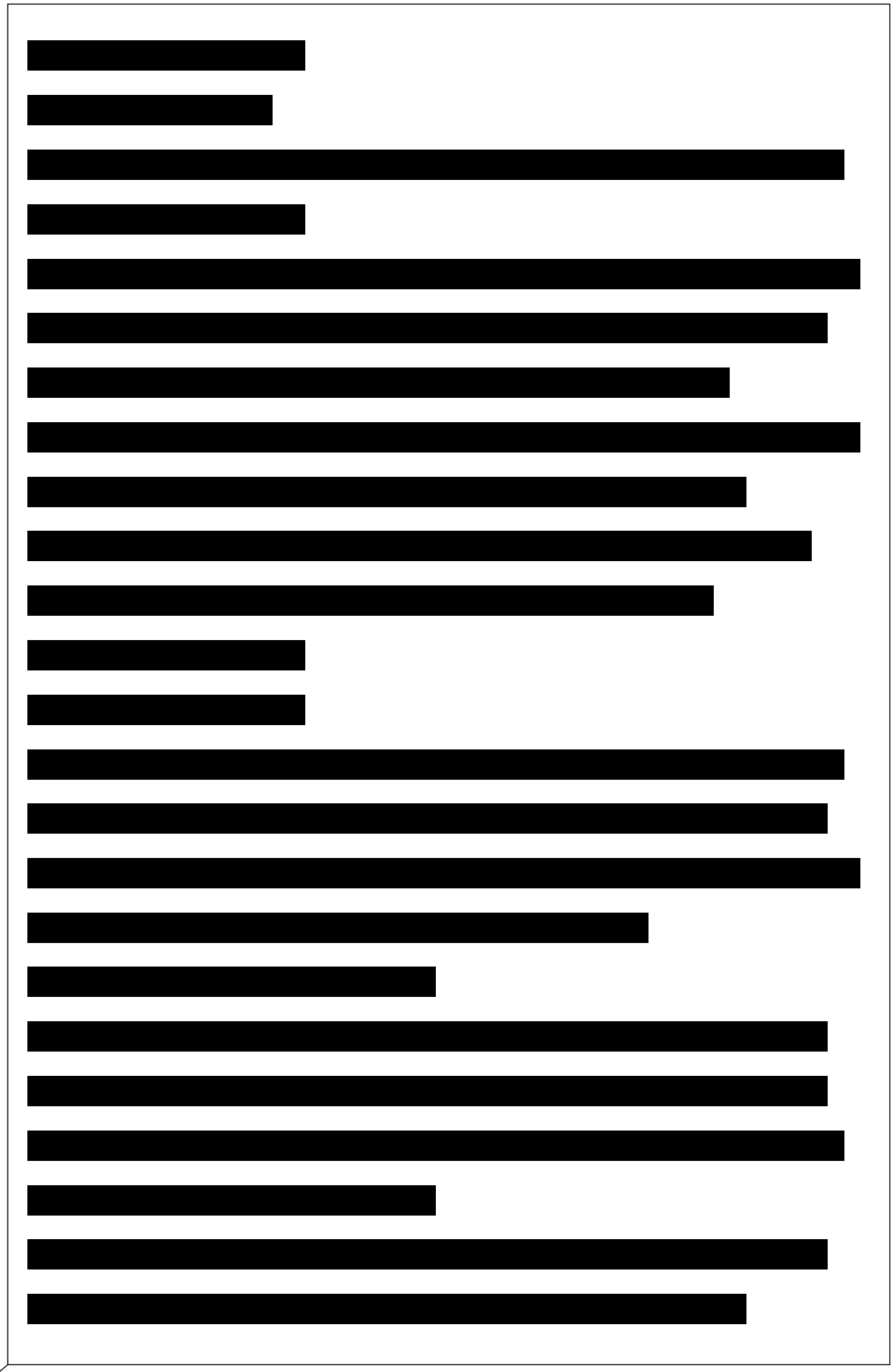
CONFIDENTIAL PORTIONS INCLUDED

VIDEOTAPED DEPOSITION

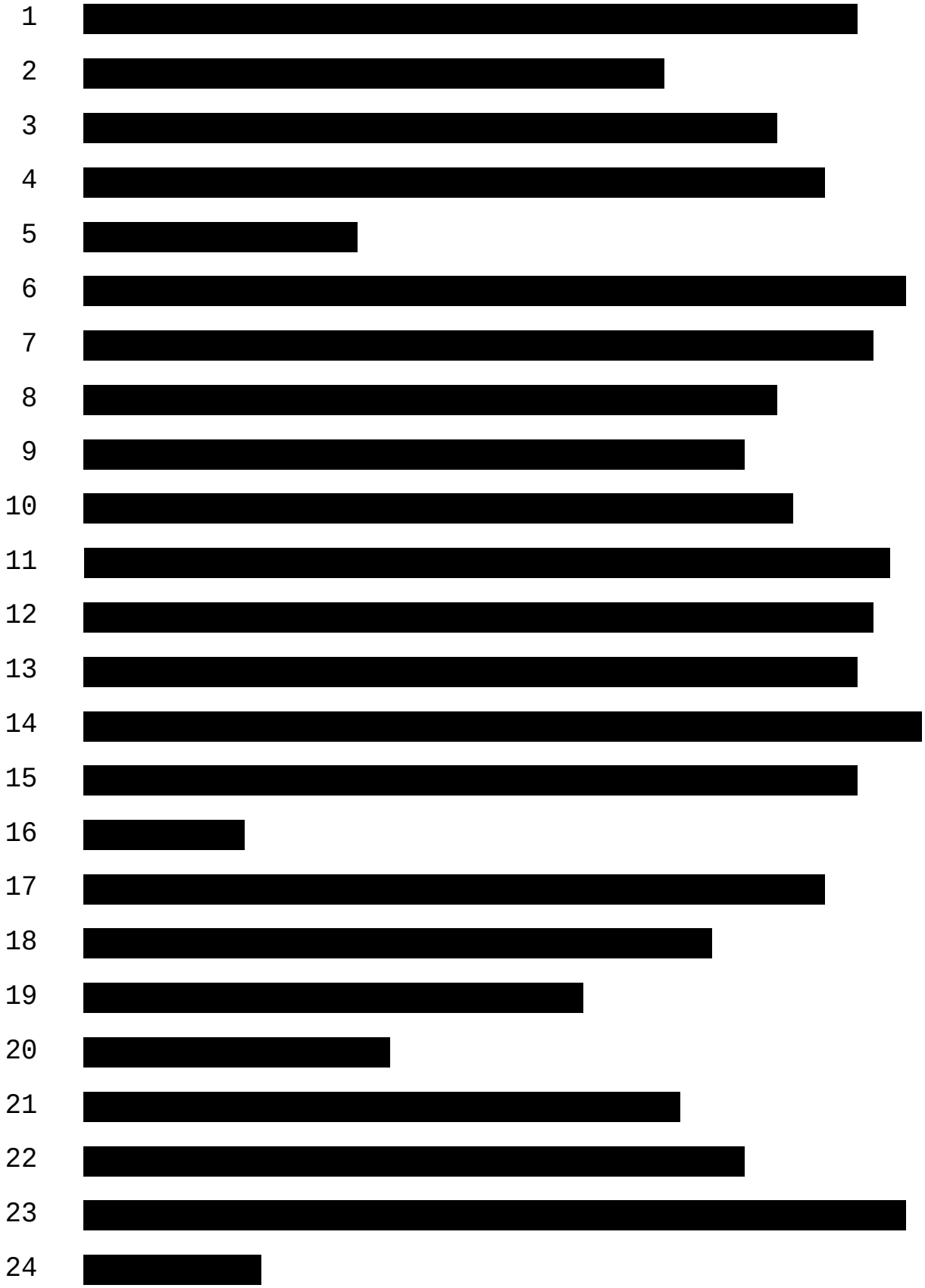
The DEPOSITION OF DAN McLAUGHLIN, taken on behalf of the BURLINGTON NORTHERN, at the Law Office of Kutak Rock, 1650 Farnam Street, Omaha, Nebraska, on September 30th, 2026, at 7:59 a.m. Central Daylight Time.

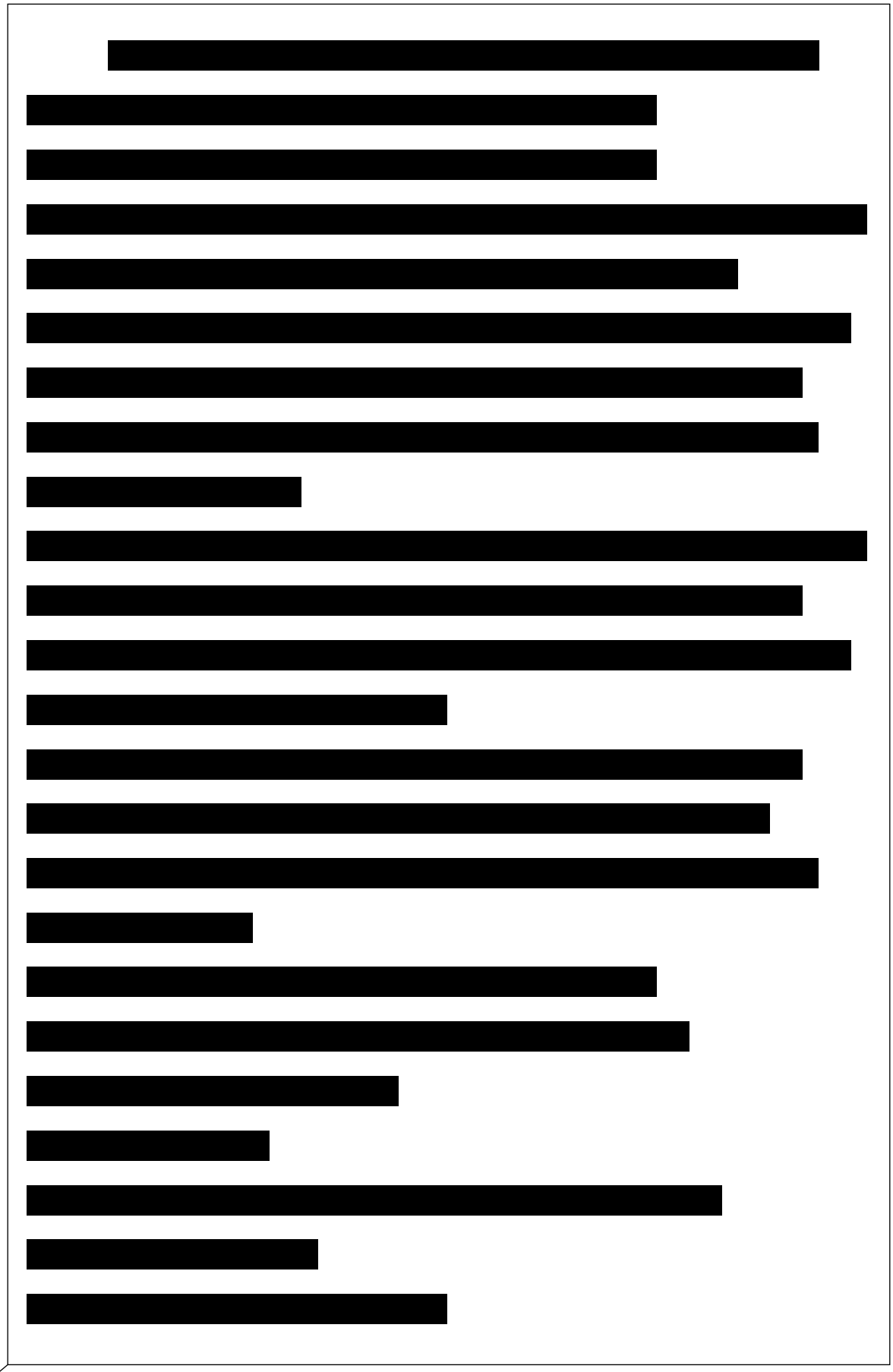
REPORTED BY: GREG S. WEILAND, CSR, RDR, CRR

JOB NO.: 23824









BY MR. McCARRICK:

Q. Okay. I want to give you one example, and then I think I'll be able to actually shortcut this.

But do you know whether or not CN owns or operates rail lines in Los Angeles, for example?

MR. ROSENTHAL: Objection, compound.

THE WITNESS: I don't believe so.

BY MR. McCARRICK:

Q. Okay. And when you say you don't believe so, you don't believe that they own and operate, or that you don't know?

A. To my knowledge, they don't own and operate rail lines in Los Angeles.

Q. Okay. To your knowledge, does CN operate rail lines in the San Francisco Bay area?

A. Not to my knowledge.

Q. To your knowledge, does CN operate rail lines in Phoenix, Arizona?

A. Not to my knowledge.

Q. To your knowledge, does CN operate rail lines in Texas other than having hauling rights between Memphis, Tennessee, and Eagle Pass?

A. Not to my knowledge.

Q. To your knowledge, does CN operate rail

lines in Florida?

A. I don't know.

Q. To your knowledge, does CN operate rail lines in Southeastern Pennsylvania?

A. I don't know.

Q. Okay. Thinking about UP's network today, can we agree that CN's network is not a substitute for UP's network?

MR. ROSENTHAL: Objection, vague, lacks foundation.

THE WITNESS: What do you mean "as a substitute for UP's network"?

BY MR. McCARRICK:

Q. Sure. UP reaches origins and destinations that CN does not, correct?

MR. ROSENTHAL: Objection, lacks foundation.

THE WITNESS: That's correct.

BY MR. McCARRICK:

Q. In your view, UP has a stronger network than CN does, correct?

MR. ROSENTHAL: Objection, vague.

THE WITNESS: Not necessarily.

BY MR. McCARRICK:

Q. Okay. In what places do you think that CN, in the United States, offers a stronger network than UP does?

MR. ROSENTHAL: Objection, vague.

THE WITNESS: I don't know off the top of my head.

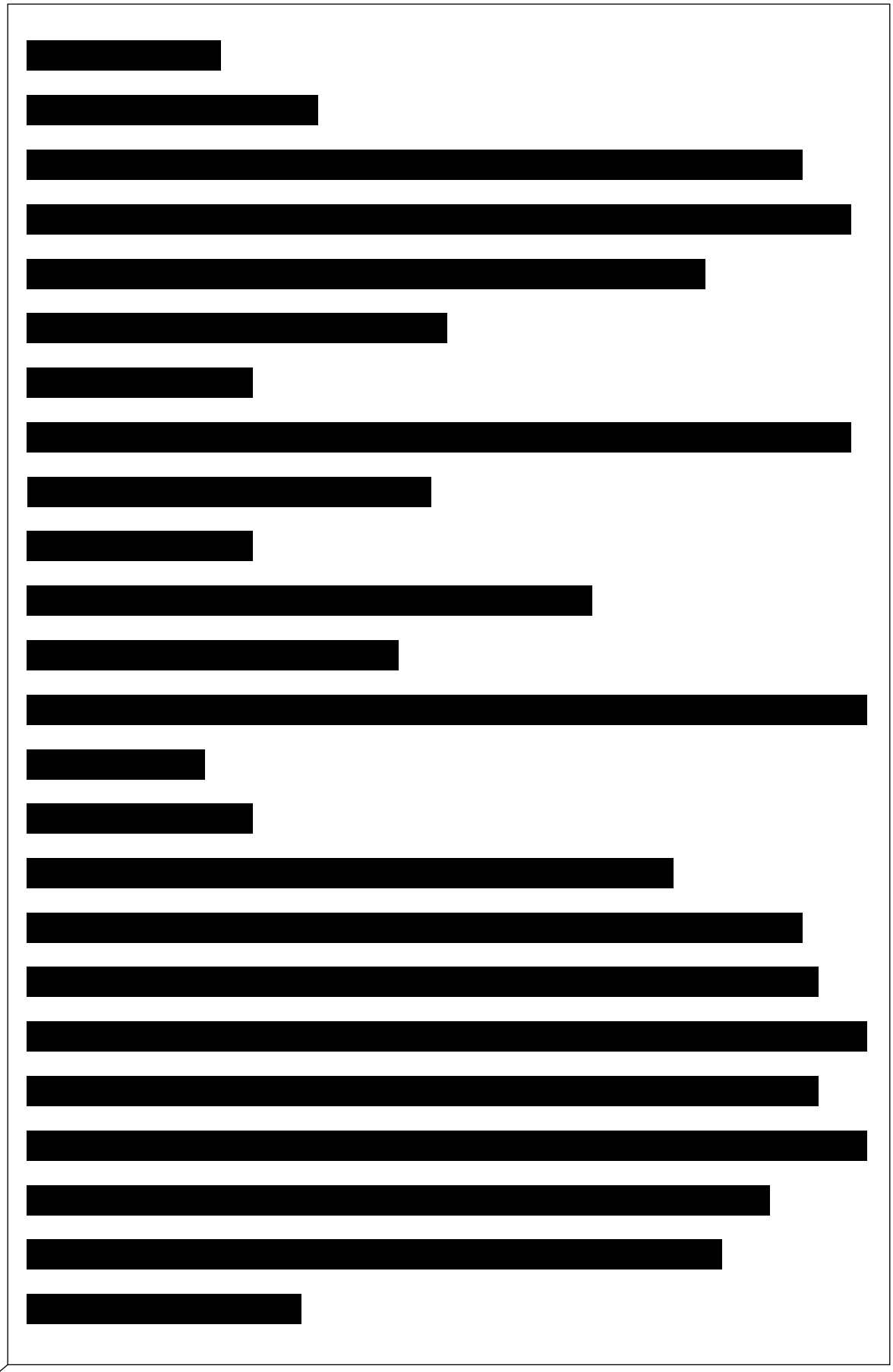
MR. McCARRICK: Okay. The court reporter is going to hand you what we're marking as Exhibit 315.

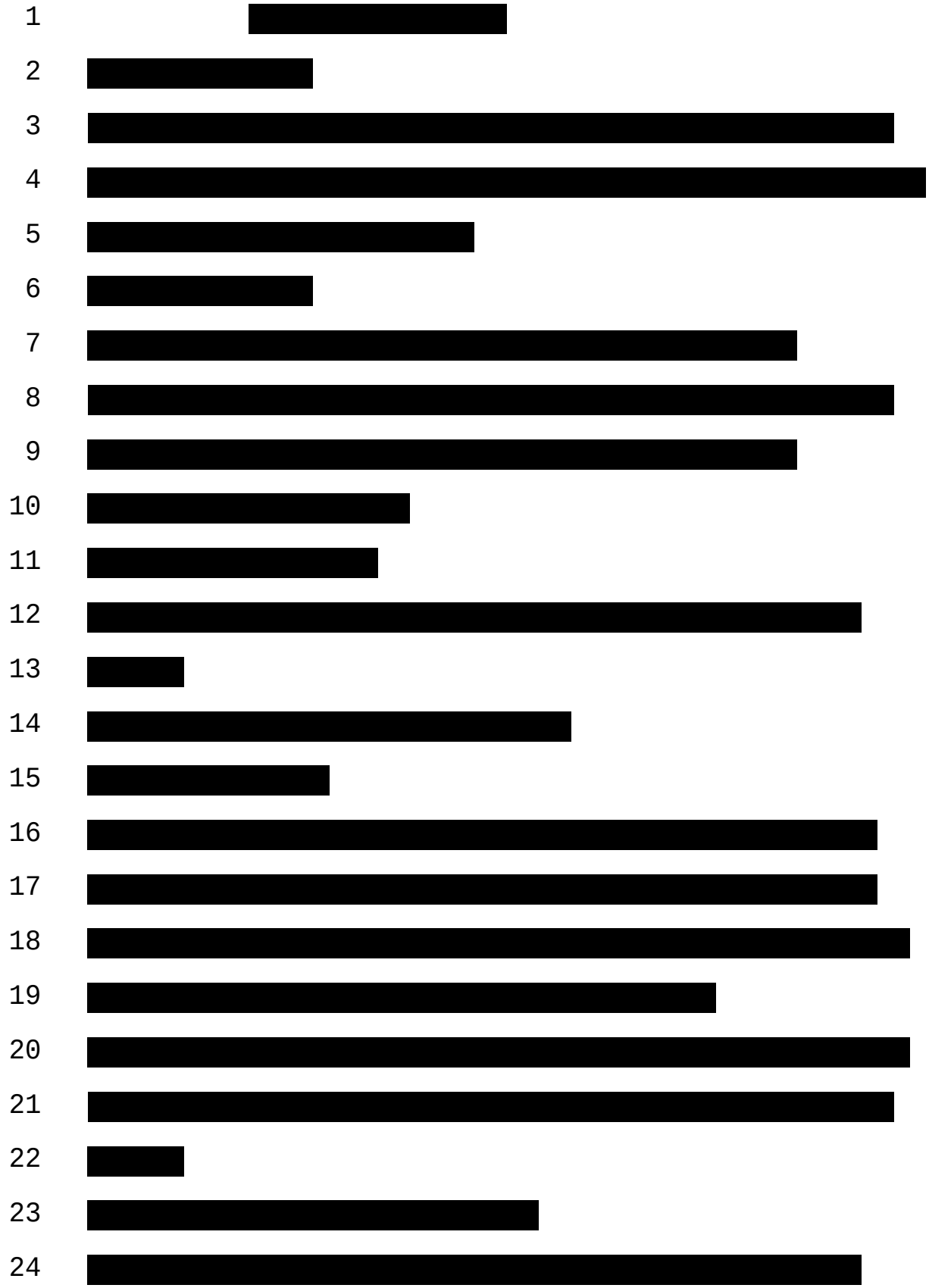
(Exhibit 315 was marked for identification.)

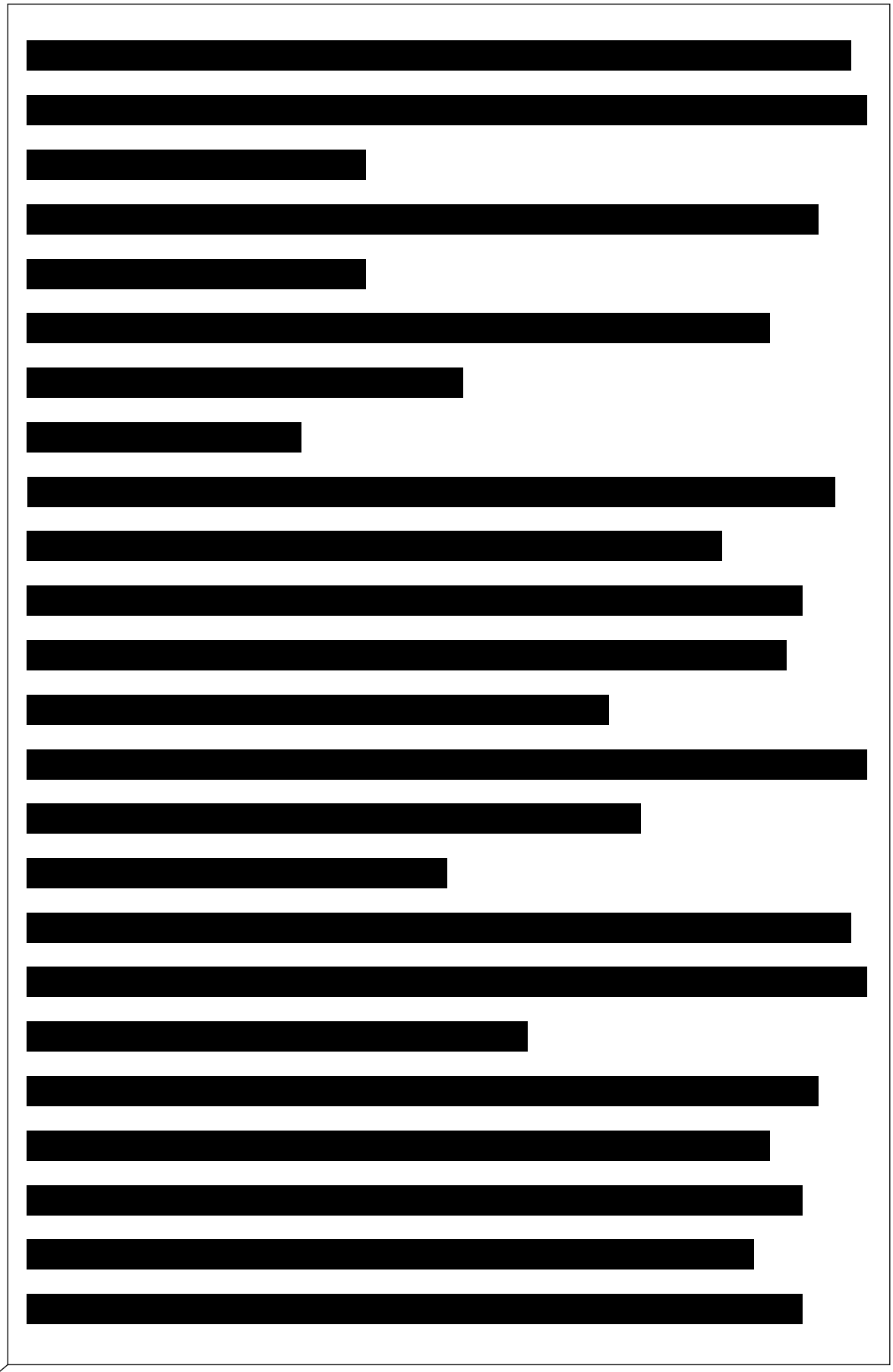
THE WITNESS: Okay.

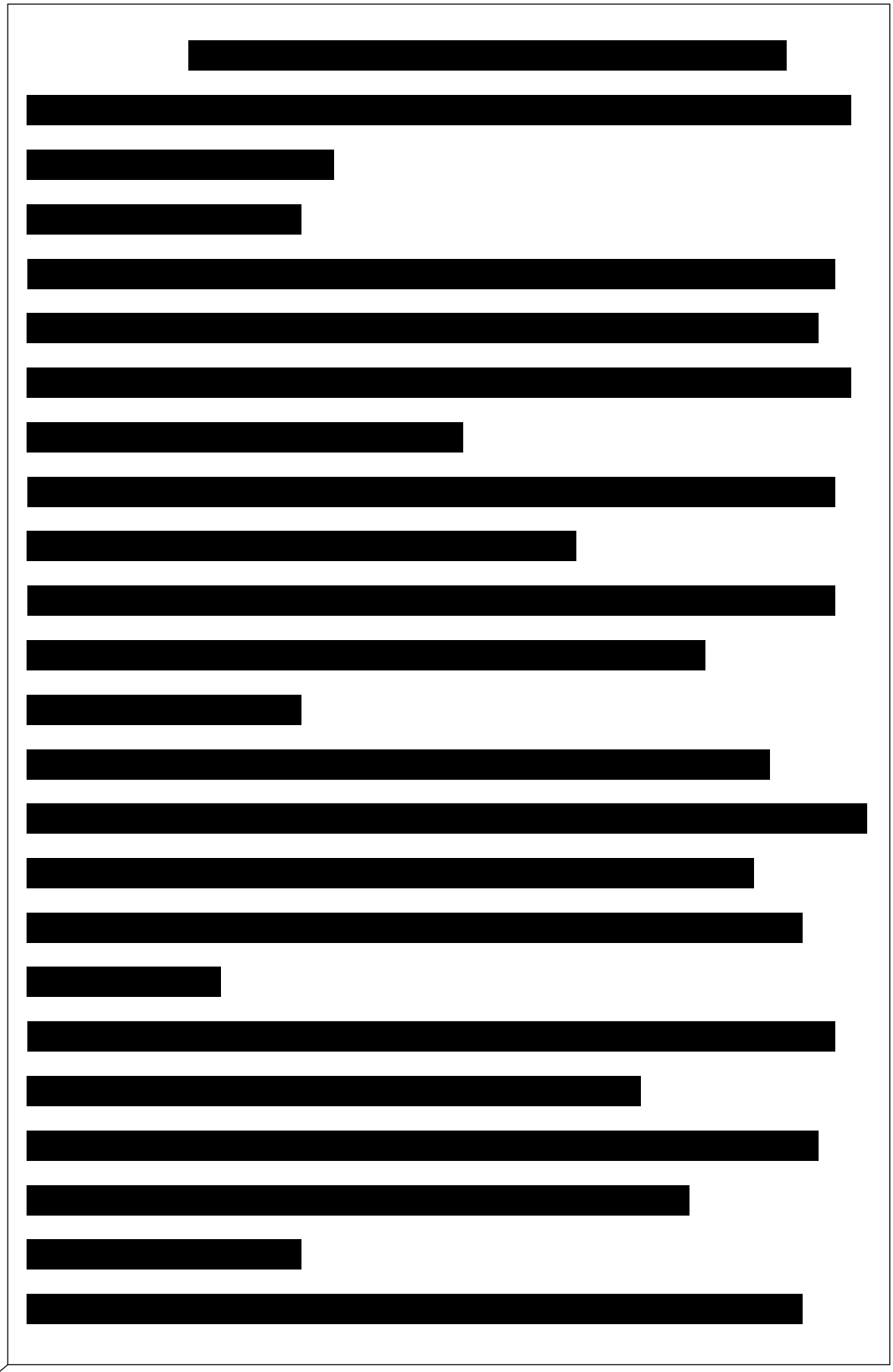
BY MR. McCARRICK:

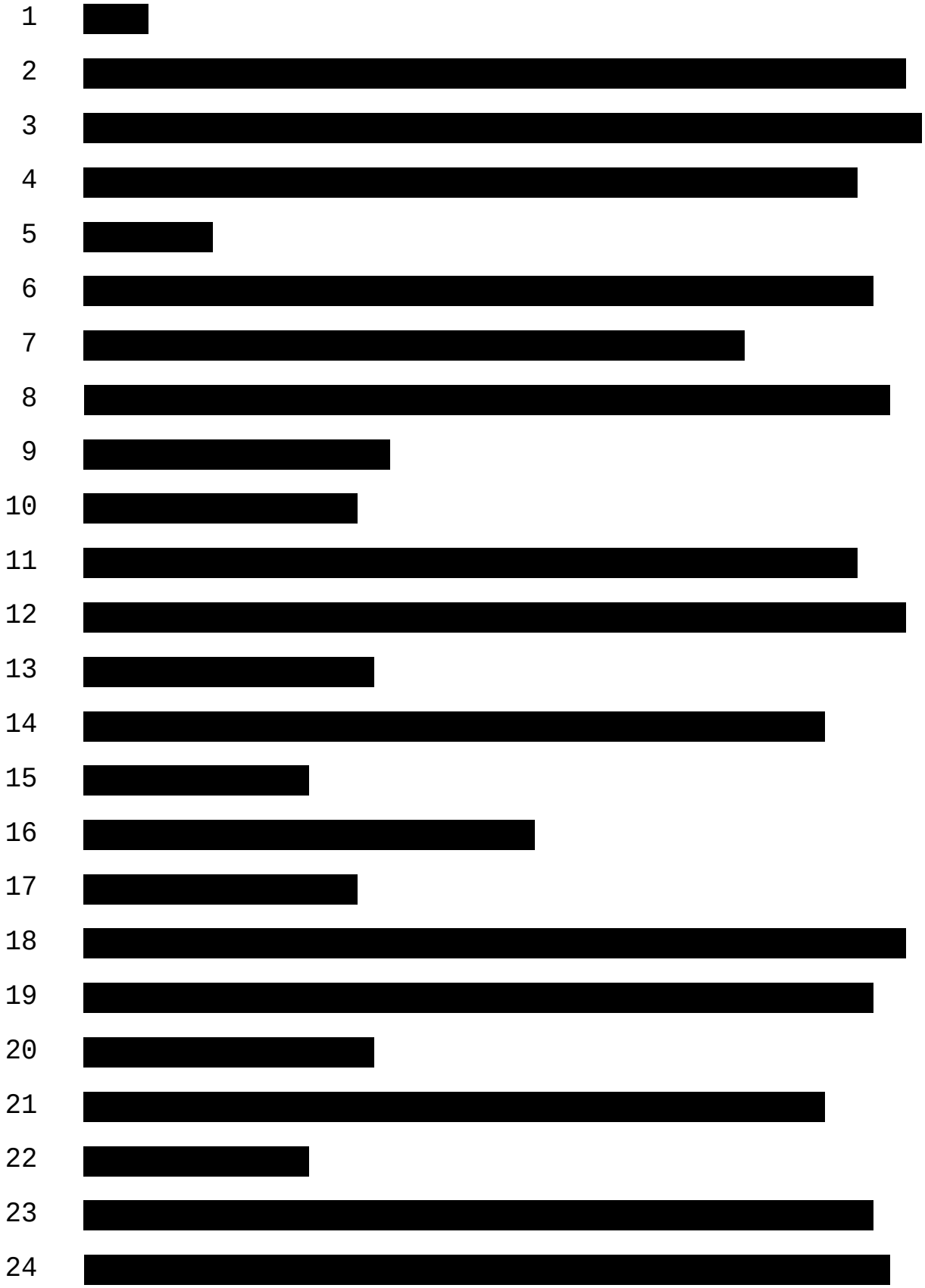
{{ [redacted]

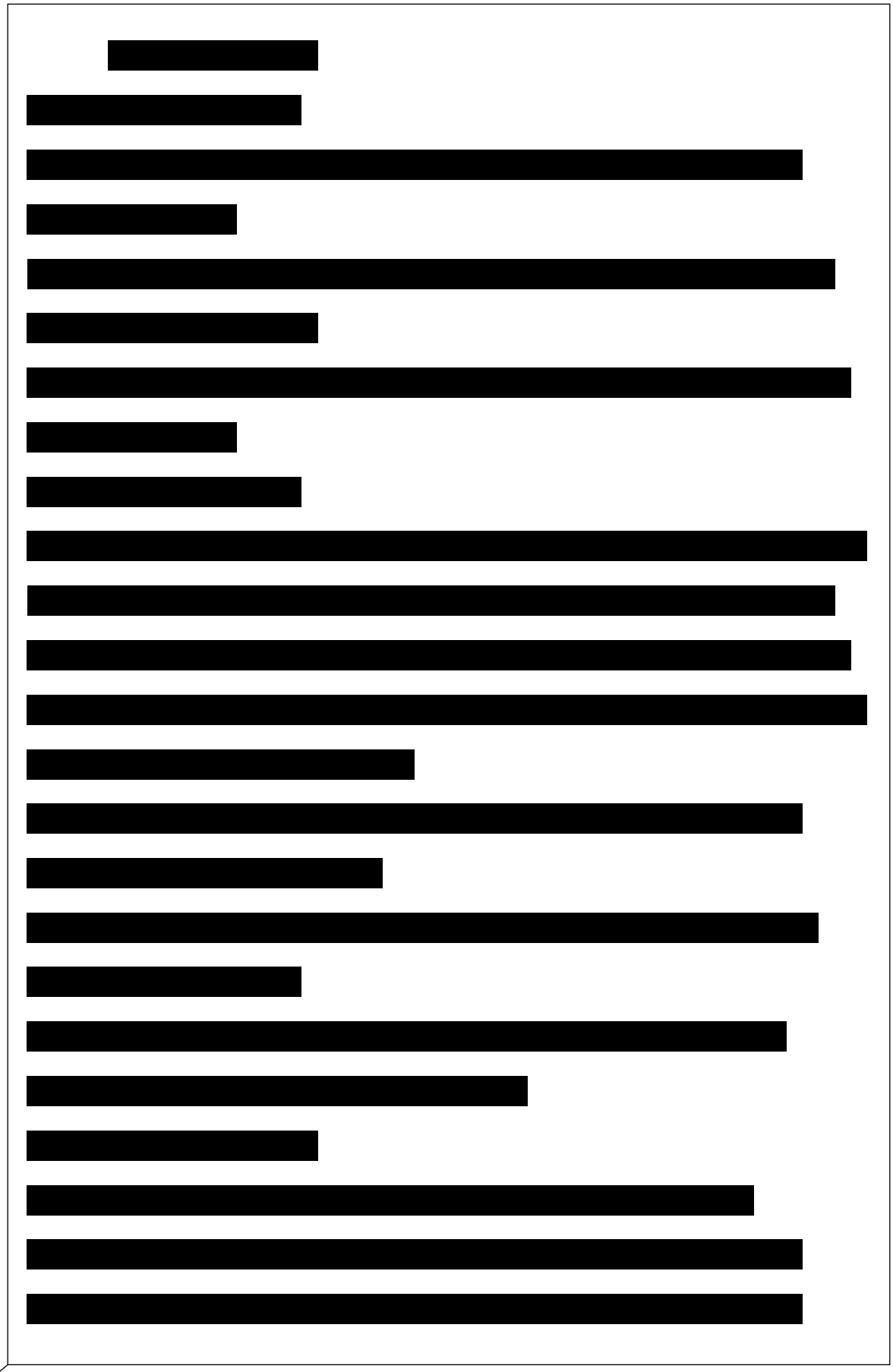












A. Yes, I heard a story about a presentation that he had given.

Q. Okay. Was that presentation at the SWARS conference?

A. I don't recall specifically.

Q. Okay. And what did you hear -- well, first, when you say you heard a story, who did you hear that story from?

A. I don't recall.

Q. Okay. And what story did you hear?

A. I don't remember the entire details of it, that Jim was speaking at a conference and made a joke that was misinterpreted.

Q. Okay. What's your understanding of what the joke was?

A. I don't -- again, I wasn't there. I don't know the specific words that were said.

Q. Okay. But your understanding is there was a joke made about retaliation against shippers, correct?

A. I believe there was a joke made about like price increases.

Q. There was a joke made about price increases on shippers that opposed the merger,

correct?

A. I believe that's correct.

Q. Okay. What is funny about raising prices on shippers that oppose the merger?

MR. ROSENTHAL: Objection to form.

THE WITNESS: I wasn't there, so humor is hard to interpret thirdhand. So I don't have an answer for that.

BY MR. McCARRICK:

Q. Fair enough. Can we agree that it would be inappropriate to raise prices on shippers because they opposed the merger?

A. Yes.

MR. McCARRICK: Mr. McLaughlin, thank you very much for your time and your answers.

One of my colleagues in the room, Mr. Fanchiang, has some questions, and then I believe there's a questioner, too, over Zoom who may have questions.

I think the videographer is going to need to go off the record to set that up so you can see the questioner on the laptop in front of you.

But that's all I have for you today.

THE WITNESS: Okay.

THE VIDEOGRAPHER: The time is 1:45 p.m. We're off the record.

(Whereupon, a recess was taken from 1:45 p.m. to 1:53 p.m.)

THE VIDEOGRAPHER: The time is 1:53 p.m. We are back on the record.

EXAMINATION

BY MR. FANCHIANG:

Q. Good afternoon, Mr. McLaughlin. My name is Eric Fanchiang. I'm from a law firm called Crowell & Moring, and I represent CSXT in this matter.

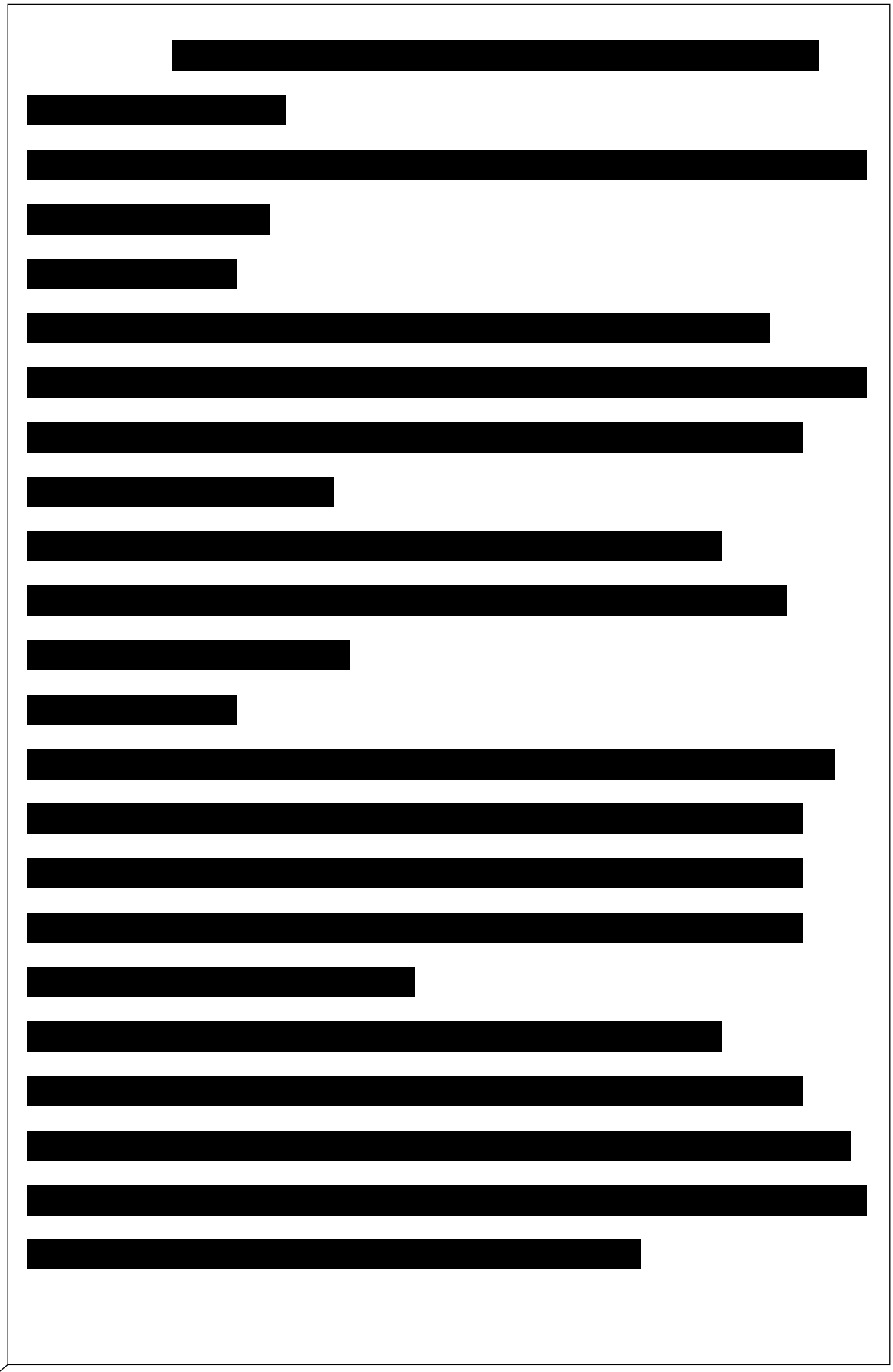
You understand you're still under oath?

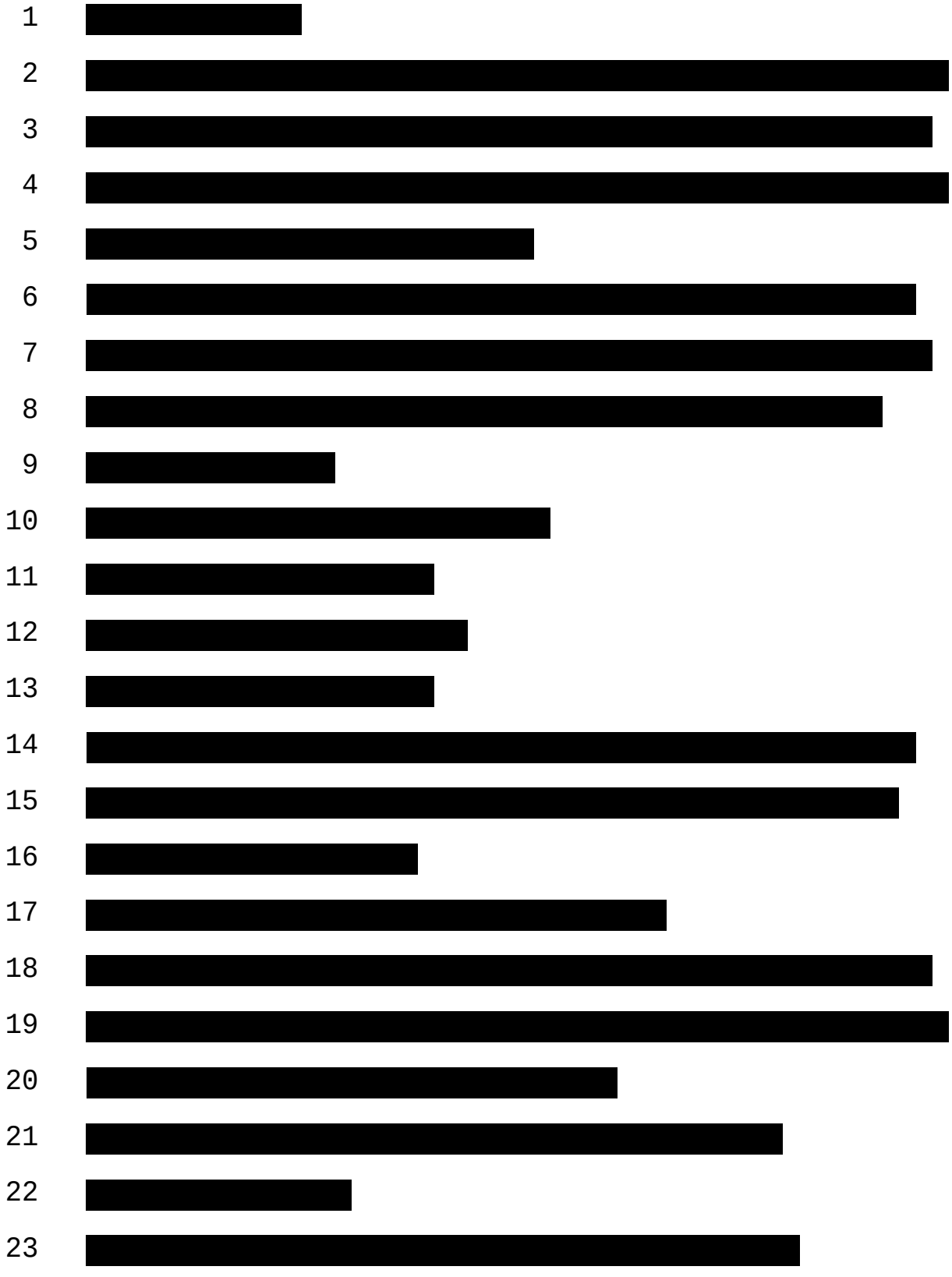
A. Yes, sir.

Q. How long have you been in marketing and sales?

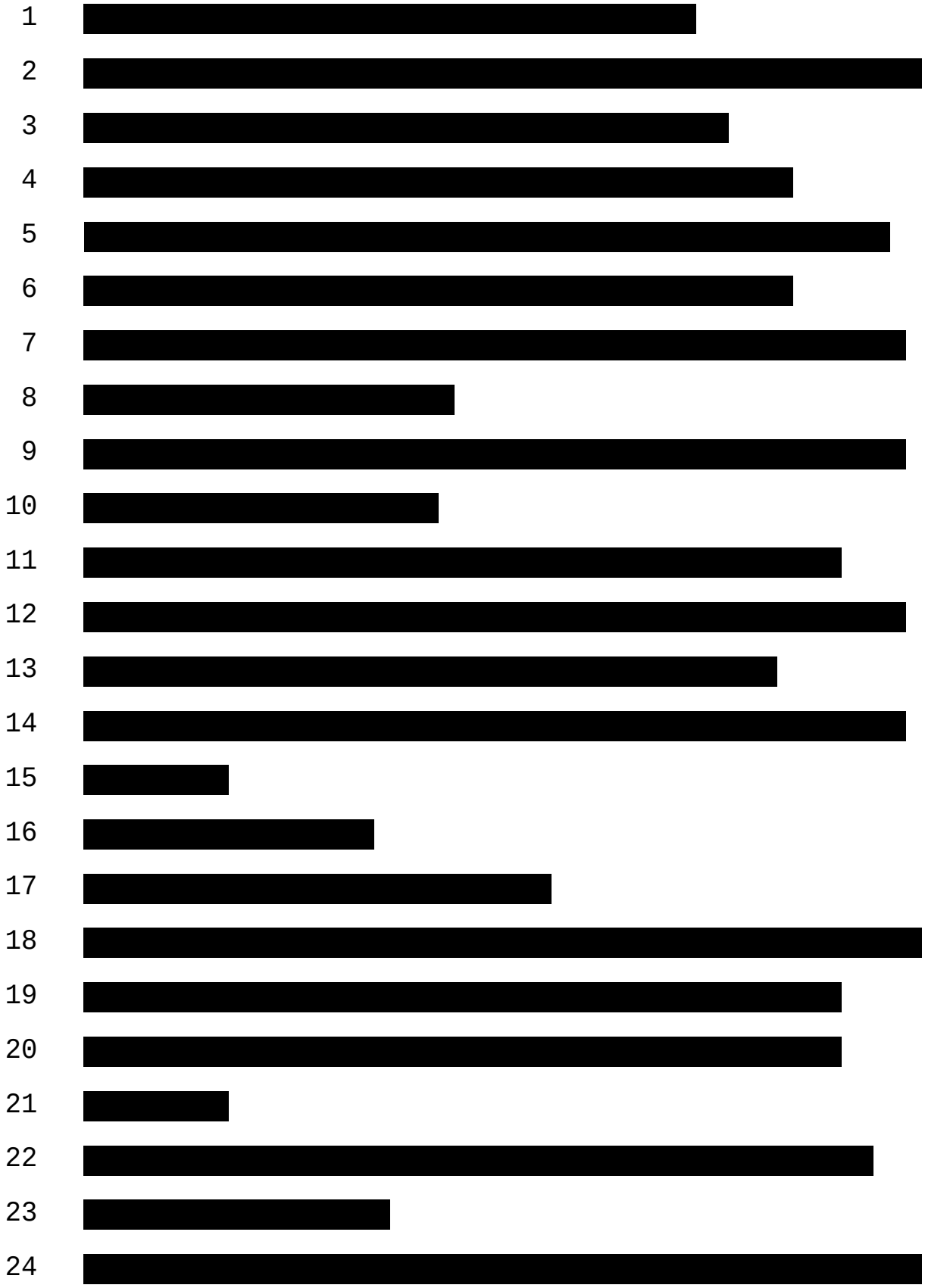
A. So call it 19 of my 25 years or so, I've been in marketing and sales.

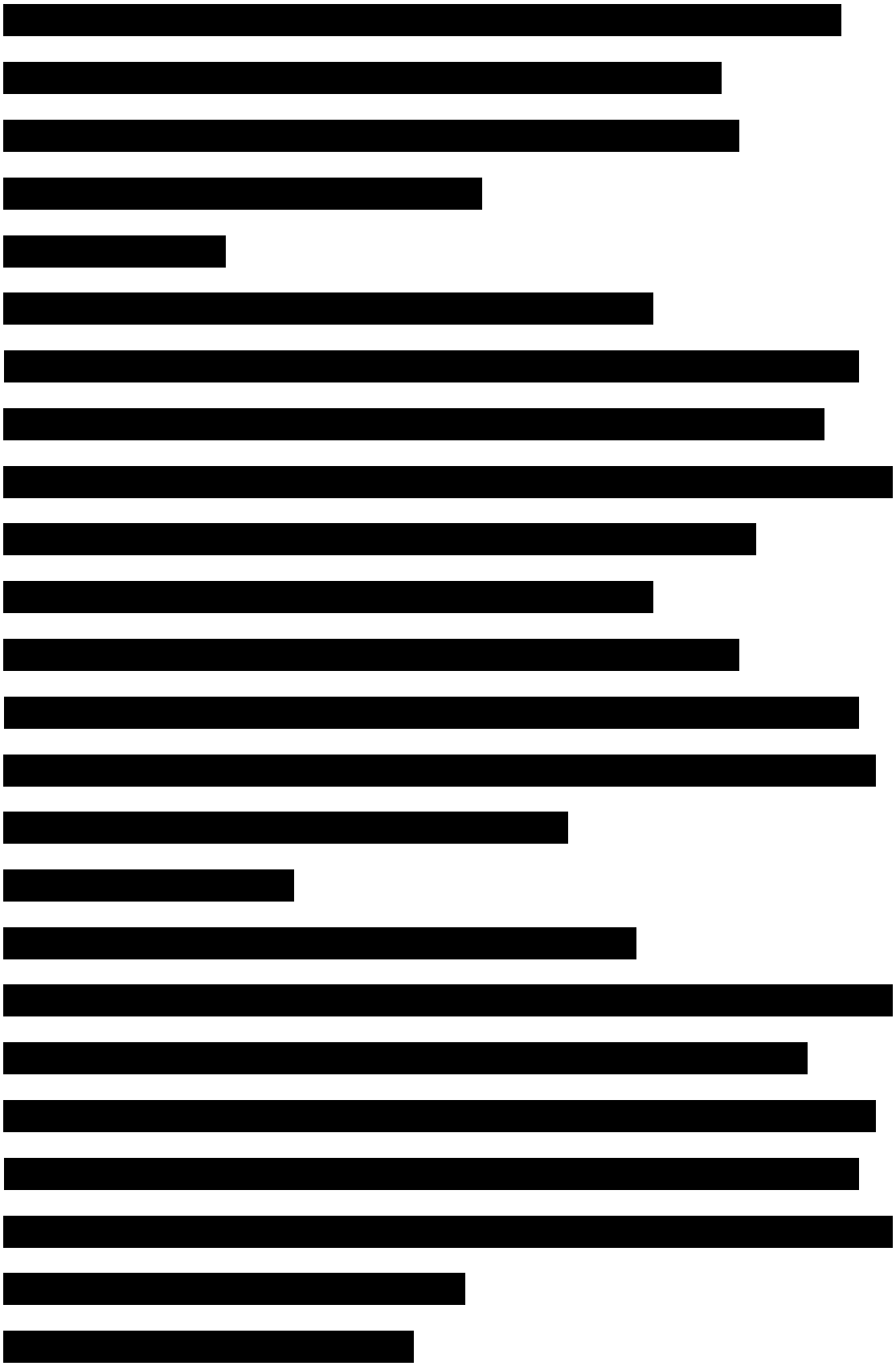
{ [redacted]

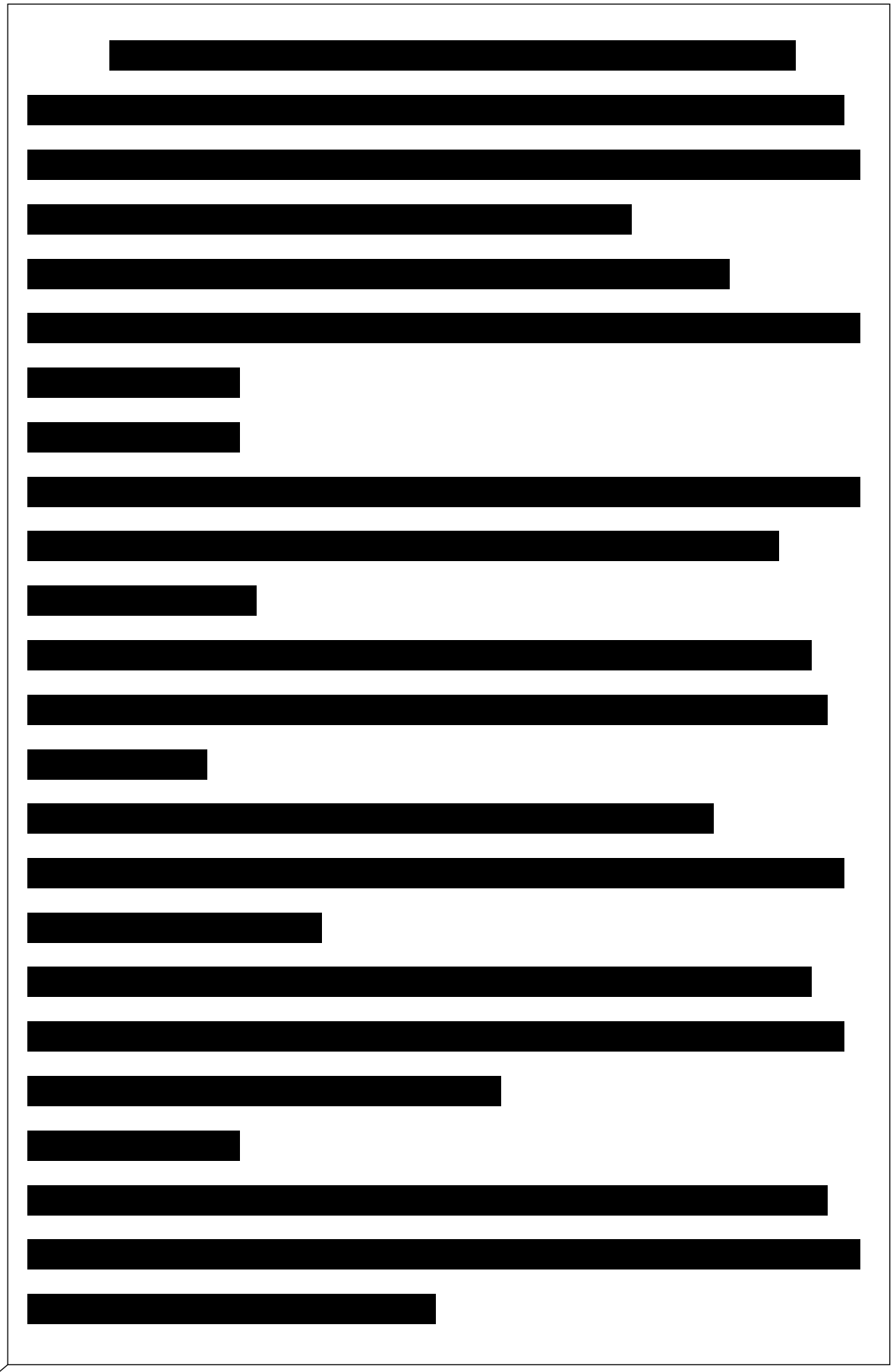






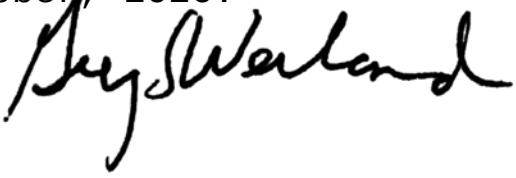






parties.

Witness my signature on this 5th day of October, 2026.



GREG S. WEILAND, CSR, RDR, CRR
License No. 084-003472

EXHIBIT 35

BEFORE THE SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

--CONTROL--

NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

Highly Confidential
Pursuant to Protective Order

CONFIDENTIAL PORTIONS INCLUDED

VIDEOTAPED DEPOSITION

The DEPOSITION OF MARK A. ISRAEL, Ph.D., taken on behalf of the BURLINGTON NORTHERN, at the Law Office of Covington Burling LLP, 850 Tenth Street, N.W. Washington, D.C., on October 15th, 2026, at 9:08 a.m. Eastern Daylight Time.

REPORTED BY: GREG S. WEILAND, CSR, RDR, CRR

JOB NO.: 23895

number in the column is 0.2407 asterisk-asterisk.

Do you see that?

A. I do.

Q. As an economist, how do you interpret that variable?

A. It says next to it. It says that through rates are 27 percent higher than single-line, single-line rates.

Q. So -- but 0.2407 is different than 27 percent. The numbers are different. It's not just a matter of moving the decimal point.

Why is that?

A. The -- this is a logarithmic function. So the dependent variable, the thing we're investigating is the log of the price, which is sort of -- a regression like that approximately gives you a percentage effect. But as you get farther away from zero, that approximation isn't exact, so you have to use what's called an "exponent function" to get the exact effect, and this gives you the exact effect.

Q. Okay. And that's what's referenced in Note 6 at the bottom of Exhibit 369; is that right?

A. Yes.

Q. Okay. The fact that the variable is positive, that means that the prices are higher where it is interline traffic as opposed to single-line traffic; is that right?

A. Yes.

Q. Okay. All right. I want to ask you some about some of the other variables here.

About halfway down Exhibit 369 is an independent variable called "Number of Class 1s at Origin."

Do you see that?

A. I do.

Q. And the results in that variable is negative .0149 asterisk-asterisk.

Do you see that?

A. I do.

Q. What's the economic interpretation of that variable?

A. This isn't what I'm economically studying. So I can give you -- like we did here, I can give you the numeric interpretation or what it means in the regression.

Literally, it means that when -- in the data, when we see one more Class 1 at the origin,

rates are 1.5 percent lower.

Q. Okay. And the next variable down, moving down the column, the number of Class 1s at destination is .0485 asterisk-asterisk.

Do you see that?

A. I do.

Q. And what's the interpretation of that variable in your regression?

A. In the regression, when we see one more Class 1 at the destination, prices are 4.7 percent lower.

Q. I want to ask you about these variables that are listed a little bit farther down.

The variable that's listed as UP, do you see that?

A. I do.

Q. And the variable there is .0435 star-star.

Do you see that?

A. I do.

Q. Okay. What's the appropriate interpretation of that variable in your regression?

A. It's -- I mean, it says -- again, this is a -- it says -- sorry.

This says that if it's UP, it's a

4.4 percent higher price.

Q. And moving down, the similar variable for NS is negative .1161 star-star.

What's the appropriate interpretation of that variable?

A. If it's NS, it's an 11 percent lower price.

Q. Fair to say that, you know, for this set of traffic that you're reporting on, the first column of Figure 10, all simple interline traffic, UP's prices are roughly 15 percent higher than NS's after controlling for all the controls you have in your regression?

MR. LUDWIN: Object to form.

THE WITNESS: They are -- I'm thinking through, if it's 15 percent or -- yeah, I think that's correct. I mean, those are what we call sort of railroad fixed effects, so they're capturing sort of everything that's not being measured otherwise about the railroad, its quality, its costs, whatever else is going on. And those fixed effects here are saying when you capture those factors in this regression, UP's prices are about 15 percent higher.

BY MR. CUNNINGHAM:

Q. Have you examined what would happen to pricing if NS's -- excuse me, what would happen to -- strike that. Let me back up.

Have you examined what would happen to the pricing on NS's network if Union Pacific's pricing strategy and policies were applied to NS's traffic?

MR. LUDWIN: Object to form.

THE WITNESS: I'm not entirely sure I understand the question or how I would do that. I guess I would -- so, no.

And as an economist, the way I'd do that is they seek to maximize profits, which I think they're each doing. They're merging, so they're going to continue to do that as a merged entity but with the changes I talk about in the report.

So I don't know what else I would do except analyze they're coming together, they're going to combine the two networks, and they're going to have the changes I talk about in the report. That's how I approach it as an economist.

BY MR. CUNNINGHAM:

Q. But, Dr. Israel, your regression indicates that NS's pricing is about 15 percent lower than UP's, after controlling for all the variables that impact pricing as identified in your verified statement.

How do you explain that difference, if not the pricing policies and strategies that the two railroads have taken?

MR. LUDWIN: Object to form, mischaracterizes prior testimony.

THE WITNESS: These are important controls among the controls you're talking about. These controls capture things like the cost structure and the set of routes that they're on and the quality and what customers they serve.

If I took out -- I mean, they're not supposed to capture pricing strategy. Again, I'm not sure exactly what you mean by that.

So if I took out these controls, I would put in a whole bunch of other controls to capture all of the differences between the condition that these railroads are in. I'm not -- I don't know that pricing strategy would

even be one of them, but they would be a litany of things about the different positions these railroads are in. These controls are doing a lot of work in the regression to capture all of that.

BY MR. CUNNINGHAM:

Q. Okay. I want to ask you again about the results you obtained in your regression for the number of Class 1s at origin and destination.

Am I correct that or understanding correctly that the proposed merger will reduce the number of Class 1s at origins and destinations where both UP and NS are currently present?

A. So the, quote-unquote, horizontal issues which you're describing have not been my focus. Mechanically, with nothing else done, the answer to that would be yes.

My understanding is that the railroads have made a commitment to give access to other railroads where there would be a reduction, I think, from three to two or two to one.

So I think the answer is "not necessarily," but that hasn't been my focus.

Q. Okay. I'm going to switch topics on you a

little bit. And I'll apologize in advance. We're working very hard to be efficient with your time today, so I'm going to bounce around a little bit on you. If you --

A. Use your time how you'd like.

Q. -- need to orient a little bit, please just speak up. But I want to ask you about CGP.

First off, what does "CGP" stand for as it relates to this matter?

A. Committed gateway pricing.

Q. Okay. And what role, if any, did you play in defining the parameters of the committed gateway pricing, or CGP, proposal in this matter?

MR. LUDWIN: Object to form.

THE WITNESS: You asked about defining the parameters?

BY MR. CUNNINGHAM:

Q. Yes, sir.

A. Very little, if any. I'd say basically none as far as defining the parameters.

Q. Do you know who defined the parameters of the CGP proposal in this matter?

MR. LUDWIN: Object to form.

THE WITNESS: Not specifically. The

Q. Okay. So you know what shippers are members, what industries are within the various groups that have combined to form the Joint Shippers Associations' submissions in this matter?

MR. LUDWIN: Objection, compound.

THE WITNESS: I would not say that I know that.

BY MR. CUNNINGHAM:

Q. Okay. All right. I'm going to ask you to take a look at Page 3 of this document first. There's a heading 1 on Page 3 that says "Statement of Interest."

Do you see that?

A. Yes.

Q. It says, "Joint Shipper Associations represent rail customers across multiple industries, including chemical, fertilizer, petroleum, and manufacturing, that play crucial roles in the American economy."

Do you see that?

A. I do.

Q. Any reason to question that description of the Joint Shipper Associations?

MR. LUDWIN: Object to form.

THE WITNESS: No.

BY MR. CUNNINGHAM:

Q. Okay. I want to ask you to turn to Page 30 of this submission. There's one full paragraph on Page 30. And for the record, I'm looking at Exhibit 371.

The second sentence of the paragraph begins, "The combined captive origins and destinations on UP and NS would give the merged entity a far greater concentration of closed industries than any of the other Class 1 carriers. That could substantially increase the merged carriers' leverage and negotiations with customers to favor its long-haul routes over alternative interline routes by tying its rates on single-line routes to the customers' willingness to use the UP long-haul routes on interline moves. This is an extension of the 'bundling' problem shippers have long complained about."

Do you see that?

A. I do.

Q. Have you, in your work in this matter, examined the concern that the Joint Shippers Associations describe in that blurb on Page 30 that

I just read?

A. I mean, I would say as part of ongoing work in this matter, I've had -- certainly considered and had conversations about bundling theories like this and what I would make of them as an economist.

Q. I guess I'm asking a more specific question.

Is there any part of your verified statements that address the bundling concerns that are described on Page 30 of the Joint Shipper Association submission?

A. I don't think this sort of bundling statement as it's made here is addressed explicitly in my verified statements thus far.

These bundling -- these sort of bundling theories have a history in economics. Economists generally find it difficult to find a bundling theory like this that holds up as a matter of economics.

So it's not something I addressed in my verified statements, but given that comments are coming in on this basis, you know, perhaps it's something I would reply to, and so it's something

that I'm -- that I've been considering.

Q. Okay. If your assessment of the proposed transaction is correct and it's going to yield cost savings and the elimination of double marginalization and competitive benefits generally, that would be a good thing for shippers, correct?

A. Yes.

Q. Okay. How do you explain shipper opposition to the proposed merger?

MR. LUDWIN: Objection to form, foundation.

THE WITNESS: I mean, I don't want to speak for shippers, so I don't want to speculate too much about what shippers have in mind.

I could say that there -- there hasn't been a transaction like this across national rail mergers, so it requires all of us to analyze something we don't have. And so we're all using -- doing our best to analyze it. I can bring the tools of an economist to bear, and I think those help to understand what will actually happen.

But we're all analyzing something new,

so -- and we have difference of opinion about what will actually come to bear, you know.

People have different incentives for what they're seeking from the process, but the shippers would have to speak for themselves about that.

But I do think when you have a transaction that's different in scope from anything that's occurred before, economic analysis can be particularly useful in projecting into the future for that.

BY MR. CUNNINGHAM:

Q. I want to ask you to look at another thing the Joint Shippers Associations say on Page 12 of their filing. It's about halfway down on Page 12. I'll give you a minute to flip to it.

The sentence I want to draw your attention to is, "Nor do they find the alleged benefits of new single-line service to be compelling and certainly not at the expense of losing competitive options and weakening competitors."

Do you see that?

A. I do.

Q. How do you reconcile this statement with

your conclusion that single-line service is preferable, including from a cost standpoint, to interline service?

MR. LUDWIN: Object to form.

THE WITNESS: I think it's a similar statement to my last answer. I have -- again, shippers have -- can speak for themselves about their views and their approach to the merger, and I don't want to speak for them. But, you know, I measure and find the benefits that I find and find them to be large.

The second half of this sentence says, "Certainly not at the expense of losing competitive options and weakening competitors," and I -- you know, I do analyze, you know, whether I think those are likely outcomes and find that they're not.

So my conclusion is it won't be at the expense of those things.

BY MR. CUNNINGHAM:

Q. Shippers currently experience both single-line and interline moves when they use rail service in the U.S., right?

MR. LUDWIN: Object to form.

THE WITNESS: That's true. Not across national single-line service, but they do have single-line service and interline service, yes.

BY MR. CUNNINGHAM:

Q. Okay. You talked a little bit about this earlier. We haven't spent time in your CV because it's long and dense.

But fair to say, Dr. Israel, that you've been involved in analyzing some mergers that have raised significant antitrust issues, right?

A. Yes.

Q. Including some transactions that have been blocked by courts?

A. Yes.

Q. Have you ever, in your career, seen an acquirer's leadership threaten that customers will be punished with higher prices if they didn't support an acquirer's deal?

MR. LUDWIN: Object to form.

THE WITNESS: Sorry. Can you ask that once more?

BY MR. CUNNINGHAM:

Q. Sure. In your career analyzing mergers, have you ever seen an acquirer's leadership threaten

customers that they would be punished with higher prices if they didn't support a merger?

MR. LUDWIN: Object to form.

THE WITNESS: Certainly not something that I'm aware of. Not something -- any interactions of that, not something I'm much involved with, but it's certainly not something I've been aware.

BY MR. CUNNINGHAM:

Q. If that happened, would it be troubling, from your perspective as an economist?

MR. LUDWIN: Object to form.

THE WITNESS: If something like that -- again, it's sort of outside the sphere of what economists do. We're sort of deep in the weeds of the transaction itself.

What you're describing sounds troubling generally, but it's not really the place that economists tend to analyze.

BY MR. CUNNINGHAM:

Q. All right. I'd like to switch topics on you. Again, apologies for the abruptness.

I want to ask you about Canadian National, or CN.

Are you familiar with CN as a Class 1 railroad?

A. Yes.

Q. Okay. How does CN's network compare to Union Pacific's?

A. It's smaller.

Q. Does it cover the same geography?

A. No.

Q. How about compared to Norfolk Southern's network?

A. It doesn't cover the same geography. I haven't measured the relative size of the two.

Q. Based on your work in this matter, do you believe that CN's network would be viewed as similar to UP or NS's from the perspective of a shipper?

MR. LUDWIN: Object to form.

THE WITNESS: You'd have to ask the shipper and their specific needs. I mean, they're obviously different networks. But I imagine that it would be up to the individual shipper and what they need to cover.

BY MR. CUNNINGHAM:

Q. Are you aware of any shipper expressing that access to CN is equivalent for them to access

to UP or NS?

MR. LUDWIN: Object to form.

THE WITNESS: I'm not aware one way or the other.

BY MR. CUNNINGHAM:

Q. Have you done any analysis of the two-to-one and three-to-two shippers that will receive access to CN if the transaction goes forward pursuant to the MOU between UP and CN?

MR. LUDWIN: Object to form and foundation.

THE WITNESS: It's not something that I've focused on. I haven't been focused on those sorts of, what I would call, "horizontal issues."

BY MR. CUNNINGHAM:

Q. All right. I want to ask you a little bit about some of the statements you make in your verified statements about investment and the addition of new facilities as a result of the deal.

I want to ask you to turn to Paragraph 126.

A. Of April?

Q. Of your April verified statement, yes.

Thank you.

A. Paragraph 126? Is that what you said?

Q. Yes.

MR. LUDWIN: So Page 59?

MR. CUNNINGHAM: Yes, sir.

BY MR. CUNNINGHAM:

Q. You're able to get there more quickly than I am.

Okay. In Paragraph 126, you say, "To support the additional traffic and integrated offering plan, applicants will also have" -- excuse me -- "will also make further investments totaling 364.6 million in terminals and yards." And then there's some description of those investments.

Do you see that?

A. I do.

Q. I want to ask you, why is investment needed to accommodate the growth that's forecasted as a result of the deal?

A. I'm not sure I understand the question.

What I can say is there was planning done by the railroads, and in some cases, the additional growth that could be attracted created a need for additional equipment, meaning you need additional

THE WITNESS: Well, that's not necessarily true, right. The response to decreased demand, depending on what it's from, might be to invest to try to improve your network to stimulate demand.

BY MR. CUNNINGHAM:

Q. Are you aware of an example of that in the rail industry, where rail has observed a decline in demand in a particular area of a particular economy and decided that the optimal strategy was to invest more in light of that lost demand?

A. I'm not sure I can think of one that is directly in response to lost demand, isolating lost demand.

Certainly, over the history of the rail industry, as performance has declined, railroads have had periods where they invest to improve network or to adopt new technologies. I mean, some previous mergers have involved significant investments that were, I think, attempts to improve networks and so on to improve performance.

I'm not sure, as I sit here, I can tie one strictly to a reduction in demand.

Q. Okay. I want to ask you a little bit

about the diversion analysis that you do, beginning on Page 62 of your amended verified statement, Exhibit 367, a couple of pages forward.

I'll give you a moment to get there.

A. Give me the -- where do you want me to go again?

Q. Page 62, Paragraph 135, and continuing on from there.

A. Okay.

Q. So this is a section of your verified statement called "Diversions," correct?

A. Yes.

Q. And the analysis that you do here is built on some estimates that others have done of traffic that will shift from truck and other railroads as a result of the deal, correct?

A. Correct.

Q. Okay. So I'm looking at Paragraphs 137 and 138. I believe you consistently cite Hunt and Hunt's verified statement as the basis for the diversion estimates that you use in this section.

Is that right?

MR. LUDWIN: Object to form.

THE WITNESS: I certainly cite him. Just

let me check to make sure it's -- you say "consistently."

BY MR. CUNNINGHAM:

Q. Yeah. If it's helpful, I'm just trying to be efficient with time. It's Footnotes 73, 76, 79, and the associated text.

A. That's correct.

Q. Okay. Did you do any work to evaluate the reliability of Mr. Hunt's analysis?

MR. LUDWIN: Object to form.

THE WITNESS: Yes.

BY MR. CUNNINGHAM:

Q. Could you describe what you did to pressure test or evaluate Mr. Hunt's work?

A. Yes. So what I did was review his methods generally, the approach he took to measure diversion.

So he had one methodological approach to measuring rail-to-rail diversions, which was based on a regression, or regressions, and he had another approach to measuring truck-to-rail diversions, which was based on lookalike analysis or comparator routes and areas.

So I evaluated that, the methods, and

they're methods that make sense to me, and I've used similar methods in other contexts, so I looked at the variables he used.

So the methods, broadly, made sense to me, but that's what I did. I didn't dive into the specifics of the calculations.

Q. Did you do enough analysis to feel confident that Mr. Hunt's analysis is reliable?

MR. LUDWIN: Object to form.

THE WITNESS: I would say I felt comfortable with his approach. But for the details of the calculations, I was relying on him.

BY MR. CUNNINGHAM:

Q. Did you do any work to assess whether Mr. Hunt's estimates are sensitive to alternative assumptions --

MR. LUDWIN: Object.

BY MR. CUNNINGHAM:

Q. -- alternative data sources, et cetera?

MR. LUDWIN: Apologies for interrupting you.

Now object to form.

THE WITNESS: No. I mean, beyond what I

just said, I'm relying on him for the specifics of the work.

BY MR. CUNNINGHAM:

Q. All right. I want to ask you, just briefly, about UP and NS's financial status. Let's start with Union Pacific.

Fair to say that Union Pacific is not struggling financially as an independent company currently?

MR. LUDWIN: Object to form, foundation.

THE WITNESS: I mean, broadly, yes. More detail what you mean by "struggling," we'd have to get into it. But, broadly, I think that's fair.

BY MR. CUNNINGHAM:

Q. Actually, let me honor Mr. Ludwin's objection.

Are you familiar with the financial performance of Union Pacific?

A. Only at a general level. It's not something I studied for this case, so not in detail, but at a high level.

Q. Okay. Are you comfortable with the statement that Union Pacific would remain as a going

concern operating as it has profitably without acquiring Norfolk Southern?

MR. LUDWIN: Object to form.

THE WITNESS: I'm comfortable with the first half of that statement, that they would continue as a going concern.

How profitable they would be, that varies a lot with macro forces. I haven't studied that. But I'm comfortable that they would continue to operate as a going concern.

BY MR. CUNNINGHAM:

Q. How about Norfolk Southern? Are you familiar with Norfolk Southern's business and financial performance?

A. At the same level, yes. I'm comfortable with the statement at the same level.

Q. Are you comfortable with the statement that, absent a merger with Union Pacific, Norfolk Southern would continue as an operating going concern for the foreseeable future?

MR. LUDWIN: Object to form.

THE WITNESS: Yes.

BY MR. CUNNINGHAM:

Q. Are you familiar with the service levels

that Union Pacific and Norfolk Southern provide customers currently?

A. Not in detail.

Q. Do you have any reason to believe that service is a problem for either railroad, as we sit here currently?

MR. LUDWIN: Object to form.

THE WITNESS: I don't.

BY MR. CUNNINGHAM:

Q. How about safety? Have you done any work to look at the safety, you know, track record of Union Pacific and Norfolk Southern?

A. It hasn't been part of my assignment. It certainly wasn't in my verified statements.

In continuing work in the case, I've been reviewing depositions, so there has been discussion of it. I've seen it there. I've read discussions, so at that level.

But it's not something I've offered opinions on in my verified statements.

Q. Okay. Based on, you know, the work you've done, you know, up through today, are you aware of any problems with the safety practices at either Norfolk Southern or Union Pacific that would be

remedied or addressed by the proposed merger?

MR. LUDWIN: Object to form.

THE WITNESS: I'm not aware of safety problems that they have.

I talk in the verified statement about investment incentives and how investment incentives, in general, are improved by the merger because of complementarity effects. I think that would apply to incentives to invest in things like safety, but I'm not claiming this because there's a problem today.

BY MR. CUNNINGHAM:

Q. Okay. I want to ask you about open gateway commitments. I believe this is discussed on Pages 44 and 45 of your amended verified statement in Exhibit 367. I'll give you a sec to flip to it.

A. Okay.

Q. And just for the record, Heading G on Page 44 is "Open Gateway Commitments," correct?

A. Yes.

Q. And you discuss these commitments in Paragraphs 90 through 92?

A. Yes.

Q. Okay. First off, what is an "open gateway

commitment"?

A. I mean, it's described pretty well in Paragraph 91, I think. It's a commitment to keep the existing gateways, which is the places in which the railroads exchange -- meet for interchanges today, places like Chicago, St. Louis, many other places, keep them open in perpetuity. So they'll continue to exchange, make interchanges with the other railroads in those spots on commercially reasonable terms.

And then it goes on for the, you know, to offer good economics, to provide justifications if prices are increased faster than inflation and so on.

But, generally, to continue to exchange traffic at the current gateways on good economic terms.

Q. I believe your verified statement uses the words "commercially reasonable terms" at the beginning of Paragraph 91.

What does that mean in practical matter?

MR. LUDWIN: Object to form.

THE WITNESS: I'm not a lawyer, so it's contractual, it's contractual and regulatory, I

Q. You touched on this a few minutes ago, but the complete information, and I think you put it, that literally means the railroads, the upstream sole-serving carrier, the two downstream railroads, in situations where, you know, that's the dynamic, I think that's the situation where the greatest foreclosure concerns have been identified?

MR. LUDWIN: Object to form.

THE WITNESS: One up, two down?

BY MR. van HOUWELINGEN:

Q. Yes.

A. Yes.

Q. Complete information in that situation would mean that the railroads both upstream, sole-serving, and the two downstream competitive railroads, they'd know each other's costs?

A. I mean, literally interpreted, that's what the model would say.

Q. They each know the rate the other railroads have offered to the shipper?

A. That depends on the structure of the model, but that can vary from model to model.

Q. They know -- they know how the shipper values the movement, its willingness to pay?

A. That's correct.
Q. The shipper knows each railroad's costs?
A. The shipper does -- well, the shipper doesn't need to know. The shipper just makes a choice based on the product and the price.
Q. So it's not -- if I understand, it's not your expert economic opinion that railroads generally have complete information about each other's costs for a particular interline movement, each other's rate offers, and the shipper's willingness to pay?
A. Yeah, it's not my opinion. I don't think there's any industry in the world where firms literally have complete information, yet economists have found those to be useful models as they capture the right economic forces and particularly industries where firms have reasonably good information, which I think is a fair characterization of the railroad industry.
Q. Can you explain that? Why? Why do you think this is an industry where firms have reasonably good information?
A. I mean, these are -- it's a well-established industry where these firms,

although they're different, have a lot of similarity to each other. There's a lot of people in the industry who have worked in these railroads for a long time. There are literally models that are used all the time to simulate railroads and predict costs.

You know, it's not a nascent high-tech industry or an industry in which the firms are drastically different from one another in terms of the technologies that they use.

Obviously, there are differences between them and things that they do, but if you just look at the range of industries that economists study and ask, where is an industry where the firms, you know, use broadly similar technologies, operate in broadly similar places, where the technologies are not drastically different than they were years ago, where there are literally models that simulate the industry and predict costs, I mean, those things are all true of railroads.

So if we're going to find a case where these models economists use all the time of complete information apply, railroads seems like a good candidate to me.

Q. Okay. You state separately in this, in your verified statement, that shippers likely have private information about their valuations for any shipment?

A. I think that's in the section on the Moresi model we were talking about.

So I think it depends on the shipper and how repeatedly that shipper has worked with the railroad. I think that's going to vary by shipper.

I think what I say there is, if you're going to look for a place for imperfect information or where the railroad has worse information, it's probably more about the valuation of the shipper than it is about other railroads' costs.

Q. Okay. We discussed a little bit, so did Mr. Cunningham, you have prior work in the rail industry.

Have you -- in that prior work, have you previously offered testimony or analysis about -- strike that.

In that -- in that prior work, have you offered expert testimony or analysis, in sum and substance, that rail contracts are privately negotiated and confidential, making it difficult for

competing railroads to observe or monitor each other's prices?

MR. LUDWIN: Object to form.

THE WITNESS: That sounds right. Like I said, these models don't necessarily assume people are seeing each other's prices.

BY MR. van HOUWELINGEN:

Q. Okay. You'd agree that NS, for example, does not typically know the rate that's being offered by a competing railroad like CSX for the same movement?

A. I mean, that sounds right. Again, in general, certainly, the prices that are paid to shippers by the different railroads are not necessarily going to be known in these models, and I agree with you, in general, they're not going to be known by the railroads.

Q. So I want to ask about interline partners.

In Rule 11 settings, at least, an interline partner will typically not know its partner's Rule 11 rate, correct?

A. So that's a question that I have asked my team, when people worked on -- or people I know, not the railroads, people who work in the rail industry

a lot.

And so my understanding of that is -- I don't know the complete answer to that question. My understanding is probably often they don't know, but sometimes they might.

Q. And that's not -- other than the question you asked, that's not something you've studied empirically in this case?

A. No, because the models I'm looking at, even the full information ones of Rule 11, are what's called "simultaneous models," and so there's no assumption that the railroads are knowing and reacting to each other's rates.

Q. When you discuss the Moresi model -- why don't you take a look at Paragraph 67.

And here -- here, you write, "A recent model developed by Moresi, et al., raises the possibility that foreclosure harms from vertical mergers may occur in settings where downstream competitors have private information."

Do you see that?

A. Yes. That's the hypothesis put forward by the paper.

Q. Well, you go on. You agree that, correct,

that an upstream noncustomer-facing railroad may have incomplete information about downstream railroads' costs?

A. What we were just discussing, I certainly agree it's a hypothetical possibility. I give my opinion that I think, in general, the information in this industry is pretty good. But certainly it's possible and happens in some cases that the railroad has incomplete information.

Q. And you agree that the downstream customer-facing railroad knows its costs, so does have complete information about its costs, and is likely to have better information about the shipper's demand than the upstream firm because it operates -- interacts directly with a shipper?

MR. LUDWIN: Object to form.

THE WITNESS: Yeah, I mean, really, in this paragraph, I'm describing sort of some of what's said in the paper.

I think that statement about the shipper's demand probably depends because there's repeated relationships and things in this industry. But if there's imperfect information about the shipper's demand, I think it's

reasonable to say there are probably lots of situations where the downstream firm knows that information better.

BY MR. van HOUWELINGEN:

Q. Have you done any empirical analysis of how frequently in interline rate-setting the downstream railroads have private information such that the sole-serving upstream railroad has incomplete information?

A. I don't know how I would analyze that empirically. I have not, no. I've considered changing -- changing the models to incorporate incomplete information about shipper demand.

Usually, we account for that by -- from the point of view of the firm, then, I wouldn't know the shipper's demand, so it would be like -- not to get too technical, but like my demand curve is downward-sloping. I just know if I lower my price, it's more likely I'm going to make a sale. I don't know exact because I don't know the exact chances I'm going to make a sale.

So, usually, economists handle that by just saying, "I don't know his exact value. I just have a downward-sloping demand curve. If I cut

price, more likely, he's going to want my product."

So I've done that theoretical -- or that modeling exercise. I haven't done an empirical exercise of exactly what that information looks like.

Q. Turning back to your analysis of negotiated nonlinear pricing in Section III-A, we talked about how you believe at least a very large percentage of interline rates are best modeled using nonlinear pricing, correct?

A. Yeah, I think that's fair. Again, I try to cover every case. So none of my opinions depend on what the percentage is, but I think it's fair that these are sophisticated players, so a large percentage are probably done with efficient, I would -- to be clear, efficient nonlinear contracts.

Q. Elsewhere in your verified statement, when you simulate price setting for interline traffic involving UP and NS or UP and CSX, you assume that railroads set linear prices, correct?

A. Where are we talking?

Q. Well, so your simulation of CGP, that assumes that railroads set linear prices, correct?

A. No.

Q. Well, you're going to make me go into your math.

Turn to Appendix C at C-3, Paragraph 10.

So in this paragraph, and I'm going to -- I'm going to try to stay out of, like, trying to name these italicized formulas and variables.

But in Paragraph 10, you state that shippers are charged a price that is a rate per car mile, correct?

A. Let me just correct myself.

Q. Yeah.

A. You're right. The model here is -- I was thinking about the pre-case and the amount they pay and the price. But you're right here that the model of CGP here assumes, at least within some range, that they can purchase more at the new price.

So at least within that range, you're right that that assumes there's linear pricing in that range.

Q. Your extension of the Moresi model in Appendix B also assumes railroads set linear prices, correct?

A. There I would have extended Moresi using whatever Moresi did, right. I mean, so I was -- the

purpose of the extension of Moresi was to make one change to the Moresi model and show how it reversed. I think the Moresi model had linear pricing, so I changed that assumption.

And, again, the Moresi model is a model of imperfect information, so in models of imperfect information, usually -- we usually assume once we're in imperfect information, we're not going to have efficient contracting, and so generally, we move to linear pricing.

But that would have been following what he did, but -- or they did, but changing one assumption to show how it reversed that result.

Q. Okay. And I think the gist of that answer was clear. But at one point, I believe you said, "I think the model had linear pricing, so I changed that assumption."

Just to be clear, the Moresi model had linear pricing, so you kept the linear pricing, correct?

A. Right. I only changed the assumption about the slope of the demand curve.

Q. So take a look at your Appendix A.

So this is where you lay out your modeling

to charge you less on the downstream side because that's going to generate more demand broadly for our services"?

MR. LUDWIN: Object to form.

THE WITNESS: That might -- I guess that's a reverse way of describing the same thing. I mean, but both -- both railroads are -- in the case of bilateral contracting externalities, if they're having an effect, both downstream railroads are worried that's what the upstream railroad is doing with the other guy. He's undercutting in order to pull more business.

BY MR. van HOUWELINGEN:

Q. Do you agree that bilateral contracting externalities can limit the scope of EDM and result in vertical mergers harming competition?

A. I believe that they are -- yeah, if they exist, and, I mean, you have to work through all the details, but they are a -- the theory of merger harm that I'm testing for, that if you show they exist, they can have that effect.

Q. Are the demands for transportation services from NS and CSX independent of each other?

MR. LUDWIN: Object to form.

THE WITNESS: No. If I understand your question, no. I think you're asking me, is shipper demand for the two services independent of the other service, and the answer is no.

BY MR. van HOUWELINGEN:

Q. Correct. Okay.

Do you agree that downstream competition makes foreclosure more likely?

MR. LUDWIN: Object to form.

THE WITNESS: No, certainly not in any -- I can't make any such general statement. It certainly could make foreclosure, as I would define it, meaning harm to downstream competition as a result of a merger, less likely. It's going to depend on all sorts of details.

BY MR. van HOUWELINGEN:

Q. You recall stating in your supplemental verified statement from July that railroad services are generally homogenous?

A. Yes.

Q. Does your contention that railroads provide homogenous services imply that downstream competition is more intense at dual-served stations?

A. More intense than what?
Q. Than where there -- the station at issue is not dual-served.
MR. LUDWIN: Object to form.
THE WITNESS: You're asking me if dual-served stations are more -- have more competition than sole-served stations?
BY MR. van HOUWELINGEN:
Q. Yes.
A. In general, yes.
Q. In your prior work in the rail industry, have you ever, in sum and substance, offered expert opinion testimony or analysis that there are characteristics of rail transportation contracts and services that make those services the opposite, the antithesis of homogenous, even where two railroads serve the same route?
MR. LUDWIN: Object to form.
THE WITNESS: It sounds like you're quoting. I'd have to see the whole context of that. And so I don't remember the context.
BY MR. van HOUWELINGEN:
Q. Well, I'm not quoting.
I'm asking, if you recall, have you ever,

in sum and substance, offered expert testimony or analysis that there are characteristics of transportation contracts and services that make those services the opposite of homogenous, even where two railroads serve the same route?

MR. LUDWIN: Object to form, asked and answered.

THE WITNESS: I don't recall having said that. "The opposite of homogenous" doesn't sound like how I would describe something, so I would have to see it.

BY MR. van HOUWELINGEN:

Q. How about "the antithesis of homogenous"?

A. Also --

MR. LUDWIN: Object to form.

THE WITNESS: -- doesn't sound like words I would usually use.

I certainly, as we said earlier, have testified that contracts can be very complicated and hard to see and very different from each other, so contracts are not homogenous, in general.

I think what I said is that makes rail competition rather intense, so I'd have to see

the context of what I've said.

As I sit here, my opinion would be that rail service is quite competitive because the ultimate service that's being provided is getting traffic from Point A to Point B and is fairly homogenous, so that leads to intense competition.

That intense competition doesn't take the form of simple prices all the time. It takes the form of rather complicated contracts that are not homogenous, and that leads to fairly intense competition in the form of those contracts.

BY MR. van HOUWELINGEN:

Q. Do you recall from your prior work in the rail industry that the STB has -- the STB has previously concluded that rail services are extremely heterogeneous, making price comparisons for purposes of collusive behavior difficult?

A. I think that's heterogeneous.

I don't know if they said that or not. I'm sure -- I mean, if they have, then it would speak for itself.

Q. I missed the last part of your --

A. If they have said that, I mean, the record will speak for what they've said. I don't recall that statement.

Q. Do you recall ever relying on the STB's statement to that effect?

A. I don't recall.

MR. LUDWIN: Object to form.

BY MR. van HOUWELINGEN:

Q. Do you disagree with that statement?

MR. LUDWIN: Object to form.

THE WITNESS: Can I hear it once more?

BY MR. van HOUWELINGEN:

Q. Sure. Rail services are extremely heterogenous, or heterogenous, making price comparisons for purposes of collusive behavior difficult.

A. Yeah, no. That's consistent with my last answer, so I'd have to see the whole context.

My opinion, as I said in the last answer, is that the underlying service of getting traffic from Point A to Point B is not completely but relatively homogeneous. But the contracts and the terms and the prices are quite heterogeneous.

And, therefore, I agree with the ultimate

conclusion that it's -- it makes the industry quite competitive and not conducive to collusion. But I think the key for me is that the service, the shipper wants to get something from Point A to Point B, is not completely but relatively homogeneous, and -- but the nature of the competition in contracts is quite heterogeneous.

Q. What is it about the nature of the competition in contracts that makes it quite heterogeneous?

A. I mean, contracts have different terms. Largely, they're -- they're not generally just linear prices, so there's volume commitments. They can combine different routes. They can be over different periods of time. They can, you know, offer different guarantees and so on.

So they're not really different services, but they're combining different routes, different guarantees, different volumes, as I said, which makes it very hard to go in and -- if you're two railroads and figure out what your competitor is actually charging for what.

Q. You say "different guarantees."

Like service guarantees?

A. Yes.

Q. Do you agree that industries where contracts are privately negotiated and lack exclusive dealing contracts between upstream and downstream firms may give rise to foreclosure effects?

MR. LUDWIN: Object to form.

THE WITNESS: I don't -- I don't think that statement -- I don't think that statement is -- either indicates foreclosure would or would not happen. I wouldn't claim that those conditions make foreclosure impossible or make it so it will happen.

I think the things I analyze in my verified statement are what you need to analyze.

BY MR. van HOUWELINGEN:

Q. Are you aware of the existence of exclusive dealing contracts between interlining railroads in the rail industry, so UP with CSX or NS --

A. No.

Q. -- for example?

A. I mean, not -- not -- nothing that says

then. I just don't know.

BY MR. van HOUWELINGEN:

Q. Fair enough. Now I understand what you're saying.

Can you turn back to Paragraph 41. And we looked at the last sentence of this paragraph.

I want to ask, the middle of the paragraph, you state that "A longstanding response to concerns about the risk of foreclosure from a vertical merger has been that the sole-serving carrier can charge the monopoly rate for the movement and earn the monopoly profit prior to a merger."

Do you see that?

A. I do.

Q. What you're describing there is a longstanding response to these concerns, that's what's been long referred to in the railroad industry as the "one-lump theory," fair?

A. Yeah, I think people use that term. I mean, to be clear -- yeah, I think people use that term. What I'm trying to say is that's a response people have made or a theory people have held. Over time, there has been any responses to it that you

have to test.

But I do think that theory in the railroad industry, in particular, has been given that name.

Q. Okay. And you elsewhere refer to that as the "one monopoly rent idea"?

MR. LUDWIN: Object to form.

THE WITNESS: Yeah. Again, I think both those terms are a little loose when applied to vertical mergers, but I know that term has been -- those terms are have been used in this industry.

BY MR. van HOUWELINGEN:

Q. Okay. Do you have another term you want to use for the longstanding response to such concerns?

A. I don't have a short, easy -- I mean, to me, as I said earlier, the relevant question is whether the premerger price is above the integrated level, but that's a mouthful.

So if we want to say one monopoly lump, that's what I mean.

Q. Okay. Can you turn back to Paragraph 17.

And I'm going to ask you about the third bullet, Page 11.

And there, you see you acknowledge that you can't rule out foreclosure based on theory alone in the circumstances where shippers buy according to non-negotiating pricing terms set via through rates received from railroads on the competitive dual-served side, correct?

MR. LUDWIN: Object to form.

THE WITNESS: I agree with that. That's relevant to the conversation we were having earlier about bilateral contracting externalities, for example, there. As we said -- you asked me then, also, can you rule it out based on theory. No.

BY MR. van HOUWELINGEN:

Q. And for that reason, you conduct certain empirical tests, which you -- of that situation, right, which you conclude reject standard theories of foreclosure?

A. Correct. In particular, I see them as tests for whether the price premerger is below the integrated level, and the tests reject that.

Q. You report the results of the empirical tests you're referring to here in Figures 3 through 9, correct?

A. I'm just confirming that's the full set.
Yes.
Q. What makes these tests empirical, as you refer to it there?
A. They're based on data.
Q. You implement these tests examining UP-NS actual rates as reflected in their 2019 to 2024 waybill data?
A. Yeah, I mean, actual contracts, choices by -- or choices by shippers and the railroads about which contractual form to use as well as rates.
Q. And these -- these tests include a regression analysis?
A. They do.
Q. And a regression analysis of those actual data to test whether rates are lower when dealing with a competitive carrier relative to dealing with a sole-served carrier, fair?
A. That's correct.
Q. In the interline context, shippers are able to choose whether to solicit rates, rate quotes from either the originating or destination railroad?
A. In general, yes.
Q. And shippers could choose whether to

to see the through rate you can get -- you can offer me for the whole move working with CSX"?

MR. LUDWIN: Object to form.

THE WITNESS: I guess that would be an example. I'm not positive how often that happens.

I mean, the one that seems more clear it could happen is you go get a Rule 11 rate from UP, and then you go to CSX and ask for a through rate. I mean, you could do it with two different railroads. It seems like that could happen. I don't know how often that happens.

BY MR. van HOUWELINGEN:

Q. To your knowledge, do interlining railroads in that situation charge a different rate or interline factor for their leg, depending on whether the shipper solicits a through rate or Rule 11?

A. Do they charge a different portion for their movement?

Q. For their portion of the movement.

A. Right. I don't know. My experience with railroad data is probably sometimes almost everything happens. But I don't know the answer to

that, how frequently, or the answer to that question as I sit here.

Q. In your modeling of premerger rates in connection with CGP, you assumed that railroads' optimal rates do not vary between through rate and Rule 11 negotiations?

A. Right. I mean, that's an implication of the forms used in the model.

Q. But it's your understanding that that can happen and does?

MR. LUDWIN: Object to form.

THE WITNESS: I mean, I don't know. Again, variation around what a model predicts, my experience with railroad data is there's always variation, and almost everything that can happen does happen.

So I suspect there's at least some such variation.

BY MR. van HOUWELINGEN:

Q. In negotiated contracts and private quotes, do railroads charge a fixed rate per carload or a total payment for a set volume?

A. It depends. You can see both. You can see either. A lot of contracts are this much money

for this much volume this many miles.

A lot of them are, like, you want to move -- you want to move this many ton-miles or this many carloads, this many miles, here's the price.

But there certainly are also some that are of other forms besides that.

Q. What flexibility do shippers have to transport more -- or fewer carloads after a contract is signed?

MR. LUDWIN: Object to form, foundation.

THE WITNESS: I mean, again, it depends on the contract, I think, and I'm not saying I've seen every one.

I think there are contracts that are specific to an amount of volume, and I think there are contracts that cover longer periods of time in which there's flexibility, where there's something like a linear price against which you can move more or less. I think that varies by contract.

BY MR. van HOUWELINGEN:

Q. Do some rail contracts have volume commitments?

A. Yes.

shipper receives a through rate on the competitive side, correct, in the context of linear pricing?

MR. LUDWIN: Object to form.

THE WITNESS: Can you say that once more? Sorry.

BY MR. van HOUWELINGEN:

Q. Yeah. I'm sorry.

So as we spoke about, the one situation where you could not rule out standard theories of foreclosure based on theory alone was the situation involving non-negotiated linear pricing, where the shipper receives a through rate on the competitive side, correct?

A. Correct, where the shipper approaches the -- gets his rate from the competitive side, yes.

Q. And because you couldn't rule that out in that situation, that's why you conducted the empirical tests in your verified statement that we've just been talking about, correct?

A. Correct.

Q. You believe you can rule out standard theories of foreclosure in all other rate-setting circumstances based on theory alone, correct?

A. Rule -- I would say "rule out," or I talk

about edge cases. Either rule out entirely or it's exceedingly unlikely.

Q. And that's what you did, correct? You ruled out foreclosure in those settings based on theory alone, correct?

A. In other settings, is it based on theory alone?

Q. You didn't conduct any empirical tests --

MR. LUDWIN: Sorry. Sorry. I think the witness was still answering your last question.

THE WITNESS: I'm thinking. If there -- I think "in the other settings" meaning Rule 11 or prices from the sole-served side --

BY MR. van HOUWELINGEN:

Q. Or the bargaining.

A. -- or bargaining, I think it is fair to say that, as a matter of economics, foreclosure is exceedingly unlikely.

Q. And you didn't conduct any empirical tests to confirm that foreclosure doesn't apply or is exceedingly unlikely in those settings, correct?

A. That's -- that's not the basis of any opinions that I've presented in my verified statement. They're not based on empirical tests for

those settings.

Those conclusions about those settings are based on what the economic literature has to say about those settings. Others have conducted empirical tests about those settings, but I did not.

So I wouldn't say it's theory alone. I would say it's what the economic literature has to say about those settings, some of which is empirical.

Q. Okay. I think I understand.

You haven't conducted any empirical tests in your work on this case using the data available in this case to confirm that foreclosure doesn't apply or is exceedingly unlikely in those settings, correct?

A. That's correct.

MR. van HOUWELINGEN: We've been going an hour. I don't know if you want to take a break? Keep going?

MR. LUDWIN: If you've got another few minutes, why don't you go ahead. I'm pausing. I'm looking at the court reporter and the videographer, if that's okay.

MR. van HOUWELINGEN: Okay.

MR. LUDWIN: But if you've got another half an hour, then we should break before your next break.

MR. van HOUWELINGEN: Not before my next break, no. So let me -- yeah, let's keep going.

BY MR. van HOUWELINGEN:

Q. Can you turn to Paragraph 42.

And here, you're talking about the situation where a shipper gets a non-negotiated through rate directly from the sole-served carrier, correct?

A. Which? Paragraph 42?

Q. Yes. So we're back talking about non-negotiated through rates.

A. Okay, yes.

Q. That's the situation you're talking about here?

A. In Paragraph 42, I'm talking about, yes, the situation where the shipper gets a price directly from the sole-served carrier.

Q. And in that situation, you state that "Nothing stops the sole-serving carrier from setting the monopoly price conditional on the input price

tested whether the breakdowns in the one-lump theory apply here because those breakdowns in the one-lump theory that have been identified exist on the one-by-two side, not the two-by-one side. People have not identified breakdowns in the so-called one-lump theory on the two-by-one side.

BY MR. van HOUWELINGEN:

Q. In your prior expert work in the rail industry, have you previously acknowledged that indirect forms of competition from other railroads can potentially constrain prices charged by railroads at at least some sole-served locations?

A. Yes. The way I would say that here, as I said earlier, even monopolists face constraints or they would price infinitely, so that's the reason that, pre- and post-merger, the single carrier will not price infinitely.

Q. And I think I understand your answer a moment ago, but let me -- you have not conducted any empirical study of the extent to which indirect competition from another railroad could stop Union Pacific from charging the full monopoly price at sole-served locations?

A. I'm -- in all of my analysis, I'm defining the full monopoly price as the price that a railroad without direct rail competition charges.

Q. And so you haven't -- you haven't conducted any empirical study and the extent to which indirect competition from another railroad could stop Union Pacific from charging -- strike that.

You haven't conducted any empirical study of the extent to which indirect competition from another railroad constrains Union Pacific's prices at sole-served locations, correct?

A. Not --

MR. LUDWIN: Object to form, asked and answered.

THE WITNESS: That's correct. Not in this case, I have not done such analysis.

BY MR. van HOUWELINGEN:

Q. You're generally familiar with the STB's authority to regulate the reasonableness of noncontract rates and shippers' ability to bring rate cases before the STB challenging the reasonableness of noncontract rates?

A. Right. Noncontract -- yes, they can

challenge noncontract rates as long as the commodities aren't exempt or the car types aren't exempt.

Q. And you were aware of that STB rate review authority when you submitted your report in this case?

A. Yes.

Q. You have not conducted any empirical study of the extent to which concern about triggering an STB rate challenge constrains UP from charging the full monopoly price at sole-served locations?

A. This would be the same answer I was giving before. I would take that as a thing that's constraining what I'm defining to be the monopoly price.

Q. Okay. And let me ask the second version of that question.

You have not conducted any empirical study of the extent to which concern about triggering an STB rate challenge is currently constraining Union Pacific's pricing at sole-served locations, correct?

A. Correct.

MR. van HOUWELINGEN: Why don't we take a

break.

THE VIDEOGRAPHER: Going off the record. The time is 2:41.

(Whereupon, a recess was taken from 2:41 p.m. to 2:58 p.m.)

THE VIDEOGRAPHER: We are on the record. The time is 2:58.

BY MR. van HOUWELINGEN:

Q. Hello again, Dr. Israel.

A. Hello.

Q. Turning back to your bargaining model and analysis of the negotiated nonlinear contracts.

A. Okay.

Q. And here again, you ruled out foreclosure in such settings based on theory alone and did not conduct any empirical analysis to confirm that theory, correct?

MR. LUDWIN: Object to form, mischaracterizes prior testimony.

THE WITNESS: Nonlinear contracting, efficient nonlinear contracting setting, that's what you're asking about?

That's correct. In that setting, that's based on economic theory.

determined, it has -- it's sort of different than our common English usage of the word.

Our bargaining leverage in these models is a parameter that has to do with -- sounds strange, but relative time preference of the two bargainers. I don't know why the merger would affect that.

So, yes, it is my economic opinion that the merger will not affect that.

A bigger problem is in antitrust or in evaluation of mergers in any context, if we just say that the merger can affect the bargaining split, bargaining leverage term, you know, it would just give you a way to say every merger harms, has a harm.

It's not something -- this time preference bargaining parameter is not something that can be measured. So that's why we treat it as a parameter and don't change anything.

BY MR. van HOUWELINGEN:

Q. Okay. Let me step outside of the -- this bargaining model for a second.

Is it your expert economic opinion that a merger of Union Pacific and Norfolk Southern cannot

affect the bargaining leverage of any of the parties to interline rate negotiations?

MR. LUDWIN: Object to form.

THE WITNESS: It is a technical term in these models, so I need to know what you mean by "bargaining leverage."

BY MR. van HOUWELINGEN:

Q. Well, the negotiating leverage.

MR. LUDWIN: Object to form.

THE WITNESS: I still need to know what you mean, just because it's a very technical term in these bargaining models.

BY MR. van HOUWELINGEN:

Q. Can the merger of Union Pacific and Northern Southern [sic], could it affect the outside options available to shippers negotiating for moves from the west to the east and vice versa?

MR. LUDWIN: Object to form.

THE WITNESS: Affect the outside options?

I think it -- it could, technically, affect the outside options in a bargaining game. That's -- I don't think there's an economically coherent theory in which that causes harm, given the evidence in this case,

but it could affect the outside options.

BY MR. van HOUWELINGEN:

Q. Have you conducted any empirical analysis in this case of that possibility?

A. I have conducted the empirical analysis of whether -- what I've done in this case is relevant to whether such a theory could -- could be a theory of harm in this case, and it shows that it could not.

Q. And you're referring, again, to Figures 3 through 9?

A. Yeah, that's the empirical analysis that would speak to that.

I also think just that the nature of the way bargaining plays out in this industry would explain why that would not be a theory of harm.

If someone were to advance that theory of harm and I had to respond to it, I could explain all that. But I don't -- based on my empirical evidence and the nature of bargaining in this industry, I don't see how there could be an economically coherent theory of harm based on that. But I do think it's possible that the merger changes the outside option.

Q. You've conducted no empirical analysis to demonstrate the existence and magnitude of Ricardian rents on interline movements in the rail industry?

MR. LUDWIN: Object to form.

THE WITNESS: Not Ricardian rents, per se. Ricardian rents in that example was the thing that generated double marginalization, and I've done empirical studies that speak to the size of double marginalization, but not Ricardian rents as a specific source of them, of double marginalization.

BY MR. van HOUWELINGEN:

Q. You've conducted no empirical analysis to estimate profit margins relative to each other and, you know, their extent on interline moves in the situation where a route is sole-served by Union Pacific in the west and dual-served by CSX and NS in the east, correct?

MR. LUDWIN: Object to form.

THE WITNESS: Sorry. I didn't follow all the pieces of that question.

BY MR. van HOUWELINGEN:

Q. So we're talking about this situation, a route is sole-served by Union Pacific in the west,

model would apply, so that's -- sorry. One second.

There's private information on the downstream side?

MR. LUDWIN: Object to form.

THE WITNESS: But that's the Moresi model.

BY MR. van HOUWELINGEN:

Q. Okay.

A. I don't --

Q. But your extension is the same conceptual traffic but allowing demand -- adding a downward-sloping demand slope?

MR. LUDWIN: Object to form.

THE WITNESS: I have not done an empirical analysis of where all that model applies. I don't think it's a particularly good model of the railroad industry.

I'm not claiming that Moresi model applies very often. I do think downward-sloping demand applies probably most places. That's what we generally expect in economics.

BY MR. van HOUWELINGEN:

Q. So hitting a couple other topics briefly before I finish, Dr. Israel.

Do you believe that shippers who do not

have access to the new UP-NS single-line options, assuming the merger is approved, will benefit from the proposed transaction?

And let me -- and I apologize.

Let me take out of that question CGP, right? Set aside CGP, so the merger itself.

Do you believe that shippers who do not have access to new UP-NS single-line options, assuming the merger is approved, will benefit from the proposed transaction?

MR. LUDWIN: Object to form.

THE WITNESS: Yes. Not as directly, but as you said earlier, it's a -- in other cases, I certainly looked at and testified to the importance of things like geographic and product competition.

So I think more competitive, more efficient rail affects -- benefits shippers in ways that aren't all direct rail competition.

BY MR. van HOUWELINGEN:

Q. Do you agree that improved operations along one corridor may improve the efficiency among other corridors?

MR. LUDWIN: Object to form.

THE WITNESS: I do.
BY MR. van HOUWELINGEN:
Q. Do you agree that economies of scale and density are features of the rail industry?
MR. LUDWIN: Object to form.
THE WITNESS: Yes. Those terms mean a lot of different things. So, yes, in the specific context of the way they work in the rail industry, but yes.
BY MR. van HOUWELINGEN:
Q. In your simulation model in Appendix C, you calculate average margins using the total revenue and total variable cost information from the Confidential Carload Waybill Sample for 2023.
Sound right?
A. I wanted to confirm, total revenue, and -- yes, but it's revenue and variable cost information from the Confidential Carload Waybill Sample from 2023.
Q. Is the variable cost referenced -- well, take a look at C-14.
MR. LUDWIN: C-14, you said?
MR. van HOUWELINGEN: Yeah. It's Paragraph 37.

MR. LUDWIN: Is there a question pending? Or you're just going there?

MR. van HOUWELINGEN: No, no, sorry. It was an aborted question, and then I realized I needed a reference for Dr. Israel.

BY MR. van HOUWELINGEN:

Q. So now we're at Paragraph 37. That's where you reference the total revenue and total variable cost information you obtained from the Waybill Sample.

Do you see that?

A. I do.

Q. Is the variable costs referenced there based on actual railroad costs?

A. It's what's in the Waybill Sample. I think that's from URCS costs.

Q. Okay. I think so, too.

URCS, that's the Uniform Railroad Costing System, correct?

A. Yes.

Q. And what is that?

A. It's a sort of estimated costing system that gets used in the railroad industry, so it's not -- it builds in a number of factors it applies

so-called former theory breaks down.

BY MS. HYNES:

Q. I want to go back to monopoly pricing.

A. Okay.

Q. So earlier, I believe you testified that sole-served carriers face no direct competition on the route when it sets the price; is that right?

A. That's how I would define a sole-served carrier.

Q. Yeah. And so that's why -- strike that.

So does that analysis assume that the sole-served carrier is contracting on just one route?

A. No, you could contract on other routes. He just doesn't face direct competition on the route in question.

Q. So where a sole-served carrier is negotiating a single contract with a shipper that includes multiple routes, some of which it is the sole-served carrier and, therefore, a monopolist, and some of which it is not, might that carrier be charging less than monopoly price on the sole-served routes?

A. I mean, he has one contract, so you

might -- sometimes, it's hard to sort out the prices, but the sole-served carrier has monopoly power or monopoly presence on the sole-served route. So economics, as it has studied that question, would say you would exercise that power fully on those routes.

People have raised this possibility that somehow bundling those routes together kind of changes where -- or causes them to not charge the monopoly prices or somehow changes things under bundling. But I don't think any coherent economic theory like that has been developed.

Q. Are you aware of whether, in the rail industry, it's a common practice for shippers to bundle together discussions on routes with carriers?

A. Yeah, I think it is. I mean, I think that's a sort of efficient way to negotiate.

Q. And so where in your report do you analyze -- or strike that.

Does your report address -- strike that.

Do the theories in your report still apply in the case, like fully in the case where shippers are bundling their routes in negotiations with the carriers?

A. Yes.

MR. LUDWIN: Object to form.

THE WITNESS: They do. I mean, they're theories. They stand on their own. I mean, it's possible somebody could try to advance a separate theory that says bundling changes things. Again, if I -- someone advances such a theory, I'll look at it and respond to it.

I haven't seen a theory like that in economics that holds up. But if I see one in this case, I'll look at it and respond to it.

But the theories I've advanced stand on their own. They're not theories of bundling. If I see a theory of bundling, I'll look at it and respond to it.

BY MS. HYNES:

Q. If it's a common practice for shippers today to bundle together discussions on routes with carriers, why didn't you address that in your opening report in the case? Why is it that you're waiting until -- seeing what people say in the comments that come in in November to decide whether or not to address that?

MR. LUDWIN: Object to form.

THE WITNESS: There's lots of common practices I'm not addressing. I'm trying to address the theories of potential foreclosure.

So the theories of potential foreclosure in my report are the ones that I address, right. If somebody advances a reason why that practice creates a theory of foreclosure, then I'll respond to it.

But nothing about the presence of bundled routes, convenient to negotiate over a bunch of routes, none of that changes any of the theories of foreclosure that I did study.

BY MS. HYNES:

Q. Are you familiar with the term "geographic competition"?

A. Yes.

Q. What is your definition of the term "geographic competition"?

A. I mean, it's generally a way in which there can be competition, not direct competition, but competition from another rail route effectively.

So an example would be that a shipper can receive an item that it needs from another origin, so it might get its grain or something from a

different location, so there's competition created by two different routes. I would call that indirect competition.

Q. Okay. So in that scenario, indirect competition or geographic competition, can the shipper avoid -- that depends on the shipper being able to avoid or threaten to avoid using a particular railroad by obtaining the same product from a different source?

MR. LUDWIN: Object to form.

THE WITNESS: Correct, the competition is indirect in that form. The way I would define that here is that, as I said earlier, I think there's always something out there that constrains, a "monopolist" in other industries that have some other form of indirect competition. Like, I might switch to some product that's outside the relevant market.

That's sort of what we're describing here. It's some outside source of competition that still is constraining the sole-served carrier.

BY MS. HYNES:

Q. So in this particular industry, for example, if a shipper could threaten to shift its

production capacity to a plant that's served by a competing railroad, that would be an example of a shipper utilizing geographic competition to negotiate for a better rate?

A. I think that's fair.

Q. Is geographic competition an important source of competitive discipline in the railroad industry?

MR. LUDWIN: Object to form.

THE WITNESS: I mean, that depends on the movement. I think it can be. Certainly less -- I think substantially less powerful than direct rail-on-rail competition or probably than modal competition, like with trucks and so on. But it can be a source of competition in some cases.

BY MS. HYNES:

Q. Did you analyze whether the transaction would have an effect on geographic competition?

A. No. I wasn't asked to. My understanding is that Dr. Bailey is handling that.

Q. I'm going to switch gears a little bit.

So you've been an expert in merger cases before, correct?

A. Yes.
Q. And you've been an expert for companies trying to merge like UP and NS; is that right?
A. Yes.
Q. And you've also been an expert for the Government trying to stop mergers, correct?
A. Yes.
Q. So I want to talk about a few of those cases.
You testified in American Airlines-JetBlue antitrust case in 2022; is that right?
A. Yeah, not a merger, but yes.
Q. It was a case about a joint venture between American Airlines and JetBlue called the NEA?
A. Yes.
Q. And you provided testimony on behalf of the defendants in that case; is that correct?
A. I did.
Q. And you provided testimony concerning the competitive effects and benefits of the NEA joint venture?
A. Yes. I just was -- probably more on the benefits, but yes on both.

considers how dependent a shipper is or their ability to avoid a particular railroad -- let me restate that.

So it's your testimony that there's no valid economic theory that you've ever seen that would find an anticompetitive effect to a shipper becoming more dependent upon a supplier as a result of a transaction?

MR. LUDWIN: Object to form.

THE WITNESS: You know, certainly, the way you asked that, at a given shipper level, I have -- I don't know of an economic theory that concludes that that -- a valid economic theory that concludes that will have an anticompetitive effect.

People have written down theories that say -- these are bundling theories, right. People have written down theories that say there may be reasons or that railroads or other businesses might try to raise prices on some of those routes they brought together in various ways.

But those -- I don't know of a theory that holds up that says that combination creates

more market power or something in a way that's anticompetitive.

Again, I'm happy to review some, but I don't know of a theory that holds up that says because a given shipper has those combinations come together, that creates harm to competition.

Theories that I've seen try often go the other way. When they try, they end up finding what they propose ends up benefiting consumer welfare.

So at the level of an individual shipper, I don't know of a theory that says that that sort of bringing together of those -- those routes harms competition.

BY MS. HYNES:

Q. So is it fair to say that since you don't view this as a valid economic theory, you haven't analyzed whether or not the UP-NS merger would increase any particular shipper's dependence on the combined railroad?

MR. LUDWIN: Object to form, mischaracterizes prior testimony.

THE WITNESS: I haven't done -- I mean, if

we're defining "dependence" the way you did, like, would one railroad now have -- would the shipper now have more sole-served routes with one railroad, by definition, that happens.

But I haven't analyzed the count of that because I have looked, and I haven't seen an economic theory that I think that economics holds up as having found a reliable harm to competition from that.

MS. HYNES: We can go off the record.

THE VIDEOGRAPHER: Going off the record. The time is 4:51.

(Whereupon, a recess was taken from 4:51 p.m. to 4:58 p.m.)

THE VIDEOGRAPHER: We are on the record. The time is 4:58.

EXAMINATION

BY MR. MORENO:

Q. Good afternoon, Dr. Israel. I think I can still call it afternoon so far.

A. Good afternoon.

Q. My name is Jeff Moreno. I am representing a coalition of shipper trade associations in this matter going under the moniker the Joint Shipper

Associations, but we include the chemical, fertilizer, petroleum, and -- industries, and then represent the broader National Industrial Transportation League.

A. Okay.

Q. I want to begin with your verified statement at Paragraph 25.

A. The April one?

Q. Yes, the April one.

A. Okay.

Q. In the middle of Paragraph 25, you state that "The railroads will compete until price falls to the cost of the higher-cost railroad."

How are you defining "cost" in that statement?

A. I mean, again, this is a specific example of competition. And here, the cost in this case would be the marginal cost, so the cost of carrying that movement, probably -- well, yeah, it would be the cost of the movement, incremental cost of carrying that movement.

Q. Now, are you aware that the railroad industry is considered a high fixed-cost industry? Would you agree with that?

A. Yes. So some of what's called "fixed costs," I think, are -- some of those things are more variable than people sometimes say. There are capital costs. But, yes, there are also significant fixed costs.

Q. Once they're -- once the fixed costs are invested, however, they are sunk. They're no longer variable at that point; is that correct?

A. Certainly there are sunk costs.

Q. So when you say that "The railroads will compete until price falls to the cost of the higher-cost railroad," where are the fixed costs in that definition?

A. This definition, where it's a competitive movement, pricing doesn't consider the fixed costs.

Q. So you're thinking it's only the marginal costs, which is capturing the variable cost component or, say, the operating costs of the railroad?

MR. LUDWIN: Object to form.

THE WITNESS: Yeah, I mean, economics would say they consider more than just the sort of pure operating costs. There's costs of capital and contributions to capacity

constraints.

Economists define "variable costs" a bit more broadly, like, what effect does it have on the railroad going forward.

But it would not include purely fixed costs.

BY MR. MORENO:

Q. So when you -- earlier, you mentioned marginal costs with a reference.

Do you consider competition between two railroads to be perfectly competitive?

MR. LUDWIN: Object to form.

THE WITNESS: Not perfectly competitive. I mean, it depends on the -- think about the railroad industry, I certainly don't consider the railroad industry as a whole to be perfectly competitive.

There are -- what this is describing is what sometimes is called "Bertrand competition." There are certainly movements where there's a shipper who has got two railroads it can choose from, and those two railroads are both attractive to that shipper, and the shipper plays them off against each

other and gets very good terms.

So the pricing for that particular movement can get close to what a perfectly competitive price would be for that particular shipper, so it can look like perfect competition in those cases, but the industry as a whole is not.

BY MR. MORENO:

Q. In those situations, we're talking about a duopoly, is that correct, if there are just two railroads?

A. Yeah, we're talking about two railroads but with a -- you know, a shipper who has two good options. Probably it's located -- they're both located near it. You know, it's fairly sophisticated, and in that case, it just needs to move its products from Point A to Point B.

As I said, in economics, that's called "relatively undifferentiated Bertrand competition," and you get the outcome here that the railroads can play them off against each other until it gets a price that's close to cost, marginal cost.

Q. Did you have any discussions with Union Pacific or Norfolk Southern personnel about

how they price in a competitive situation?

MR. LUDWIN: Object to form.

THE WITNESS: Not at this level of detail in this case. Over the years, I've talked to railroad people about what leads to the price differentials across different situations, but not in detail in this case.

BY MR. MORENO:

Q. So what is the foundation for your conclusion that the two competing railroads in this situation would price down to the marginal costs of the higher-cost railroad?

A. I mean, this page is describing how this works in economics. I mean, I certainly have had conversations with railroad people over the years where they talked about highly competitive movements, where they, in order to win the movement, they price down -- they certainly wouldn't say down to zero to the operational cost, but to where what they are earning is just what it takes to win the movement, which is sort of the -- what they see as the sort of -- I'd say enough to earn a competitive return on capital. That's just the way I would interpret that.

Witness my signature on this 20th day of October, 2026.

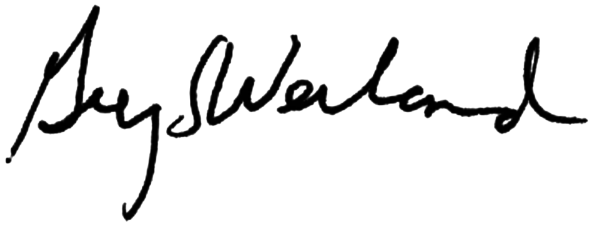


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EXHIBIT 36

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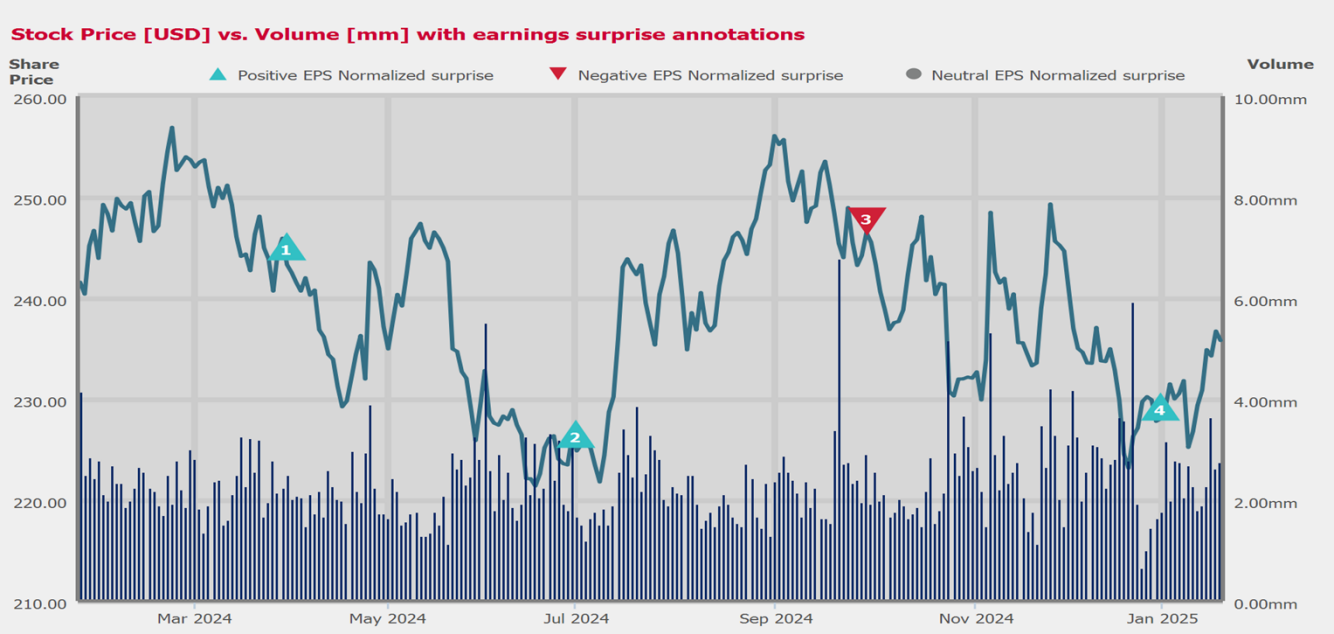
FQ4 2024 Earnings Call Transcripts

Thursday, January 23, 2025 1:45 PM GMT

S&P Global Market Intelligence Estimates

	-FQ4 2024-			-FQ1 2025-	-FY 2024-			-FY 2025-
	CONSENSUS	ACTUAL	SURPRISE	CONSENSUS	CONSENSUS	ACTUAL	SURPRISE	CONSENSUS
EPS Normalized	2.79	2.98	▲6.81	2.78	10.96	11.16	▲1.82	12.10
Revenue (mm)	6148.75	6121.00	▼(0.45 %)	6109.46	24284.46	24250.00	▼(0.14 %)	25162.71

Currency: USD
Consensus as of Jan-23-2025 1:40 PM GMT



- EPS NORMALIZED -

	CONSENSUS	ACTUAL	SURPRISE
FQ1 2024	2.52	2.69	▲1 6.75 %
FQ2 2024	2.71	2.74	▲2 1.11 %
FQ3 2024	2.78	2.75	▼3 (1.08 %)
FQ4 2024	2.79	2.98	▲4 6.81 %

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Presentation

Operator

Greetings. Welcome to Union Pacific's Fourth Quarter 2024 Earnings Conference Call. [Operator Instructions] As a reminder, this conference is being recorded, and the slides for today's presentation are available on Union Pacific's website.

At this time, it's my pleasure to introduce your host, Mr. Jim Vena, Chief Executive Officer for Union Pacific. Thank you, Mr. Vena, you may now begin.

Vincenzo James Vena
CEO & Director

Thank you very much, Rob, and good morning, everyone. Pleased to have you with us this morning. A little bit of winter in some parts of our company, even lots of snow in the southeast part, but I love the way the operating team has worked through it, and we are in way better shape already. So great recovery by everybody, but lots of hard work by the men and women of Union Pacific. But why don't we get started?

So I'm joined here this morning in Omaha by Chief Financial Officer, Jennifer Hamann; our Executive Vice President of Marketing and Sales, Kenny Rocker; and our Executive Vice President of Operations, Eric Gehringer.

Let's dig into 2024. It was a very successful year for the Union Pacific team, and we really finished the year on a high note in the fourth quarter to put up an adjusted 58% operating ratio, removing the impact of a new regional brakeperson agreement is really excellent work. It shows that the team is executing our strategy to lead the industry in safety, service and operational excellence.

Now why don't we move over to discuss the fourth quarter results, starting on Slide 3. This morning, Union Pacific reported 2024 fourth quarter net income of $1.8 billion and earnings per share of $2.91, both 7% improvements. Fourth quarter revenue, excluding the impact of fuel surcharge, grew 4%. Our ability to generate strong volume growth and core pricing gains more than offset an unfavorable business mix. Reported expenses year-over-year improved 4%, while lower fuel prices led the way, the team demonstrated strong productivity, utilizing 3% fewer employees to move 5% more volume. This led to operating income growth of 5% and the operating ratio outcome that I mentioned earlier. This is the result of the team's commitment to build a safer, more durable and more efficient network. Just a fantastic way to end 2024.

Throughout the year, we built momentum behind our strategy, and you see that in the financial results we delivered. While internally, we've already turned the page to work on further improvements in 2025, we need to pause and celebrate the team's success in 2024. We set a goal to achieve industry-leading results. And when the dust settles, I'm confident that's where we'll be.

So with that, I'll let the team walk you through the quarter and the year in more detail and then come back for a wrap-up before we go to Q&A. We'll start with the fourth quarter and full year financials. Jennifer, it's all yours.

Jennifer L. Hamann
Executive VP & CFO

All right. Thank you, Jim, and good morning, everyone. Let's begin with our fourth quarter income statement on Slide 5.

Operating revenue of $6.1 billion decreased 1% versus 2023 against strong volume growth, while our fourth quarter freight revenue finished flat at $5.8 billion. Breaking down the drivers of freight revenue, increased volume in the quarter added 525 basis points. Fuel surcharge revenue of $588 million declined $207 million as lower year-over-year fuel prices reduced freight revenue 450 basis points. Similar to our

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third quarter results, strong core pricing gains were more than offset by business mix, reducing freight revenue 100 basis points with our 16% intermodal growth driving that mix dynamic. Of significance, our price dollars met the long-term commitment of exceeding inflation dollars while also being accretive to fourth quarter operating ratio.

Wrapping up the top line, other revenue decreased 7% as a result of lower accessorial revenue from the second quarter intermodal equipment sale and reduced revenue from the ongoing transfer of Metro operations. As a reminder, we see offsets against this revenue decline in operating expense.

Switching to expenses, our appendix slides provide more detail. But let me share some highlights of our strong cost control as total operating expense declined 4% to $3.6 billion against a 5% increase in quarterly volume. Looking closer at the expense line, compensation and benefits expense increased 8% compared to fourth quarter 2023, driven by the $40 million brakeperson buyout agreement, which Jim mentioned and wage inflation. This is the second brakeperson agreement that we have reached in the last couple of years both of which have enabled more efficient car handling.

Quarterly workforce levels decreased 3%. Our train service employee workforce was flat against the 5% volume growth as we effectively handle the additional volume. All other workforce areas decreased 4%. These efforts resulted in record workforce productivity, demonstrating our strategic focus on delivering operational excellence. For 2025, we expect our all-in cost per employee to be around 4% as we continue to find ways to be more productive with our workforce through process improvements, technology and investment.

Fuel expense decreased 23% on a 24% year-over-year falloff in fuel prices from $3.16 to $2.41 per gallon. Our fuel consumption rate improved 1% in the quarter as we more than offset the impact of moving a less fuel-efficient business mix. Equipment and other rents expense increased 8% due to inflation and volume-related growth in our intermodal business. Finally, other expense declined 22%.

As you'll recall, in the fourth quarter of 2023, we highlighted elevated casualty costs due to the catch-up of case backlogs. In the fourth quarter of 2024, we benefited from lower casualty expenses as well as a reduction in bad debt expense. Operating income improved 5% to $2.5 billion and was a fourth quarter record. Below the line, other income decreased $40 million on lower real estate gains, while interest expense declined 6% or $19 million as a result of lower average debt levels. Altogether, these results total a record fourth quarter net income of $1.8 billion and earnings per share of $2.91, both up 7% versus 2023.

Our fourth quarter operating ratio of 58.7% improved 220 basis points year-over-year. And as Jim noted, when you adjust for the brakeperson agreement, our quarterly OR came in at 58%, and a great outcome, reflecting very strong quarterly performance by the UP team as we work to safely and efficiently serve our customers.

Moving to Slide 6. Let me quickly recap full year 2024. Operating revenue of $24.3 billion grew 1% on a 3% volume increase, core pricing gains, partially offset by lower fuel surcharge revenue and business mix. Excluding fuel surcharge, our freight revenue grew 4% versus 2023. Operating income totaled $9.7 billion, a 7% increase and our full year operating ratio of 59.9%, improved 240 basis points, both great indicators of how good railroading produces solid operating leverage and cost control. Earnings per share of $11.09 increased 6% versus 2023, while our return on invested capital improved 30 basis points to 15.8%.

Let's turn then to shareholder returns on the balance sheet on Slide 7. Full year 2024 cash from operations totaled $9.3 billion, up almost $1 billion from 2023. Our cash flow conversion rate improved to 87% and free cash flow increased from $1.5 billion to $2.8 billion. These year-over-year improvements reflect the change in year-over-year labor agreement payments as well as the growth in our operating income.

We rewarded our shareholders, returning $4.7 billion in 2024 through dividends and share repurchases. Our adjusted debt-to-EBITDA ratio finished the year at 2.7x as we maintain a strong balance sheet and continue to be A rated by our three credit agencies. 2024 proves that our strategy of safety, service and operational excellence, leading to growth also generate strong cash returns for our shareholders.

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With that, let me turn it over to Kenny.

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

Thank you, Jennifer, and good morning. As Jennifer mentioned, we had a strong fourth quarter. Freight revenues totaled $5.8 billion for the quarter, which was up 4% excluding fuel surcharges due to increased volume. This also reflected strong core pricing gains as a result of our deliberate focus on maximizing price. Let's jump right in and talk about the key drivers for each of our business groups.

Starting with our bulk segment, revenue for the quarter was down 4% compared to last year, on a 4% decrease in volume, while average revenue per car remained flat even with decreased fuel surcharges. Coal continued to experience the same challenges seen throughout the year as demand remains soft due to high inventory levels and the competition from low natural gas prices. Grain volumes increased for the quarter as there was strength in export grain to Mexico, coupled with UP service during -- strong UP Service during the harvest. Lastly, grain products grew in the fourth quarter as our work to locate renewable diesel plants on our railroad, it's paying dividends in the form of increased demand for feedstocks, and we expect that growth to continue with the startup of two new facilities, one in Nebraska and one in Kansas that came online in the fourth quarter, bringing the current count of UP assessable plants to 15, with more expected this year.

Turning to industrial. Revenue was up 1% for the quarter as volume remained flat. Strong core pricing gains were mostly offset by lower fuel surcharges and a negative mix in volume. Business development in our petrochemical and petroleum commodity segments drove growth. Demand improved for plastics -- for our plastics business in both export and domestic markets. However, these gains were offset by softer demand for metals, sand and rock.

Premium revenue for the quarter was up 3% on a 13% increase in volume and a 9% decrease in average revenue per car, reflecting increased intermodal shipments and lower fuel surcharges. Intermodal volumes remained strong due to international West Coast import demand and positive domestic growth driven by business development efforts. International volumes were up 26% in the quarter, outpacing the growth rate of the West Coast imports by utilizing our buffer resources, which includes people, locomotives and railcars, our operating team efficiently move the traffic and maintain fluidity in the supply chain. Automotive volumes were flat due to unplanned downtime, partially offset by business development wins with Volkswagen and General Motors.

Now let's focus on 2025. Here are some of the key macroeconomic indicators that we're watching this year on Slide 10. These are S&P Global's forecast from their January report. And you'll notice that it shows a mixed picture for 2025, which is not materially different than what we shared back in September at our Investor Day in Dallas. The forecast for industrial production shows a slight increase, while GDP growth slows from 2024. Housing starts are expected to remain challenged, but with December sharp uptick, we are closely watching the situation.

Now turning to Slide 11. Here is Union Pacific's 2025 outlook as we see it today for the key markets we serve. Starting with bulk, we anticipate coal to continue to decline, though not to the levels we've seen in 2024. We expect coal demand will be met from existing high inventory levels. However, a new contract win with Lower Colorado River Authority, also known as LCRA, will help offset losses from 2025 co-retirements.

While it's premature to predict grain export demand, domestic grain demand is expected to remain steady through the first half of 2025, driven by strong grain yields from a good harvest in 2024 as well as our efforts to serve both new and expanding facilities. Lastly, we expect continued strength in grain products, driven by intense business development and the expanding markets for renewable fuels and the associated feedstocks. We will continue to monitor potential changes in renewable diesel incentives and tax credits.

Moving on to Industrial. While the forecast for industrial production in 2025 remains muted, our diverse business mix, strong service and robust franchise will help us grow in some markets. The metals market is expected to remain soft. However, our industrial chemicals and plastics markets will remain

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favorable based on plant expansions with multiple strategic customers and our strong focus on business development. This strong focus is all about unleashing what's possible by empowering the commercial team. They are leveraging our Gulf Coast franchise and strong service to win.

And wrapping up with premium on the intermodal side, we expect growth in domestic intermodal with over-the-road conversions. Strong international intermodal volume experienced in 2024 creates tough year-over-year comparison for us. And the mix issue continues as international volumes remain strong at the start of the year. Additionally, we are keeping a watchful eye on potential tariff changes that could further impact volumes.

Even though we are early in the year, we are seeing automotive OEM curtail production to better manage high inventory. However, consistent with S&P Global's outlook and our conversations with customers, we expect a positive trend with output increasing as the year progresses. Overall, we anticipate a soft economic environment and face difficult comps in 2025, but I'm excited about onboarding LCRA, the new coal customer mentioned earlier, and I'm encouraged by the incremental volume we will gain from new and expanding facilities across multiple business segments.

In fact, we currently have over 200 track construction projects in progress with a potential revenue of $1.5 billion, and our business development pipeline is just as strong as it was this time last year. We continue to invest in intermodal, which Eric will touch on. You heard me discuss new unit train facilities added to our network, and we are bullish on industrial development projects in the Gulf Coast, with a mix of large and small customers. I'm proud of the commercial team. They continue to hustle and we will maintain our strong pricing posture in 2025.

And with that, I'll turn it over to Eric to review our operational performance.

Eric J. Gehringer
Executive Vice President of Operations

Thank you, Kenny, and good morning.

Moving to Slide 13. Before diving into our results, I want to express my appreciation to the team for their hard work. Historically, vast surges in volumes, such as those we witnessed in 2024, significantly disrupt rail operations. However, the team bucked that trend and was able to improve our service product, while also driving growth and network efficiency. It's proof our relentless focus on operational excellence is working, and I'm excited we are carrying that momentum into 2025.

Safety also improved in 2024 and continues to be at the forefront of everything we do. For the year, both our derailment and personal injury rates improved significantly, a strong step towards becoming the safest railroad. We remain committed as well to enhancing safety as we strive to send every employee home safe each day.

Moving to our results this quarter. Freight car velocity improved 1% versus last year, a favorable business mix, coupled with continued improvements in terminal dwell drove the performance. Notably, 2024 marked an all-time record for terminal dwell, a meaningful improvement in our service, which reduces customers' fleet costs through improved cycle types. Exceptional work by the team is they continue our focus on the fundamentals to drive terminal fluidity and capacity for future growth.

On the service front. Our intermodal service performance index declined 7 points year-over-year, while manifest improved 5 points. Intermodal SPI specifically improved month-by-month through the quarter as December ended with our second highest level of the year at 97%. The team continued to deploy buffer resources and adjust trip plans to minimize the impact of the quarter's 26% surge in international intermodal shipments.

Now let's review our key efficiency metrics on Slide 14. Our full year locomotive productivity metric improved 5% versus 2023, while the deployment of buffer resources to handle higher volume levels drove a 3% decline in our fourth quarter results. Workforce productivity, which includes all employees, improved 6% in both the fourth quarter and full year versus 2023. Further, 2024 marked a fourth quarter and full

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year record for workforce productivity. We continue to remove unneeded work and automate operations while improving the safety of how we work.

Train length improved 1% versus 2023, marking our sixth consecutive quarter year-over-year improvement. All in, 2024 set an all-time record for train length. We have made great strides in this area. However, there are still opportunities to adjust the transportation plan and leverage targeted investments as we push to generate mainline capacity in the pursuit of growth.

To wrap up, let's review our capital outlook for 2025 on Slide 15. In 2024, we invested approximately $3.4 billion across the railroad as we continue to reduce capital intensity while still delivering value to our shareholders. In 2025, we are targeting capital spending of roughly $3.4 billion, flat versus last year. As always, our first capital dollars will support safe and productive operations as we invest in our infrastructure, and renew older assets. This includes modernizing our locomotive fleet and acquiring freight cars to support replacement and growth opportunities.

Also, we will continue to invest in capacity projects that support our growth initiatives while enhancing productivity. This includes siding construction and extension projects such as those in the Pacific Northwest and the Southwest along our Sunset Route. Furthermore, terminal investments supporting our manifest network, such as those in and around our Houston Gulf Coast region, aimed to improve fluidity and increase capacity. On the intermodal side, we will continue to invest for growth in areas like Kansas City, Inland Empire and Lathrop to name a few. At the end of the day, it's about ensuring we have the right resources in the right place to support growth and drive efficiencies.

Wrapping up. I'm encouraged by the progress we made in 2024, but our work is not yet done. Continuing to focus on the fundamentals of railroading and leveraging new innovative technologies, we will further improve our service product and build a more resilient, efficient network in 2025 and beyond.

So with that, I'll turn it back over to Jennifer to lay out our initial financial thoughts for 2025.

Jennifer L. Hamann
Executive VP & CFO

Thanks, Eric. If you turn to Slide 17, I do want to start by pointing out that in the appendix, we have a modeling slide that contains several 2025 assumptions that should be helpful in framing our current expectations. And as we talk about the year, all of our guidance is within the context of the 3-year targets we provided at our Investor Day in September. Our team understands those commitments, we are focused on achieving them and our 2025 performance is the first step.

As you heard from Kenny, economic indicators for this year are a bit muted and mixed, some growth, some contraction. Add to that outlook, questions around possible tariffs, interest rates, regulatory changes, et cetera, and our ability to forecast only gets more challenging. As we see the year ahead, there are positives on the volume front.

First, we're starting the year with a bang. Volume is growing and the network is running well. Mother Nature has certainly taken a couple of early shots and will likely fire a couple more, but our resiliency is strong as we focus on meeting our customer commitments. And you heard Kenny talk about how that service product has helped us secure new business for 2025, as well as the continuing pipeline of opportunities that span our entire portfolio.

We also acknowledge there are some tough spots namely from reduced coal demand and the year-over-year international intermodal comparison we'll face in the second half of 2025 as today's mix impact turns into a volume challenge. So while there are puts and takes on the volume side, we are confident that we will continue to drive operational and financial improvement in 2025. We will achieve that goal by continuing to control the controllables, by generating pricing dollars that are accretive to our operating ratio, gaining further technology, productivity through technology and by empowering every UP employee to drive asset efficiency. We expect the combination of our activities to drive volume, price and productivity will deliver earnings per share growth for the full year that is consistent with attaining our 3-year Investor Day CAGR of high single to low double-digit growth.

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Finally, with the capital allocation. As you heard from Eric, this year, we plan to invest $3.4 billion back into the railroad. We remain committed to our industry-leading dividend payout ratio of around 45% of earnings, and we plan to return excess cash to shareholders through share repurchases of $4 billion to $4.5 billion during the year. The team has done an excellent job to position ourselves for whatever environment we face this year. We are on target to achieve our long-term goals while maintaining our industry-leading position. We are excited for this new year, and we're ready to deliver.

With that, I'll turn it back to Jim.

Vincenzo James Vena
CEO & Director

Thanks, Jennifer. Before we get to your questions, and I'm looking forward to the questions, I'd like to summarize what you've heard.

First, you heard from Jennifer in the fourth quarter, we leveraged the network to handle volume growth and drive strong quarterly results. Similar to the third quarter, our business mix profile presented a margin headwind. So it was imperative that we generated strong productivity and pricing to offset that impact, and that's exactly what we did.

Kenny gave an overview of fourth quarter volumes and laid out initial thoughts for 2025. Look, there are a lot of unknowns, but in my 48 years of railroading, I've never entered a year without some economic question mark. It is what it is. As you heard from Kenny, our team will focus on outperforming our markets and generating strong pricing for the value we provide. Importantly, I believe our 2024 performance demonstrates that our strategy to operate with a buffer and connect more closely to our customers is paying dividends, both in terms of meeting our customer commitments, and as a direct result, winning new business.

Eric provided an update on our progress to improve safety, service and operational excellence. From a safety perspective, we made great strides, but we still have work to do. On the service front, we're showing our customers what's possible while at the same time, driving productivity. What's exciting for me is that I know we're not done. There are more opportunities ahead, and we have a clear line of sight of how we drive further improvements in 2025.

Lastly, you heard from Jennifer, our expectations for the upcoming year. Key for me is that we're on target to achieve the long-term guidance that we laid out at the Investor Day in September. We operate the largest, most complex rail network in North America and with it comes challenges and opportunities. The team understands our goal is to deliver what's possible from this franchise. We intend to do that as an industry leader that keeps raising the bar as we drive value for our shareholders.
Let me finish with one of my favorite quotes from a mentor, it's the fundamental stupid, do what you say and commit to it and deliver, and that's who we are at Union Pacific. And with that, I'll turn it over back to you, Rob, and let's start the questions.

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Question and Answer

Operator

[Operator Instructions] And our first question today is from Scott Group with Wolfe Research.

Scott H. Group
Wolfe Research, LLC

I just want to start on the guidance. The comment consistent with attaining the long-term CAGR. That seems carefully chosen language. Just so we're all on the same page, like does that just mean you expect to be in that high single-digit to low double-digit range on earnings this year? And then I just want to understand also, Jennifer, the pricing starting to become accretive to margin, is that -- does that start right away in Q1? I don't know if there's any sort of Q1 color you want to give us?

Vincenzo James Vena
CEO & Director

So let me start, Scott, with the question of where we are. We were clear that we had a 3-year -- and when we commit, just like I said, from my favorite quote from a mentor early, we committed. And you never know exactly what's going to happen this year. What are tariffs going to do? What are the regulatory changes that the administration is going to put in? But our goal is, just as we showed in 2024 with the 7% increase, that we think that, that's where we're going to be. We are going to be high single digit, low double digit. Now if there's things outside of our control, then we're going to have to work harder. But this is not a change from what we said before, and I would expect that every year we deliver high single digit to low double digits, that's the win for us. So that's what we committed to, and that's what we look forward to delivering.

Jennifer, on the accretive piece?

Jennifer L. Hamann
Executive VP & CFO

Yes, Scott. So just going back for a second. So fourth quarter, we were accretive. So we actually, I would say, outperformed ourselves a little bit there because we did not think we would achieve that here in 2024, but we did in the fourth quarter. And so I'm not going to parse out the quarters in 2025, but I don't see us taking a step back, and we're going to be accretive throughout 2025.

Operator

Our next question is from the line of Jon Chappell with Evercore ISI.

Jonathan B. Chappell
Evercore ISI Institutional Equities, Research Division

Eric, in Jennifer's comments at the start, she noted the record workforce productivity, also said all-in cost per employee of 4% in '25 as you continue to find ways to be more productive. You've done a lot of volume with a lot less resources. Is it still a labor productivity? Or what are some of the other initiatives you're looking at a '25 to kind of maintain or manage that cost inflation?

Eric J. Gehringer
Executive Vice President of Operations

Yes. Thank you for the question, Jon. Let me be clear, there is more opportunity, and we're working to capitalize on that. Let's go back to our Investor Day and kind of level set from that perspective. First thing I'd said at Investor Day was that we focus on productivity because it puts Kenny and the team in the best position to grow in the markets, and that's still and will always be true. The second thing that we focused on was our culture, our mindset here at Union Pacific, which is to be perpetually dissatisfied with ourselves when it comes to productivity, to keep pushing to find additional opportunities.

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So specifically to your question about what are those opportunities, it's going to be some of the same things you've heard in the past and a lot of new things that I'm excited about. The fundamentals, they always stay true. Those are the things in the past that we continue to focus on. The improvements we made in the fourth quarter regarding our re-crew rate. Even moving that just a single point has a significant productivity driver for us. The work that we did to reduce our people starts in our yards and locos, approximately 2% and 4%, respectively, in the fourth quarter. That's about the technology we're putting in the yards and being able to be even more productive with it.

On the technology front, the work that we do, and have continued to do, and will continue to do, on the automation of our terminals and pushing to reduce dwell. Then when you get outside of the terminals and the transportation side, you mentioned a couple of them, and the engineering team as they work to continue to automate inspections, maintenance tasks, distribution of materials. And then, of course, you have the whole bucket of purchased services, and I see great opportunities in that. And we capitalized on those in 2024, but there's more. When you start to think about the technology we have to automate some of our vans across the system and when you're using hundreds of thousands of van starts per year, a 10% improvement in that is really meaningful for us.

So here's the bottom line. There's more than 75 initiatives up against how we think about driving productivity across this company. And I really do mean across the company. It's not just operating. I'm very confident about our plan in '25, and I'm encouraged that we'll be telling you about those results as we go through '25.

Operator

Our next question is from the line of Stephanie Moore with Jefferies.

Joseph Lawrence Hafling
Jefferies LLC, Research Division

This is Joe Hafling on for Stephanie Moore. Congrats on the good results. I wanted to talk about, one of the things you've mentioned over the last couple of months has been maybe a reduction in regulatory burden. And maybe consistent with what you talked about on the second question here, what are some sort of specific areas maybe that you've seen additional red tape or what areas do you think you guys could particularly benefit if there's reduced regulatory burden on you guys in particular? I know you guys had mentioned a lot of things on the Investor Day, so any specific examples, that would be very helpful.

Vincenzo James Vena
CEO & Director

Well, I think the largest thing is that we've applied for a lot of waivers that would help with the technology that we've implemented to make the railroad more efficient, provide better service to our customers. Those are the things that are out there that we hope with the turning of the page and how regulations are being talked about at the federal level that we get those improvements will allow us to be able to provide better service and, of course, be more productive. So those are just to name a few. And there's a lot of waivers that we've applied for that are being outstanding for years now that we're looking forward to it.

So I could go on here for about 45 minutes on things, the regulation-wise, I think would help the industry make us safer provide better service and be more productive. But that's a good way to look at it is those waivers that we've applied for over the last number of years.

Operator

The next question is from the line of Brian Ossenbeck with JPMorgan.

Brian Patrick Ossenbeck
JPMorgan Chase & Co, Research Division

I wanted to come back to the -- I guess, there's a second brakeperson role. So I wanted to hear a little bit more about that because you mentioned there was one earlier. So thanks for pointing that out.

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And then also, Jennifer on the comp per employee for the full year, you're still rolling out -- last we heard, you're still rolling out some of the predictable work schedules for the engineers. As I understand that there's still some negotiation going on with the conductors for something similar. So maybe you can just give us a little context in terms of the other brakeperson agreement, how it's different to the first one? And then how do you see this other two factors or agreements, I guess, for the engineers and conductors rolling out for the rest of this year and what you expect in the numbers there?

Jennifer L. Hamann
Executive VP & CFO

I'll let Eric talk about the brakeperson agreement and what that really does. But just as a reminder, we did one in the second quarter of 2023 and now this one here in the fourth quarter, and we actually have one more region that we're working on there.

In terms of the rollout of work/rest, we continue to roll out on the engineer side, and we continue to work with our conductor SMART-TD in terms of coming to an agreement. And that's all really part of the mix as we think about the statement that I made about the all-in 4% comp per employee in 2025.

Eric J. Gehringer
Executive Vice President of Operations

Yes. And Brian, I'll just add to that. If you think about the -- on the engineer side, there's 28 hubs across Union Pacific and 20 of the 28 are already cut over. So we're nearly 75% cut over.

Now thinking about the brakeperson, the way to really think about it is you're kind of going to go back in time a little bit. So go back in the days when you had 5 people on every single train. And that's the context you got to think about this brakeperson deal. As the technology has improved over the last 40 years, including the technology that we're still implementing to this day, you just have less demand for some of those 5 people, and we've demonstrated that, right? Most the crew today has 3. That third person is the brakeperson, and we have that in some parts of our railroad.

In Jennifer's prepared comments, she referred to it as a regional brakeperson agreement, that's because not every single area of the Union Pacific has it. So this is very similar to the first agreement that we reached in almost every single regard. And the goal is still the exact same, right? It's to utilize who was in those brakeperson positions as conductors and our normal crew base to be able to provide the service that we sold to our customers.

Vincenzo James Vena
CEO & Director

The only thing I'd like to add is the whole discussion about where we are on implementing with SMART and with the BLET. And Eric just said that 20 out of the 28 hubs, we've implemented. What you always -- Brian, when you do those things is you make sure that you still end up with the same number of starts per week per employee, and that's really important. And I sat down very first few weeks I was here, came back to work, what, 16, 17 months ago. And with the union leaders, and they committed that it made sense that, that goal had to be there. And what we wanted to do was provide that time off and that scheduling, but they also understand because they want us to succeed also is that we have a workforce that works, what we expected them to work on a weekly basis.

And what we found results so far is we have to work hard to find ways to make sure that the schedules are set up, and we've had a little degradation, but nowhere near as much as some people write about. I'm always surprised when people write about those things without the detail. But at the end of the day, I'm very comfortable that we have figured out a way to move ahead and do this right so that we don't add incremental cost to the company when we provide and the unions have agreed that it is going to be cost neutral for us or start neutral, wages still went up 4.5%. So the wages are the wages that we've agreed to. But that's the way to look at it is that we're very comfortable.

And with SMART, we'll get to the right place that's good for our employees. We want our employees to have regular shifts. I'm one of the guys who is a CEO in this industry that's actually worked on the ground

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as a locomotive engineer and conductor, and to have schedules that help you plan your life so that you can balance the demands of working and also everything else, your family and everything else is really important to me. So we'll come to the right place, but we're also being smart about how we get to it. You can't have a deal that's all one-sided.

So I'm looking forward to working with SMART to finalize the deal. And working with the BLET to implement the last 8 terminals that we have. But I think it's a real positive for both of us and it will become -- it will help us to become even more efficient in the long run. Because people with schedules will not take as much time off as they did before once they get used to what their work schedule is.

So sorry for the long answer, but I just needed to sort of clarify because I know there's some noise out there about what the effect is for us, okay?

Operator

Our next question is from the line of Jason Seidl with TD Cowen.

Jason H. Seidl
TD Cowen, Research Division

Nice job with the quarter. You briefly touched about some of the unknowns that are out there. There's obviously been a lot of talk about potential tariffs with two of our largest trading partners Canada and Mexico. Clearly, you guys have a big position in Mexico with your access to the Mexican interchanges as well as a partial ownership of Ferromex. I guess if we do get that tariff on February 1, sort of what are the expectations on volume? And then, I guess, what potentially could have an impact if cross-border business with you guys would decline because of that?

Vincenzo James Vena
CEO & Director

Listen, let me start and then I'm going to pass it over to Kenny, who knows our markets and what the different business mix would be. If something happened south of the border, does it give us more business out of origination in the U.S. I'll leave that to Kenny. But let me talk in general the way I think about this is, I have never -- for all the years I've been railroading, and I just probably hate to say that number because I think it's -- I've been railroading longer than most people on this call have been alive. But at the end of the day, I have -- there's always something, and this is the way I see it.

We have the capability of Union Pacific to react to anything that's thrown at us. Good strong balance sheet, real good focused marketing team, operations that's looking to be more efficient. And I look at the entire package. If we get tariffs, but we also get the regulatory changes and we get the tax changes that were talked about by the President, with how depreciation is going to work on capital and how our corporate tax rate works, that could be a lot of positive.

Now I don't expect any of that. That's not what we plan. We plan for the worst. If something really bad happens, make sure that we are in a good position to handle that. So I think that with the puts and takes of where our business is, we'll deal with it, and we're waiting to see what actually happened.

I'm hoping that it's a negotiating position by the President, and because I don't think anybody, the consumers in the U.S. would love to have increase in prices because of dispute unless there's some strategic reason that the President needs to do that for security of the country. But overall, I'm very comfortable that we're going to be in a good position as we move forward, and we'll just react on how we see things happening. Kenny?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

Jim, I'll tell you, you covered a lot. So all I'll say is -- and we've seen this before, it's really about being prepared. And what generally happens is maybe the origin location shifts from Asia to Mexico or Canada, and that commodity is priced in, and that tariff is priced in. But being prepared is the critical thing.

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Eric and his team have demonstrated that, especially in the second half of this year when we saw that happen on the West Coast. Same is true with exports. We saw that on the grain side where it may shift from PNW or go to the Gulf or go to Mexico. Regardless, it's all about preparedness. And I'm telling you, as we're humming along here from an operating and service perspective, I feel good about our posture going in regardless of what happens.

Operator

Our next question is from the line of Chris Wetherbee with Wells Fargo.

Christian F. Wetherbee
Wells Fargo Securities, LLC, Research Division

I guess I wanted to maybe pick up on the West Coast and get some perspective about how you think about sort of the shifts. I know international intermodal has got some pretty challenging comps, particularly as you move into the second half of the year. But Kenny, any sort of perspective you can give what you're seeing from your customers? Maybe how real time any of those shifts may occur? I know we kind of have a tentative agreement on the East Coast. So potentially, there could be some business moving around a little bit.

And then just maybe in terms of the pricing piece. I know we're getting back into sort of accretive pricing. How do we sort of think about the opportunity in pricing as we move forward over the course of the next year, or maybe longer, in terms of the service recovery in the network ultimately, the inflation that we've seen across the sort of the broader market outside of transportation and maybe what your opportunity is to try to tap into that? Just want to get a sense of maybe how that plays out.

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

Yes. Chris, on the international intermodal side, we are seeing some pull ahead taking place and whether it's the hangover from some of the strikes on the East Coast or whether it's just the idea of the tariff, you can see our numbers and they're pretty strong here as we are walking into January. We'll see how that plays out for the rest of the quarter before I can really tell you what will happen. We've got the tough comps and I've talked about that. Those are in the second half. But sitting here on January 23, I think it's premature to go out and make a strong forecast about what will happen there.

Now on this whole thing around pricing. I just want to reiterate what Jennifer said, and we were price accretive in 2024, and we expect to be price accretive in 2025. Eric and the team have really done a great job of providing a strong service product, our commercial team sells it, and we're providing the service that we've sold to our customers. I want to hit that hard. We're sharing the investment that we're laying out to support the growth. Our commercial team is crystal clear on what's acceptable going in from a pricing standpoint based on the service that we've sold. With that, we're going to take some risk, but it's all about aligning the service we've sold with maximizing price.

Operator

Our next question is from the line of Ravi Shanker with Morgan Stanley.

Christyne McGarvey
Morgan Stanley, Research Division

This is Christyne McGarvey on for Ravi. Just wanted to circle back to some of the service comments. It sounds like you guys have a pretty good confidence going into 2025, but I wanted to touch on kind of what's underpinning that? And maybe particularly in the context of perhaps a better environment than you guys are currently thinking about if the volumes do snap back a little bit more aggressively, how you guys feel the kind of capacity is there to meet that without much service disruptions for customers?

Vincenzo James Vena
CEO & Director

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Well, I love the question that says what happens if we have more business. I think I like that question. That would be a great outcome for all of us. If the U.S. consumer stays strong and grows the demand for us. We operate a railroad that -- and we keep on talking about buffer, and I think we showed it with the large increase in international. And that's the way we look at it. We want to have our assets in place, operating them efficiently, but we carry a buffer, especially the assets that we can't inbound into the company if we need them in a quick manner. So locomotives, railcars, we do that.

Capacity on the railroad, we operate our railroad with the capacity because we need to recover from events like we just had in the southeast part of our network, we need to have a buffer. So we run with a 20% to 25% buffer on our capacity -- rail capacity, because our business goes up and down, customers don't release cars 7 days a week. There's a big drop in the weekends. So we have that buffer. That's the way we look at it.

Listen, the best thing that could happen is a 10% increase in volume across the board. I think we're set up to handle that, and we'd onboard the people to be able to handle that in a very quick manner. So that would be the best problem I would have in 2025. Thank you very much for the question.

Operator

Our next question is from the line of Ari Rosa with Citigroup.

Ariel Luis Rosa
Citigroup Inc., Research Division

Congrats on the nice results here in the fourth quarter. So I wanted to ask about the operating ratio. You mentioned this expectation of industry-leading operating ratio. Just wanted to understand a little bit more. What gives you confidence in that target? And if you could talk about kind of how you perceive the structural advantage of the UP relative to some of your competitors, especially given the context of BN maybe having some challenges in the fourth quarter that maybe held up some of their intermodal partners. So if you could just give a little more color on that outlook, both kind of short term and longer term, how we should think about that, the OR evolution?

Vincenzo James Vena
CEO & Director

Ari, I don't -- I'm not going to comment about any other railroad. We have a position that -- it's a complicated network that we have. It truly is. It's not linear. It's complicated. But I think we've fundamentally figured out a way to operate it and be as efficient as possible.

We want to be the leaders when it comes to operating ratio. And that's what we're delivering. And I'm not sure what the other railroads are going to because we're first up. I'm assuming that we will have the best operating ratio. That's an outcome of everything we do. That's the important piece is, Ari, what do we do with -- do we provide good service so we can maximize price, so our customers can win and grow in the marketplace. That's really important for us, that triangle. Is that operationally, do we look at our assets, how we operate the number of people? And do we use technology? And like we're excited about net control and how we're going to be able to quickly change our operating plan faster than we've ever been able to do before to operate the railroad more efficiently.

So with all those things, I personally -- and I said this publicly, and I'll say it again, all the railroads should be very close when it comes to operating ratio. There's no reason for the Class 1s not to be, and I know some -- I'll probably get some notes from some of the other CEOs and I'd appreciate the call or the text. But at the end of the day, we want to be in the best position. And you can see what happens when we have a little bit of volume, we price smart, we operate the railroad efficiently. We end up with a 58.0%. Are we always going to be at 58.0%? No, we might go up a little bit, depending on what the market conditions are. But we're going to drive that to be the best.

And stay tuned, okay? I don't think anybody thought we were going to be able to deliver a 58%, and hang on and watch us go. That's the win for us. Anybody else wanted to comment anything further? Nobody else wants to say anything after that. Thanks for the question.

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Operator

Our next question is from the line of Bascome Majors with Susquehanna.

Bascome Majors
Susquehanna Financial Group, LLLP, Research Division

In one of the earlier questions, you talked about some opportunity with the FRA waiver backlog potentially beginning to clear and opening up some efficiency. But this week, we also had Patrick Fuchs take over as STB Chairman. Can you talk about that side of the regulatory fence? What have you learned from working with him as a Board member over the last 6 years? And over the next several years, what opportunities is UP or the industry have that might not have been on the table under Primus or Oberman's leadership?

Vincenzo James Vena
CEO & Director

Yes. Listen, there's always changes in who leads and I've had a number of meetings with Mr. Fuchs, okay? Very smart individual. And the rest of the Board is very strong. So at the end of the day, the way I look at it is we have the same goal. We want to provide good service to our customers. And if we can provide good service to our customers, they win in the marketplace and we both win and the STB deals with those things.

Now at the end of the day, there's a lot of other things that the STB does. They look at mergers, they look at acquisitions. And I'm absolutely sure that everybody, the STB and the railroads would like quick decisions, quicker movement on what's happening. And I'm hoping that, that's how we move ahead. But I'm very comfortable that the relationship will be strong and we'll continue to have a strong relationship with all the regulators.

There is a position to have regulators there. There is a need, and I'm very comfortable that we'll work with them and be very transparent about what we're doing at Union Pacific. Anybody else have any comments on that any further? Because you've all met with the STB, Kenny?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

No. I mean, we're looking forward to it as the commercial leader, we want quicker outcomes so that we can service the marketplace. So it's encouraging.

Vincenzo James Vena
CEO & Director

Eric, anything from -- you deal with them lots?

Eric J. Gehringer
Executive Vice President of Operations

I think that's the exact same comment. I mean even in the engagements that we've had with them on even service things, right, continuing to move faster. I know Patrick in the past has had a really good perspective on how he think about service. So looking forward to working with them.

Vincenzo James Vena
CEO & Director

I know, Jennifer, you don't meet with them as often, but maybe we should get you there more often because you've got a better personality for it than me, maybe, but anything to add?

Jennifer L. Hamann
Executive VP & CFO

No. I think your point about our goals being aligned is the important one. They want a strong rail franchise. It's the best thing for the nation, our national security, our economy, and we want to grow with our customers. And I think working together to fulfill that purpose is what everybody wants.

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Vincenzo James Vena
CEO & Director

Perfect. Great question. Thank you very much.

Operator

Our next question is from the line of Ken Hoexter with Bank of America.

Kenneth Scott Hoexter
BofA Securities, Research Division

Congrats on the solid OR and results, but maybe digging in a little bit on that, Jen, you guided in the appendix, the other expense to $325 million, $350 million. Maybe can you delve into what happened in the fourth quarter? I think you mentioned the bad debt expense. Can you talk about a scale of the one-timer, or the scale of casualty expense that we should see bounce back? And I guess maybe I'm just ultimately getting at trying to think about the cadence to first quarter. Can you talk about seasonality in what we should -- I know you don't delve into quarterly specific, but maybe just normal historical seasonality, how we should think about the move given the improved performance here in the fourth quarter?

Jennifer L. Hamann
Executive VP & CFO

Yes. I mean when we look at other expense for the fourth quarter, I mean, casualty was really the driver there. I did call out the bad debt expense, but the bigger piece was the casualty, both in terms of looking at it year-over-year because we did have a pretty big step-up in fourth quarter of 2023, as well as the fact that we're starting to see some better performance here in 2024. That's a little slower to come through on the expense side, but you heard Eric and Jim both talked about the fact that we're continuing to drive better safety performance. So that's really where I'd focus in, in terms of the driver for fourth quarter.

In terms of looking out into 2025 within that category, it's probably one of the least seasonal categories we have, quite frankly. State and taxes, state and local taxes is the biggest component of that. And then you do have some of the other things like the casualty, like bad debt, travel, all those fun things. So I wouldn't think about that in terms of a lot of seasonality on that expense line.

Kenneth Scott Hoexter
BofA Securities, Research Division

I didn't mean, just on the expense line, I meant the cadence into first quarter of kind of the OR. Jen, do you normally see 150-basis-point deterioration? Is that -- would you see that given all the backdrop that you're talking about in a big picture way?

Jennifer L. Hamann
Executive VP & CFO

Yes. I mean, obviously, I'm not going to give you a guide, Ken, for the quarter. But I think in terms of seasonality, you understand it, there is a difference. When you start out the year, you have some beginning of year costs, if you think about some of the payroll taxes that kick back in for us, our business is a railroad. You generally see some of the lowest volumes of the year in the first quarter.

And then you tend to have some more weather expenses. I mean, I'm not used to paying for snow removal in New Orleans, but I think I'm going to this year a little bit. So you have some of those things happening. So pleased to see the way the railroad started in terms of the volume demand and the fluidity. But from a seasonality perspective, I wouldn't look for anything unusual there.

Operator

Our next question is from the line of David Vernon with Bernstein.

David Scott Vernon

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Sanford C. Bernstein & Co., LLC., Research Division

So Kenny, I got a couple of questions for you. First is, in the intermodal business, can you give us a sense for where utilization is and the box pool fleet for you guys right now? Obviously, there's a lot of channel inventory that's been built up by the intermodal marketing companies through the pandemic, taking too many boxes. I'm just wondering where your utilization is kind of running right now on railroad-owned equipment?

And then the second question would be whether this recent uptick in natural gas prices that we're seeing may have some benefit for you on the pricing side with some of your utility coal contracts?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

Yes. So the first question, I think, we certainly did deploy our rail fleet in the second half. We saw it grow and really do really well in our portfolio fleet. And when I say portfolio, I'm talking about the private asset folks, the IMC. So we saw shrink there. It wasn't fully deployed. So there's upside there. And so we'll see what happens as we move throughout the year.

Switching to natural gas, I'd tell you, it's one of the most volatile things to do, and I've been in this role now 7 years, and I've gotten out of that game of trying to forecast what's going to happen with natural gas. But bottom line, you asked a direct question. We should see some benefit if natural gas prices increase, absolutely.

David Scott Vernon
Sanford C. Bernstein & Co., LLC., Research Division

Right. And is there any way to quantify how many more boxes kind of are stacked today versus maybe you would have had normally pre-COVID?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

No, I would just say that if you look at the overall market, again, I mean, the overall market is still not where it should be. There's still upside. And so we still feel good about deploying those boxes as the market comes back.

Operator

The next question is from the line of Jordan Alliger with Goldman Sachs.

Jordan Robert Alliger
Goldman Sachs Group, Inc., Research Division

Just coming back to intermodal. If the trends hold up that international facing those tough comps, maybe volumes be tough to grow in the back half of the year. Does the domestic intermodal offset can that provide -- even if volumes are perhaps down, can that provide a favorable net positive in terms of mix, margin, EBIT dollars, et cetera?

Jennifer L. Hamann
Executive VP & CFO

Yes. I mean, everything depends on magnitude, right, Jordan. So I think it's unfair to really kind of focus in on one commodity line like international intermodal. You're right, the comps are going to be extremely tough in the back half. But there's a lot of other businesses that we move, and that's really what's going to ultimately play into what our financial results will be. So maybe domestic intermodal offset some of that, but we've got a lot of other business lines that we're going to move, and we're going to try to maximize those. So I don't know that we want to get into the game of trying to make a prediction about how the back half actually looks. There's a lot to happen between now and then.

Kenyatta G. Rocker

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Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

But the bottom line is we feel confident and we're bullish on the domestic intermodal market going into 2025. That's the key.

Jennifer L. Hamann
Executive VP & CFO

We've had some great franchise wins there that we still haven't seen the full benefit from.

Operator

Our next question is from the line of Daniel Imbro with Stephens.

Daniel Robert Imbro
Stephens Inc., Research Division

Maybe to follow up on the volume outlook. If we look on the outlook on Slide 11, on a headline, there's more pluses than minuses. But how should we think about the mix impact on revenue per carload? You just talked about intermodal in the previous question. But I guess, any visibility into changes of mix within mix within these categories that we should be aware of when we think about the market share wins?

And Jennifer, I understand that you don't want to guide each quarter, but how should we think about volume growth through the year given the more difficult back half comparisons? Can we grow volume each quarter? Would that be kind of a base case expectation? Just any color there would be helpful.

Jennifer L. Hamann
Executive VP & CFO

Yes, Daniel, thanks for the question. So I mean, we specifically aren't giving volume guidance either for full year or on a quarterly basis. I think you've laid out, as we laid out, kind of what some of the puts and takes are through the year. I think the important thing is, is that we're very well positioned. The service product is good. Kenny and his team are out there winning new business. And so we're going to do all we can to push that curve upward. But there's also market forces out there that we're going to be playing against, and we'll just see how that all plays out.

From a mix perspective, and I did say this in my comments, when I look to the back half of the year with what we expect to happen from international intermodal, that will alleviate that mix pressure that we had in the back half of 2024. How that ultimately shapes out, kind of similar to my answer to Jordan, will depend on what the rest of the business is doing at that point in time.

But I think you're thinking about the different components correctly. It's just a matter of what else layers in along with those as we go ahead. Certainly, mix will continue to be a challenge here, at least in the first part of the year as international intermodal stays strong.

I don't know, Kenny, if you want to add anything else?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

You've hit it all. Again, the credo here for the management team is we're going to have volume outpaced the market, and we expect the revenue to outpace volume.

Vincenzo James Vena
CEO & Director

I guess the only thing I would say is this, our business mix actually is, is we've got a broad range of customers in a broad range of markets that we play in. So of course, we want to maximize all of them in a smart way that fits our network, makes our customers win and it's service that we can provide at a high level.

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So puts and takes. International, we don't see it being able to stay at that. Nobody -- if I go back to the early part of 2024, nobody thought the international intermodal for the Western railroads was going to grow in for Union Pacific as much as it did, but it did. But we also have products across. Whether it's industrial products, whether it's sand for fracking, you name it, and that's the nice part about our franchise is the different types of customers that we handle. We move every day products that America needs for finished products, consumer goods and inputs to the economy.

So I'm very happy. It's great to have this franchise that was built by a lot of people before I came to Union Pacific. So that's the way we look at it. And of course, Kenny's job is to maximize it. Otherwise, why do you have a marketing department, right? So I'm looking forward to another great year, Kenny. Thank you very much for the question.

Operator

Our next question is from the line of Walter Spracklin with RBC Capital Markets.

Vincenzo James Vena
CEO & Director

Walter, how is it in Canada?

Walter Noel Spracklin
RBC Capital Markets, Research Division

It's pretty cold, but my backyard rink is in good shape, Jim. That mentor quote, it sounds like it was a quote from Hunter, am I right?

Vincenzo James Vena
CEO & Director

Well, it was a little earlier, but I think Hunter would have -- might have said it in a different way. He might have not called stupid -- but at the end of the day, yes, he would have said something very similar. It's -- don't worry about all these things that you can't control. It's the fundamentals. If you operate a strong railroad. If you look at your costs, you make sure you're very efficient. Don't lose sight of what's important, you end up on the winning side of the game. You end up on the winning side of the hockey game, Walter, good strong defense, right, in hockey, always wins the Stanley Cup. Not that five persons in the front, it's that strong four core defenseman that make a difference and a strong goalie. So that's what we're all about.

Walter Noel Spracklin
RBC Capital Markets, Research Division

Well, my son will be happy to hear that comment for sure. Speaking of those fundamentals, Jim, you talked a bit about guidance, and it's predicated on a mixed economic outlook. And I know you like that kind of scenario analysis where we look at the upside, and I know a few of your trucking peers have spoken pretty constructively here today about that potential for an improvement in the economy.

So if we do see that, where do you see the most opportunity for leverage if we get a better macro? And more importantly, is this type of operating leverage that you're engineering here, Jim? Is this setting you up for potentially coming in above the high end of that low double-digit band? Or is the low double-digit capture if the economy gets better than we will do low double digits? Just curious to hear how that sensitivity works out for you.

Vincenzo James Vena
CEO & Director

Well, Walter, if I didn't have a few hundred people on the call, maybe I would say something different. But bottom line is you know what we talk about. But you know what, you always hear from me, but I've got a strong team with me. And Eric does a fantastic job about how we operate every day and Kenny does a fantastic job. I rib them every so often about why do we need a marketing department. So why don't I let

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them talk about what they see and what we have operating leverage and what we see customer leverage as we move ahead and what that would mean. So Kenny or Eric?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

I'll kick off, Eric, and then you take over. I mean, look, we laid out the slide, but I'm very bullish on what we're seeing in our grain products area with renewable diesel. And I'm bullish from a number of reasons. One is structural. We've talked about these facilities that are on our line. Eric's service product has given us flexibility on the grain side to move anywhere in the world, whether it's going out of the Gulf, whether it's going to Mexico, whether it's going to the PNW. And we'll see where coal ends up. I got a coal question a little bit early. It started off pretty solid here, and we've got a win that's coming on.

On the industrial side, our petrochem business has been strong. We've had some wins. We've been investing in that area to help us grow, we'll see that in terms of expansions coming on this year. And then we got to look at some of these other macro indicators, what's going to happen with housing starts. That has a really, I'll call it, a step function impact on us from a lot of different commodities.

And then on the premium side, we should see automotive market improve as we move throughout the year. Domestic intermodal, I mentioned, high on and should be positive. And on the international side, I'd be remiss if I didn't say we've gone out and tried to minimize those comps by winning some business last year and trying to retain portions of it, not all of it, obviously. So we'll see how that plays out.

Eric J. Gehringer
Executive Vice President of Operations

And then, Walter, if you pick it up from there, then the question becomes are there proof statements in Union Pacific's recent history that demonstrate that we can do exactly what Kenny just said that we can support them as he's out there in the market. And there are a number of them. We talked about international intermodal, and I think we've talked about that one enough, a massive accomplishment for the team. But think about if we were sitting here a year ago, nobody would have expected the shift on the grain side away from the Pacific Northwest as much into Mexico. But you didn't hear any noise about that. Instead, you saw us pivot, use some of those buffer resources we have, leverage our strong relationship with FXE to be able to grow that market share.

You also see it in the example that I mentioned in my prepared comments about the Houston Gulf Coast project. Sometimes when people think about capital investments and we say projects, they think it's one location, and we must be building just a siding. That project collectively is a massive undertaking, and it's a very strategic undertaking to say where do we have to make just small adjustments, small investments in many different terminals to make sure that we can support exactly what Kenny said.

And then finally, one of the most exciting ones for me and certainly for all of us. I tell you, every single expansion we do in Inland Empire, Kenny's team just keeps filling it up. And so we have many proof statements that say we can support exactly what Kenny is setting out to do in 2025.

Vincenzo James Vena
CEO & Director

Walter, thank you very much. And listen, it's time for one of the Canadian teams to win the Stanley Cup, okay? It's been a long time.

Walter Noel Spracklin
RBC Capital Markets, Research Division

Agreed. Agreed.

Vincenzo James Vena
CEO & Director

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And I think the Edmonton Oilers are going to do it. I've been following them for a long time, and I've been suffering for many years, Walter. Not as bad as you in Toronto, but that's okay. Don't worry about it.

Operator

Our next question is from the line of Jeff Kauffman with Vertical Research Partners.

Jeffrey Asher Kauffman
Vertical Research Partners, LLC

Congratulations on just a terrific execution quarter. Kenny, I want to come back to you, if I can. I like your answer to Jason Seidl's question, be prepared in terms of dealing with these known unknowns. But I want to dive a little bit deeper. When I think about what could be at risk on the tariff side, I'm not talking about the tax change or regulatory benefit. You would think, obviously, export grain south. You would think beer imports north. You would think auto parts. What elements of your traffic mix either have maybe a Canadian end to it that we might not see as obviously, or a Mexican import/export and that might not be as obvious to us on the outside?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

Well, first of all, I just want to say it's all fluid, and I'm not aware when I look across our commodity groups where -- maybe there is one specific commodity I can think about, but most of these commodities have different entry points and different origin points, different destinations. That's why I talk about preparedness because we have just a great franchise to be able to capture that.

So whether it's finished vehicles that have to come in through the Gulf. Whether it's finished vehicles that have to come in through Mexico. Whether it's finished vehicles that we move out of the PNW. We have different entry points and destination points to move in and out. That's why I harp so much on preparedness. The end consumer is going to consume these products. It may be a few pennies more. They're going to consume the product. It's just how it's going to get there. And our commercial team is all over this to make sure it moves Union Pacific.

Jeffrey Asher Kauffman
Vertical Research Partners, LLC

So maybe to your point, I guess, maybe the thing we should be thinking about is, maybe the way it gets to where it's going changes, but your feeling is that the team will find a solution if that has to be?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

So I hit that point, I thought I hit it hard earlier. That's exactly what I'm saying. Our job, our commercial team needs -- and we are, and we're dialed in on where these changes will be and then coming up with solutions with Eric's team to make sure we can deliver them.

Vincenzo James Vena
CEO & Director

Yes, [indiscernible] I have to say that, and thanks for the question. I think, you hit it, you summarized it well.

Operator

Next question is from the line of Tom Wadewitz with UBS.

Thomas Richard Wadewitz
UBS Investment Bank, Research Division

I wanted to -- I think you had some pretty positive and convicted views on pricing and focus on price, which is great. How do you think about the trucking, and your assumptions on truckload market? And do you just think, well, we'll get a little help from some modest contract increases in trucking that helps

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us. Or how do you think about that? And also just on intermodal revenue per unit, is that something that's been a pretty meaningful drag for a while. I know some of that can be fuel surcharge and mix and everything, but it's been a pretty big drag. How do you think about revenue per unit in intermodal in 2025 as well?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

So the last couple of years, we -- I have resisted from going out and forecasting as seeing back half, back half, back half. We want to look at the data points and the market data points, we'll tell you whether you're looking at DAC, whether you're looking at FTR, that it should improve as we move throughout the year. Customer sentiment is the same as we're talking to a number of our IMCs and private asset folks will let that market play out, the timing of it. We'll see where that goes. The extent of it, we'll see where that goes. And yes, if that improves, we should see some uptick there based on how we position things in terms of that revenue per box.

Jennifer L. Hamann
Executive VP & CFO

Yes. And Tom, I think you really nailed it in terms of what you see as the drivers there. I mean, it's one of those categories where we have mix within mix. We talked at our Analyst Day about how our international intermodal has our lowest revenue per unit of any commodity that we haul. And so when that's growing strong within that group, you see that impact. And of course, fuel coming down is another thing. So both of those are really what you see happening there, as well as the tougher competitive environment.

Vincenzo James Vena
CEO & Director

The only thing I can add, Tom, is just on the productivity side of the way we've been able to change the way we operate our lowest revenue movements. And no ifs, ands, or buts, there's a big difference between some products that we move because we don't price the same for every commodity. But at the end of the day, we've done a lot of work on terminal dwell, car speed, car velocity, how many boxes we can put on a train to be able to make it more efficient for us so that we handle the difference in the revenue that we make.

And that's -- and the Eric's team works every day, every minute on that commodity to see how do we optimize the railroad and the cost structure that we have against the revenue that we make on it. So it's a challenge. But at the end of the day, I think we've done a pretty good job of it, and we still love that business. It's good for us, and it moves through our whole network. And the more efficient we can get, the better we are on being able to handle more of it in an efficient manner and maybe put a little less pressure on Kenny -- well, I guess not to price it up. So thanks for the question, Tom.

Operator

The next question is from the line of Oliver Holmes with Redburn Atlantic.

Oliver Holmes
Redburn (Europe) Limited, Research Division

Just a question on CapEx, if I may. It looks like your locomotive and equipment CapEx is forecasted to decline from $0.6 billion to $0.5 billion. I was just wondering if that's a reflection of the withdrawals...

Vincenzo James Vena
CEO & Director

Oliver? Oliver? You're breaking up. I can't understand it. I don't know if anybody else from the table can?

Jennifer L. Hamann
Executive VP & CFO

No. All I heard is something about CapEx.

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Vincenzo James Vena
CEO & Director

Yes. Can you maybe just get into a little better spot or something and see if you can get through to us, please?

Oliver Holmes
Redburn (Europe) Limited, Research Division

Can you hear me any better now?

Vincenzo James Vena
CEO & Director

No, still breaking up, Oliver. Can we go to the next question and then see if we can get Oliver in a different spot because I know we're down to the last couple, operator?

Operator

The next question is from Brandon Oglenski with Barclays.

Brandon Robert Oglenski
Barclays Bank PLC, Research Division

I know it's been a long call, and I was off for the front part of it, so apologies if I'm replicating something here.

But I guess, Jim or Kenny, we've heard about better service. And I think what investors are looking for at Union Pacific and other railroads is to finally see real volume growth. So on the back of those service gains that you guys have made in the network, Kenny, within the context of your comments about volume outpacing the market this year? I mean, is this incremental wins? Is it business development efforts that are driving this? And finally, leveraging that service product?

Kenyatta G. Rocker
Executive Vice President of Marketing & Sales - Union Pacific Railroad Company

Yes, absolutely. I mean if you look at our network minus the business development wins, especially in markets like the automotive that I highlighted, in markets that are challenged, where we have structural decline like coal and markets that are emerging, and we're ahead of it in renewable diesel in a market that we expect to grow from an export perspective on the petrochem side and industrial chemical side, absolutely. The business development wins matter, and it does help us outpace the market. So no other way to really say that than to just hit that one head on.

Vincenzo James Vena
CEO & Director

Brandon, thank you very much. Operator, do we get the Oliver back on or not?

Operator

No, we did not. Mr. Vena. I'll turn it over to you for closing comments.

Vincenzo James Vena
CEO & Director

Okay. Well, listen, Oliver call in. Brad, and the team are always willing to answer the question, so I apologize that it didn't work out.

But listen, I'm very proud of the team. I'm very proud of the focus. I'm proud of every -- today, right now, we have 15,000 people out there moving, touching and working to move the products that we sell. And the rest of us are in a nice warm office, and they're out there working. I can't be more appreciative. Great

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quarter for all of them, great quarter for us and looking forward to speaking to all of you, if not at some conference or at some other time at the end of the first quarter.

So thank you very much. Have a great day, and let's enjoy the day as we go forward. Thank you.

Operator
Thank you, Mr. Vena, and thank you to everyone for joining us today. You may now disconnect your lines at this time. We thank you for your participation, and have a wonderful day.

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EXHIBIT 37

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

--CONTROL--

NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

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Pursuant to the Protective Order

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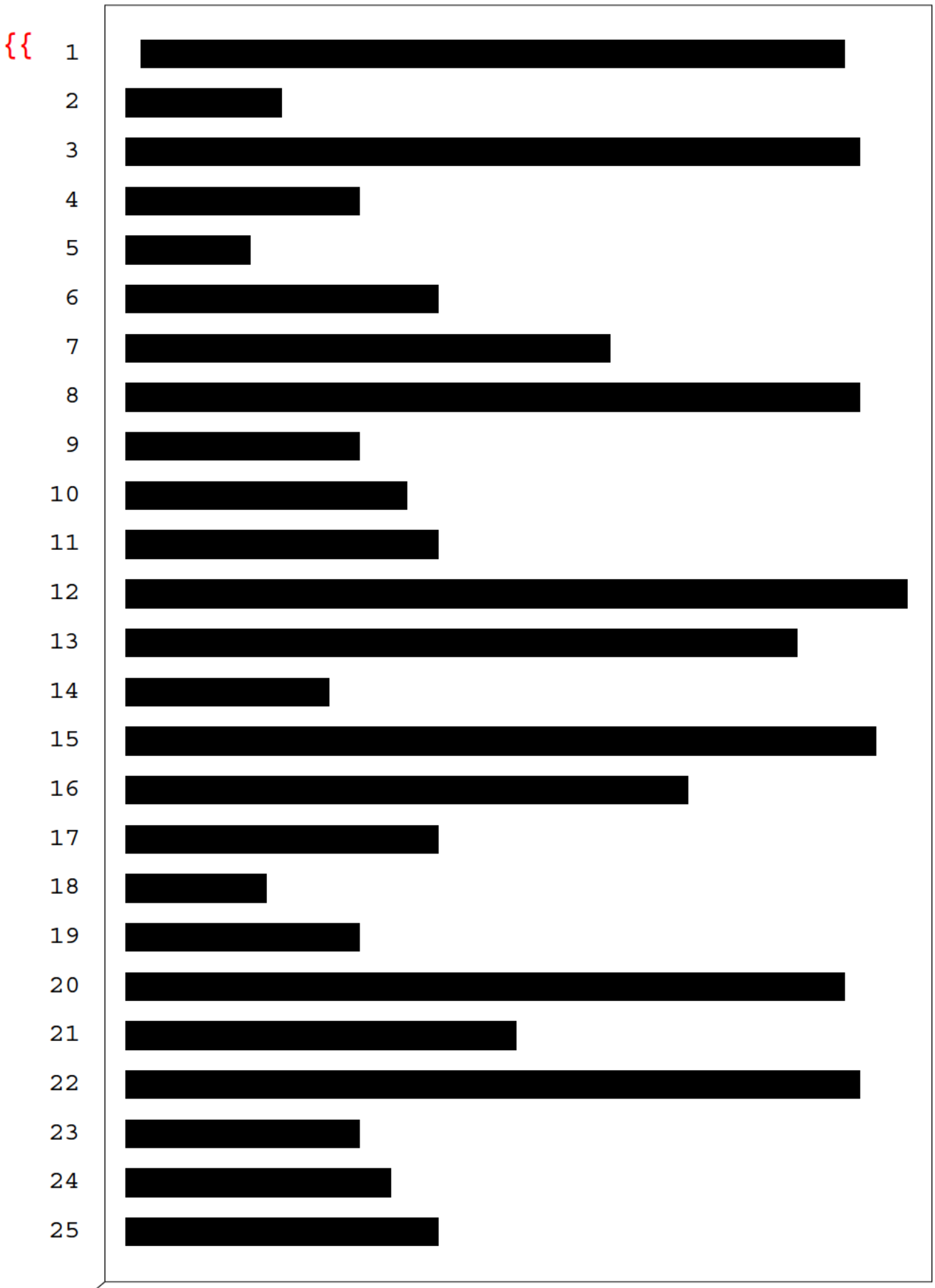
D E P O S I T I O N

The DEPOSITION OF MR. DAVID WELCH, taken on behalf of the BURLINGTON NORTHERN;

at THE LAW OFFICE OF KUTAK ROCK, OMAHA, NEBRASKA; on the 29TH day of JULY, 2026 at 8:00 a.m., CT.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Q. Okay. Set that aside.

(Exhibit No. 8 was marked for the record.)

BY MR. THOMPSON:

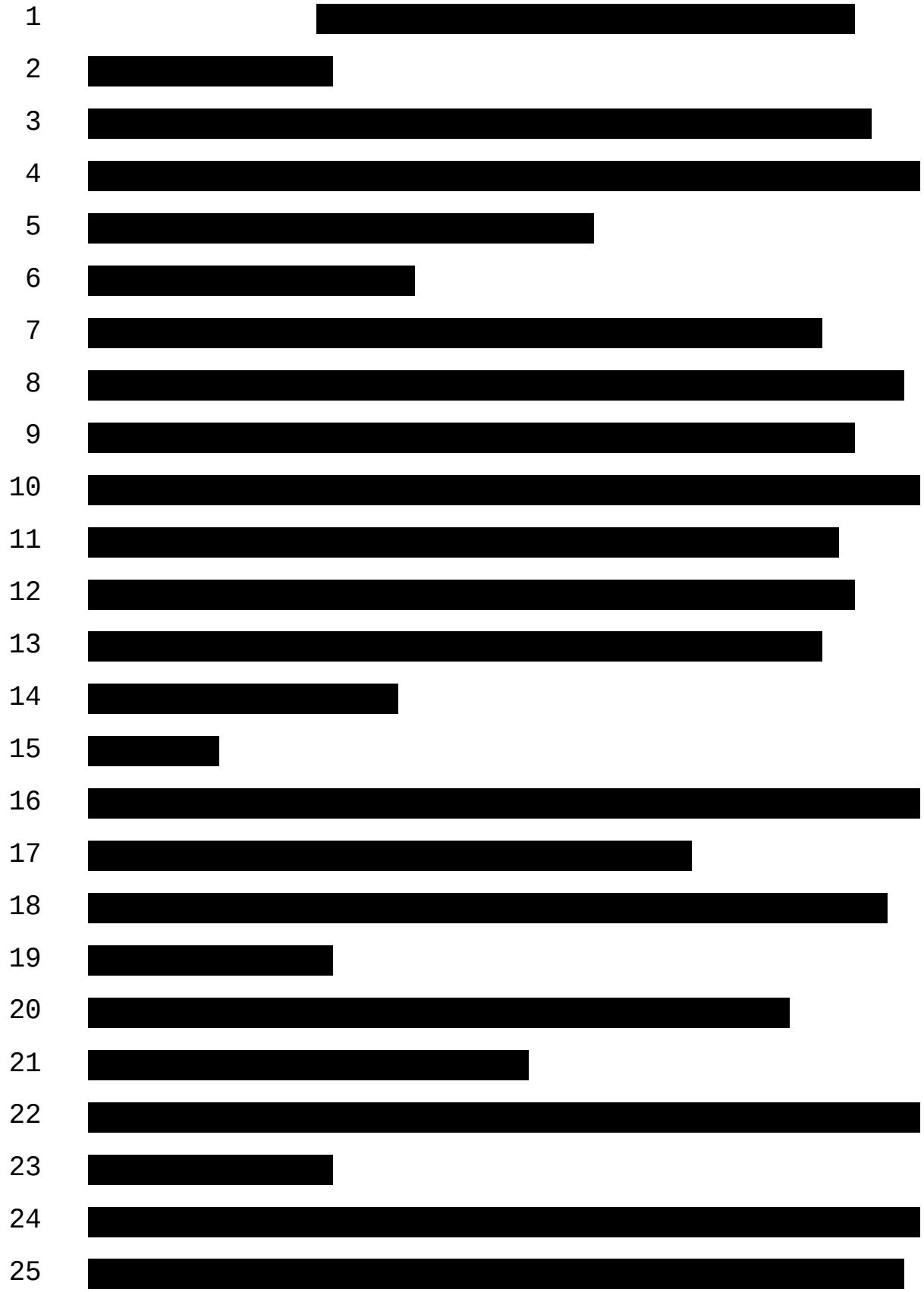
Q. All right. I'll hand you Exhibit 8.

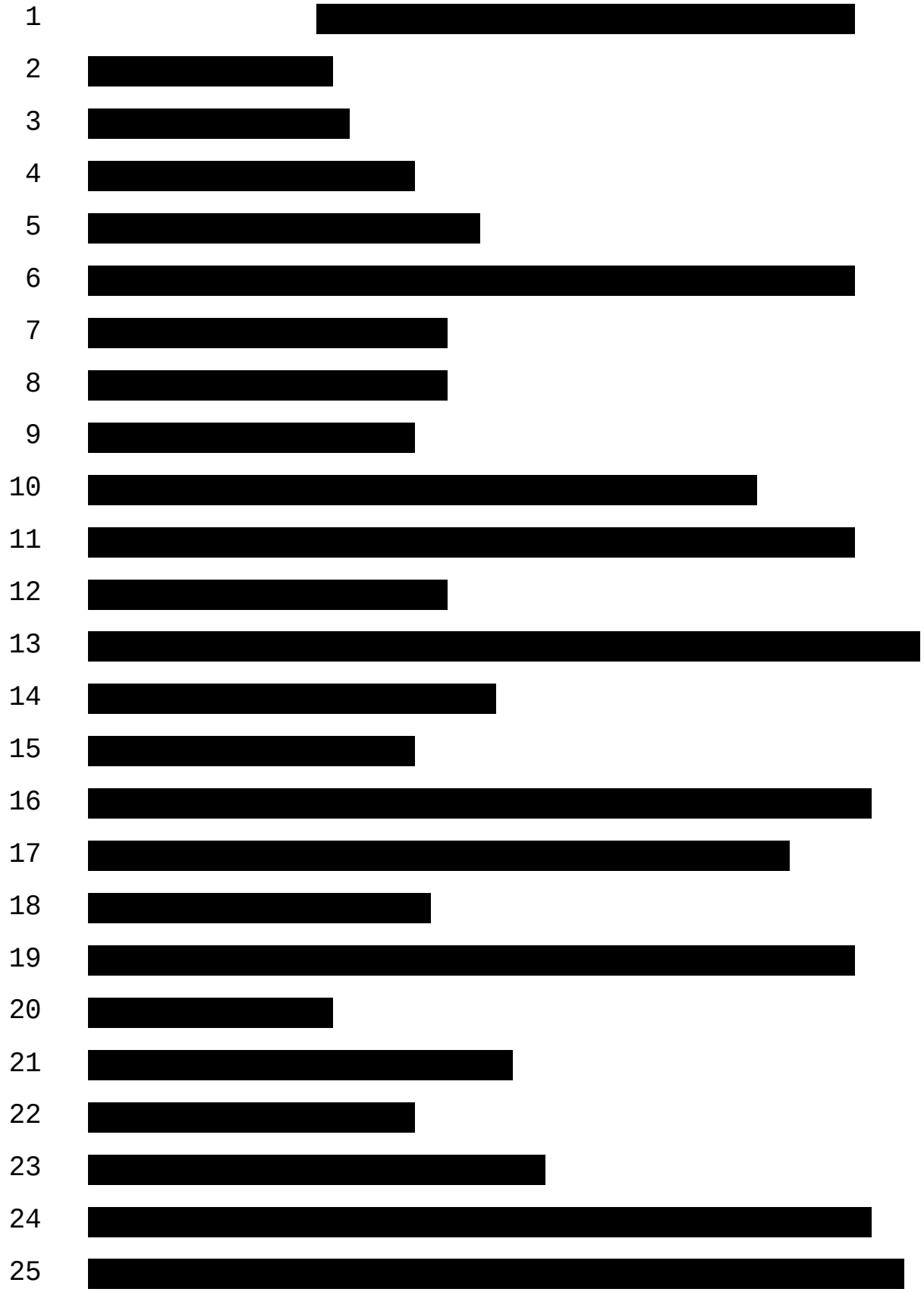
It is a PowerPoint presentation with Bates stamp of UP24657. The title is Delivering Price.

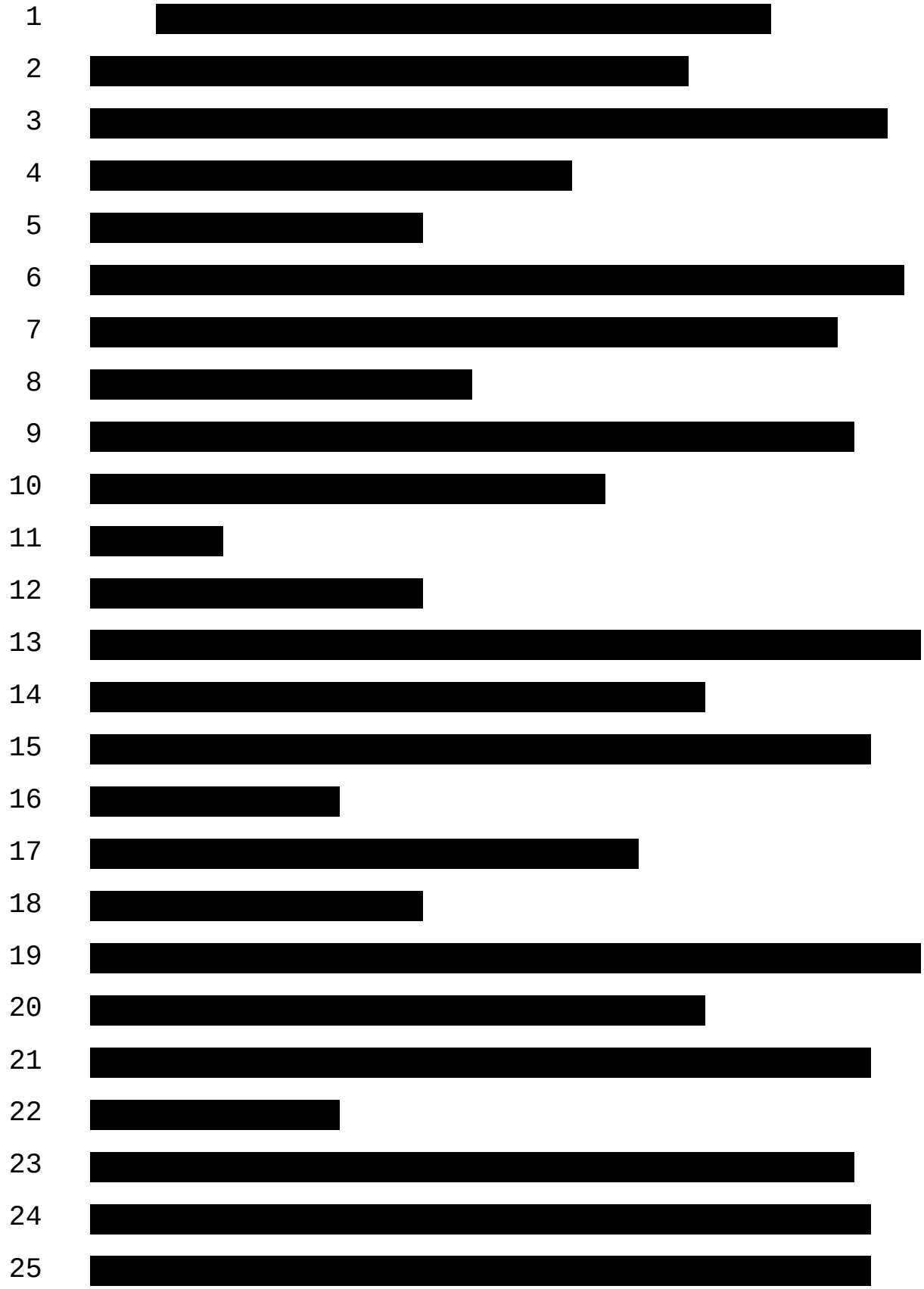
Do you see that?

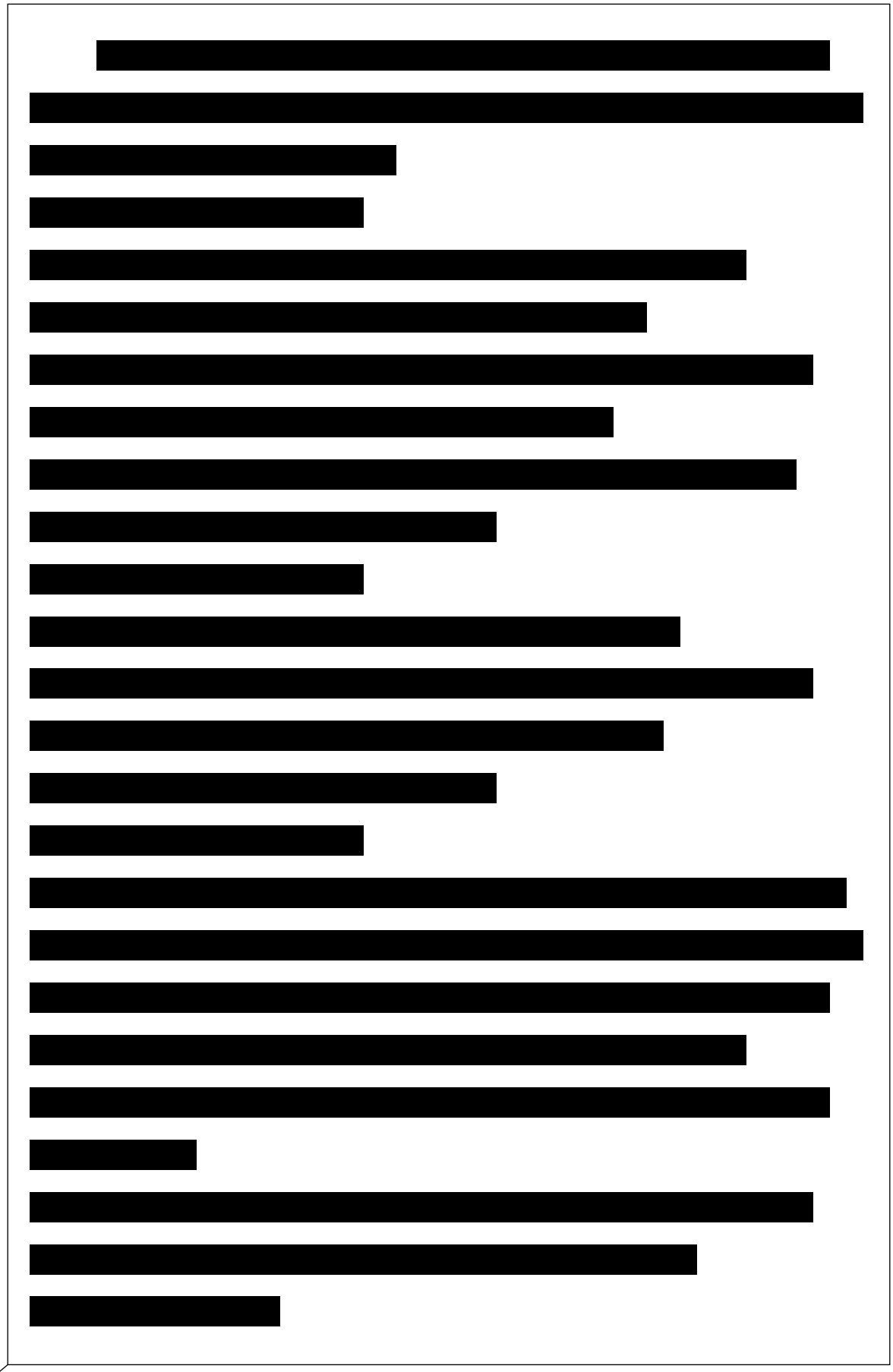
A. Yes.











C E R T I F I C A T E

I, DANA LEA BURKDOLL a Certified Court Reporter (#1364), Registered Professional Reporter (#830156) and Certified Shorthand Reporter (#1955), do hereby certify that the within-named witness was by me first duly sworn to testify the truth.

That the testimony given in response to the questions propounded, as herein set forth, was first taken in machine shorthand and reduced to writing with computer-aided transcription, and is a true and correct record of the testimony given by the witness.

I certify that review of the testimony was requested by the witness or the parties. If any changes are made by the deponent during the time period allowed, they will be appended to the transcript.

I further certify that I am not a relative or employee or attorney or counsel of any of the parties, or a relative or employee of such attorney or counsel, or financially interested in the action.

WITNESS my hand and official seal on this 29TH day of JULY, 2026.

Dana Lea Burkdoll

DANA LEA BURKDOLL CSR, RPR, CCR
Certified Court Reporter #0136
Registered Professional Reporter
Certified Shorthand Reporter#1955

EXHIBIT 38 (REDACTED)

EXHIBIT 39 (REDACTED)

EXHIBIT 40 (REDACTED)

EXHIBIT 41 (REDACTED)

EXHIBIT 42

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

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NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

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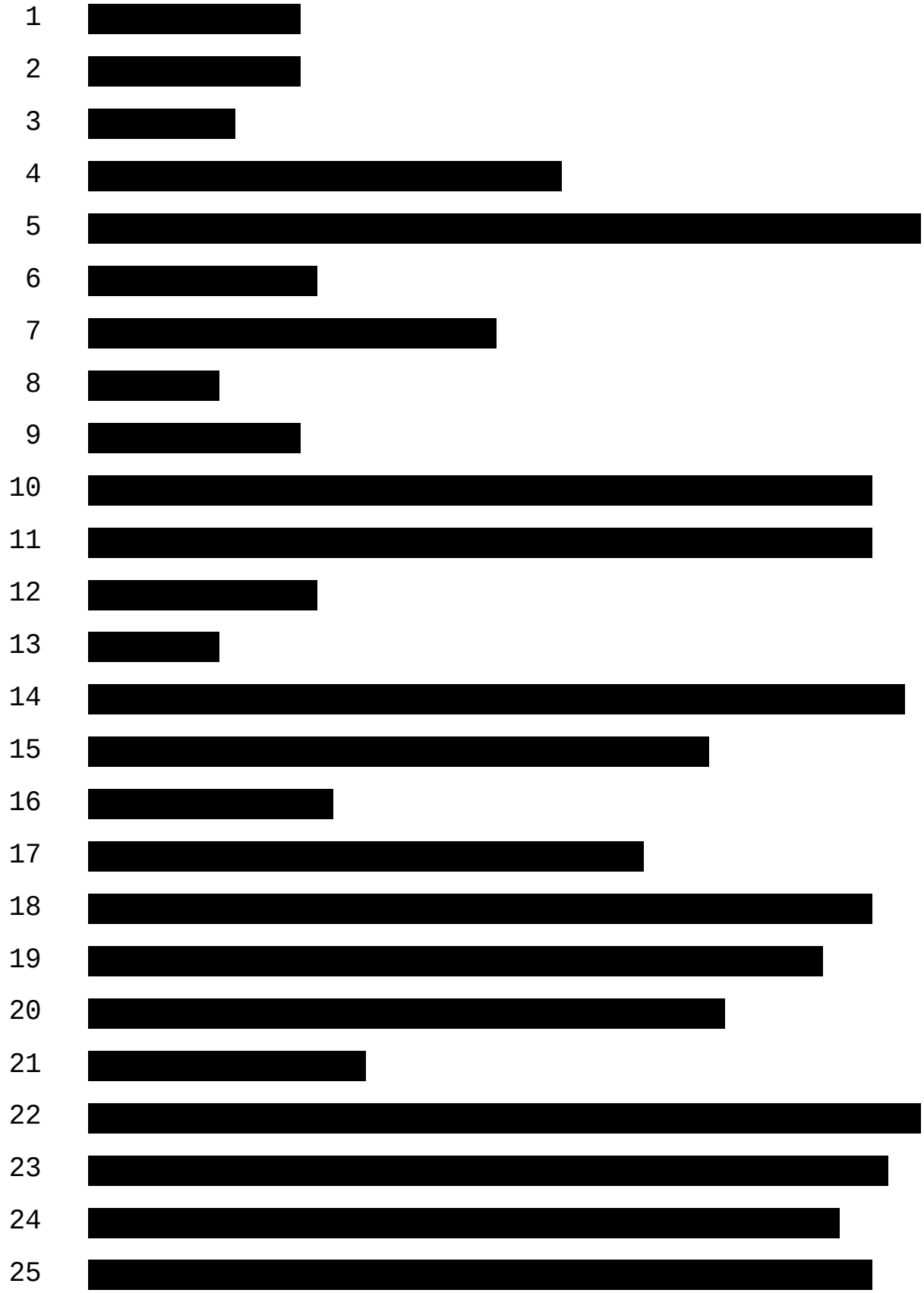
D E P O S I T I O N

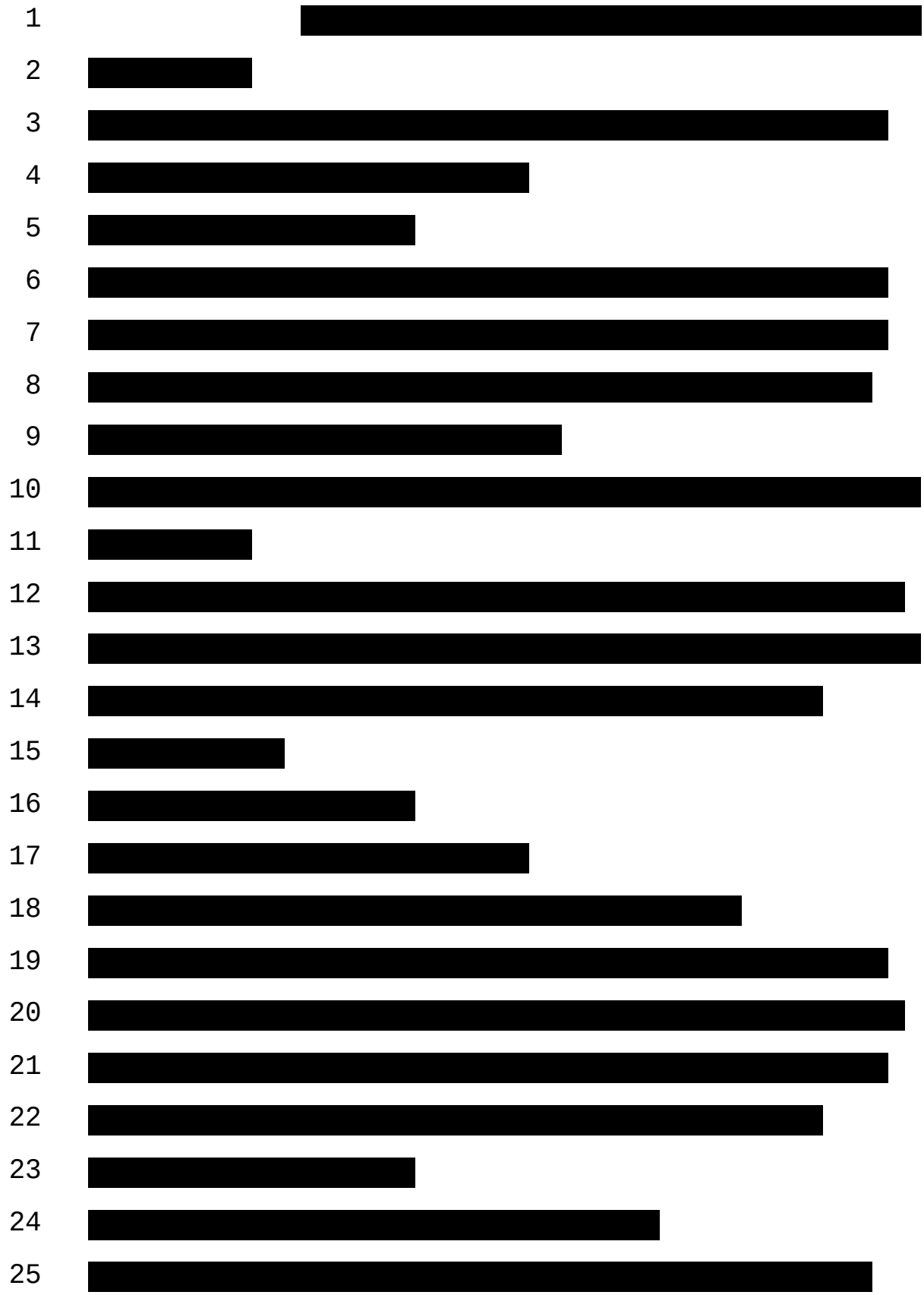
The DEPOSITION OF MR. MICHAEL HOUSTON, taken on behalf of the BURLINGTON NORTHERN ;

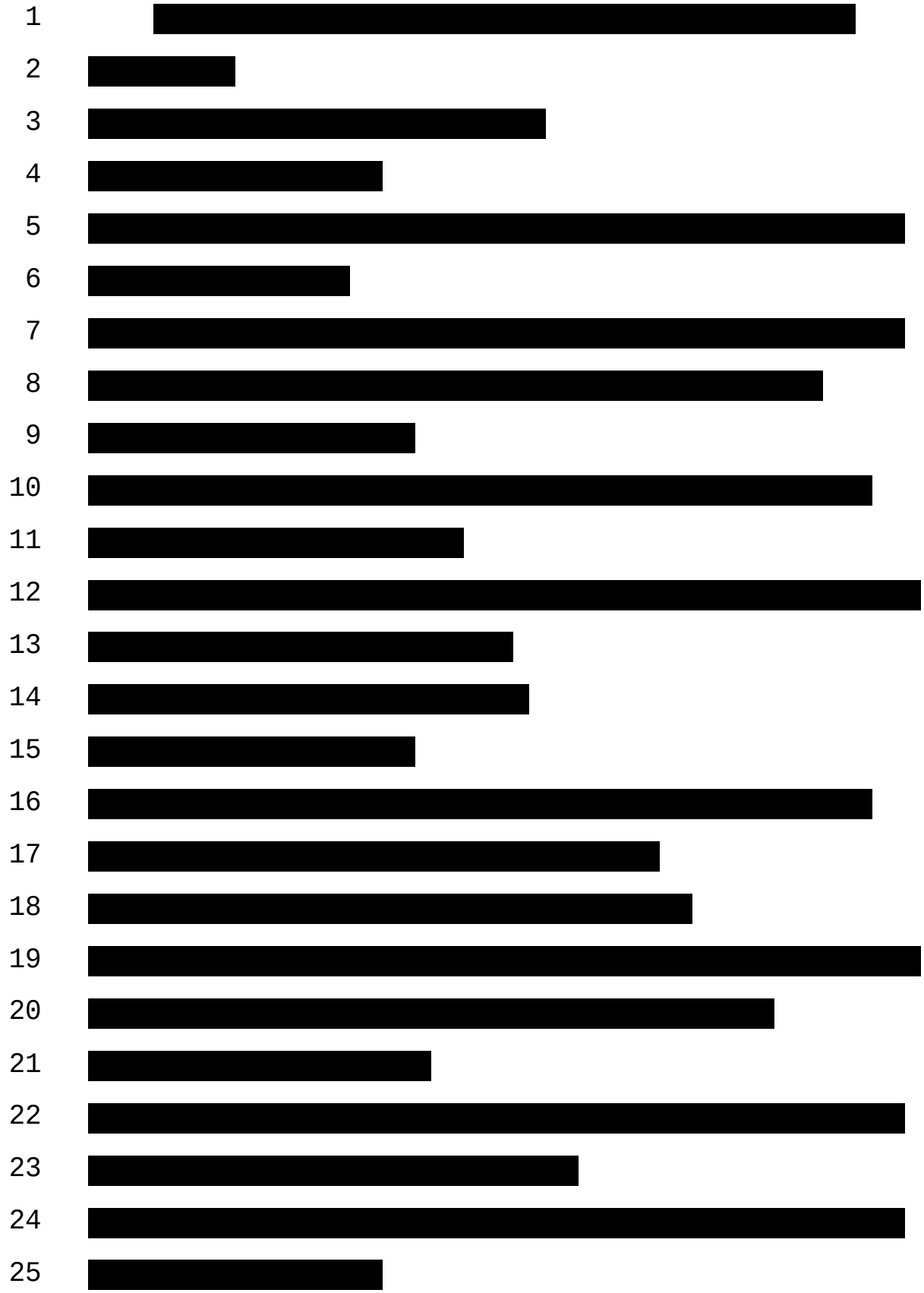
at THE LAW OFFICE OF KUTAK ROCK, OMAHA, NEBRASKA; on the 30TH day of JULY, 2026 at 8:00 a.m., CT.

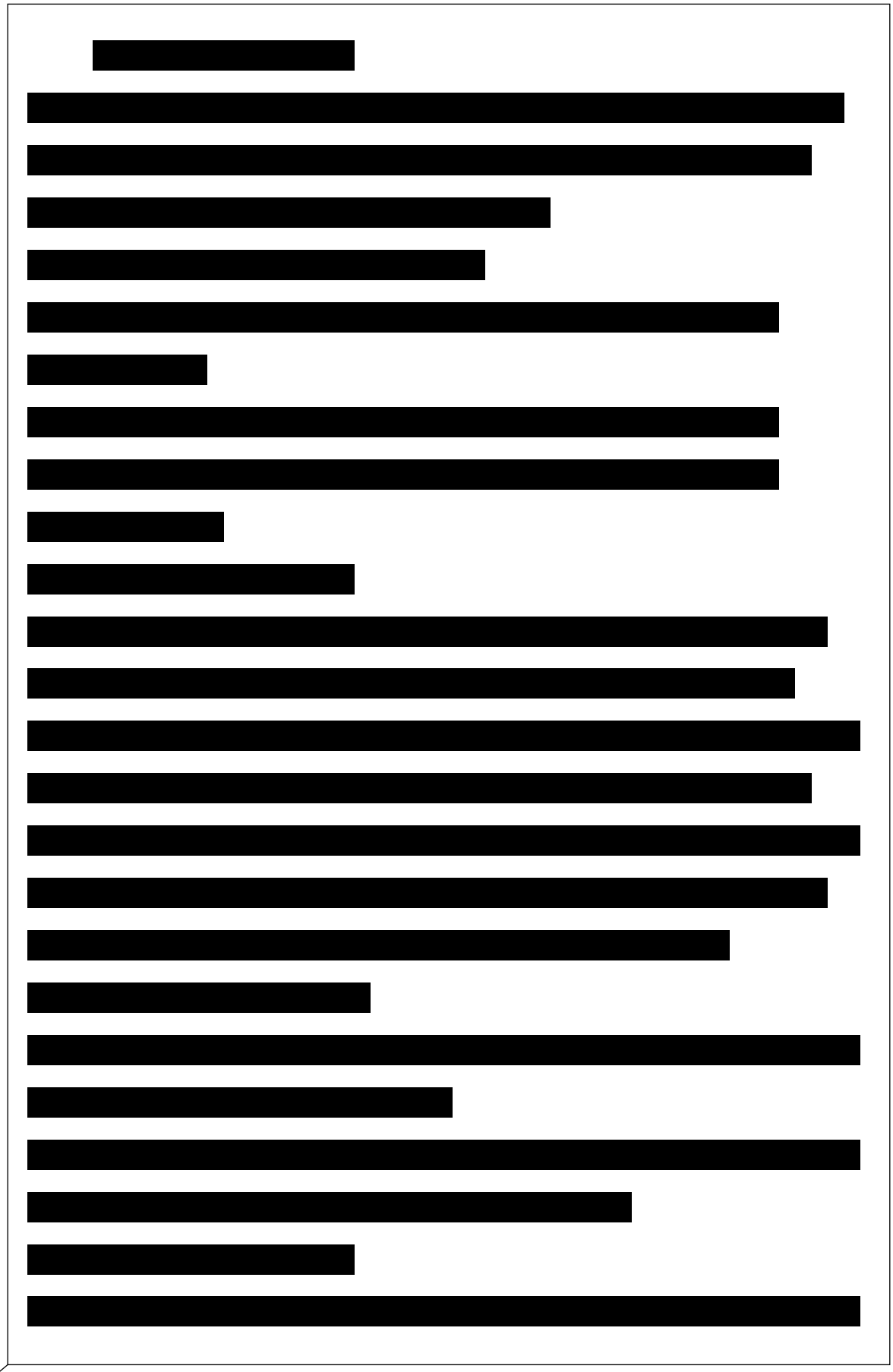
A. The book -- the book 16?
Q. 16 was the book, yes.
I'm going to hand you what was Exhibit 8.
MR. THOMPSON: And for the folks who have it from yesterday, it is the delivering price deck from Kenny Rocker dated December 9, 2024, Bates ending in 657.
BY MR. THOMPSON:
Q. I'm going to ask you about one slide in this deck, Mr. Houston.
A. Yes.
Q. And feel free to take a moment to orient yourself, but I was going to ask you about slide 6. It's ending in Bates 661.
A. I mean, it seems like it's an optimistic deck, so we'll start with --
Q. Yeah.
A. -- start with that.
Okay. This slide -- I'm going to skim through the whole thing to try to get context, but what slide are we --

[redacted]









C E R T I F I C A T E

I, DANA LEA BURKDOLL a Certified Court Reporter (#1364), Registered Professional Reporter (#830156) and Certified Shorthand Reporter (#1955), do hereby certify that the within-named witness was by me first duly sworn to testify the truth.

That the testimony given in response to the questions propounded, as herein set forth, was first taken in machine shorthand and reduced to writing with computer-aided transcription, and is a true and correct record of the testimony given by the witness.

I certify that review of the testimony was requested by the witness or the parties. If any changes are made by the deponent during the time period allowed, they will be appended to the transcript.

I further certify that I am not a relative or employee or attorney or counsel of any of the parties, or a relative or employee of such attorney or counsel, or financially interested in the action.

WITNESS my hand and official seal on this 30TH day of JULY, 2026.

Dana Lea Burkdoll

DANA LEA BURKDOLL CSR, RPR, CCR
Certified Court Reporter #0136
Registered Professional Reporter
Certified Shorthand Reporter#1955

EXHIBIT 43 (REDACTED)

EXHIBIT 44 (REDACTED)

EXHIBIT 45

BEFORE THE SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

--CONTROL--

NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

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VIDEOTAPED DEPOSITION

The DEPOSITION OF TODD M. RYNASKI, taken on behalf of the BURLINGTON NORTHERN, at the Law Office of Kutak Rock, 1650 Farnam Street, Omaha, Nebraska, on September 9th, 2026, at 8:03 a.m. Central Daylight Time.

REPORTED BY: GREG S. WEILAND, CSR, RDR, CRR

JOB NO.: 23769

{{ [redacted]

Q. In your experience, have any railroad mergers resulted in lower prices for customers?

MR. LUDWIN: Object to form.

THE WITNESS: I don't know.

BY MR. BROWN:

Q. Can you identify any railroad merger that has resulted in lower prices?

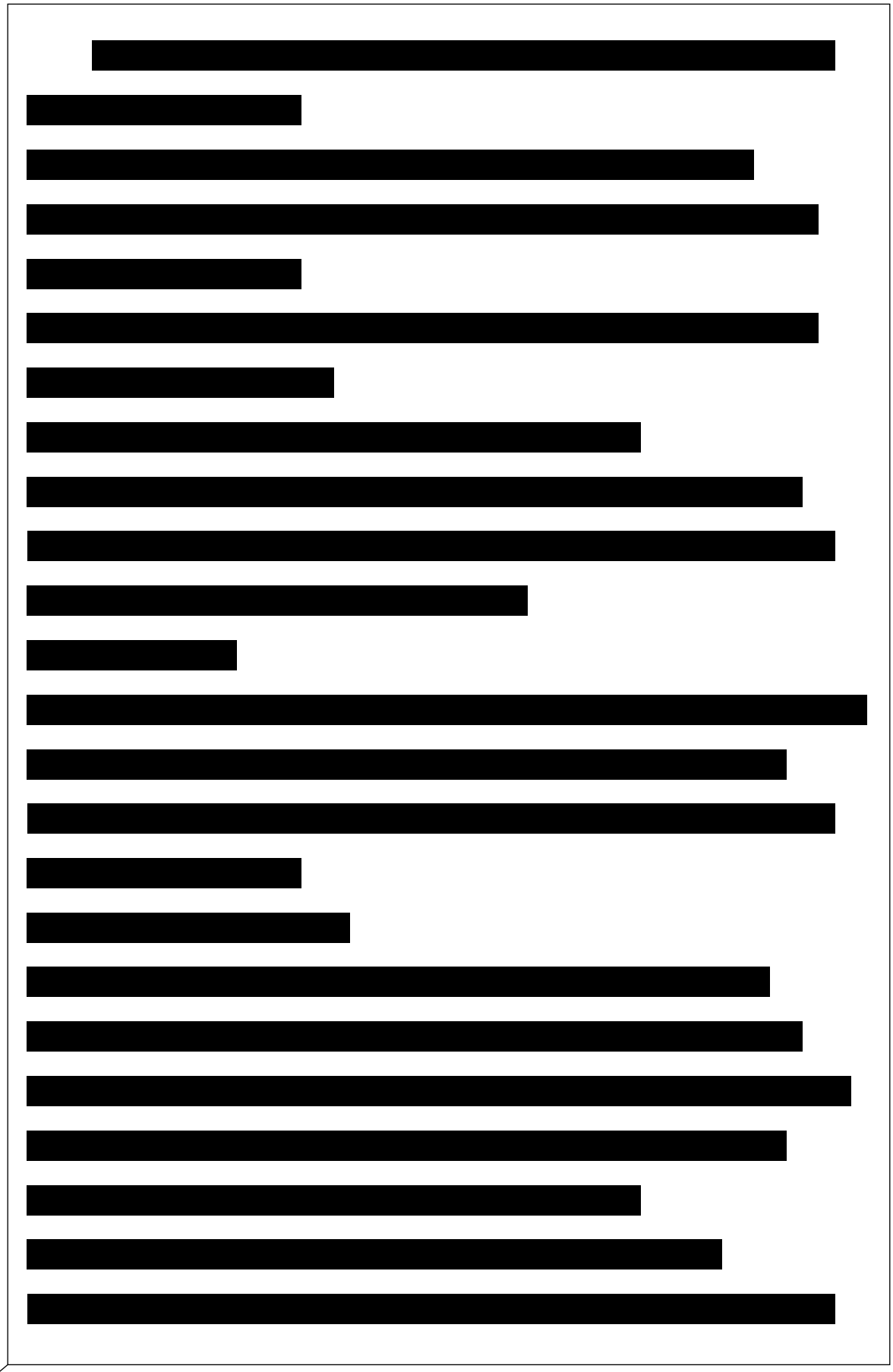
A. I don't have visibility to other railroads' pricing and what their customers are experiencing.

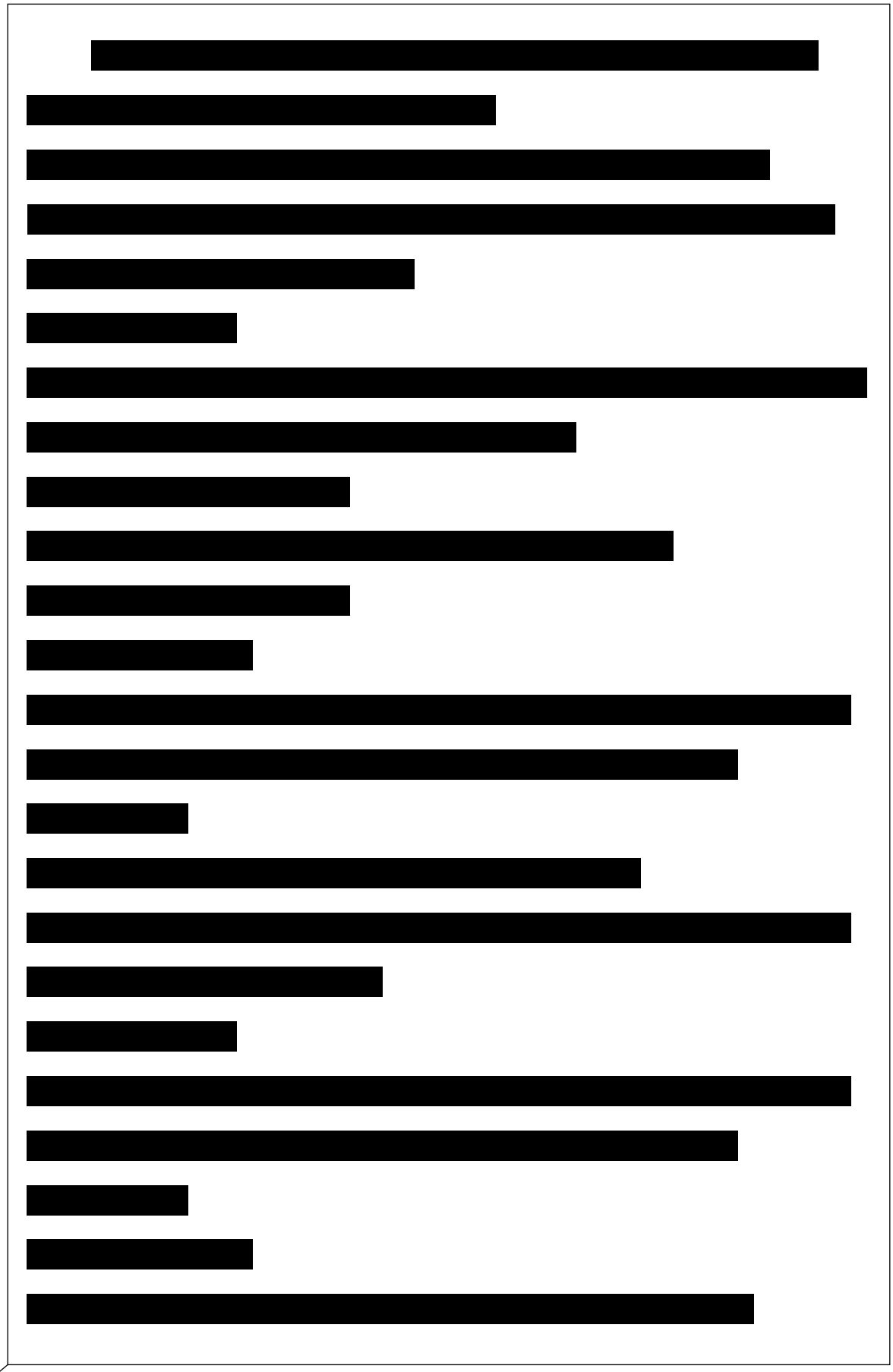
Q. Can you identify any railroad that, to your knowledge, has resulted in lower prices for any customer?

A. I can't.

Q. Will the UP-NS merger result in lower prices for customers?

A. We believe it will.





Witness my signature on this 14th day of September, 2026.



GREG S. WEILAND, CSR, RDR, CRR
License No. 084-003472

EXHIBIT 46

A STUDY OF COMPETITION IN THE U.S. FREIGHT RAILROAD INDUSTRY AND ANALYSIS OF PROPOSALS THAT MIGHT ENHANCE COMPETITION

Revised Final Report

Laurits R. Christensen Associates, Inc.
Madison, WI

November 2009

Executive Summary of Revised Final Report

Prepared for
The Surface Transportation Board
Washington, DC

Preface to Revised Final Report

In November 2008, Christensen Associates issued *A Study of Competition in the U.S. Freight Railroad Industry and Analysis of Proposals that Might Enhance Competition*. We believed our analysis was based on revenue information from the unmasked Customer Waybill Sample (CWS). However, it has since been discovered that we were provided with a mixture of masked and unmasked CWS revenue data for years 2001-2006, with the effect that masked revenues were used in portions of our analysis. Additionally, the Surface Transportation Board revised CWS data from 1990-1999 that were used to develop data on long-term trends in shipment volumes, revenue, and characteristics. Consequently, the Surface Transportation Board has retained Christensen Associates to revise the original report with the corrected CWS revenue information as well as to update the results with 2007 and 2008 information that has become available since the original report was released.

Using unmasked revenues has generally minor effects on the econometric pricing analysis presented in Chapters 11-15. The corrected analysis shows generally similar responsiveness of revenue per ton-mile to cost-related shipment characteristics and market structure factors as the originally published study. Since unmasked revenues are lower overall than masked revenues, distributions of the revenue-to-variable cost ratio (R/VC) for shipment tonnage and ton-miles reported in Chapter 11 shifted downward, with markedly lower shares above 300 percent R/VC and higher shares below 100 percent R/VC.

Some of the price indexes presented in Chapter 8 also relied on CWS revenues. Using unmasked revenues in the computation of these indexes does not result in any significant changes to our analysis presented in Chapter 8.

In the process of revising the analysis, we also made corrections to Chapter 10 where we originally used nominal values rather than real (constant 2000 dollar) values for revenue per ton mile, average total cost, average variable cost, and average fixed cost. The use of nominal values resulted in an understatement of these values for 1987-1999 and an overstatement of these values for 2001-2006, which have been corrected in this release with the use of real values. However, our crucial finding in Chapter 10—that the recent increase in revenue per ton-mile appears to be the result of cost increases and not due to the increased exercise of market power—remains unchanged.

In addition to the affected chapters, there are some changes in chapters where references are made to the affected chapters. Specifically, the sections of the Executive Summary, and Chapters 18, 22, and 23 that refer to the results of the affected chapters have been revised.

This revision corrects the original report through the period 2006. An update to the study using the newly available 2007 and 2008 data is forthcoming as a separate document.

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ACKNOWLEDGEMENTS

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CHAPTER 4 REVIEW OF ECONOMIC STUDIES OF RAILROAD PRICING, COSTS, PRODUCTIVITY, AND INDUSTRY STRUCTURE

CHAPTER 5 THE CURRENT CONCERNS ABOUT THE PERFORMANCE OF THE U.S. FREIGHT INDUSTRY

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CHAPTER 16 ANALYSIS OF RAILROAD CAPACITY

CHAPTER 17 SERVICE QUALITY

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CHAPTER 22 ECONOMIC ANALYSIS OF PROPOSED POLICY CHANGES

CHAPTER 23 CONCLUSIONS AND FUTURE DIRECTIONS

REFERENCES

Acknowledgements

The primary authors of this report are Kelly Eakin, Mark Meitzen, Thomas Bozzo, and Philip Schoech. These authors received insightful guidance from senior members of the Christensen Associates Railroad Study Team, Joseph Swanson of Jos. Swanson & Co. and Northwestern University (project manager), and Douglas Caves and Laurits Christensen (both of Christensen Associates). We also received valuable contributions from the other senior members of our study team, Wesley Wilson of the University of Oregon (who was also largely responsible for Chapter 4) and John Hudson of Northwestern University.

Dave Armstrong was the lead data analyst for the project. Rita Sweeney was the primary editor of this report and Teresa Sholts was the production manager. Key contributions to chapters of this study were made by Casey Schuster (Chapters 20 and 21) and Michael Welsh (Chapter 2). Jane Hosking served as our head librarian. The following Christensen Associates personnel also contributed to this project: Carl Degen, Tammy Droessler, Marlies Hilbrink, Michelle Lindauer, Emilie Rivers, and Brad Wagner.

We received valuable insights and contributions from the members of our Advisory Panel, who are listed in the Appendix to Chapter 5.

In addition, we would like to thank the following individuals for assistance in obtaining data used in this study: Nick Marathon of the U.S. Department of Agriculture; Craig Rocky, John Gray, Clyde Crimmel, and Frank Hardesty of the Association of American Railroads; Steve Brown of the U.S. Government Accountability Office; John Larkin of Stifel Nicolaus; William Greene of Morgan Stanley; Francetta Willett of the U.S. Bureau of Labor Statistics; Mac Frampton and Paul Aguiar of the U.S. Surface Transportation Board; Douglas Benson of the Upper Great Plains Transportation Institute; and Dennis Weisman of Kansas State University.

We also want to thank all the stakeholders who participated in our study in one way or another, providing valuable information, institutional knowledge, and insights.

William Brennan of the STB Office of Economics served as the STB project manager and our liaison with the STB. He was always prompt and helpful in his responses to our inquiries. He managed the project in a manner completely consistent with the stated goal of this project—an independent assessment of the U.S. freight railroad industry.

Inevitably, we have inadvertently forgotten to include someone on this list. We apologize for the oversight and offer our sincere gratitude.

ABBREVIATIONS

3-R Act	Regional Rail Reorganization Act of 1973
4-R Act	Railroad Revitalization and Regulatory Reform Act of 1976
AAR	Association of American Railroads
AFC	Average Fixed Cost
ATC	Average Total Cost
AVC	Average Variable Cost
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
the Board	Surface Transportation Board
BNSF	Burlington Northern Santa Fe
CAPM	Capital Asset Pricing Model
CBO	Congressional Budget Office
CCO	Common Carrier Obligation
CFR or C.F.R.	Code of Federal Regulations
CMP	Constrained Market Pricing
CN	Canadian National
the Commission	Interstate Commerce Commission
CP	Canadian Pacific
CSX	CSX Corporation
CWS	Carload Waybill Sample
DCF	Discounted Cash Flow
DOJ	Department of Justice
DOT	Department of Transportation
FCC	Federal Communications Commission
FDC	Fully Distributed Costing (methodology)
FTC	Federal Trade Commission
GAO	Government Accountability Office
GDP	Gross Domestic Product
ICC	Interstate Commerce Commission (also referred to as “the Commission”)
ICCTA	ICC Termination Act of 1995
KCS	Kansas City Southern
MC	Marginal Cost

MFP	Multi-Factor Productivity
NS	Norfolk Southern
PAF	Productivity Adjustment Factor
PPI	Producer Price Index
R/VC	Revenue to Variable Cost ratio
R-1	Form R-1 data from Class I railroads' Annual Reports filed with the STB
RCAF	Rail Cost Adjustment Factor
RCAF-A	Adjusted RCAF
RCAF-U	Unadjusted RCAF
RPM	Railroad Performance Measures
RPTM	Revenue per Ton-Mile
SAC	Stand-Alone Cost (methodology)
SARR	Stand-Alone Railroad (analysis)
SPLC	Standard Point Location Code
STB	Surface Transportation Board
STCC	Standard Transportation Commodity Code
TFP	Total Factor Productivity
TTX	TTX Company
UP	Union Pacific
URCS	Uniform Rail Costing System
USC or U.S.C.	United States Code
USO	Universal Service Obligation
USDA	U.S. Department of Agriculture

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EXECUTIVE SUMMARY

A Study of Competition in the U.S. Freight Railroad Industry and Analysis of Proposals that Might Enhance Competition

INTRODUCTION

This report presents the findings of an independent study of the competitive state of the U.S. freight railroad industry performed by the study team assembled by Christensen Associates and commissioned by the U.S. Surface Transportation Board (STB). In conducting this study, the Christensen Associates study team has received cooperation from the STB and numerous railroad industry stakeholders including railroads, various shipper group organizations, numerous individual shippers, government organizations, academics, and other stakeholders. The study team also assembled an Advisory Panel with representatives from a broad cross-section of industries, groups, and stakeholders. While valuable insights and assistance were obtained by the study team from these various groups, no individual, government agency, railroad, shipper, or any other industry stakeholder has influenced the findings of this study. The findings presented and conclusions reached in this report are the professional judgments and opinions of the Christensen Associates railroad study team.

The U.S. freight railroad industry has undergone a remarkable transformation since 1980 when Congress passed The Staggers Rail Act. In the decades preceding the passage of this seminal act, railroads suffered traffic losses that led to widespread insolvencies. The deregulation of the railroad industry ushered in increased market flexibility, competitive and differential rates for rail service, and a climate open to innovation. In the years following the passage of The Staggers Act, the railroad industry experienced dramatic reductions in costs and increased productivity, which yielded higher returns for carriers and lower inflation-adjusted rates for shippers. Thus both railroads and their customers benefited from regulatory reform.

The 2006 GAO Report

Despite the benefits of deregulation, including improved financial performance of railroads and constant dollar rate declines, the railroad industry's stakeholders continue to be concerned over competition, captivity, rates, service performance, and financial viability. Largely due to Congressional concern over the appropriate balancing of railroad and

shipper interests, and the continued viability and ability of the railroad industry to fulfill demands for its services, the U.S. Government Accountability Office (GAO) has issued several reports on the freight railroad industry since the passage of the Staggers Act:

> Policymakers continue to believe that the federal government should provide a viable process to protect shippers against unreasonably high rates, as well as address competition issues, while still balancing the interests of both railroads and shippers. Over the past 10 years, significant consolidation has taken place in the freight railroad industry, while railroads—particularly Class I railroads—have seen their productivity and financial health improve. Railroad officials worry that any attempt to increase economic regulation will reduce carriers' ability to earn sufficient revenues and limit future infrastructure investment. At the same time, a number of academic and government studies are predicting a significant increase in the demand for freight rail over the next 10 to 15 years.[1]

The 2006 GAO report noted that, after a long-term downward trend in railroad rates since passage of the Staggers Act, increases began to occur in the early 2000s:

> Between 1985 and 2000, rail rates generally declined, but then increased slightly from 2001 through 2004. Although rates have declined since 1985, they have not done so uniformly, and rates for some commodities are significantly higher than rates for others. Several factors could have contributed to recent rate increases, including broad changes in the domestic and world economy, the emergence of a capacity constrained environment in which demand exceeds supply, and consolidation in the 1990s in the industry leading to changes in competition. Other costs, such as fuel surcharges, have also shifted to shippers, …[2]

[1] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed*, GAO-07-94, October 6, 2006, pp. 1-2.

[2] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed*, GAO-07-94, October 6, 2006, p. 3.

The question posed by the GAO was whether the observed pattern in railroad rates was the reflection of economic market forces or "a possible abuse of market power:"

> Some concerns about competition and captivity in the industry remain because traffic is concentrated in fewer railroads. It is difficult to determine precisely how many shippers are captive because available proxy measures can overstate or understate captivity. In addition, STB does not accurately collect railroad revenue data. Nevertheless, our analysis of available measures indicates that the extent of captivity appears to be dropping, but the percentage of industry traffic traveling at rates substantially over the statutory threshold for rate relief has increased. For example, the amount of traffic traveling at rates over 300 percent of the railroad's variable cost increased from 4 percent in 1985 to 6 percent in 2004. Furthermore, some areas with access to one Class I railroad have higher percentages of traffic traveling at rates that exceed the statutory threshold for rate relief. These findings may reflect reasonable economic practices by the railroads in an environment of excess demand, or they may indicate a possible abuse of market power.[3]

The Current Study

Based on these observations and concerns, the GAO recommended that the STB conduct a rigorous analysis of the state of U.S. railroad competition:

> We are recommending that STB conduct a rigorous analysis of the state of competition nationwide and, where appropriate, consider the range of actions available to address problems associated with the potential abuse of market power.[4]

[3] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed*, GAO-07-94, October 6, 2006, p. 3.

[4] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed*, GAO-07-94, October 6, 2006, pp. 3-4.

In response to the GAO's call for further study, the STB released an RFP for an analysis of the current state of competition in the U.S. railroad industry. A contract was subsequently awarded to the team assembled by Christensen Associates. As part of this study, we were directed to consider actions to address problems associated with the exercise of market power in the railroad industry.

Prior to initiating quantitative research, we conducted a qualitative research phase of our project. This qualitative phase primarily consisted of obtaining input from a broad spectrum of railroad industry stakeholders. The purpose of our qualitative research was to obtain railroad industry stakeholders' input on the important issues facing the industry—e.g., competition, rates, capacity, service quality—and to ensure, to the extent possible,[5] that these perspectives were considered in our study. We conducted our qualitative research in a manner that provided open access to any stakeholder who desired to provide input to us. We accomplished this through two approaches for soliciting input. First, we initiated contact with stakeholders in various targeted groups and conducted interviews in person and also over the phone. In addition to initiating contact with stakeholders, we established a website (www.lrca.com/railroadstudy) to provide a means by which any interested party could reach us. We obtained extensive stakeholder input that greatly assisted in the focus of our research efforts and also indicated areas where further investigation is warranted.

Our report is organized in three volumes: Volume 1 presents a description of the U.S. freight railroad industry. Volume 2 contains our quantitative analysis of industry competition, capacity, and service quality. Volume 3 presents our analysis of policy changes that others have proposed for the railroad industry.

Organization of this Executive Summary

In our approach to analyzing the competitive state of the U.S. freight railroad industry, we identified five fundamental questions. This Executive Summary reports the key findings of our study in relation to these questions:

- What is the current state of competition in the U.S. railroad industry?
- What are the current and near future capacity constraints in the U.S. railroad industry?
- How do competition and regulation in the railroad industry impact capacity investment?

[5] Some of the issues raised by stakeholders were outside the scope of our study, while data limitations prevented us from thoroughly examining a few issues.

- How do capacity constraints impact competition?
- How do competition, capacity constraints, and other factors influence the quality of service?

In focusing on these questions, our study also sheds light on whether the current situation reflects reasonable economic practices by the railroads. Addressing these questions also provides important input into our economic analysis of recent proposals for railroad industry policy changes. Our study finds that:

- Class I railroads' rates (real revenue per ton-mile) were substantially above short-run marginal cost in 2006.
- Economies of density and fixed costs require railroad pricing above short-run marginal cost to achieve revenue sufficiency.
- For most years in the 1987 to 2006 period of our study, the Class I railroad industry does not appear to be earning above normal profit.
- The increase in railroad rates experienced in recent years is the result of declining productivity growth and increased costs rather than the increased exercise of market power.
- Railroads use differential pricing to recover their total costs.
- Different commodity groups face different markups of railroad rates over marginal costs.
- Within commodity groups, shippers with no or very limited transportation options tend to pay higher rates than shippers with the same shipment characteristics who enjoy more or better transportation alternatives.
- The ratio of revenue to URCS variable cost (R/VC) is weakly correlated with market structure factors that affect shipper "captivity," and is not a reliable indicator of market dominance.
- Capacity "tightness" is primarily due to congestion at terminals or other specific network locations. Terminal congestion in the 2003-2005 period was linked to service performance declines during that time period.
- Current market circumstances imply that providing significant rate relief to certain groups of shippers will likely result in rate increases for other shippers or threaten railroad financial viability.
- Incremental policies such as reciprocal switching and terminal agreements have a greater likelihood of resolving shipper

concerns via competitive response, and have a lower risk of leading to adverse changes in industry structure, costs, and operations.

- Some shippers will not benefit from efforts to enhance railroad competition, implying the necessity of continued regulatory oversight.

While the GAO posed the question of whether recent performance of the U.S. freight railroad industry is indicative of "a possible abuse of market power," our analysis provides evidence on whether there has been a change in the exercise of market power by U.S. railroads. By definition, the setting of price above marginal cost is what economists consider to be an exercise of market power, but exercise does not imply abuse. To address the question of whether there has been an "abuse of market power" would require judgments as to the fairness of the distribution of value between the railroads and the shippers, and on the distribution of the overhead cost collection among the shippers. These judgments are policy questions and not resolvable through economic analysis alone. Instead, we have answered the economic questions of the extent to which recent railroad pricing behavior reflects changing cost conditions, and the extent to which it represents an increase in the overall exercise of market power. Furthermore, our analysis sheds light on how recent railroad pricing behavior has shifted the burden of overhead cost collection among the different sets of shippers.

ES1 CURRENT STATE OF COMPETITION IN U.S. FREIGHT RAILROAD INDUSTRY

Characteristics of U.S. Freight Railroad Traffic

Since 1980, railroads have been gaining an increasing share of U.S. freight shipments (see Table ES-1). According to data complied by the U.S. Department of Transportation, railroads accounted for about 27 percent of the ton-miles of U.S. freight moved in 1980. By 2005, the share of ton-miles attributed to railroads increased to about 38 percent.[6]

[6] National Transportation Statistics 2008, U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

TABLE ES-1
TON-MILES OF FREIGHT BY MODE[7]

	1980	1985	1990	1995	2000	2005
Total	3,404,015	3,313,968	3,621,943	4,104,235	4,328,642	4,537,921
Air Carrier	4,840	6,710	10,420	12,720	15,810	15,731
Intercity Truck	629,675	716,808	848,779	1,034,041	1,192,825	1,293,326
Rail	932,000	876,209	1,064,408	1,317,010	1,546,319	1,733,777
Domestic Water	921,835	892,971	833,544	807,728	645,799	591,276
Pipeline	915,666	821,270	864,792	932,737	927,889	903,811
Rail Share	27%	26%	29%	32%	36%	38%

Table ES-2 indicates that a wide variety of commodities are transported by railroads.

TABLE ES-2
RAIL SHIPMENTS BY COMMODITY GROUPING, 2007[8]

	Tons Originated		Gross Revenue	
	(thousands)	percent	(millions)	percent
Coal	849,630	43.8%	$11,471	21.0%
Chemicals & allied products	177,612	9.2%	$6,885	12.6%
Farm products	152,242	7.8%	$4,529	8.3%
Nonmetallic minerals	137,556	7.1%	$1,527	2.8%
Misc. mixed shipments*	124,531	6.4%	$7,863	14.4%
Food & kindred products	105,457	5.4%	$4,041	7.4%
Metallic ores	59,162	3.1%	$542	1.0%
Metals & allied products	57,046	2.9%	$2,353	4.3%
Petroleum & coke	56,262	2.9%	$1,797	3.3%
Stone, clay, & glass products	48,115	2.5%	$1,607	2.9%
Waste & scrap materials	48,034	2.5%	$1,276	2.3%
Lumber & wood products	36,152	1.9%	$1,987	3.6%
Pulp, paper, & allied products	35,269	1.8%	$2,100	3.8%
Motor vehicle equipment	31,682	1.6%	$4,016	7.3%
All other commodities	20,989	1.1%	$2,642	4.8%
Total	1,939,738	100.0%	$54,637	100.0%

* The misc. mixed shipments category consists primarily of intermodal shipments.

In terms of tons originated, coal represents, by far, the largest proportion of railroad shipments. Chemicals, farm products, nonmetallic minerals, and miscellaneous mixed shipments are also relatively large categories in terms of tons originated. Examining the proportions of railroad gross

[7] National Transportation Statistics 2008, U.S. Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics.

[8] Class I Railroad Statistics, Association of American Railroads, July 17, 2008.

revenues by commodity group, coal is still the largest category but, reflecting its low-value, bulk commodity status, does not stand out as much from the other commodity groups in terms of revenue as it does in terms of tonnage. The miscellaneous mixed shipments category, which consists primarily of intermodal shipments, represented only 6.4 percent of 2007 tons originated but accounted for 14.4 percent of railroad revenues.[9] This is a reflection of the high value of intermodal railroad services. Other categories that represent relatively large proportions of railroad revenues include chemicals, farm products, food, and motor vehicle equipment. While railroads play a key role in overall U.S. freight shipments, shippers of certain commodities are especially reliant on rail transportation. For example, the Association of American Railroads (AAR) reports that 70 percent of domestically produced automobiles,[10] 70 percent of coal delivered to power plants,[11] and about 35 percent of the U.S. grain harvest all move by rail.[12]

Structure of U.S. Freight Railroad Industry

Consolidations in the railroad industry have reduced the number of Class I railroads from about forty around the time of the passage of the Staggers Act to the current seven.[13] While the number of Class I railroads has declined, the total number of railroads has increased from about 490 in the mid-1980s to the current 559.[14] The number of Class I railroad employees declined from over 450,000 in 1980 to 167,000 in 2007.[15] Non-Class I employment has declined in proportion to Class I employment reductions so that the percent of industry employment by non-Class I railroads has remained at approximately ten percent.

Regional and shortline railroads own and/or operate an increasing proportion of the nation's railroad infrastructure. Overall, both total miles of road owned and miles of road operated by all U.S. railroads have fallen between 1987 and 2006. However, both measures have fallen more sharply for Class I railroads than for all railroads in the U.S. Between

[9] Class I Railroad Statistics, Association of American Railroads, July 17, 2008.

[10] "The Economic Impact of America's Freight Railroads," Association of American Railroads, August 2008, p. 2. The percentage reported here does not include imported automobiles transported by railroad from ports on both coasts.

[11] "Railroads and Coal," Association of American Railroads, July 2008, p. 3.

[12] "Railroads and Grain," Association of American Railroads, July 2008, p. 5.

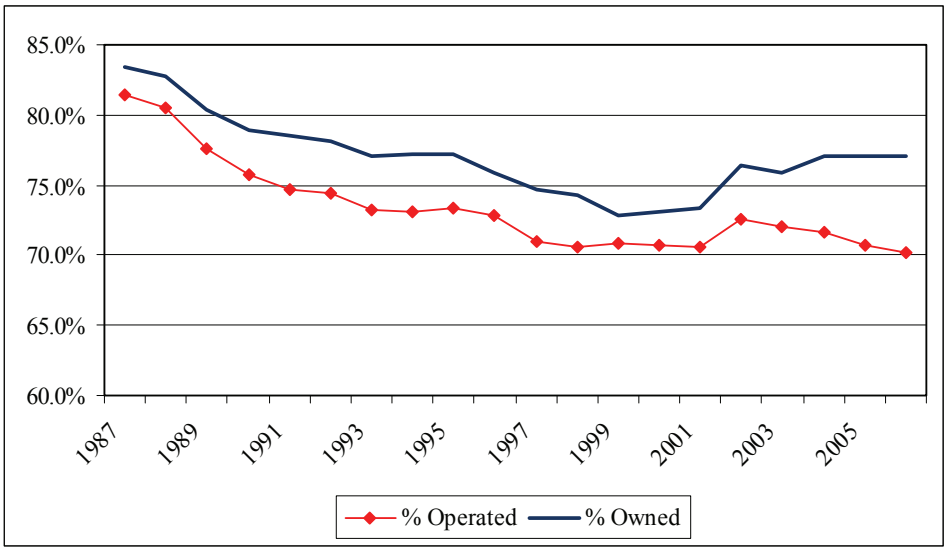
[13] "The Effects of Rail Mergers on the Number of Class I Railroads and Shipper Captivity," Association of American Railroads, August 2008, p. 1.

[14] "Railroad Ten-Year Trends," American Association of Railroads, Vol. 7, p. 10; and "Class I Railroad Statistics, 2007," Association of American Railroads.

[15] "Class I Railroad Statistics, 2007," Association of American Railroads; "Railroad Ten-Year Trends," Association of American Railroads, Vol. 7, p. 10.

1987 and 2006, miles of track operated declined by 18.9 percent for Class I railroads versus a decline of 5.9 percent for all U.S. railroads. Similarly, miles of track owned declined by 26.8 percent for Class I railroads versus a decline of 20.9 percent for all U.S. railroads over this period.[16] The proportions of total industry miles owned and miles operated by Class I railroads have fallen from over 80 percent of the industry totals in the 1980s to about 77 percent (owned) and 70 percent (operated) today, as the number of smaller railroads has increased significantly over this period. As Figure ES-1 shows, the decline has recently been greater for the Class I proportion of miles operated, reflecting spinoffs in the operation of Class I-owned trackage to other railroad classes.

FIGURE ES-1
CLASS I PROPORTIONS OF U.S. RAILROAD MILES OF TRACK OWNED AND OPERATED
1987-2006



While total Class I miles of track have declined, usage of that track has intensified as Class I revenue ton-miles have grown continuously over the study time period. Between 1987 and 1999, Class I net ton-miles grew by 51.5 percent, compared to a 19.9 percent decline in total track miles. Between 1999 and 2006, Class I net ton-miles grew by 23.1 percent, compared to a 1.7 percent decline in total track miles.[17]

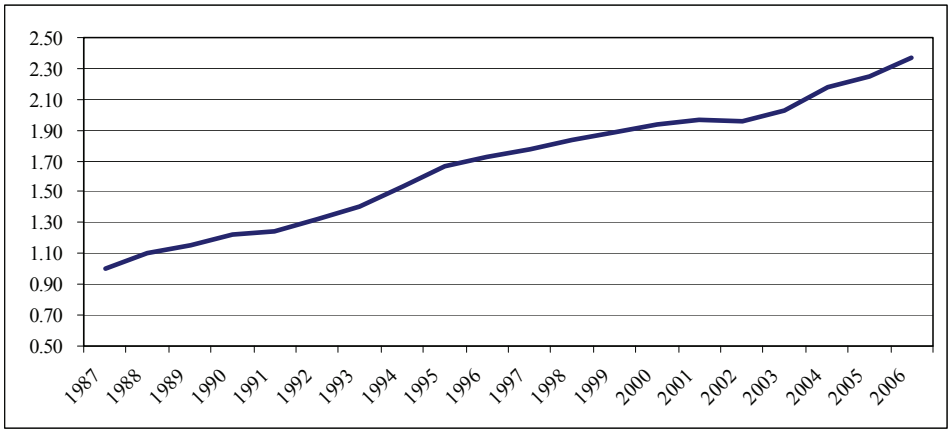
The increasingly intensive use of Class I track miles is illustrated in Figure ES-2, which charts the Class I ratio of net ton-miles to total track

[16] "Railroad Ten-Year Trends," American Association of Railroads, Vol. 24, p. 10; "Class I Railroad Statistics, 2007," Association of American Railroads; and "Railroad Ten-Year Trends," American Association of Railroads, Vol. 7, p. 10. The reported values do not include data for Canadian railroads with U.S. operations.

[17] Net ton-mile data are from R-1 Annual Reports, Schedule 755, Line 114, Column B.

miles. This increasingly intensive use of railroad networks results in lower per-unit costs—a reflection of economies of density.

FIGURE ES-2
CLASS I RATIO OF NET TON-MILES TO TOTAL TRACK MILES
1987-2006



Assessment of Shipper Captivity

The analysis of shipper captivity in the 2006 GAO report includes the computation of shares of shipments generating revenues in excess of 180 percent and 300 percent of URCS variable cost, and discussion of changes in those shares over time. GAO presented its analysis in the context of the statutory role played by the 180 percent revenue/variable cost (R/VC) threshold in triggering rate reviews, and the limited availability of data to properly measure or serve as proxies for shipper captivity:

> Nevertheless, our analysis of available measures indicates that the extent of captivity appears to be dropping, but the percentage of industry traffic traveling at rates substantially over the statutory threshold for rate relief has increased. For example, the amount of traffic traveling at rates over 300 percent of the railroad's variable cost increased from 4 percent in 1985 to 6 percent in 2004. Furthermore, some areas with access to one Class I railroad have higher percentages of traffic traveling at rates that exceed the statutory threshold for rate relief.[18]

[18] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed,* GAO-07-94, October 6, 2006, p. 3.

In Chapter 11, we examined 2000-2001 and 2005-2006 Carload Waybill Sample data and found that the fractions of tonnage and ton-miles exceeding 180 percent R/VC were relatively constant, but the fractions exceeding 300 percent R/VC increased (see Table ES-3). Our results are consistent with the direction of the GAO findings. We also examined the shares of traffic traveling at rates less than 100 percent R/VC, which are substantial and, interestingly, also increased between the two periods.

TABLE ES-3
PERCENT OF TONS AND TON-MILES BY R/VC CATEGORY
2000-2001 V. 2005-2006 CARLOAD WAYBILL SAMPLE DATA

Period	Percent of Tons by R/VC Category				
	R/VC < 100 Percent	R/VC between 100 and 180 Percent	R/VC between 180 and 300 Percent	R/VC > 300 Percent	Subtotal R/VC > 180 Percent
2000-2001	16%	50%	28%	6%	34%
2005-2006	21%	45%	25%	9%	34%
Period	**Percent of Ton-Miles by R/VC Category**				
	R/VC < 100 Percent	**R/VC between 100 and 180 Percent**	**R/VC between 180 and 300 Percent**	**R/VC > 300 Percent**	**Subtotal R/VC > 180 Percent**
2000-2001	22%	57%	19%	2%	21%
2005-2006	29%	51%	16%	4%	19%

R/VC Data Issues

In Chapter 11, we discussed two main issues with the R/VC data in the CWS that we believe make this ratio an unreliable indicator of market-dominant behavior. First, there is evidence of methodological changes that might materially affect the measured shares of shipments exceeding 180 percent R/VC. Second, captivity measures based on categorizing shipment-level R/VC (or markup) data are dependent on good alignment of actual and measured costs, particularly for extreme values of R/VC, but the large shares of tons and ton-miles with R/VC below 100 percent suggest that measured and actual variable costs are not well-aligned in the tails of the R/VC distribution.

R/VC ranges remain large even after aggregation over time and geography. For example, the county-level R/VC ratios for wheat shipments range from 43 percent to 516 percent. While substantial variation in actual R/VC is certainly possible, the R/VC variations are large relative to the estimated effects of the market structure factors in the pricing models. As we illustrate in Figures ES-3 and ES-4, the implication is that much of the R/VC variation is related to factors other than market structure features that determine shipper captivity.

R/VC and Market Structure Factors

From an economic perspective, "relative captivity" arises for shippers whose next best alternatives do not effectively constrain railroad rates. The effects of captivity may be continuous and have no definite relationship to markup thresholds. For instance, a shipper may pay a rail rate under the 180 percent R/VC threshold and nevertheless experience a degree of "captivity" relative to other shippers with similar cost characteristics because other shippers have better access to intramodal or intermodal competition that results in lower rail rates. Conceptually, more appropriate measures of captivity should focus on the effects of the transportation market structure on rail rates—and, by extension, markups—rather than on markups as indicators, *per se,* of market-dominant behavior. In this regard, the GAO was justified in examining additional measures using information on market structure, such as rates and R/VC in areas without Class I railroad competition.[19]

Furthermore, the R/VC ratio does not appear to perform well as a proxy for conceptually more appropriate market structure measures. We find that R/VC is weakly related to measures of railroad and water competition. Table ES-4 shows correlations between county-level R/VC ratios and market structure factors for selected commodities.

TABLE ES-4
CORRELATIONS OF ORIGIN COUNTY* R/VC WITH REVENUE PER TON-MILE AND MARKET STRUCTURE FACTORS, 2001-2006 DATA, SELECTED COMMODITIES

	Correlation Coefficient with R/VC Ratio					
Commodity Group	RPTM	Distance to Water (Origin)	Distance to Water (Destination)	Railroad Competition at Origin	Railroad Competition at Destination	Econometric Market Structure Shifter
Chemicals	0.29	-0.02	0.00	-0.12	-0.11	0.14
Coal	0.65	-0.23	0.06	-0.25	-0.13	0.01
Corn	0.19	-0.02	0.11	-0.03	-0.03	0.01
Intermodal	0.10	-0.04	0.12	-0.04	-0.23	0.19
Transportation	0.15	-0.16	-0.15	0.04	-0.01	-0.06
Wheat	0.21	0.21	-0.03	-0.07	0.07	0.19

* Note: Coal based on destination county data.

As reported in Chapter 12, our coal pricing models find evidence of strong competitive effects from railroad competition at the destination counties, but the correlation between county-level R/VC and our measure of destination competition is only -0.13.

[19] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed,* GAO-07-94, October 6, 2006, p. 36.

Using wheat as an example, the correlation between R/VC and the distance to water at origin in Table ES-4 is 0.21. Comparing Figures ES-3 and ES-4 reveals the relatively weak correlation. Figure ES-3 shows relatively high R/VC ratios in some areas implicated in wheat shippers' "captivity" complaints—notably, the far northern Plains—but not in other areas well-removed from water alternatives such as western Kansas. Figure ES-3 also shows high R/VC ratios in Pacific Northwest counties and other areas that would be expected to have better modal alternatives. The pricing models for wheat imply a strong effect of distance from the origin county to water transportation on wheat rates; that effect dominates the market structure effect as seen in Figure ES-4. These results are typical of the weak relationships between R/VC and market structure measures observed for other commodities.

FIGURE ES-3
R/VC AVERAGES BY ORIGIN COUNTY FOR WHEAT SHIPMENTS
2001-2006 CARLOAD WAYBILL SAMPLE

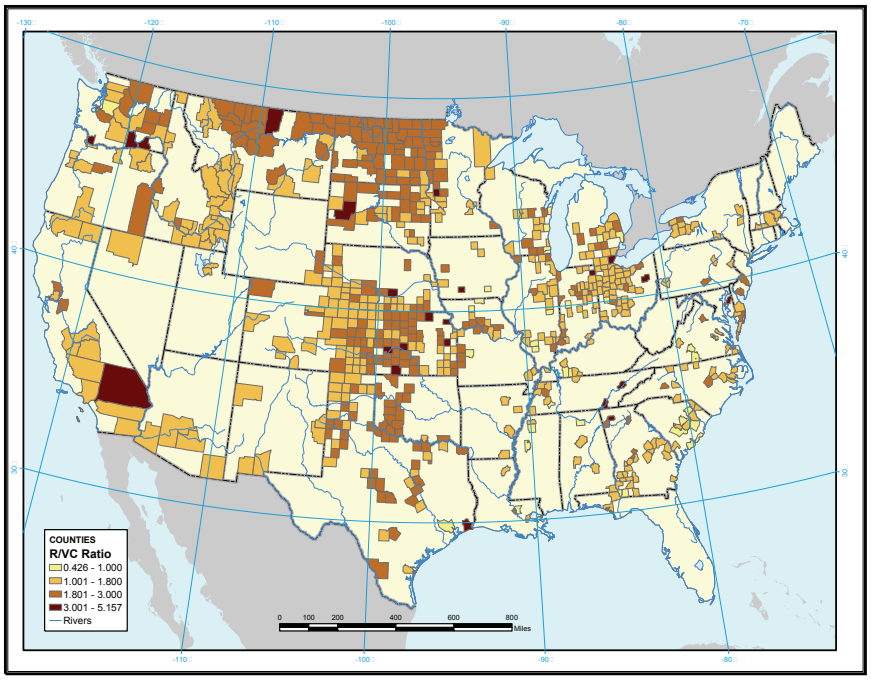
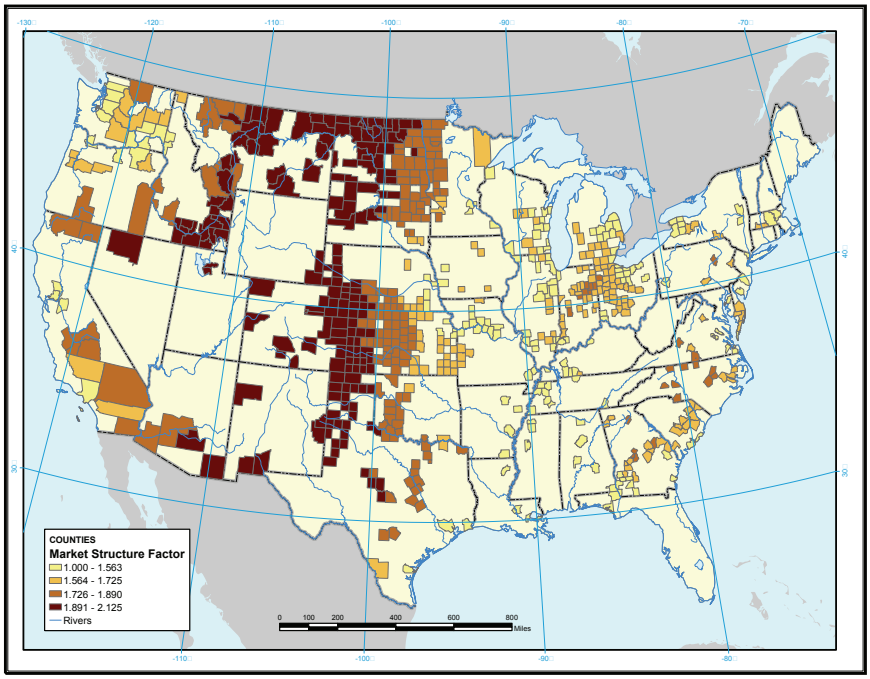


FIGURE ES-4
COUNTY-LEVEL EFFECTS OF MARKET STRUCTURE VARIABLES IN WHEAT PRICING MODELS ON REAL REVENUE PER TON-MILE



Evaluating "Captivity" and Market Structure Factors

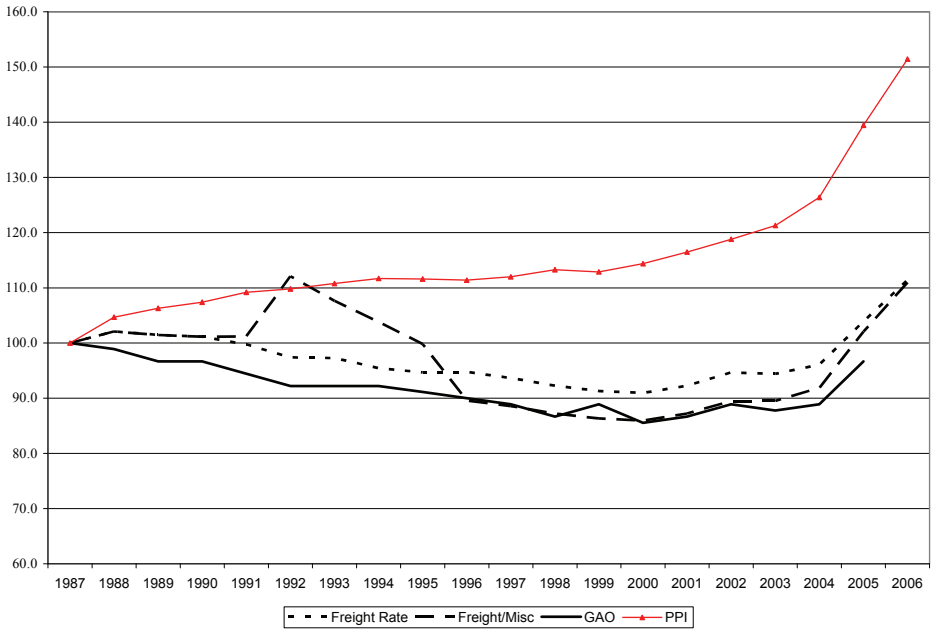
The R/VC ratio, applied prudently, may be able to identify categories of shipments that travel at high rates relative to costs, but the R/VC ratio is not very useful as an indicator of the presence of market structure factors that would increase a shipper's "captivity" to an individual railroad. The weak relationships between R/VC ratios and market structure factors illustrated in Table ES-4 imply that correctly assessing the presence of market-dominant behavior requires direct assessment of relevant market structure factors. Thus, regulatory reforms that would establish R/VC tests as the sole quantitative indicator of a railroad's market dominance are not appropriate.

In contrast, analyses of railroad rates (real revenue per ton-mile or RPTM) using data sources such as the CWS can indicate the effects of railroad and water competition factors on RPTM directly. These analyses permit us to identify market structure factors that have greater effects on RPTM by commodity, and also counties with combinations of market structure factors that will tend to increase a shipper's relative captivity.

Trends in Rates

While overall railroad prices were fairly stable-to-declining for a long period of time in the post-Staggers Act period, rates have increased substantially in the last few years. Figure ES-5 shows industry-wide rate indexes for the period 1987 through 2006. In addition to the industry-wide index constructed by the GAO, and the U.S. Bureau of Labor Statistics' Producer Price Index, we constructed two rate indexes from information contained in the Carload Waybill Sample. As described in Chapter 8, these two indexes are designed to address some of the conceptual weaknesses that have previously been attributed to the GAO index and the Producer Price Index. Because the GAO noted that there had been a substantial increase in miscellaneous charges in recent years, which may reflect fuel surcharge billings, we constructed one index based on freight revenues reported in the Carload Waybill Sample ("Freight Rate"), and a second index based on total revenue (including miscellaneous charges – "Freight/Misc"). The indexes that we constructed showed very little overall price change between 1987 and 2004, but these rate indexes showed increases exceeding seven percent per year (in nominal dollars) in 2005 and 2006. The four reported rate indexes represent overall trends for the railroad industry, but do not reflect significant differences that exist among the rates paid by different commodities. Chapter 8 (among several other chapters in Volume 2) provides more detail on rate changes by commodity.

FIGURE ES-5
INDUSTRY-WIDE INDEXES CONSTRUCTED FROM CARLOAD WAYBILL SAMPLE
1987 = 100



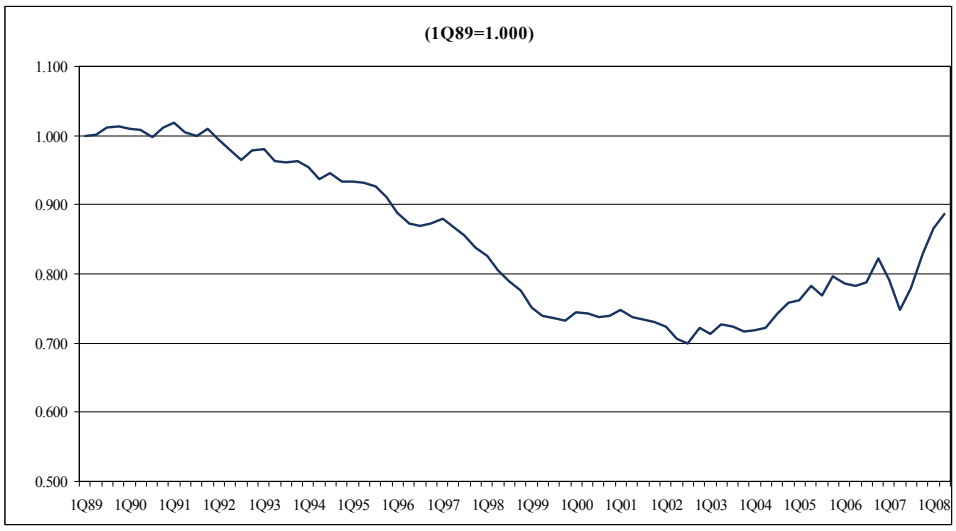
Trends in Input Prices and Productivity

As illustrated in Figure ES-5 above, since the early 2000s, rates generally began to go up, creating questions about the exercise of market power in the increasingly concentrated railroad industry.[20] Much of the observed increase in rail rates can be explained by examining railroad industry input prices and productivity growth.

The STB's rail cost adjustment factor, unadjusted for productivity gains (RCAF-U) represents trends in railroad input prices. It is based on the All-Inclusive Index for Class I railroads, maintained by the Association of American Railroads (AAR). The All-Inclusive Index measures price changes for the major components of the railroad industry's operating expenses—labor, fuel, materials and supplies, equipment rents, depreciation, interest, and other expenses. The second element of the STB's RCAF methodology is the productivity adjustment factor (PAF), which represents trends in output per unit of input. The final element of this methodology is the productivity-adjusted rail cost adjustment factor (RCAF-A), which is obtained by dividing the RCAF-U by the PAF. By construction, RCAF-A measures trends in the railroad industry's unit costs, as it represents the difference between input price growth and productivity growth.

Figure ES-6 shows the quarterly RCAF-A from the Quarter 1 of 1989 through the Quarter 2 of 2008.

FIGURE ES-6
RCAF-A, 1989-2008



[20] For example, see Government Accountability Office, *Freight Railroads Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed*, GAO-07-94, October 6, 2006, pp. 11-15.

The RCAF-A series illustrates the net impact of input price increases and productivity increases on the railroad industry's unit costs. As detailed in Chapter 8, in recent years railroad input price growth has generally increased across most categories (not only fuel) and, at the same time, industry productivity growth has slowed. Thus, overall railroad unit costs, measured by RCAF-A have gone up in recent years after reaching a minimum in Quarter 3 of 2002.

Table ES-5 provides details on the sources of railroad input price growth. It shows the average annual rates of nominal input price growth for labor, fuel, materials and services, equipment rents, depreciation, interest, and other expenses between Quarter 1 of 1994 (the first instance RCAF-U component detail was available) and Quarter 2 of 2008. This table also shows the average annual rates of input price growth for two sub-periods, Quarter 1 of 1994 to Quarter 3 of 2002 (when RCAF-A reached a minimum) and Quarter 3 of 2002 to Quarter 2 of 2008. The table illustrates that the increase in fuel costs has been much greater in the second sub-period. However, with the exception of interest (which has only a cost weight of 2.7 percent in the 2008 RCAF-U), all other railroad input prices grew faster in the second sub-period than in the first sub-period.

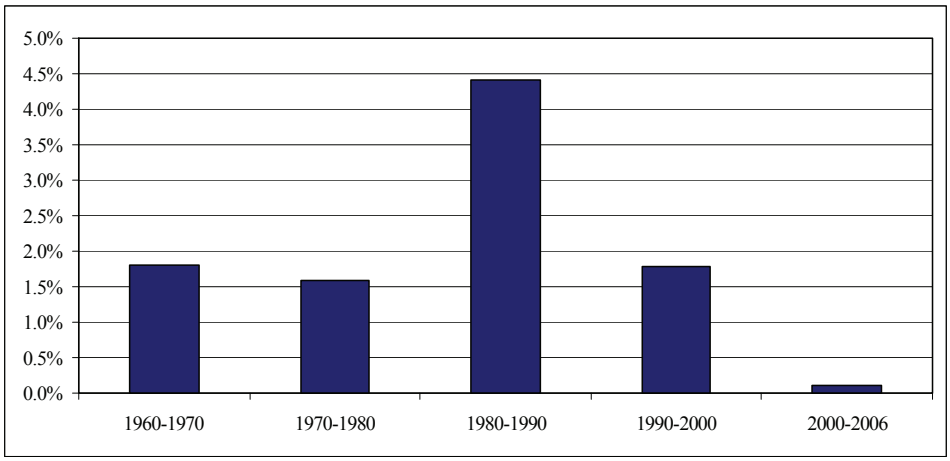
TABLE ES-5
GROWTH IN RCAF-U COMPONENTS
AVERAGE ANNUAL GROWTH IN PRICES, 1994Q1-2008Q2

	1Q94-2Q08	1Q94-3Q02	3Q02-2Q08	1Q00-2Q08
Labor	2.8%	2.4%	3.5%	3.0%
Fuel	11.4%	3.2%	23.9%	15.9%
M&S	3.2%	0.6%	7.0%	5.1%
Equip. Rents	1.3%	1.0%	1.8%	1.5%
Depreciation	2.3%	0.7%	4.8%	3.2%
Interest	-2.8%	-2.5%	-3.3%	-1.0%
Other	2.1%	1.0%	3.8%	2.7%
RCAF-U	3.4%	1.5%	6.3%	4.5%

The productivity trends in the STB's PAF measure generally follow railroad industry productivity trends measured by the U.S. Bureau of Labor Statistics (BLS). The BLS maintains a multifactor productivity (MFP) index for the railroad industry, which extends back to 1959 (PAF is available only back to 1989). The MFP index for railroads shows that while productivity increased during the pre-Staggers era, there was a substantial increase in railroad productivity growth during the 1980s and into the 1990s. Beginning in the 1990s, the rate of productivity growth began to decrease (i.e., productivity growth was less rapid) ,to the point where productivity growth between 2003 and 2006 was below that achieved during the pre-Staggers era. Figure ES-7 shows the average

differential between railroad productivity growth and the productivity growth in the private business sector of the U.S. economy by decade. Railroad productivity growth was much more rapid than the productivity growth in the U.S. private business sector up until 2000, but since 2000 the railroad industry and the U.S. private business sector have had very similar rates of productivity growth.

FIGURE ES-7
MFP GROWTH DIFFERENTIAL: RAILROAD INDUSTRY V. PRIVATE BUSINESS SECTOR



Both the STB and BLS measures of the railroad industry's productivity confirm a slowdown in industry productivity growth in this decade. One effect of this slowing productivity growth is a diminished ability of railroads to absorb increases in their input prices in recent years.

Trends in Economic Costs

Figure ES-8 provides information in constant dollars on Class I annual average total cost of shipping a ton-mile (ATC), as well as its components, average variable cost (AVC) and average fixed cost (AFC), based on R-1 data. With the exception of 1991, ATC and AVC declined over the 1987-1996 period. ATC and AVC increased slightly between 1997 and 2000, and then decreased slightly between 2001 and 2003. ATC then increased in 2004 and 2005, but declined in 2006. Figure ES-8 shows that the 2006 ATC value is well below its 1987 level. AVC increased slightly over the 2004-2006 period. AFC decreased slightly through 1994, trended upward during the 1995-1997 period, and then gradually declined through 2003. More recently, AFC increased substantially in 2004 and 2005, as is consistent with the explanation of major road enhancements occurring over that period.[21]

[21] AFC decreased in 2006 to approximately its 2004 level..

FIGURE ES-8
CLASS I AVERAGE TOTAL COST, AVERAGE VARIABLE COST, AND AVERAGE FIXED COST
(YEAR 2000 DOLLARS)

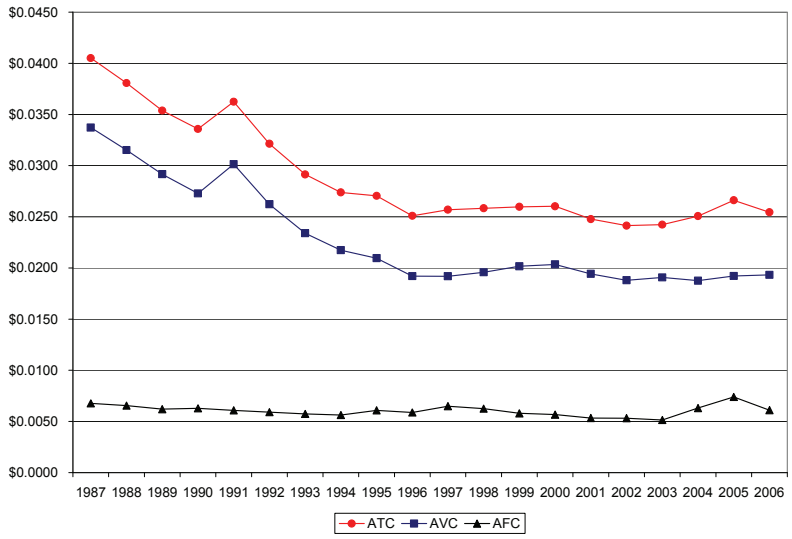
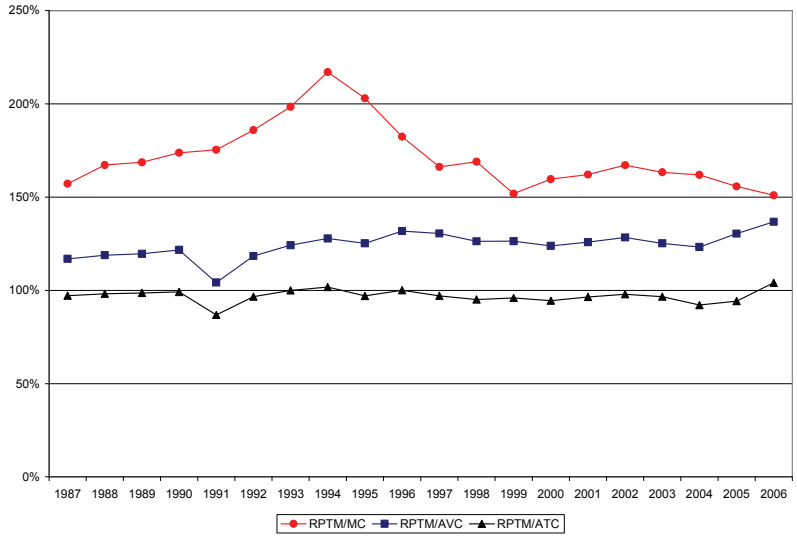


Figure ES-9 presents three different markup ratios for the Class I railroad industry. The top series shows the ratio of the average revenue per ton-mile to marginal cost (RPTM/MC). This ratio reflects the extent to which market power is being exercised in the railroad industry. By definition, the setting of price above marginal cost is the exercise of market power, but exercise does not imply abuse. The industry gained market power (i.e., increasing RPTM/MC ratio) primarily during the periods of marginal cost decreases, while it ceded some of that market power during the periods of marginal cost increases. The industry-wide RPTM/MC ratio peaked at 217 percent in 1994 and has ranged in recent years between 150 and 170 percent.

FIGURE ES-9
CLASS I INDUSTRY MARKUP RATIOS



The second series in Figure ES-9 displays the revenue per ton-mile to average variable cost ratio (RPTM/AVC). This ratio is conceptually equivalent to the revenue to variable cost ratio (R/VC) that is a threshold measure of market dominance in captive shipper rate cases. The RPTM/AVC ratio has gradually increased from 117 percent to 137 percent over the twenty-year study period. Interestingly, we note that the industry-wide RPTM/AVC measure remains well below the 180 percent R/VC threshold used by the STB in captive shipper rate cases. We further note that the RPTM/AVC ratio does not track very well with the market power indicator of RPTM/MC. This lack of correspondence may be indicative of the weakness of the R/VC measure as an indicator of market power abuse.[22]

The third series in Figure ES-9 shows the revenue per ton-mile to average total cost ratio (RPTM/ATC). This graph conveys the information about *revenue sufficiency* for the overall industry. Values of the RPTM/ATC ratio greater than or equal to 100 percent indicate that revenues are greater than or equal to total costs, while values less than 100 percent imply that revenues are insufficient to cover total costs. The graph, based on R-1 data, shows that the industry has remained close to being revenue adequate for most years in our study, but more often than not it has fallen short.

[22] We are not suggesting that the aggregate average rate to the aggregate average variable cost ratio presented in Figure ES-9 is the appropriate R/VC measure for rate cases. The R/VC measure used in rate cases is market-, shipper-, railroad-, and route-specific. We further note that the R/VC measure is based on the Uniform Rail Costing System (URCS), while our RPTM/AVC ratio is based on R-1 data.

Figure ES-10 changes the vertical scale to focus on the RPTM/ATC ratio for the Class I railroad industry. As noted above, this ratio is a measure of industry revenue sufficiency (indicated by RPTM/ATC = 100 percent). It can be seen that the industry has flirted with revenue sufficiency for a number of years, but has only achieved or surpassed it a few times in the mid-1990s and in 2006 (1993 = 100.0%, 1994 = 101.7%, 1996 = 100.0%, 2006 =104.1%).[23] Furthermore, the 2006 value of RPTM/ATC was preceded by a sizeable drop in 2004, which was the RPTM/ATC ratio's lowest point since 1991.

FIGURE ES-10
CLASS I INDUSTRY RATIO OF AVERAGE RPTM TO AVERAGE TOTAL COST

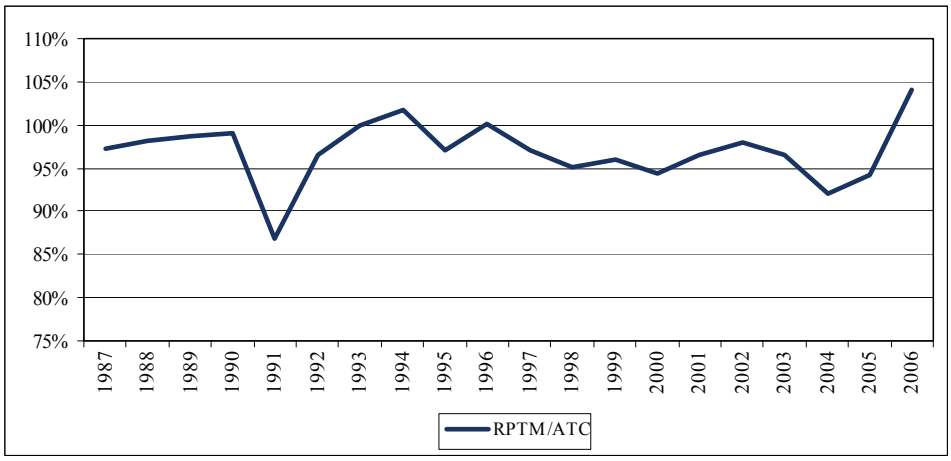


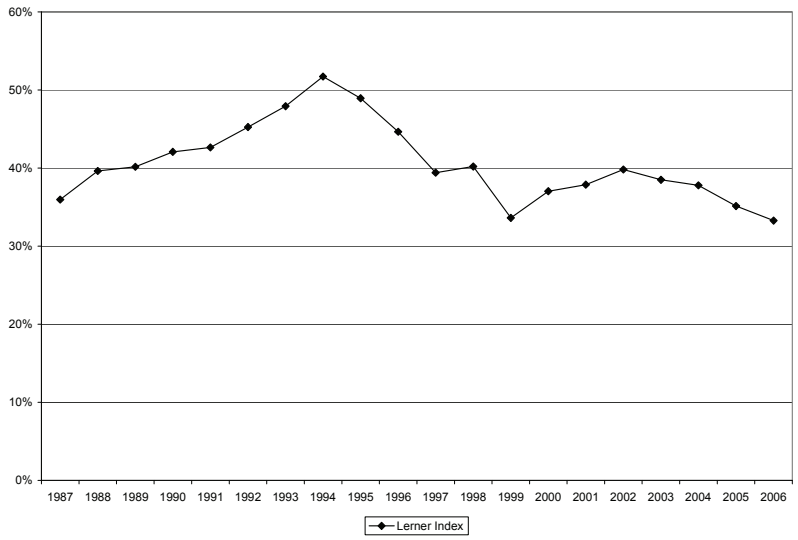
Figure ES-11 displays the Lerner Markup Index (LMI) for the Class I railroad industry.[24] It shows that between 1987 and 1994, pricing power steadily increased. However, the industry was still below revenue sufficiency during most of this period until 1994 (see Figure ES-10). Thus,

[23] We note that the measures of costs that we develop from the R-1 data do not include any current assets, such as cash. Furthermore, our calculations are based on some variables defined for the econometric analysis undertaken in Chapter 9 and may not conform to a conventional financial analysis. Thus, the ratio of revenue to cost presented in Figure ES-10 is revealing, but should not be viewed as the definitive indicator of revenue sufficiency. Also, as reported in Chapter 10, when the railroads are examined individually, we find that BNSF and NS each had thirteen of twenty years where the R-1 reported revenues matched or exceeded costs, UP had eight of twenty years with revenues greater than or equal to costs, and CSX had only three revenue-sufficient years in the time frame of our analysis.

[24] The Lerner Markup Index is defined as the ratio of the difference between price and marginal cost to the price, which in this case is equal to (RPTM − MC) / RPTM. As discussed in Chapter 10, the Lerner Markup Index is a measure of market power. The Lerner Markup Index is also known as the Lerner Index or the Lerner Market Power Index, and it is sometimes abbreviated as LMI in this report and elsewhere in the literature.

the rapidly-increasing LMI does not indicate that market power has been exercised by railroads with resulting excess profits, but rather indicates a movement toward revenue sufficiency. As detailed in Chapter 10, from 1995 to 1999, the LMI generally decreased with increasing marginal costs. Between 2000 and 2003, there was some recovery of the industry's pricing power, largely resulting from declining marginal costs as documented in Chapter 10. Again, however, viewing these results in the context of revenue sufficiency, this run-up in the LMI does not correspond to railroads achieving excessive levels of profit. Since 2003, the LMI has declined back to its 1999 level as percentage increases in marginal cost have outpaced percentage increases in price.

FIGURE ES-11
RAILROAD INDUSTRY LERNER MARKUP INDEX



Economies of Density and Differential Pricing by Commodity

Economies of density arise when the average cost of serving customers decreases as the volume of business increases over a network. When economies of density are present, marginal cost pricing does not produce enough revenue to cover a firm's total cost, and alternative pricing or funding mechanisms must be found. Differential pricing (i.e., charging different price markups over marginal costs to different customers or customer classes) is recognized in the economic literature as a pricing method that might be used to achieve revenue sufficiency in the presence of economies of density.

As is the case with other network industries, the railroad industry engages in differential pricing, where different customer groups face different levels of price markups over marginal costs. Since the passage of the Staggers Act, freight rail transportation rates have been largely

deregulated, as discussed in Chapter 20, with the Surface Transportation Board providing a regulatory backstop for captive shippers. As the quotation below illustrates, differential pricing is acknowledged by policy as a method by which railroads achieve revenue adequacy, with the STB determining whether the degree of differential pricing is reasonable if a rate is challenged.

> When there is a challenge to the reasonableness of a rail rate charged for captive traffic, [the STB's] regulatory task is to determine whether the degree of differential pricing--i.e., the amount by which the revenues derived from the traffic at issue exceed the long-run marginal cost (LRMC) of handling the traffic—is reasonable.[25]

Table ES-6 shows the median values of estimated adjusted marginal costs and Lerner Markup Indexes by commodity for the 2001-2003 and 2004-2006 periods.

TABLE ES-6
MEDIAN ESTIMATED ADJUSTED MARGINAL COSTS AND LERNER MARKUP INDEXES BY COMMODITY AND PERIOD
CLASS I RAILROADS

	Adjusted MC*		LMI	
Commodity	**2001-2003**	**2004-2006**	**2001-2003**	**2004-2006**
Farm Products (Aggregate)	0.9	0.9	0.60	0.58
Barley	0.8	0.6	0.66	0.72
Corn	0.6	0.6	0.70	0.71
Wheat	0.8	0.7	0.66	0.69
Soybeans	0.9	0.9	0.61	0.56
Metallic Ores	2.3	2.7	0.41	0.39
Coal	1.0	0.9	0.39	0.45
Nonmetallic Minerals	1.8	2.3	0.46	0.30
Food Products	1.2	1.3	0.55	0.53
Lumber or Wood Products	1.4	1.4	0.58	0.56
Chemicals	1.6	1.6	0.59	0.54
Petroleum or Coal Products	1.6	1.5	0.60	0.58
Clay, Concrete, Glass, or Stone Products	1.7	1.7	0.57	0.56
Primary Metal Products	1.8	2.2	0.52	0.47
Transportation Equipment	4.9	5.1	0.45	0.35
Intermodal Shipments	4.3	4.3	-0.51	-0.54

*2000 Q1 cents per ton-mile.

[25] *Rate Guidelines—Non-Coal Proceedings*, Ex Parte No. 347 (Sub-No. 2) (STB served December 31, 1996), p. 4.

The marginal cost and markup estimates presented in Table ES-6 provide an indication of whether recent rate increases have been mainly cost-driven or markup-driven. With respect to marginal costs, it shows that despite the industry-wide increase in marginal costs in 2004-2006 (see Chapter 10), different patterns appear across the listed commodities. Some shippers apparently were able to avoid, to some extent, the "generic"[26] increases in costs by adopting lower-cost shipment characteristics. For example, we observe that average car loadings and length of haul increased materially for coal shipments between the 2001-2003 and 2004-2006 periods, partly due to the increasing share of Powder River Basin coal in total coal shipments. These cost-saving changes in shipment characteristics for coal helped to offset the generic increase in marginal cost per ton-mile in the latter period. Thus, the estimated adjusted marginal costs for coal declined slightly between the two periods; the adjusted marginal cost would have been higher in the latter period without the cost-reducing changes in coal shipment characteristics. However, the data presented in Table ES-6 do not reflect any adjustment costs that coal shippers (or other shippers for that matter) may have incurred in adopting lower-cost shipment characteristics. In contrast, shipments of nonmetallic minerals and primary metal products did not exhibit substantial cost-saving changes in their tons per car and length-of-haul characteristics between the two periods; with little offset from shipment-characteristic changes, the estimated marginal costs for these two commodity groups increased in the latter period.

We believe that our negative LMI estimates for intermodal shipments are anomalies resulting from data limitations for intermodal shipment characteristics in the CWS dataset. Intermodal shipments have some low-cost characteristics that are not included in the CWS dataset and therefore cannot be incorporated in our estimated pricing models and adjusted marginal cost calculations. Intermodal shipments are billed and recorded as single-carload shipments, but tend to travel long distances as a unit, thereby avoiding substantial switching and classification costs typical of non-intermodal, single-carload shipments. Additional data on intermodal shipments, including service characteristics, would produce more accurate estimates of the actual markups for intermodal shipments. Since intermodal shipments represent a large share of the railroad industry's revenues, improved data collection on these shipments is highly desirable. We expect that with better information on intermodal shipments' actual costs our pricing models would yield positive estimated markups for intermodal shipments, but still relatively low markups compared to other commodities.

The estimated LMIs are declining from 2001-2003 to 2004-2006 for 12 of the 16 commodity groups. Three of the LMI increases are for

[26] We use the term "generic" to refer to industry-wide increases across commodities.

grains that already had high estimated markups. It should be noted that the relatively constant or declining LMIs for commodities other than grains and coal do not reflect constant shipment characteristics. In our qualitative research phase, we heard from shippers (particularly coal shippers) who noted that long-term, low-priced rail contracts had expired in this time frame and were replaced by higher-priced contracts or tariff rates.[27] Such changes increase incentives for shippers to form shipments with lower-cost characteristics to partly offset the less favorable terms. We observe material shifts to lower-cost characteristics for various commodities in the CWS data, suggesting that shippers as a whole have some ability to substitute less costly shipment characteristics. However, shippers who are unable to adjust their shipping practices towards lower-cost characteristics may face substantial rate increases in periods of increasing industry costs.

From our analysis of particular commodity groups, we find generally expected effects on rail rates from increasing railroad competition at the origin and from increasing the distance from the origin to the nearest available water transportation. That is, rates generally tend to be lower given increased competition from other railroads or from increased proximity to water transportation alternatives at the origin, and higher for shippers with more limited railroad and water options at the origin. However, the existence of competitive responses is double-edged. Such responses illustrate the extent to which shippers who lack railroad or intermodal alternatives are at least relatively "captive" and pay higher rates (which may or may not exceed quantitative markup thresholds for market-dominance tests) for shipments with the same cost characteristics as those of more favorably situated shippers. Furthermore, in situations where other modes of transportation, such as water (and not potential railroad competition), provide the effective constraint on rail rates, policies to enhance railroad competition will not benefit captive shippers.

The result that shippers with fewer transportation alternatives pay higher rates is not unexpected in light of our findings from the industry-wide variable cost model of Chapter 9 and the constrained market-dominance model of Chapter 11. Railroads' economies of density imply that they must implement positive markups over marginal cost per ton-mile, on average, in order to cover their total variable and "quasi-fixed" costs. Employing such local market power as is available is one means by which railroads achieve "revenue adequacy."

From Chapters 11 through 15, our results with respect to a single railroad serving the origin county indicate that rail rates are commonly higher than they would be in the presence of even very limited railroad competition. Railroads appear to exercise some degree of local market

[27] Long-term contracts may contribute to the stickiness of rates to the extent that they do not allow for the immediate pass-through of railroad cost increases to shippers.

power where possible, but are tempered by the prospect that large markups may elicit regulatory attention if not direct intervention. That is, monopoly railroads may effectively cede some market power to avoid regulatory scrutiny.

Financial Viability

By nearly all measures, the performance of the railroad industry has improved dramatically since the passage of the Staggers Act. The 2006 GAO report notes that "[t]here is widespread consensus that the freight rail industry had benefited from the Staggers Rail Act," and that "[f]reight railroads' improved financial health is illustrated by a general increase in return on investment since 1980, ..."[28]

The results of our econometric analysis of the railroad industry's revenue sufficiency are generally consistent with the benchmarking of railroad financial performance we performed in Chapter 8. We examined the railroad industry's earnings relative to the STB's determination of the industry's cost of equity and also relative to the earnings of benchmark industries. Regarding the comparison to the STB's determination of the cost of equity, we note that there was controversy surrounding the CAPM methodology recently adopted by the STB for determining a railroad's cost of equity.[29] Recognizing this controversy, a comparison of return on shareholders' equity for railroads to the STB's CAPM measure of the cost of equity for railroads, shows returns in excess of the cost of equity from 2000 through 2005 (with variation by individual railroad). However, using the STB's previous DCF method shows that railroads did not earn their cost of capital over the period of analysis (1997 to 2005). Given the methodological controversies and the divergence of these results, our assessment is that it is difficult to draw conclusions about whether the railroad industry has generated excessive profits, particularly when earlier observations using either the DCF or the CAPM methodology had shown the opposite result.

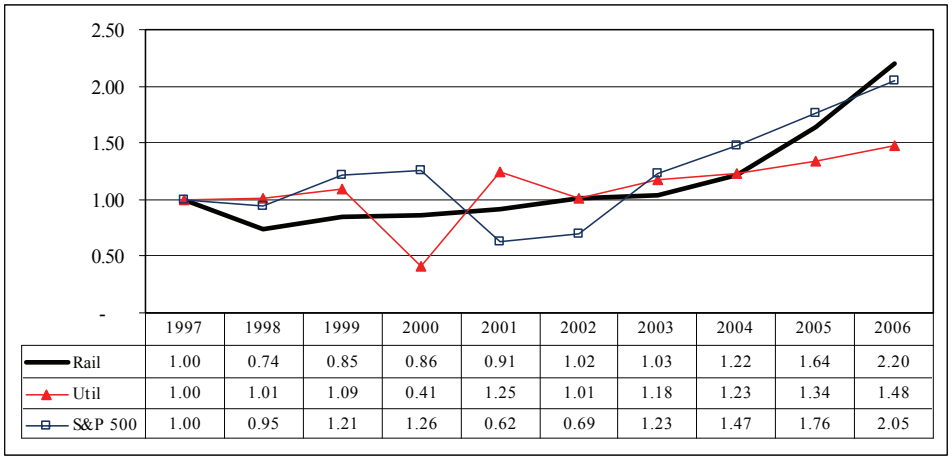
Although the railroad industry's earnings have increased in recent years, they do not appear to be excessive from a financial market perspective. Among the financial metrics we examined, one commonly cited financial measure is earnings per share (EPS). We found that over our analysis period, 1997 to 2006, there were many similarities among the

[28] Government Accountability Office, *Freight Railroads Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed*, GAO-07-94, October 6, 2006, p. 9. We provide a more complete discussion of the railroad industry's financial performance in Chapter 8.

[29] For example, see Petition of the Association of American Railroads to Institute a Rulemaking Proceeding to Adopt a Replacement Cost Methodology to Determine Railroad Revenue Adequacy, May 1, 2008.

financial performances of the railroad industry, the electric utilities industry, and the S&P 500 composite. Figure ES-12 shows that, in the last few years, the upward trend in the railroad industry's EPS is somewhat greater than the trend shown for the S&P 500 composite.[30]

FIGURE ES-12
EARNINGS PER SHARE
1997-2006



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Rail	1.00	0.74	0.85	0.86	0.91	1.02	1.03	1.22	1.64	2.20
Util	1.00	1.01	1.09	0.41	1.25	1.01	1.18	1.23	1.34	1.48
S&P 500	1.00	0.95	1.21	1.26	0.62	0.69	1.23	1.47	1.76	2.05

ES2 CURRENT AND NEAR-FUTURE CAPACITY CONSTRAINTS

A railroad's capacity can be generally thought of as anything that affects a railroad's ability to transport shipments (in a given amount of time) over its network. Thus, capacity is analogous to the factors affecting throughput in a communications or data network. From a physical inputs perspective, factors that affect a railroad's ability to transport shipments generally depend on the amount of capital (e.g., way and structures, railcars, locomotives, and signaling systems) and labor of various skill levels employed by the railroad. The amount of effective capacity available to provide services from a given quantity of production inputs (i.e., productivity) will be affected by factors such as technological innovations (often embodied in capital), work rules and other regulations, railroad operating practices, and learning by doing. The railroad's ability to adjust capacity depends on its ability to adjust these various types of capital and labor inputs as well as other attributes, with some more easily adjusted than others.

A very important influence on a railroad's capacity is the existence of congestion at points in its network. In fact, while other measures of capacity along a given route may indicate sufficient capacity to meet

[30] The electric utilities and railroad industries showed very similar EPS growth between 1997 and 2004.

demand, congestion at terminals, ports, highly congested urban areas, or other specific network locations is often a binding constraint on the utilization of route or network capacity.[31] Moreover, congestion at these localized points often affects network-wide performance. This is similar to the effects of blocking or congestion in other types of networks. For example, congestion at specific points in communications and data networks caused by capacity limits in switches or routers creates a restriction in network throughput despite the virtually unlimited capacity of fiber optic cable.

In Chapter 16 we conclude that, from numerous perspectives, there currently do not appear to be global or network-wide rail capacity constraints. Rather, as often occurs in network industries, congestion at various points or corridors in railroad networks appears to be the major culprit in capacity-related performance issues over the last ten years.[32] From a network-wide perspective, as discussed above, Class I total track mileage has stabilized over the last ten years, and the usage of track has become more intense as ton-miles per mile of track has grown continuously. Other studies have found that rail corridors are generally not constrained and our econometric results indicate that, in the aggregate, excess way and structures capacity exists. However, while such results can eliminate potential reasons for network congestion, congestion at terminals or other specific network locations is often a binding constraint on the utilization of route capacity or network-wide capacity. For example, we found increases in terminal congestion (with each Class I railroad having specific terminals that were particularly affected) in the 2003-2005 period were linked to service performance issues during that time period.

In September of 2007, Cambridge Systematics published a study sponsored by the Association of American Railroads on railroad infrastructure needs.[33] This study shows few current problems with available freight railroad infrastructure capacity as 88 percent of corridor mileage is below capacity, and less than one percent is above capacity. Our Class I industry variable cost function results from Chapter 9 (and also reported in Chapter 16) show that the industry as a whole still has an excess amount of way and structures capital. These results are consistent with the conclusion reached by a number of economic researchers that the railroad industry still has a considerable amount of overall excess

[31] James McClellan, "Railroad Capacity Issues," in *Research to Enhance Rail Network Performance,* Transportation Research Board, 2007, p. 32.

[32] The investigation of railroad network congestion is limited, to some extent, by data availability. As we indicate below, Burton has developed a promising approach to evaluate the need for additional investment at particular network locations.

[33] Cambridge Systematics, *National Rail Freight Infrastructure Capacity and Investment Study*, prepared for the Association of American Railroads, September 2007.

capacity,[34] and the Cambridge Systematics study that concludes there presently is more than adequate capacity on most railroad network corridors. It is important to note, however, that these studies do not imply or conclude that there are no localized capacity shortages or choke points on individual segments of a railroad's network.

The result that railroads do not suffer from an overall capacity shortage (despite localized constraints) is not surprising given the "lumpiness" of most railroad capital investments. As noted in Chapter 3, network industries, including the railroad industry, often are capital-intensive and need to make capital investments in large increments. Furthermore, once these investments are made the capital is either costly to remove or its resale value is small. For these reasons, the amount of capital being used at any one time will not necessarily be at its optimal level, resulting in either an excess or shortage of capacity.

Regarding congestion at localized points in railroad networks, we examined the terminal dwell time data in the Railroad Performance Measures (RPM) dataset.[35] The RPM data indicate that, while each railroad has a somewhat unique pattern, one similarity that stands out is a general increase in terminal dwell times in the 2003-2004 period, followed by a decline in dwell times in 2005. The general increase in terminal dwell times during the mid-2000s indicates greater congestion at particular points in the railroad networks. Moreover, individual terminals differed considerably in the variability of their dwell times, suggesting that those terminals with the longest dwell times and largest variability might be affected by capacity constraints. Other descriptive measures indicate that the late 1990s and early 2000s witnessed declines in the railcar fleet, offset by greater railcar capacity, and increases in locomotive units and horsepower.

A recent study by the Rand Corporation noted that, in order to determine capacity needs at particular points of the network, much more

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[34] For example, see Ann F. Friedlaender, Ernst R. Berndt, Judy Shaw-Er Wang Chiang, Mark Showalter, and Christopher A. Vellturo, "Rail Costs and Capital Adjustments in a Quasi-Regulated Environment," *Journal of Transport Economics and Policy*, May 1993, pp. 131-152; and John D. Bitzan and Theodore Keeler, "Economies of Density and Regulatory Change in the U.S. Railroad Freight Industry," *Journal of Law and Economics*, February 2007, pp. 157-179.

[35] Association of American Railroads, at http://www.railroadpm.org/Definitions.aspx:

> Terminal Dwell is the average time a car resides at the specified terminal location expressed in hours. The measurement begins with a customer release, received interchange, or train arrival event and ends with a customer placement (actual or constructive), delivered or offered in interchange, or train departure event. Cars that move through a terminal on a run-through train are excluded, as are stored, bad ordered, and maintenance of way cars.

Chapter 16 notes some limitations of the RPM terminal dwell time data.

detailed information on the network is required than what is currently publicly available.[36] Burton developed a promising approach to evaluate the need for and cost of additional railroad capacity at particular points of the railroad network.[37] His approach is based on a statistical analysis of railroad traffic levels on particular route segments and the characteristics of those route segments. Using a cross-section of route segments, he developed an econometric model that can be used to predict the available capacity on different network segments based on observed traffic data.

Regarding future capacity constraints, we concluded that recent increases in railroad capital spending, combined with a relatively weak economy, indicate that any capacity tightness that may have existed at the beginning of this decade has likely loosened in recent years. Thus, with the caveat that congestion issues are likely to continue to exist at localized points and cause service performance issues, near-term system wide railroad capacity constraints are not likely to be a major issue. Regarding the longer-term forecasts of capacity constraints, we concluded that forecasting capacity needs thirty years into the future (as is done in the Cambridge Systematics study) is difficult, at best, and is very sensitive to projections of future economic activity. Thus, it is our assessment that one must treat these forecasts of future capacity needs as tentative, at best, particularly given the current economic climate the U.S.

ES3 CAPACITY INVESTMENT

As discussed above, our analysis of railroad capacity indicates that while there is currently no systematic shortage of capacity in the railroad industry, there is evidence of localized capacity problems at various points in the rail network. Although the Cambridge Systematics study concluded that infrastructure investment of $148 billion (in 2007 dollars) would be needed to keep pace with projected economic growth in the United States along with the U.S. Department of Transportation's forecasts for railroad transportation demand, this study also showed that there currently are very few capacity problems in the rail network. Furthermore, this study's projected infrastructure investment requirement was based on a thirty-year forecast of railroad transportation demand. Over the thirty-year forecast period, if actual demand for freight railroad transportation matches the forecast, and if there are no additions to railroad capacity during the intervening time period, 30 percent of rail corridor mileage will be above capacity, while only 44 percent will be below capacity. Forecasting rail capacity needs thirty years into the future is, at best, a difficult project, and

[36] Brian A. Weatherford, Henry H. Willis, and David S. Ortiz, *Infrastructure, Safety, and Environment: A Review of Capacity and Performance Data*, Rand Corporation, 2008, p. xii.

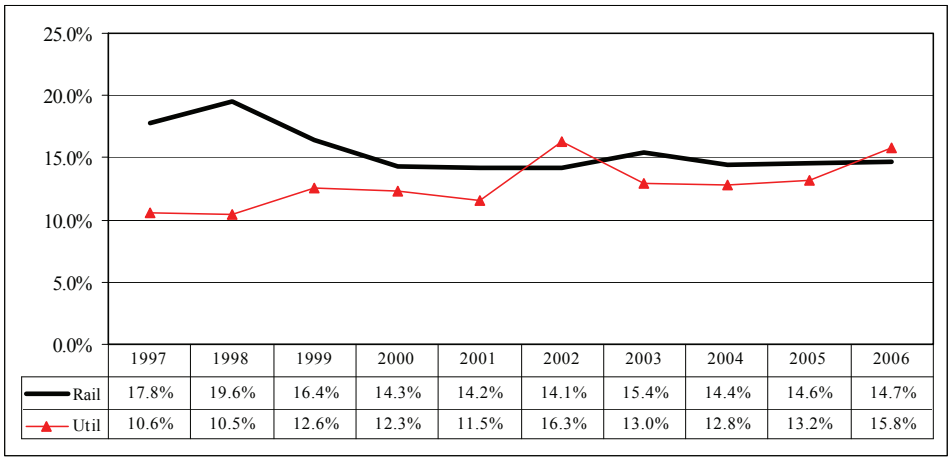
[37] Mark l. Burton, "Measuring the Cost of Incremental Railroad Capacity: A GIS Approach," http://www.njrati.org/files/research/papers/adobe/TPUG-01.pdf.

the conclusions of the Cambridge Systematics study are sensitive to the economic projections that drive freight commodity flow forecasts, future decisions about plant locations, availability of other transportation modes, and changes in business operations.

Our analysis in Chapter 10 also indicates that in the aggregate the value of investments in railroad infrastructure is less than the current price of those investments. Thus, while investment opportunities on certain nodes or links may pass an economic benefit-cost test, there do not appear to be strong economic incentives for the railroad industry to make global or extensive infrastructure investments at this time. Our analysis in Chapter 8 also indicates that the railroad industry's capital spending has remained a near-constant share of its revenue. This is similar to the pattern in the electric utilities industry, which is an industry similar to railroads in terms of infrastructure needs.

In Chapter 8, we compare the railroad industry's capital spending patterns to the benchmark industries we examined.[38] With the exceptions of 2002 and 2006, the railroad industry had the highest shares of its revenues devoted to capital spending. Figure ES-13 presents data on the capital spending to revenue ratios for the railroad and the electric utilities industries. This figure shows that the gap between the railroad and electric utilities industries considerably narrowed over time.

FIGURE ES-13
CAPITAL SPENDING/REVENUE
1997-2006



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Rail	17.8%	19.6%	16.4%	14.3%	14.2%	14.1%	15.4%	14.4%	14.6%	14.7%
Util	10.6%	10.5%	12.6%	12.3%	11.5%	16.3%	13.0%	12.8%	13.2%	15.8%

While railroad investment has increased in both real and nominal terms in recent years,[39] there has been no increase in the railroad

[38] The benchmark industries are electric utilities, freight transportation, food processing, and chemicals.

[39] See Chapter 16.

industry's capital spending to revenue ratio induced by higher profits. One perspective is that, after a period of unusual activity, financial metrics reflect that the railroad industry is settling into a rate of capital expenditures that allows for maintenance and slow, steady growth.[40]

Railroad infrastructure may provide some public benefits that could potentially be addressed through targeted incentives. Investment in railroad infrastructure may provide an attractive transportation alternative to some shippers who currently rely on truck transportation for their shipping needs. Moving more truck transportation to rail would relieve highway congestion and reduce pollution. But these benefits will not influence a railroad's investment decisions, which are driven solely by the railroad's private return on investment. Public benefits do not factor into the railroad industry's investment decisions.

ES4 IMPACT OF CAPACITY CONSTRAINTS ON COMPETITION

Stakeholder Feedback on Causes of Capacity Constraints

As we report in Chapter 5, a generally held opinion among the stakeholders who provided input to us is that the rail industry has gone from excess capacity to "tighter" capacity in the last few years. Other widely held opinions are that rail capacity investment is lagging demand growth (aside from cyclical or seasonal factors), and that railroads are using rate increases to ration scarce capacity and prioritize traffic on their networks. However, opinions differ regarding why capacity has tightened and the effects of this tightening.

- Some stakeholders are of the opinion that the lag in capacity growth is intentional and used by the railroads so they can raise rates—i.e., it is another aspect of the railroads' exercise of market power. In this regard, some are of the opinion that railroads have been "sitting on their hands" regarding capacity investment until the last few years.
- A contrasting opinion is that lags in capacity additions are not the result of the exercise of market power, but these lags are viewed as normal for an industry when faced with making investment decisions of such magnitude. Individuals expressing this view observed that the industry has recently made a significant transition to tighter capacity after years of excess capacity where cost cutting and capacity reductions were the primary focus.

[40]John G. Larkin and Daniel S. Taylor, *Railroads: Striving to Drive Improved Return on Invested Capital,* Legg Mason Wood Walker, Inc., Summer 2004, p. 24.

- Also adding to the investment lag, in some cases, is the involvement with the public sector—e.g., obtaining permits and/or funding.

Assessment of the Impact of Capacity Constraints

As noted in Chapter 3, network industries, including the railroad industry, often are capital-intensive and need to make capital investments in large increments. Furthermore, once these investments are made the capital is either costly to remove or its resale value is small. For these reasons, the amount of capital utilization at any one time will not necessarily be at its optimal level, resulting in either an excess or shortage of capacity.

In Chapter 16 we conclude that congestion at various points or corridors in railroad networks appears to be the major culprit in capacity-related performance issues over the last ten years, and not system-wide lack of capacity. This phenomenon is common in network industries as, for example, in communications networks congestion at network nodes constrains throughput despite almost limitless fiber optic capacity throughout the network. Also, as discussed below, in our stakeholder interviews it was expressed that tight capacity is often related to location-specific constraints in rail networks or in the wider transportation network that are beyond the control of railroads (e.g., ports, highways). Furthermore, our econometric evidence indicates that the price of capital is currently greater than capital's value of marginal product, which implies that the railroad industry is not withholding cost-effective investment.

A concern expressed by several of the shippers we interviewed, and also raised in the GAO report,[41] was that recent capacity constraints may have allowed or caused an increase in the market power of the railroads. Our analysis of the markup of rates over marginal costs, as reflected in the Lerner Markup Index, shows no major changes in the overall Lerner Markup Index since the late 1990s. At the commodity-specific level, we see little in the way of systematic changes in markups by commodity. Between the 2001-2003 and the 2004-2006 periods, we observe moderate increases in the Lerner Markup Index for barley, corn, wheat, and coal, while the LMI declines for aggregate farm products and the eleven other commodity groups in our analysis. Thus, we conclude that recent capacity constraints did not increase the overall exercise of market power by railroads, but coincided with some redistribution of relative markups across commodities.

[41] Government Accountability Office, *Freight Railroads: Industry Health Has Improved, but Concerns about Competition and Capacity Should Be Addressed*, GAO-07-94, October 6, 2006, p. 3.

ES5 SERVICE QUALITY ISSUES

Stakeholder Feedback on Service Quality

As we report in Chapter 5, a number of shippers we interviewed expressed the theme that service quality has deteriorated as rates have increased. (A caveat to this perception is that service has improved somewhat over the last few years when compared to 2004-2005). Many shippers stated that service variability is the most important issue and causes them the most problems. Much of the problem with service variability was attributed by these shippers to reductions in rail competition. Moreover, many shippers stated that new contracts rarely include any performance standards or penalties for not meeting standards, so there is an increasing lack of railroad accountability.

Part of the service quality issue was seen as an outcome of deteriorating communications between railroads and shippers. This communication problem appears to have several dimensions:

- Many shippers said that railroads were increasingly adopting a "take it or leave it" attitude.
- The greater use of internet-based communications versus direct access to railroad personnel.
- Inability of railroad bureaucracies to respond to changing conditions.

Two aspects of service quality brought up in our stakeholder interviews were additional costs placed on shippers because of service quality problems, and sources of service quality problems. The additional cost factors, which shippers claimed they incur as a result of railroad service quality problems, include:

- The need to hold additional inventories because of uncertain/variable deliveries. In this regard, some shippers said that consistency of service is more important than speed.
- The need to have larger fleets of railcars to ensure adequate deliveries.
- The need to dedicate shipper personnel to the monitoring of railroad performance.
- Congestion in ports caused by additional lead time used as a hedge against service variance.

Regarding the sources of service quality problems, the following were mentioned as possible causes or contributing factors:

- Tight capacity and the "fragility" of the railroad network. Shippers expressed the opinion that with the railroad network operating at close to its capacity, it does not take much to upset the fluidity of the railroad network.
- Tight capacity is often related to location-specific constraints or "choke points" in rail networks.
- Rail service problems can also be related to congestion points in the wider transportation network—ports, terminals, highways—that are beyond the railroads' control.
- Shipper-caused problems—e.g., slow unloading.
- Railroad management structures that impede the ability to improve service or solve problems despite good intentions. In this regard, we heard that railroads are good at serving "cookie cutter" business but have trouble when conditions deviate from the norm. We also heard that because railroads tend to be very large and dispersed businesses, it can be difficult for a railroad to ensure that decisions made at one level/location are actually carried out at lower levels or distant locations.
- Market-dominant firms can be less concerned with providing good service.
- One shipper stated that one reason rail service has deteriorated is because railroads are forcing routing protocols on shippers under the guise of operating efficiency, but these forced routes offer no better (or even worse) transit times than previously allowed routes.

Train Speed as an Indicator of Service Quality

As discussed in Chapter 17, average train speed is a proxy for service quality, and changes in average speed represent changes in performance and service quality. The Railroad Performance Measures (RPM) data allow us to calculate average train speeds across a railroad's network but do not allow for route-specific or corridor-specific analysis, nor do the RPM data allow an evaluation of on-time performance or variability of performance from a shipper's perspective.[42] The average train speeds calculated from RPM data provide a crude, aggregate proxy for the railroad service performance received by shippers. Our Advisory Panel noted that railroads as well as many shippers record and keep data

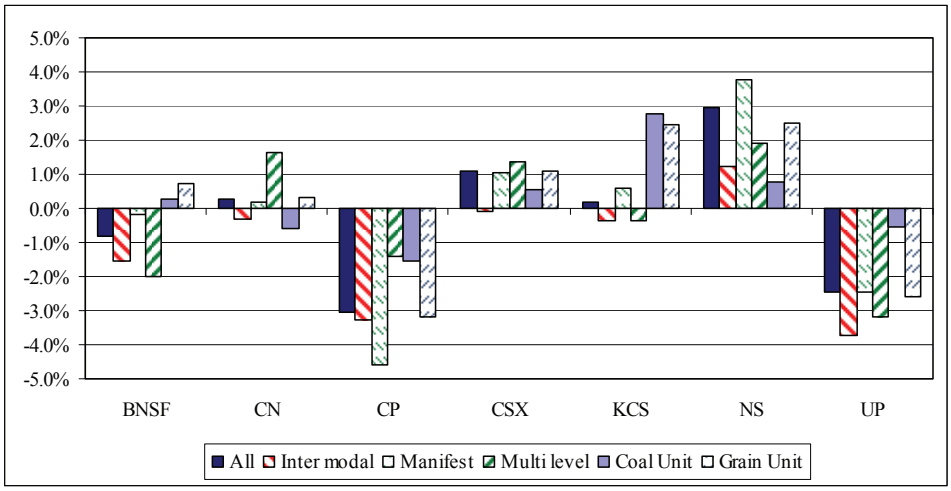
[42]Association of American Railroads, at http://www.railroadpm.org/Definitions.aspx:

> Train Speed measures the line-haul movement between terminals. The average speed is calculated by dividing train-miles by total hours operated, excluding yard and local trains, passenger trains, maintenance of way trains, and terminal time.

on service metrics such as cycle times. While such information is likely confidential, it was suggested that the STB may need to require the reporting of this type of data—possibly by route or by commodity—to better identify and rectify service quality issues.[43]

Comparisons of changes in average speed across train types provide an indication of changes in service quality across customers of these train types.[44] Figure ES-14 present changes in average speed by train type between January 1999 and September 2005 for each of the Class I railroads.[45] Changes in service quality across shipper classes would be suggested if particular train types have changes in average speeds that are markedly different than the changes in average speeds of other train types. For example, in our stakeholder interviews, the opinion was expressed that high-margin services such as intermodal receive preferential service to the determinant of other commodity groups. Therefore, although it is admittedly at a very aggregate level, if we observe the average speed for intermodal increasing relative to the average speed of other train types, this would be evidence supporting the opinion voiced by theses stakeholders.

FIGURE ES-14
CHANGES IN AVERAGE SPEED BY RAILROAD AND TRAIN TYPE, 1999-2005



From Figure ES-14, there does not appear to be any strong bias toward intermodal, as its average speed declined for all railroads except

[43] The STB's Rail Energy Transportation Advisory Committee has formed a Performance Measure Subcommittee to investigate performance reporting.

[44] Comparisons across railroads are not necessarily meaningful.

[45] As we discuss in Chapters 16 and 17, definitional changes in RPM data implemented in October 2005 make comparisons of data before and after these changes problematic. Therefore, our analysis of RPM data is conducted for two separate periods.

NS over the 1999-2005 period, and its speed worsened relative to the overall average for all the railroads.[46] In fact, the change in intermodal's speed was below the change in average speed of coal units and manifest for most railroads over this time period. Therefore, there does not appear to be any systematic bias in favor of intermodal shipments over this time period.

Variability in Average Speed by Train Type

Not only do average speeds have implications for service quality, but variability in speed is also important. In fact, one of the major complaints we heard from shippers regarding service quality was that variability in railroad performance was a larger problem than the absolute level of performance. Shippers found unpredictable service performance to be more costly and problematic to deal with than service that resulted in longer but predictable delivery performance.

The variability in average train speed by railroad and train type (and, presumably, the resulting variability in delivery performance to shippers) is measured by the coefficient of variation (CV), which is the ratio of the standard deviation of train speed to average train speed. Table ES-7 presents CVs of train speed by railroad and train type stated as a percent of average speed.[47] For each railroad, examining CVs across train types reveals that the lowest CV in most cases is for intermodal, especially during the 1999 to September 2005 period. Grain units and coal units typically have the highest CVs. Thus, the implication is that even though its average speed generally declined over this period, intermodal typically received the most predictable service. On the other hand, coal units and grain units received the least predictable service.

[46] This may be due, in part, to major construction projects noted elsewhere in this study.

[47] Again, comparisons across railroads are not necessarily meaningful.

TABLE ES-7
VARIABILITY IN AVERAGE TRAIN SPEED BY RAILROAD AND TRAIN TYPE

Measured by the Coefficients of Variation

	Inter modal	Manifest	Multi level	Coal Unit	Grain Unit
1999-Sept. 2005					
BNSF	3.6%	3.6%	4.2%	4.9%	4.6%
CN	3.9%	5.1%	6.1%	8.0%	9.4%
CP	5.1%	5.6%	6.8%	5.9%	7.3%
CSX	3.5%	5.1%	6.3%	4.4%	6.3%
KCS	5.5%	7.0%	5.6%	8.2%	8.9%
NS	3.2%	4.4%	5.4%	4.5%	7.1%
UP	3.6%	3.5%	3.9%	4.9%	5.1%
2006-2007					
BNSF	3.8%	4.3%	3.9%	4.4%	4.4%
CN	3.5%	3.5%	5.3%	5.9%	4.5%
CP	4.0%	3.6%	5.9%	8.9%	5.2%
CSX	3.4%	3.8%	4.5%	3.4%	4.3%
KCS	6.0%	4.6%	6.0%	6.5%	5.2%
NS	3.6%	4.1%	5.1%	3.6%	5.7%
UP	3.6%	3.1%	3.2%	4.2%	3.7%

ES6 IMPLICATIONS FOR PROPOSED POLICY CHANGES

The economic context in which we assessed the various recent proposals for policy changes in the railroad industry is that there have been periods of both increasing and declining exercise of market power over the last twenty years. During that time frame, it does not appear that excess net revenues were generated in periods when the exercise of market power increased, as the railroad industry was attempting to achieve revenue sufficiency. Only in the most recent year of our analysis does industry revenue noticeably exceed industry cost, using our R-1 based measure. Furthermore, the recent increases in revenue per ton-mile appear to be largely the result of increases in fixed and marginal costs—related to increases in the railroad industry's input prices and diminishing productivity growth—and not due to an increased exercise of market power. While recognizing that differential pricing and the exercise of local market power is necessary to achieve financial viability, in both our qualitative and quantitative research, we did find concerns about shipper captivity and railroad performance.

The 2006 GAO report discussed four open access proposals (three of which have been included in recently proposed legislation) to address competitive concerns: reciprocal switching agreements, requiring the quotation of bottleneck rates, terminal agreements, and trackage rights

agreements. We examined these proposals in Chapter 22. Table ES-8 recreates our summary of the likely economic effects of these open-access proposals. The assumption made for each of these proposals is that, although these types of open-access arrangements would be mandated to some degree, the terms of access are allowed to be determined through voluntary negotiations between railroads, with STB oversight of the process. To the extent that the terms of access are set according to some legislative or regulatory formula that differs from the outcome of voluntary negotiations, the economic effects of these open-access proposals become less predictable.

TABLE ES-8
LIKELY ECONOMIC EFFECTS OF VARIOUS OPEN-ASSESS PROPOSALS

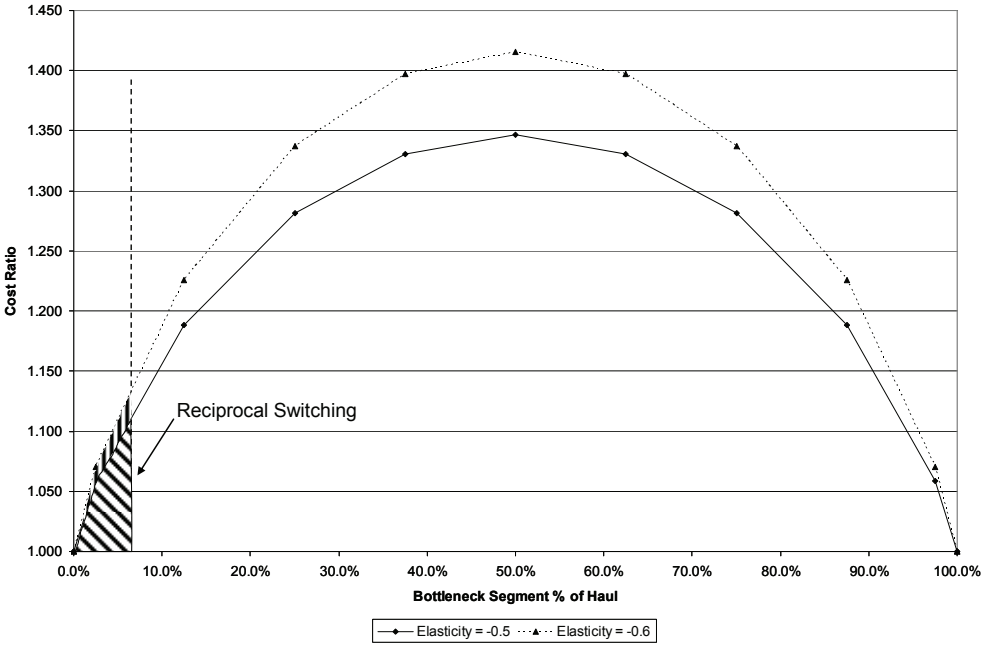
	Reciprocal Switching	Bottleneck Rates	Terminal Agreements	Trackage Rights
Economies of Density	Potential gains	Gains unlikely	Potential gains	Potential gains
Length-of-Haul Economies	Small loss	Potentially large loss	No gain to small gain	No gain to small gain
Vertical Economies	Small loss	Potentially large loss	Small loss	Potentially large loss
Investment Incentives	Small effect	Potentially large effect	Small effect	Potentially large effect
Railroad Profitability	Small effect	Potentially large effect	Small effect	Potentially large effect
Coordination Costs	Small to moderate	Small to moderate	Small to moderate	Potentially large
Competitive Response	Most likely	Least likely	Most likely	Somewhat likely
Shipper Gains	Most likely	Least likely	Most likely	Somewhat likely

Our assessment that, overall, the railroad industry is pricing at levels generating earnings that maintain or slightly exceed those necessary to ensure financial viability implies that there is little room to provide significant "rate relief" to certain groups of shippers without requiring increases in rates for other shippers or threatening the railroads' financial viability. Thus, distributional effects among shipper groups, as well as between shippers and railroads, are primary considerations of proposed policy changes. While economic analysis may be able to quantify benefits and costs to specific stakeholders given more precise policy proposals, the cost/benefit balance is ultimately to be struck by policymakers.

Given the current structure and performance of the railroad industry, we find that certain "open-access" proposals, such as reciprocal switching and terminal agreements, are more likely to create favorable economic benefit/cost conditions than more sweeping access reforms. Some policy initiatives such as requirements to offer bottleneck rates or trackage rights over any route segment, may not be workable due to coordination issues, or may not be effective because the economics of the proposed policy change (e.g., loss of length-of-haul economies, and/or vertical economies) are unlikely to produce the anticipated degree of competitive response.

For example, Figure ES-15 illustrates the stylized fact that length-of-haul economies are diminished as interchange between two railroads (assumed for the purpose of this illustration to be equally efficient) occurs further from an endpoint of a movement; the adverse effect on costs is maximized when the interchange occurs at the mid-point of the end-to-end movement. The magnitudes of the effects shown in Figure ES-15 are consistent with the length-of-haul effects on revenue per ton-mile estimated in our pricing models and, by implication, the length-of-haul effects on marginal costs. As we discuss in Chapter 22, reciprocal switching agreements, which occur a limited distance from an endpoint—indicated by the shaded areas in Figure ES-15—will result in higher costs per ton-mile on the short "bottleneck" segment relative to an end-to-end movement, but there will be relatively little loss of efficiency for the longer-haul segment. Thus, because they have lower risks of adverse cost consequences, we believe that "incremental" policies such as reciprocal switching and terminal agreements have a greater likelihood of resolving shipper concerns via competitive response, without leading to material adverse changes to railroad costs and efficiency.

FIGURE ES-15
STYLIZED REPRESENTATION OF RAILROAD INTERCHANGE AND LENGTH-OF-HAUL ECONOMIES



Nevertheless, we can identify certain proposals we believe would result in economic harm for both shippers and railroads, such as the implementation of cost standards in the STB's rate review process that are based on economically discredited methodologies, and a strictly quantitative assessment of market dominance based solely on the R/VC ratio. Regarding the assessment of market dominance using R/VC alone, the weak relationships between R/VC ratios and market structure factors imply that correctly assessing the presence of market-dominant behavior requires direct assessment of relevant market structure factors as in the current regulatory scheme. Thus, regulatory changes that would establish R/VC tests as the sole quantitative indicator of a railroad's market dominance would not be appropriate.

We also recognize that policies to introduce greater competition in the railroad industry will not necessarily benefit all shippers. Some shippers are truly captive because of factors such as geographic location and/or low shipper density. Therefore, effective regulatory oversight will still be important regardless of any efforts to induce greater competitive responses in the railroad industry. Improvements in the STB's oversight and processes, such as the recent efforts to improve its simplified methods, are important. Also, as discussed in Chapter 22, to the extent the threat or possibility of final offer arbitration promotes parties to negotiate and reach voluntary agreements or resolve disputes, as suggested by a number of stakeholders we interviewed, it would improve the functioning of private

markets without imposing additional regulatory burdens. However, if matters are not resolved between parties and matters do go to arbitration, there are real concerns whether the process will produce outcomes consistent with competitive market outcomes, particularly if arbitrators are not experienced in the complexities of railroad economics. Additionally, factors such as improved reporting of service quality data in industry service metrics and shipment-level CWS data can lead to a better understanding of railroad performance and shipper behavior.

In order to succeed, any of the policy reform proposals must address important implementation details. Based on the experiences of the railroad industry and other industries with legislated access policies, the most challenging and time-consuming aspects of implementing policy changes is working out the details of access terms and pricing, and doing so in a way that enhances, not diminishes, economic efficiency. Not only can the terms of access have an effect on the degree to which open access occurs, but it can have important effects on incumbents' investment behaviors. None of the current policy proposals address these details and, therefore, the risks entailed in implementing these policies as written carry the very real possibility of unintended and economically harmful outcomes.

ES7 CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

This report presents the findings of an independent study of the competitive state of the U.S. freight railroad industry performed by the study team assembled by Christensen Associates and commissioned by the U.S. Surface Transportation Board (STB). Over the course of this 14-month study, the Christensen Associates study team has received cooperation from the STB and numerous railroad industry stakeholders including railroads, various shipper group organizations, numerous individual shippers, government organizations, academics, and other stakeholders. While valuable insights and assistance were obtained by the study team through this process, no individual, government agency, railroad, shipper, or any other industry stakeholder has exerted any influence on the findings of this study. The findings presented and conclusions reached in this report represent the professional judgments and opinions of the Christensen Associates railroad study team.

In addition to the research the Christensen Associates study team performed in the course of our year-long study and our conclusions from that research, we believe there are a number of areas where future research efforts would improve the understanding of the U.S. freight railroad industry. A number of these potential research issues came up during the course of our stakeholder interview process but were outside the scope of the current study. In the case of some issues, the current lack of adequate data prevents a thorough empirical examination. We see other areas as a

natural extension of the research we have performed for this study. The topical list below is in no particular order of importance, nor is it meant to be an exhaustive list of pertinent topics in the railroad industry that merit further investigation.

Captivity and Effective Competition

The weak relationships we found between R/VC ratios and market structure factors imply that correctly assessing the presence of market-dominant behavior requires direct assessment of relevant market structure factors. A better empirical understanding of the economic dimensions of rail shipper captivity is critical, particularly in light of proposed regulatory reforms that would establish R/VC tests as the sole quantitative indicator of a railroad's market dominance.

Service Quality

To evaluate many of the shippers' service quality concerns at more than aggregate or anecdotal levels, data that capture service performance metrics at a disaggregate level are necessary. As we noted, one member of our Advisor Panel indicated to us that railroads as well as many shippers record and keep data on service metrics such as cycle times. While such information is likely confidential, it was suggested that the STB may need to require the reporting of this type of data—possibly by route or by commodity—to better identify and rectify service quality issues. As one step in this direction, perhaps the reporting of complaint statistics on the STB website could be expanded (without breaching confidentiality).

Capacity

Another area that would benefit from a more disaggregate analysis is railroad capacity, particularly given our conclusion that capacity "tightness" issues have most likely been due to localized congestion and constraints, and not because of a system-wide lack of capacity. Also, more disaggregated RPM-type data on railroad performance would be helpful to better investigate capacity issues as well as service quality concerns. Another aspect of railroad capacity that was brought up in our stakeholder interview process is whether railroad equipment markets operate efficiently, supplying the appropriate amount of equipment.

Cost Shifting

A number of stakeholders indicated to us that there has been a significant amount of "cost shifting" in recent years, whereby costs or investments that were previously undertaken by railroads are now the burden of shippers. Examples of cost shifting to shippers include increases in investments in track and storage facilities, loading and unloading

facilities, car ownership and maintenance, and accessorial charges. We have been able to examine some of these issues—for example, the increase in third-party car ownership and our empirical results that indicate rates are generally lower across a number of commodity groups when shipper-owned cars are used. However, many of the cost-shifting issues appear to require additional data to enable a thorough empirical investigation. To the extent such issues are critical to shippers, the STB may consider requesting that appropriate data be made available to investigate these cost-shifting concerns.

Fuel Surcharges

Although the STB has recently begun to collect data on fuel surcharges, these data have not been collected long enough at this point in time to perform a reasonable analysis. For example, the effectiveness of the new STB rules on fuel surcharges has yet to be fully evaluated.

Issues Related to Class II and Class III Railroads

As discussed in Chapter 5, some smaller railroads expressed a number of concerns, including the relationship between smaller and Class I railroads with respect to Class I's "cherry-picking" traffic, and Class I's offering non-competitive rates. In addition, because many smaller railroads have had to undertake significantly greater investments (proportionately speaking) than Class I railroads, the question is whether shortline networks are underfunded.

Critical Evaluation of Rail Demand Growth Projections

There are a number of studies that project a widening gap between the demand for rail services and railroad capacity. These demand projections provide a basis for projecting investment needs and support for the importance of continued railroad earnings growth. Because of the important implications of these demand projections, there needs to be a critical evaluation of these projections and future rail capacity needs.

Reduction in Railroad Network Access

A concern expressed to us by a number of agricultural shippers was the reduction in railroad network access points. As discussed in Chapter 5, potential research questions here include the extent of reduced access, whether it has resulted in railroad efficiency gains and overall benefits to shippers, and whether it has shifted costs to other modes of transportation (such as increased highway maintenance costs).

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EXHIBIT 47

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILWAY COMPANY

--CONTROL--

NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

Highly Confidential
Pursuant to the Protective Order

VIDEOTAPED DEPOSITION

The DEPOSITION OF CLAUDE E. ELKINS, taken on behalf of the BURLINGTON NORTHERN SANTA FE RAILROAD, at the Law Offices of Sidley Austin LLP, 1501 K Street, NW, on the 9th day of September, 2026, at 8:05 a.m. EST

A. Yes.

Q. Going up to the top panel, from 2023 to 2024, overall revenues were effectively flat, correct?

A. Yes. They shrank slightly, it looks like.

Q. And the percentage on the far right from 2023 to 2024 at Norfolk Southern reports it as effectively flat. It's flat?

A. Yeah.

Q. And from 2024 to 2025, again, it's reported as effectively flat --

A. Yes.

Q. -- correct?

Okay. So looking from 2023 to 2025, Norfolk Southern had unit growth across its businesses but not revenue growth, correct?

A. Yes.

Q. I want to focus on 2023, and then we'll move forward.

You'd agree Norfolk Southern -- 2023 was a challenging year for Norfolk Southern, correct?

A. Yes.

Q. And the COO at the time explained that 2023 was a historically challenging year.

Would you agree with that?

A. I can't remember if he said that or not but --

Q. Yeah. Let me ask it separately.

Would you agree for Norfolk Southern --

A. Yes.

Q. -- in your many years there that 2023 was a historically challenging year?

A. Yes.

Q. Starting off with the East Palestine derailment, correct?

A. Yes.

Q. And Norfolk Southern has not had that kind of major derailment in 2024 or 2025 or year to date 2026, correct?

A. That is correct.

Q. Okay. 2023; Norfolk Southern also faced serious network disruptions, correct?

A. Yes.

Q. And Norfolk Southern hasn't had those same kind of network disruptions in 2024, '25, or year to date '26, correct?

A. That is correct.
Q. And 2023 was a stubbornly weak freight market, correct?
A. Yes.
MS. MAHAN: Object to the form.
A. Yes. It was a middle of the freight recession.
Q. (By Mr. Donovan) There was weak demand for goods in 2023, correct?
A. Yes.
Q. There were lower levels of manufacturing activity in 2023, correct?
A. I believe that's correct.
Q. And there was generally less freight coming in from overseas, correct?
A. I don't recall, but I believe that's correct.
Q. Since you've been chief marketing officer, you participate in quarterly analyst calls, correct?
A. Yes.
Q. Along with the COO and the CFO, correct?
A. Yes.

Q. We're going to hand you a transcript.

(Exhibit 203 was marked for identification.)

Sir, you've been handed what's been marked as Exhibit 204 which is a transcript of Norfolk Southern analyst call for the fourth quarter 2023 taking place on January 26th, 2024.

MS. MAHAN: 203?

MR. DONOVAN: 204. 204. Oh, I'm sorry.

MS. MAHAN: 203.

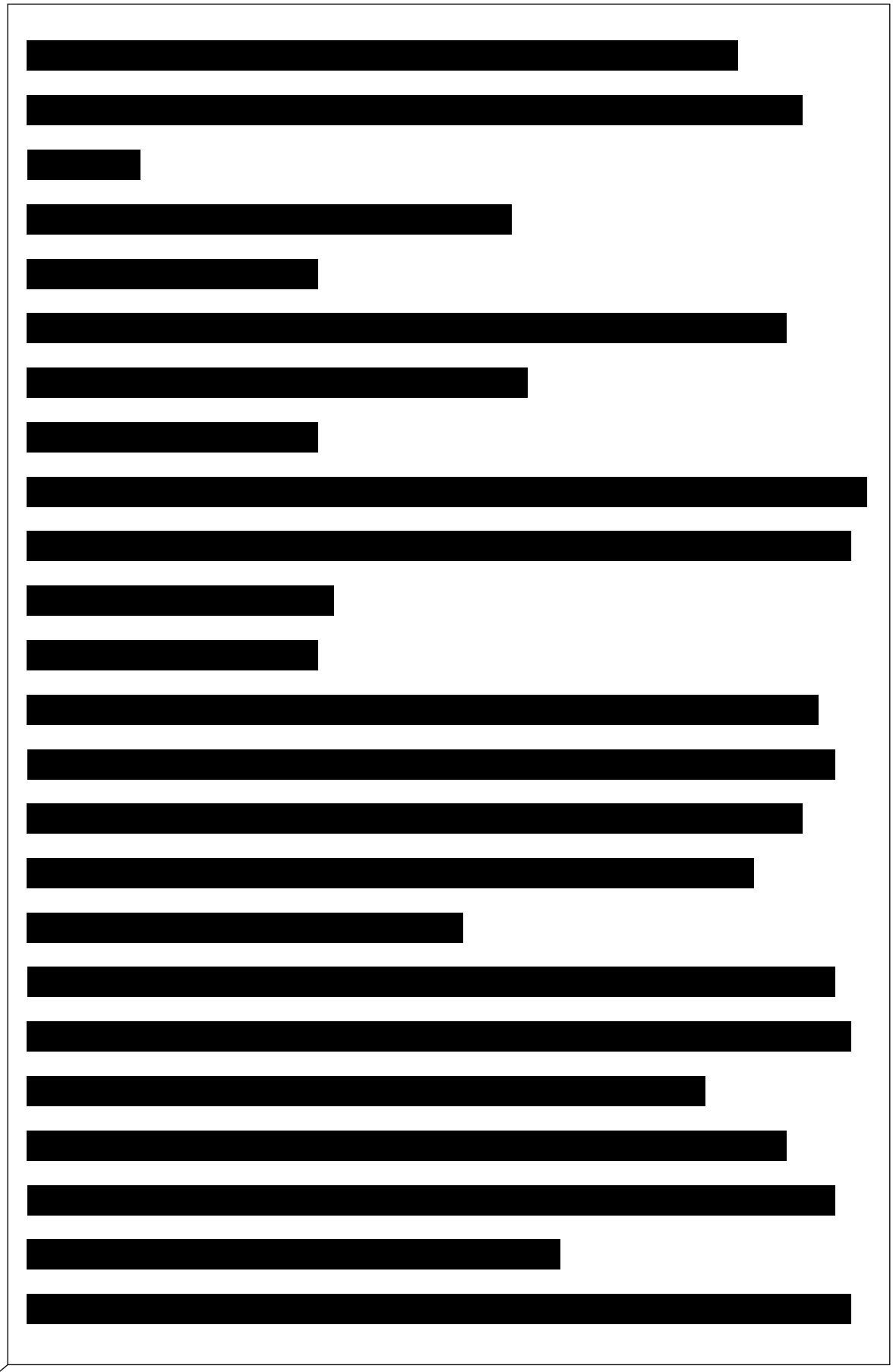
MR. DONOVAN: Let's correct that.

Q. (By Mr. Donovan) Sir, you've been handed what's been marked as Exhibit 203 which is a Norfolk Southern transcript of the analyst call that took place on January 26th, 2024. I'm going to direct your attention, sir -- you're free to look at whatever, but at the bottom of page 8 is when you begin to speak.

A. Okay.

Q. And I'm going to start it at the top. You see this is the section where you're speaking on the analyst call?

A. Yes.





(Exhibit 205 was marked for identification.)

Q. (By Mr. Donovan) Sir, you've been handed what's been marked as Exhibit 205 which is the PowerPoint presentation on behalf of the Norfolk Southern executive management team for the Q2 2026 earnings call dated July 23rd, 2026.

Do you have that in front of you?

A. Yes.

Q. And you participated in this analyst call, correct?

A. Yes.
Q. If you could turn to page 8. It doesn't have a number, but it's the page before 9.
MS. MAHAN: With your picture on it.
Q. (By Mr. Donovan) With your picture on it, yeah.
A. Yeah.
Q. This is the market overview that you provided on the analyst call, correct?
A. Yes.
Q. And on page 9, it provides Norfolk Southern's second quarter 2026 results, correct?
A. Yes.
Q. Let's walk through this.
Volume second quarter 2026. Compared to the prior year, the volume was up two percent in merchandise, correct?
A. In merchandise, yes.
Q. In intermodal, the volume was up five percent year over year?
A. Yes.
Q. And in the second quarter of 2026, coal volumes were up three percent compared to the prior year, correct?

A. Yes.
Q. And total for the year, volumes were up four percent across the Norfolk Southern?
A. Yes.
Q. Okay. Let's turn to revenue.
Revenue for Norfolk Southern in the second quarter of 2026 was 2.13 billion, correct?
A. Yes.
Q. And as noted here, that was a record for Norfolk Southern, correct?
A. Yes.
Q. Best ever, correct?
A. That is correct.
Q. Okay. And the revenue was up eight percent in merchandise year over year, correct?
A. Yes.
Q. And for intermodal, revenue was 908 million for the quarter in the second quarter of 2026, correct?
A. Yes.
Q. And that was up, in fact, 22 percent year over year, correct?
A. Yes.
Q. Coal revenue was 424 million, up seven

percent over prior year, correct?

A. Yes.

Q. And total for the NS revenue for the second quarter of 2026 was 3.465 billion, correct?

A. Yes.

MS. MAHAN: Object to the form; misstates the document. You said billion.

MR. DONOVAN: Yeah. 3.465 billion.

MS. MAHAN: Okay. I'm sorry.

Q. (By Mr. Donovan) And then the revenue for Norfolk Southern in the second quarter of 2026 was up 11 percent over the prior year, correct?

A. Yes.

Q. And again, that set a record for Norfolk Southern?

A. Yes.

Q. And towards the bottom, RPU is -- what is RPU in your business?

A. Revenue per unit.

Q. Okay. And then revenue -- explain what revenue less fuel is.

A. Revenue less fuel is the revenue that we attracted removing the fuel surcharge component.

Q. And generally, what is a fuel

surcharge in the rail business?

A. What it is?

Q. Yeah. What is a fuel surcharge?

A. Oh. A fuel surcharge is a charge to the customer that is a recovery of fuel costs against what the current environment provides.

Q. Okay. And that is contract-based, typically?

A. There are many different contracts on fuel.

Q. Fuel surcharges. Okay. And provided here, revenue even stripping out the fuel surcharge provided to Norfolk Southern in the second quarter of 2006 record revenue, correct?

A. Yes.

Q. And it was five percent over the prior year, correct?

A. Yes, for less fuel.

Q. If you could turn to the next page, page 10. On the market outlook, you provide kind of circles with different colorings. It could be green, green and yellow, or yellow and red, correct?

A. Yes.

Q. And on page 10, there's no red on the

demand for intermodal, and recent business winds, particularly within our domestic segment.

Do you see that?

A. Yes.

Q. Okay. And then if you go down to the fourth paragraph, it says: On slide 10, we highlight several dynamic factors.

And those are those colored bullets we went through, correct?

A. Yes, sir.

Q. If you go to the top of page 7, you state to the analyst: Turning to our intermodal markets, the truck market has turned positive with dry van rates trending upward, and capacity continues to tighten as demand is also firming.

And that's referring to this truck capacity that tightens that helps the intermodal rail market, correct?

A. Yes. It's referring to truck capacity.

Q. It then goes on to say: Demand has been supported for our domestic and premium segments in the near-term as new orders are rising, and retail sales have shown some modest growth. This

has been partially offset by tariff and trade uncertainty that's going to continue to weigh on international volumes.

Do you see that?

A. Yes.

Q. You then discuss the look forward, and you say: Taken together, we have a bullish view of intermodal, an outlook which is only reinforced by elevated fuel prices that will continue to make truck conversion more attractive to our customers.

Correct?

A. Yes.

Q. And that's still your view a couple months later, today in September, that Norfolk Southern has a bullish view on intermodal, correct?

A. Yes.

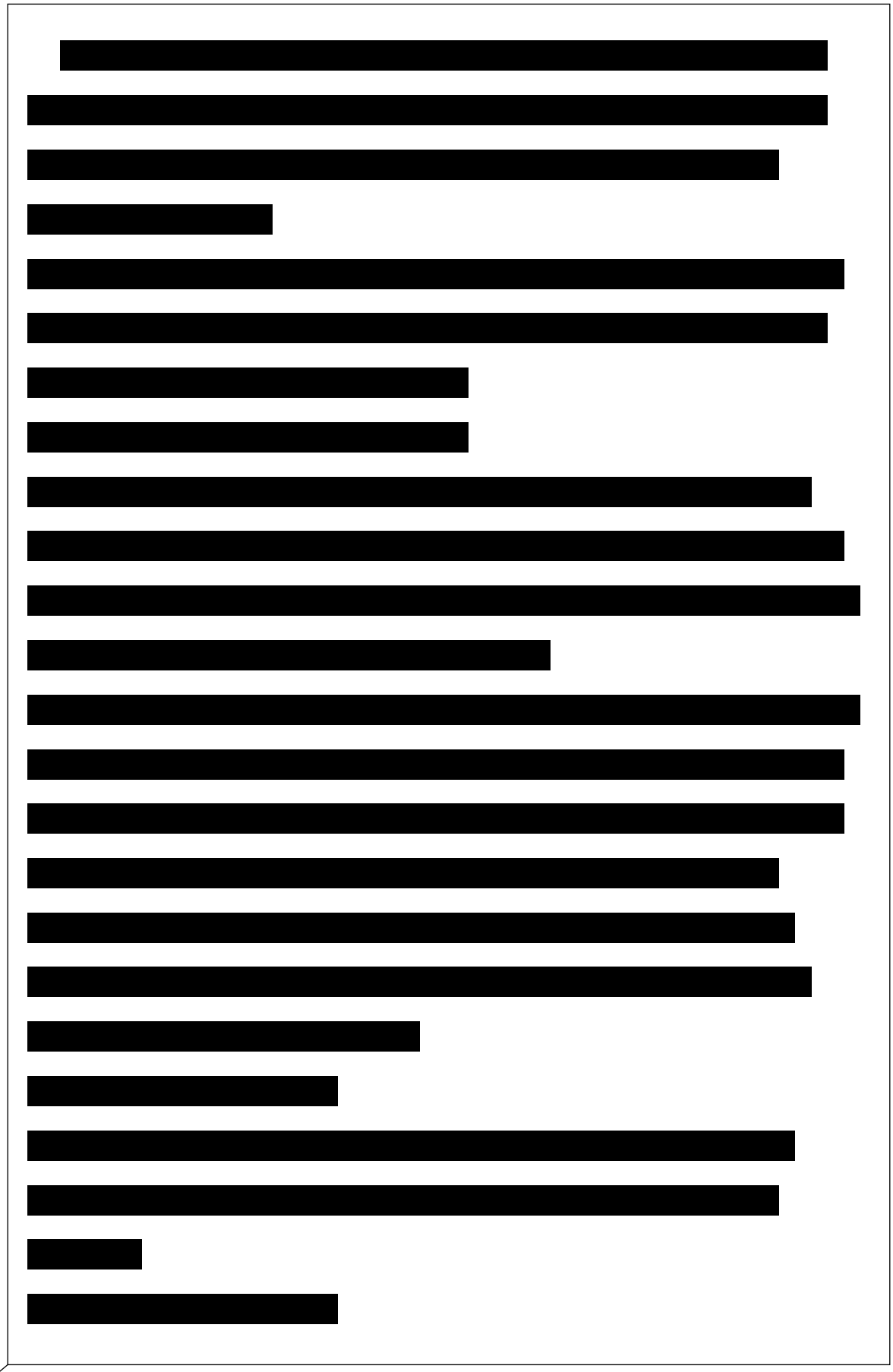
Q. And during 2026, especially, Norfolk Southern has been winning intermodal volumes and has been winning freight from the truck market, correct?

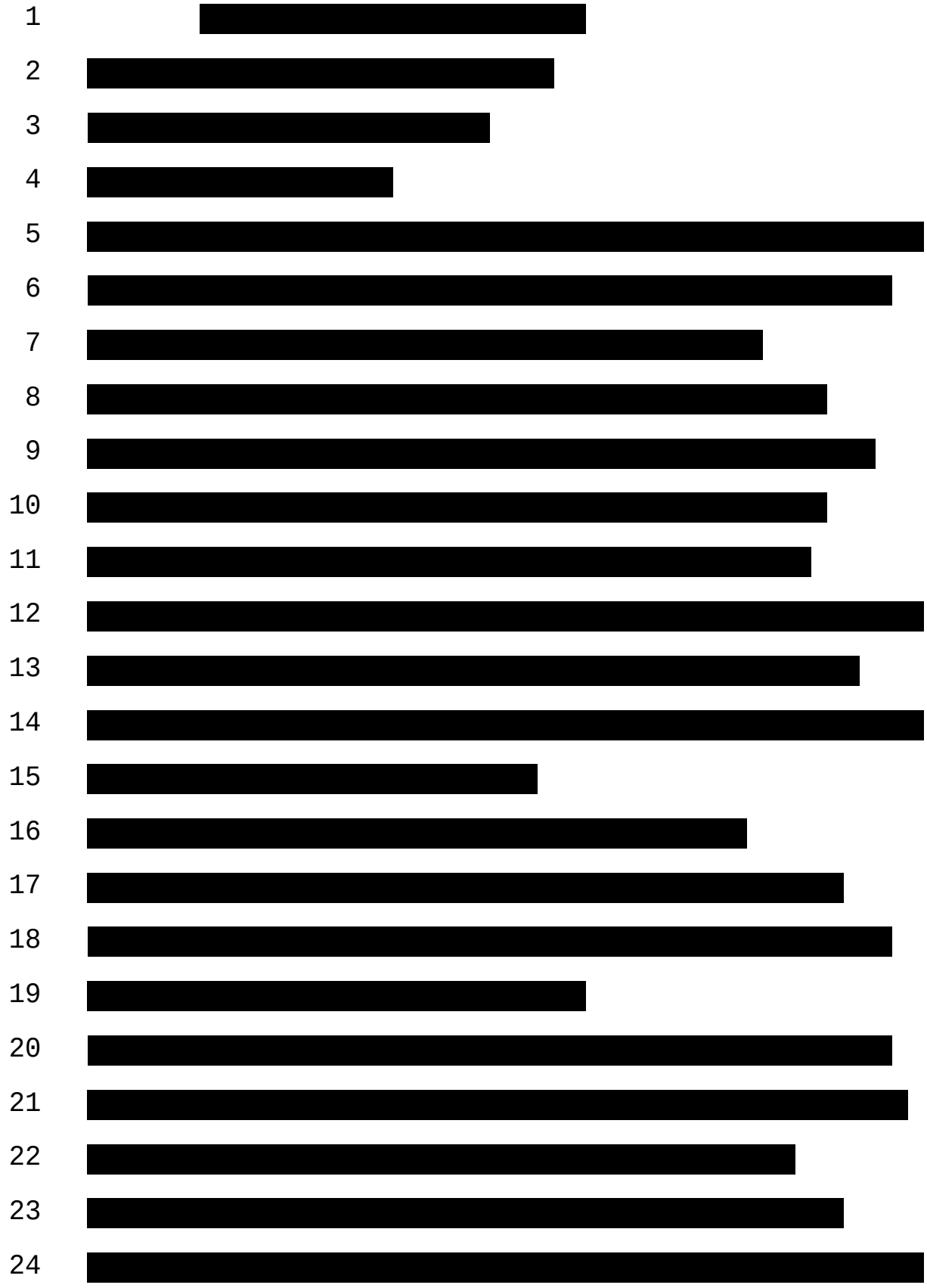
A. I believe so, yes.

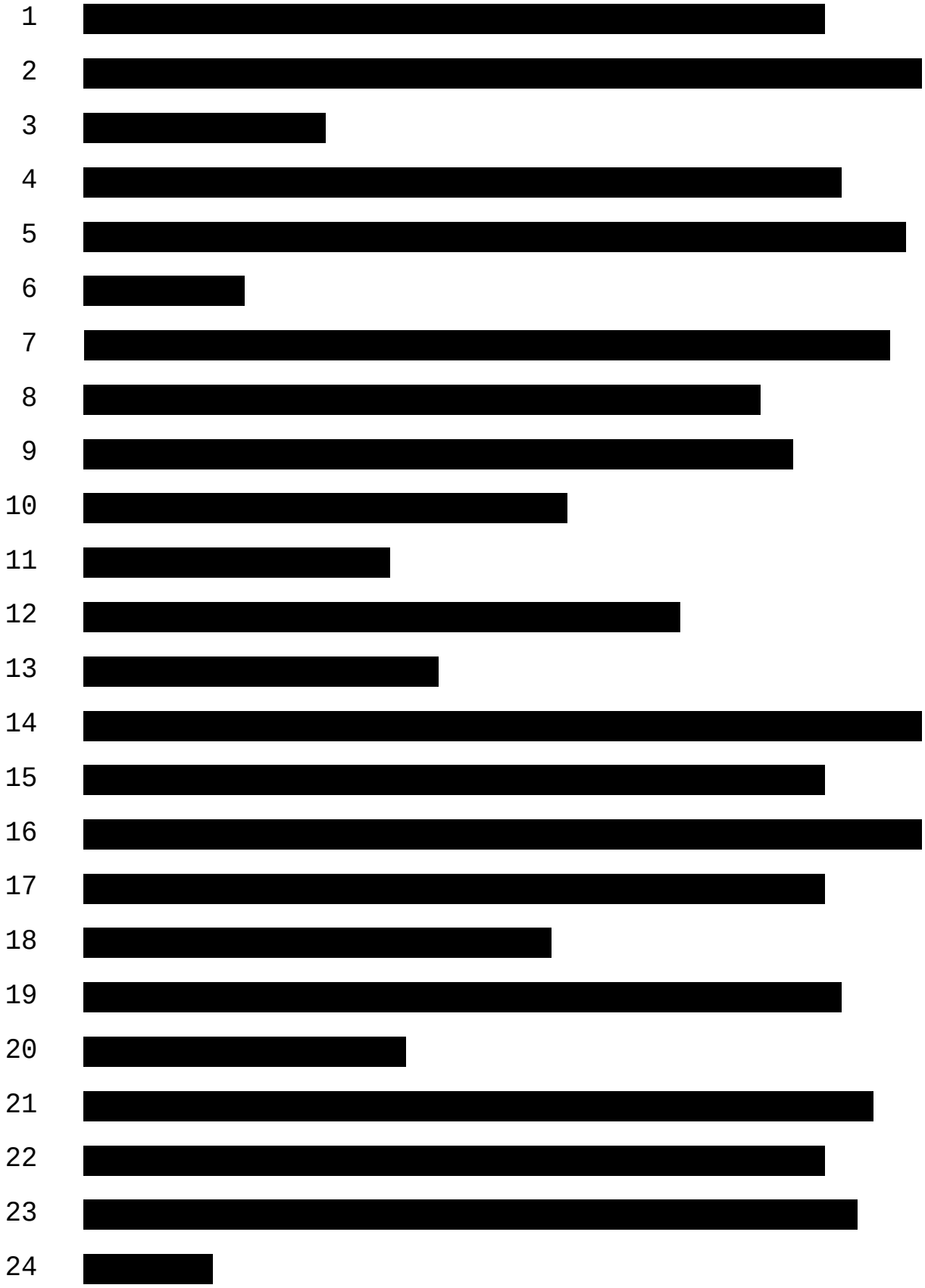
Q. And at least in the current outlook, you expect that continuing to win freight from the truck market to continue, correct?

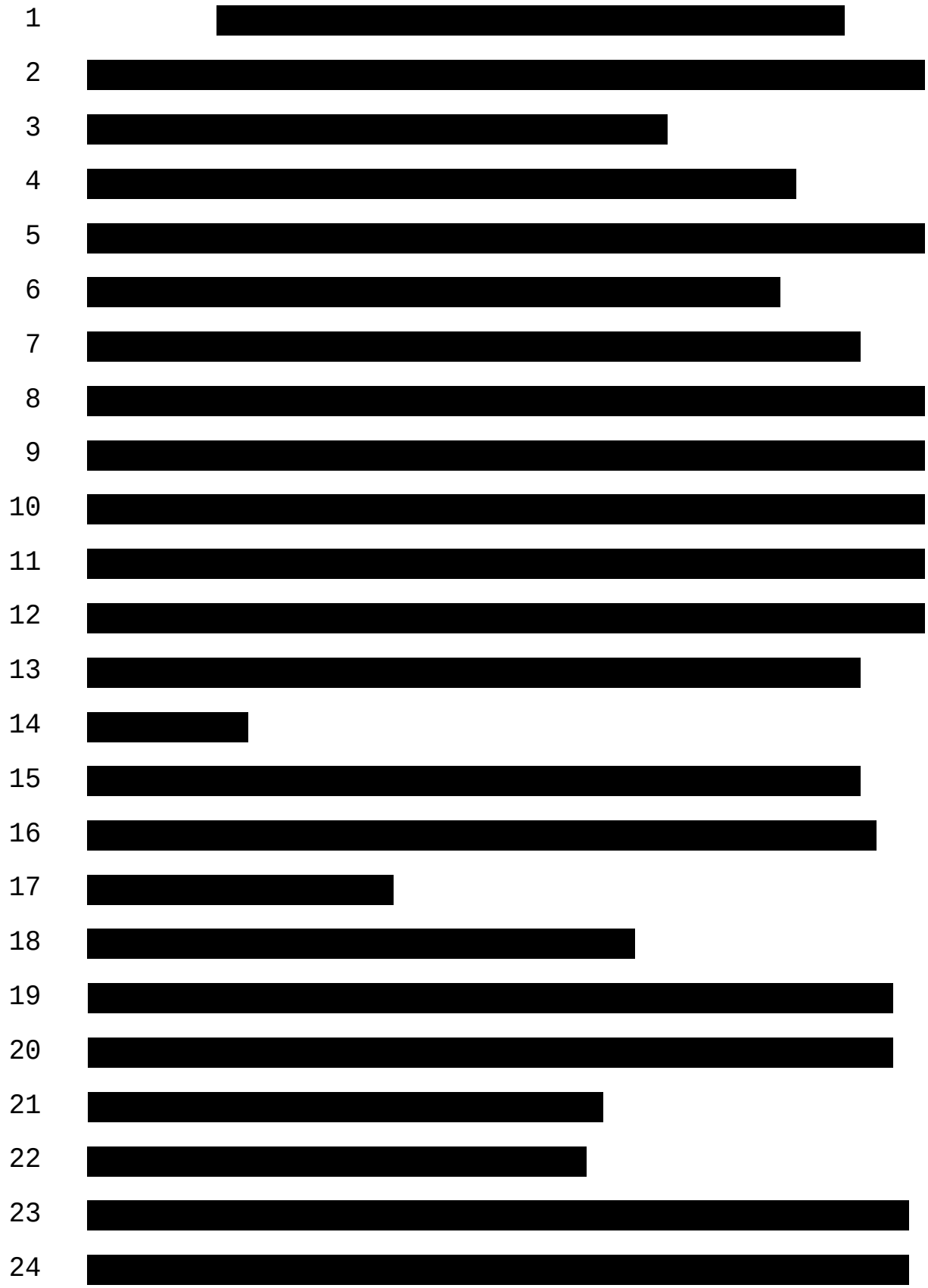
A. Yes.

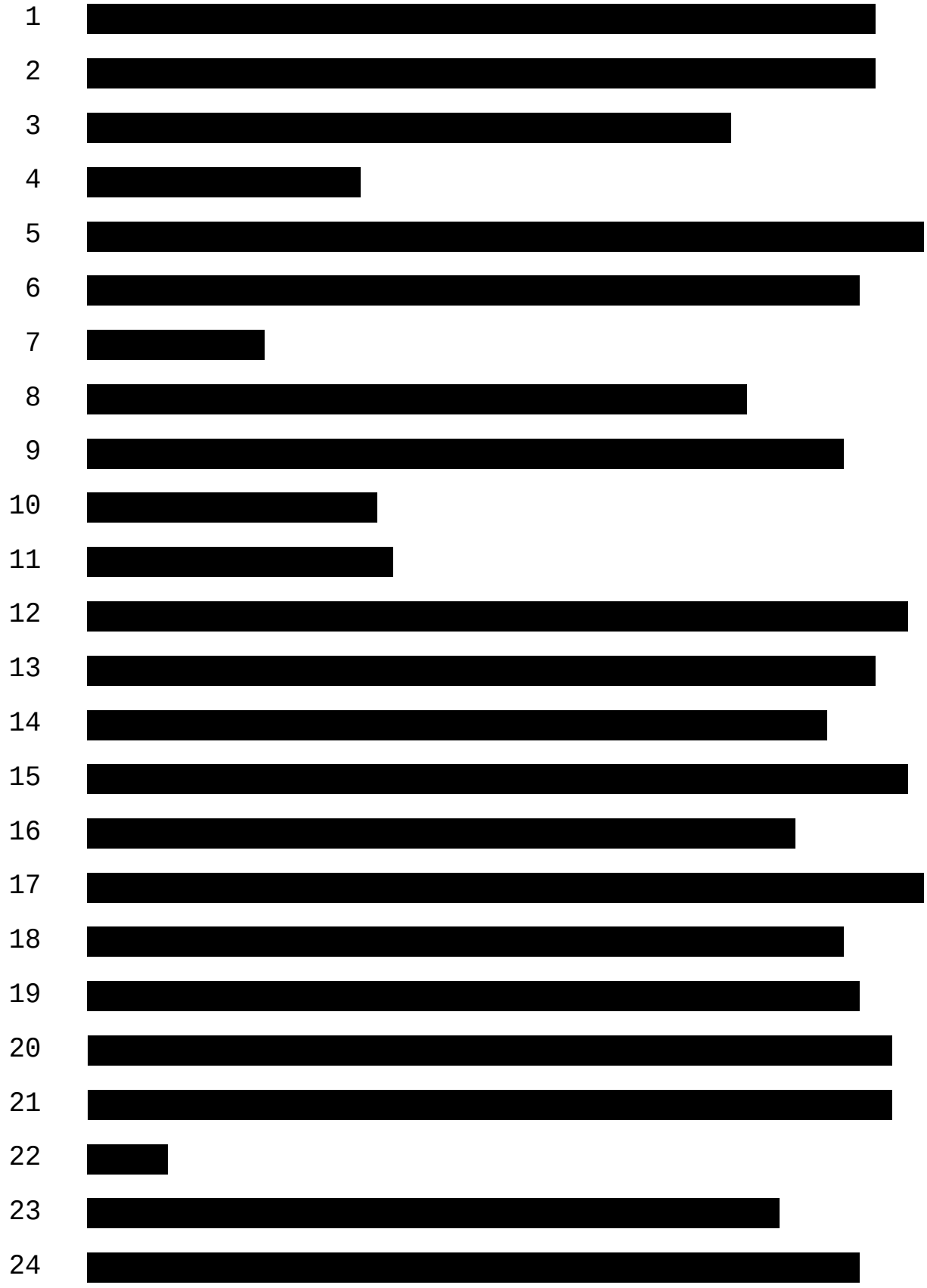
Q. Now, as we went through in 2023, Norfolk Southern faced an intermodal market with truck overcapacity, correct?
A. Yes.
Q. Currently, Norfolk Southern faces an intermodal market with very tight truck capacity, correct?
A. In relative terms, yes.
Q. How would you compare the truck capacity and pricing in 2023 compared to today?
A. Inverse.
Q. Quite different, correct?
A. Yes.
Q. In 2023, Norfolk Southern faced serious service disruptions on its network, correct?
A. Yes.
Q. In current times, in 2026, Norfolk Southern is not facing service disruptions?
A. We're not facing the same sort of service disruptions.
Q. You agree Norfolk Southern has improved its service product in recent years?
A. In recent years, yes.
Q. Norfolk Southern has improved its

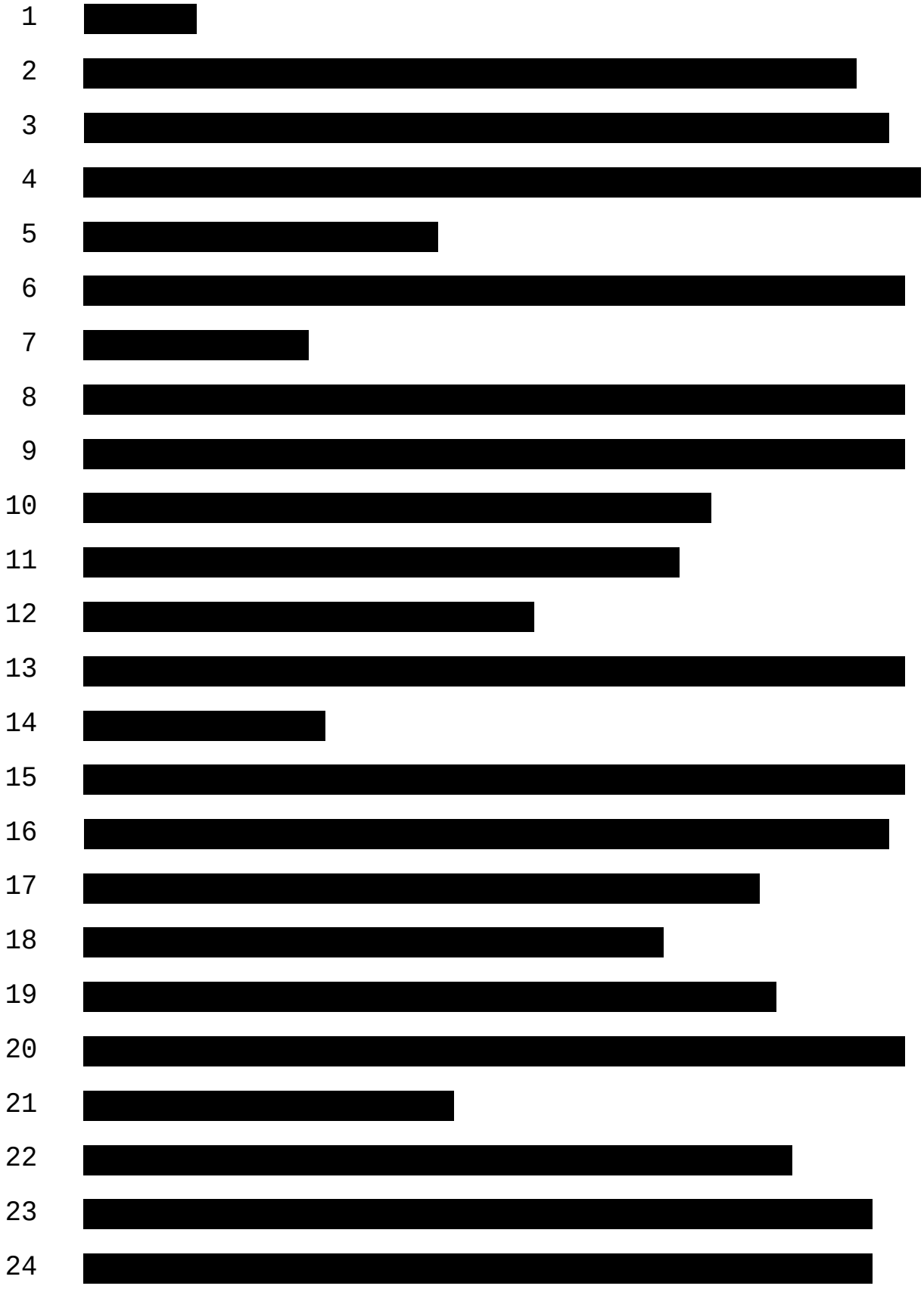


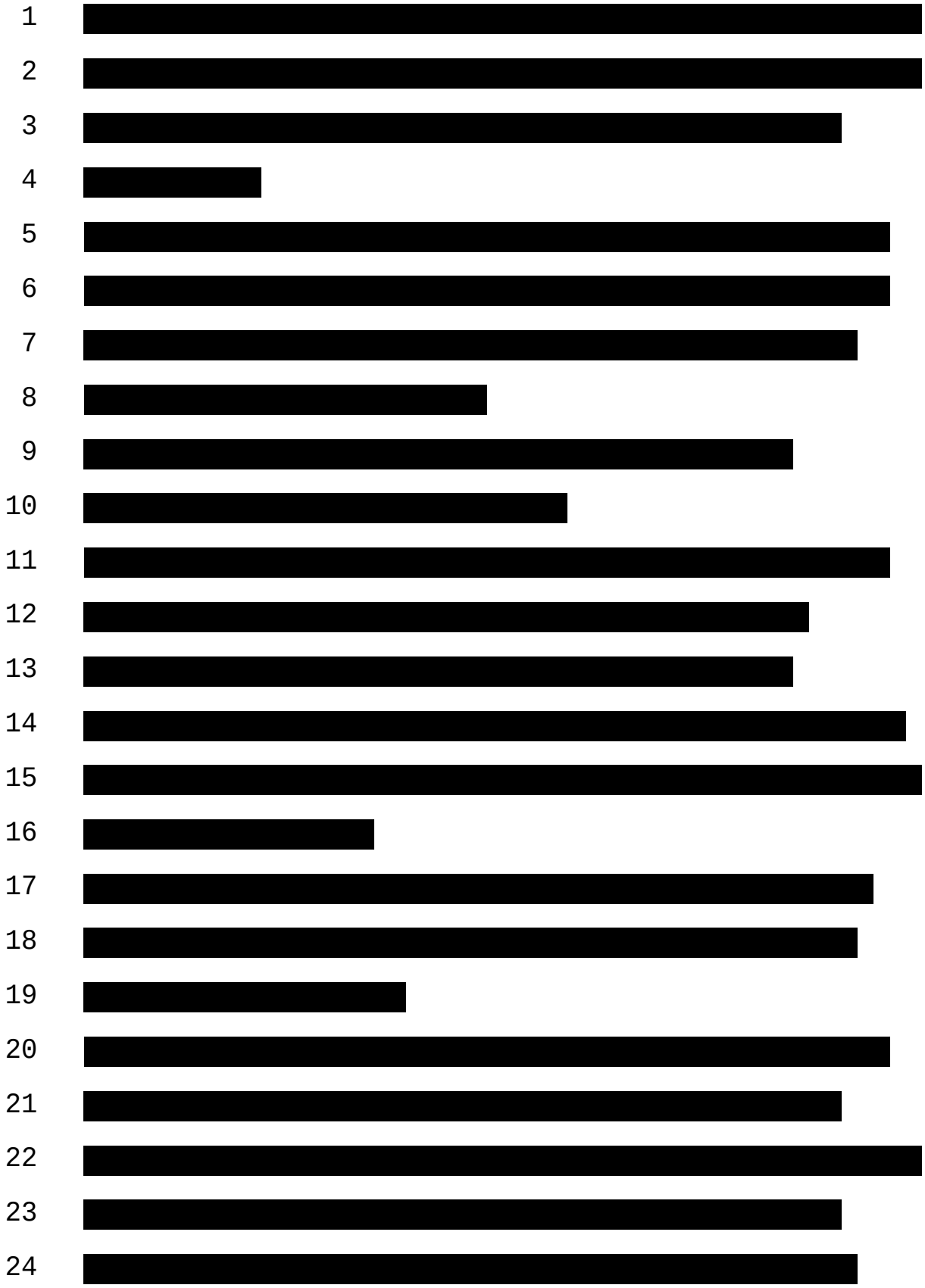




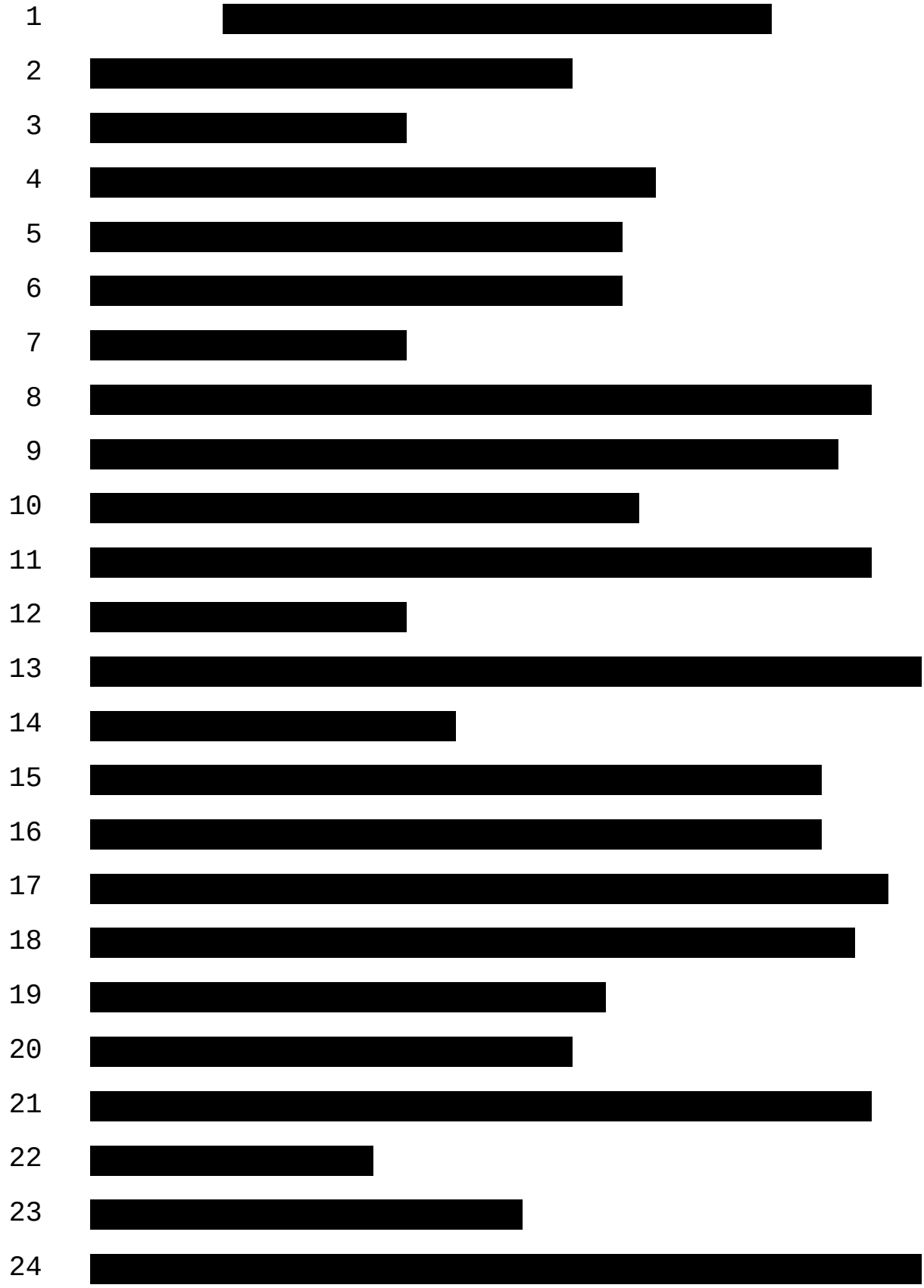


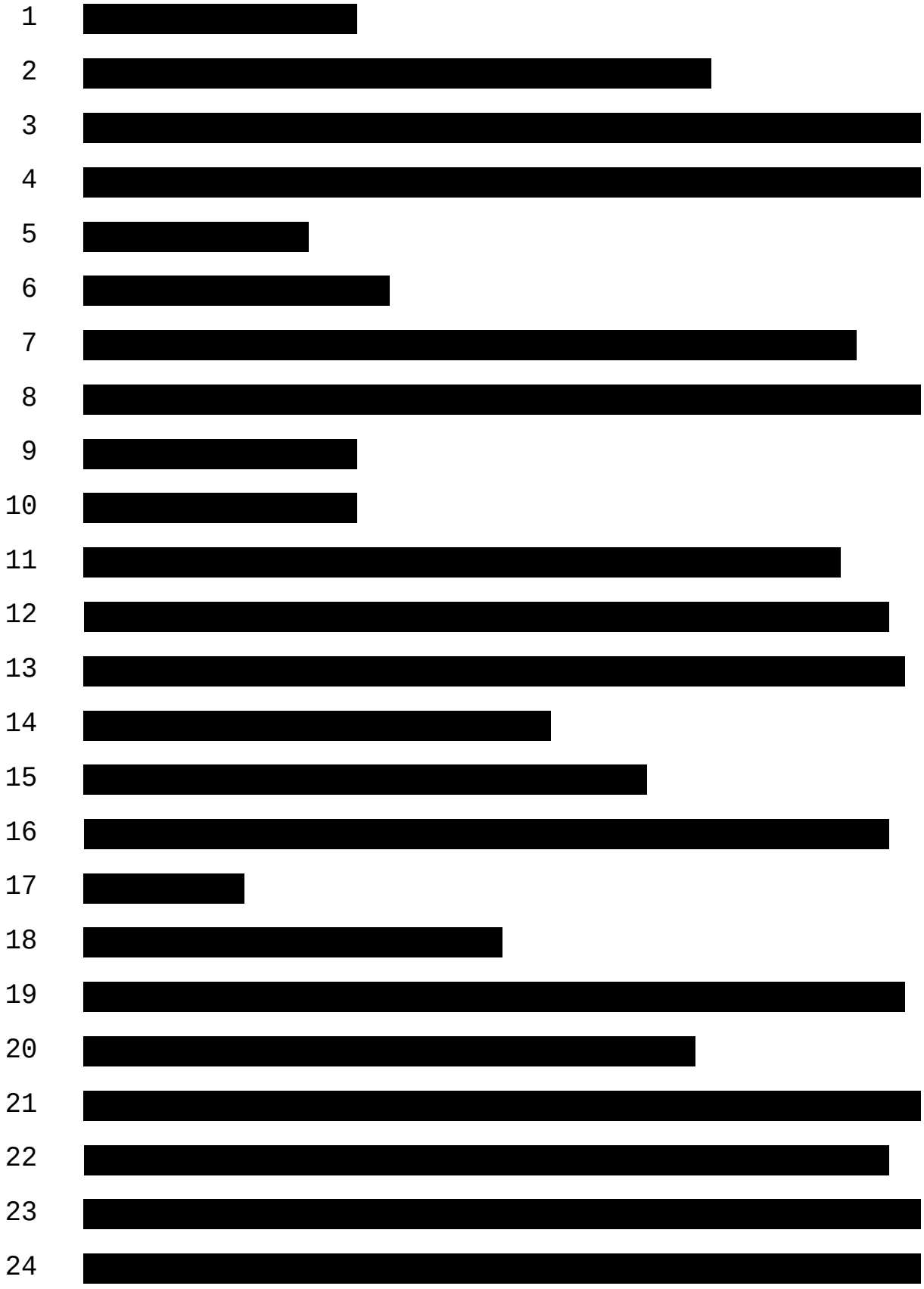
















REPORTER CERTIFICATE

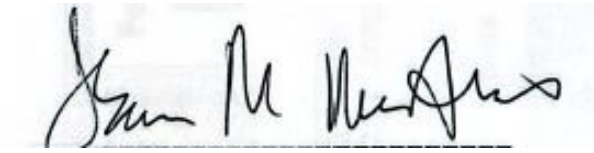
I, TRACI M. MERTENS, RDR, CRR, do hereby certify that there came before me

CLAUDE E. ELKINS

who was by me first duly sworn to testify to the truth and nothing but the truth of all knowledge touching and concerning the matters in controversy in this cause; that the witness was thereupon carefully examined under oath and said examination was reduced to writing by me; and that this deposition is a true and correct record of the testimony given by the witness and that signature by the witness is reserved.

I further certify that I am neither attorney nor counsel for nor related nor employed by any of the parties to the action in which this deposition is taken; further, that I am not a relative or employee of any attorney or counsel employed by the parties hereto or financially interested in this action.

Dated September 14, 2026.



TRACI M. MERTENS, RDR, CRR

EXHIBIT 48 (REDACTED)

EXHIBIT 49 (REDACTED)

EXHIBIT 50

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Our Network and Avantages



NETWORK MAP ENLARGE MAP

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- Strategically-located stations near some of the most densely populated regions
- Full complement of integrated logistics services and infrastructure



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300 Trucks
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EXHIBIT 51

PUBLIC VERSION - REDACTED

Chapter 33

A PRIMER ON FORECLOSURE[1]

PATRICK REY
University of Toulouse (IDEI and GREMAQ)

JEAN TIROLE
University of Toulouse (IDEI and GREMAQ) and MIT

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[1] Financial support for the initial research that eventually led to this chapter was provided by a grant from BellSouth New Zealand. The authors are grateful to Mark Armstrong, Paul Seabright, Chris Snyder, John Vickers and Lucy White for helpful comments on a previous draft.

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PUBLIC VERSION - REDACTED

Abstract

This chapter analyzes the private rationale and the social costs and benefits of market foreclosure, here defined as a firm's restriction of output in one market through the use of market power in another market. The chapter first focuses on *vertical foreclosure* (in which full access to a bottleneck input is denied to competitors) and provides an overview of the theory of access to an essential facility in an unregulated environment. It considers a wide array of contexts: possibility of bypass of the bottleneck facility, upstream vs downstream location of this facility, and various exclusionary activities such as vertical integration and exclusive dealing. It identifies a number of robust conclusions as to the social and private costs and benefits of foreclosure. The chapter then turns to *horizontal foreclosure*, where the monopoly good is sold directly to the end-users, and analyzes recent theories of anti-competitive bundling aimed at reducing competition in the adjacent markets or at protecting the monopoly market. Finally, the chapter tackles exclusive customer contracts and discusses potential efficiency defenses for exclusionary behavior.

Keywords

Essential facility, Foreclosure, Vertical integration, Tie-ins, Antitrust

JEL classification: D4, K21, L42

BNSF-OP-P VOL. 3 PAGE 971

PUBLIC VERSION - REDACTED

1. Introduction

1.1. What is foreclosure?

This chapter provides a framework for the analysis of the private rationale as well as the social costs and benefits of market foreclosure. According to the received definition, foreclosure refers to a dominant firm's denial of proper access to an essential good it produces, with the intent of extending monopoly power from that segment of the market (the bottleneck segment) to an adjacent segment (the potentially competitive segment). Foreclosure can arise when the bottleneck good is used as an input (e.g., an infrastructure) by a potentially competitive downstream industry, or when it is sold directly to customers, who use the good in conjunction with other, perhaps complementary goods (e.g., system goods or aftersale services). In the former case, the firms in the competitive segment that are denied access to the essential input are said to be "squeezed" or to be suffering a secondary line injury. In the latter case, a tie may similarly distort or even eliminate effective competition from the rivals in the complementary segment.

An input produced by a dominant firm is essential if it cannot be cheaply duplicated by users who are denied access to it. Examples of inputs that have been deemed essential by antitrust authorities include a stadium, a railroad bridge or station, a harbor, a power transmission or a local telecommunications network, an operating system software and a computer reservation system.[2] The foreclosure or essential facility doctrine states that the owner of such an essential facility has an incentive to monopolize complementary or downstream segments as well. This doctrine was first elaborated in the U.S. in *Terminal Railroad Association v. U.S.* (1912), in which a coalition of railroad operators formed a joint venture owning a key bridge across the Mississippi River and the approaches and terminal in Saint Louis and excluded non-member competitors. The Supreme Court ruled that this practice was a violation of the Sherman Act. A version of the doctrine was invoked by the European Court of Justice in the celebrated *United Brands* (1978) decision, in which it held that United Brands Corporation enjoyed substantial market power in the banana market in Europe and engaged in exclusionary practices in related markets (distribution, ripening).[3]

Foreclosure varies in extent. It can be complete, as in the case of a refusal to deal (equivalently, an extravagant price can serve as "constructive refusal") or in the case of technical integration between complementary goods, or partial, as when the bottleneck owner favors some firms or products in the adjacent market to the detriment of other competitors. It can also be performed in various ways:

– The bottleneck owner can *integrate* with one or several firms in the complementary segment. For example, computer reservations systems were developed by major

[2] Extensive legal discussions of foreclosure can be found in Areeda (1981) and, especially, Hancher (1995).

[3] More recently still, the *Queensland Wire* case (which involved vertical integration and a vertical price squeeze) is perhaps the first such Australian case in 1989. The *Clear* case provides an example of application of the doctrine in New Zealand, in which the incumbent's local network is the essential facility.

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airlines. Before the Civil Aeronautics Board (CAB)'s 1984 famous decision, it was perceived that smaller airlines, especially those competing head-to-head with the integrated firms, had to pay a high price for access to the reservation systems and received poor display of their flights on the travel agents' screens (a key competitive disadvantage given that most travel agents do not browse much through screen displays). The CAB attempted to impose equal access in price and quality to what were perceived to be essential facilities, namely computer reservation systems,[4] but did not demand the major airlines' divestiture of their computer reservation systems. In contrast, in the same year, U.S. courts forced AT&T to divest its regional operating companies (known as the RBOCs). Other examples of forced vertical separation include the UK brewing industry, in which, following an investigation by the Monopoly and Mergers Commission in 1989, the "majors" were instructed to divest pubs,[5] and the high voltage electricity transmission systems, that have been separated from generation in most countries.

The integrated firm can *refuse to deal* with potential competitors. Relatedly, it may make the bottleneck good incompatible with competitors' products or technologies, or engage in *tie-in* and refuse to unbundle, thereby denying access to the essential facility. For example, in *Port of Genoa* (1991), the European Court of Justice held that the harbor was an essential facility and that its use should not be reserved to the undertaking managing it[6]; in the U.S., *Otter Tail Power Co v. United States* (1973) established a duty for a vertically integrated power company to supply other companies. Famous tie-in cases in the U.S. include *International Salt* (1947), in which the producer of salt dispenser equipment bundled salt with the equipment, and *Chicken Delight* (1971), in which the franchiser tied various inputs (ingredients, cooking equipment) with the franchising contract. In Europe, the Commission charged IBM in 1980 for abusing its dominant position in CPUs for large mainframe computers, by tying other elements such as main memory or basic software. In *Tetra Pak* (1994), cartons were tied to the filling machines. On both sides of the Atlantic, a number of cases have also surfaced in the context of "after-markets", when a durable good manufacturer with market power excludes competitors from providing repairs, maintenance or spare parts.[7]

– In the presence of economies of scope or scale calling for cooperation among firms in the same market, a dominant group of firms may put its competitors at a disadvantage

[4] Similarly in 1988, the European Commission imposed a fine on Sabena for denying access to its computer reservation system to the price-cutting airline London European.

[5] Snyder (1994) performs an event study analysis of this industry and provides some evidence of non-competitive behavior. Slade (1998) however stresses that the vertical separation led to softer competition. These "beer orders" have been repealed in 2002.

[6] A related case is the *Sealink* decision (1992), where the same company operated ferry services and controlled the harbor.

[7] See, e.g., in Europe, *Hugin v. Commission* (1979), in which a manufacturer refused to supply spare parts for its cash machines and the Commission held that the manufacturer had a dominant position on its own spare parts. A hotly debated case in the U.S. is *Kodak*, who refused to sell replacement parts for photocopiers to owners unless the latter agreed not to use independent service organizations [see Borenstein, MacKie-Mason and Netz (1995) and Shapiro (1995) for a discussion of this case].

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by *refusing to cooperate*. Famous cases include *Aspen Skying Co v. Aspen Highlands Skying Co* (1985),[8] in which the common owners of three mountains on the site discontinued the All-Aspen ski passes which enabled skiers to use these mountains as well a fourth, independently owned, one; and *Associated Press v. United States* (1945), in which members of the newspapers' cooperative could block membership by competing newspapers. Such cases have obvious implications for network industries.[9]

– Short of integration, the bottleneck owner can grant *exclusivity* to a subset of firms or *tie* its essential product with selected products on the complementary segment, and thus de facto exclude their rivals. For example, the Court held that the granting of exclusive rights by *Auckland Regional Authority* to Avis and Hertz for operating in the Auckland airport terminal violated sections 27 and 36 of the New Zealand Commerce Act. Similarly, the European Commission has investigated the 65 year contract between Eurotunnel and the incumbent operators, British Rail and SNCF, allocating the entire capacity available for passenger and freight rail transport to the two companies.

– Another instrument in the "forecloser's" toolbox is *second- and third-degree price discrimination*. Third-degree discrimination consists in charging different (cost-adjusted) prices to different customers. It generalizes exclusivity or tying arrangements by favoring some customers over the others, but gives the bottleneck owner some flexibility in serving discriminated-against customers. Even if outright third-degree price discrimination is prohibited, the bottleneck owner may be able to duplicate it in an apparently anonymous way, that is through second-degree price discrimination. For example, a loyalty program offered to all or rebates based on the rate of growth of purchases may target specific customers even though they formally are available to all customers. Similarly, substantial price discounts may allow the survival of only a few customers; for instance, a large enough fixed (that is, consumption independent) fee transforms a potentially competitive downstream industry into a natural monopoly industry. And in the case of complementary goods, conditional discounts (also known as "mixed bundling") can allow the firm to discriminate de facto among consumers according to their preferences for the different varieties of products. Such considerations (besides many others) played a role in the process of enacting the Robinson–Patman Act in the U.S. in 1936.[10] There was in particular a concern that independent wholesalers or retailers might not be able to compete with powerful chains buying their supplies at favorable prices.

[8] See, e.g., Ahern (1994).

[9] In *Aer Lingus* (1992), the European Commission condemned Aer Lingus for refusing to interline (a technique enabling the marketing of single tickets for combined flights) with British Midland.

[10] Interestingly, in *Hoffman La Roche*, the European Court of Justice upheld the Commission's condemnation of purchasing agreements or loyalty rebates while asserting the company's right to offer volume discounts as long as they are extended to all customers.

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1.2. Remedies

Assuming that the intellectual argument underlying the rationale for and the detrimental impact of foreclosure is compelling, one must still design an informationally feasible policy that either reduces the incentive to exclude or impedes the impact of foreclosure, and verify that the cure has no strong side-effect.

A number of remedies have been considered by competition law practitioners. While we clearly should not restrict ourselves to the existing set of policies and should attempt to design better ones, it is useful to review the most prominent ones. It is convenient to group existing policies into five categories:

– *Structural policies*. Structural policies such as divestitures and line of business restrictions are often considered as a last resort, as they may involve substantial transaction costs of disentangling activities and may jeopardize the benefits of integration. Yet, in specific instances (as for the AT&T 1984 divestiture) policy makers may come to the conclusion that it is hard to design proper rules for access to the integrated bottleneck, and that alternative methods of foreclosure can be prevented under vertical separation.

Milder forms of vertical separation are sometimes considered; for instance, antitrust authorities may demand that the essential facility be commonly owned by all users, with the provision that new entrants be able to purchase shares and membership into the network "at a reasonable price" (as in the *Associated Press* case mentioned above). The joint ownership of an essential facility by competitors must then be granted an exemption from certain antitrust provisions (as is done for example for certain types of R&D joint ventures, of cooperatives and of patent pools).

– *Access price control*. In the tradition of fully distributed cost regulation of access in regulated industries, antitrust authorities sometimes compare the price of access with some measure of its cost. The principle of such a comparison was for example accepted by the European Court of Justice in *United Brands* (1978), although it did not apply it in the specific instance. As is well known, the measurement of marginal cost is a difficult empirical matter, while the allocation of common costs among product lines has weak theoretical underpinnings. Clearly, antitrust authorities lack the expertise and staff that is needed for conducting extensive cost studies; at best can one put the onus of proving overpricing on the excluded competitors, who may well have better cost information than the authorities.

– *Access quantity control*. Instead of trying to define the "right" access price, the authorities sometimes focus on the quantity of access. For example, following an investigation of the *Eurotunnel* exclusivity contract mentioned above, the European Commission asked that 25% of each operator (British Rail, SNCF)'s capacity be allocated to new entrants for passenger and freight services.

– *Price linkages*. Antitrust authorities often try to use other prices – for access or retail goods – as benchmarks for the access price.

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A famous rule, variously called the *Efficient Component Pricing Rule* (ECPR), the Baumol–Willig rule, the imputation rule, the parity principle, and the nondiscrimination rule, links the integrated monopolist's access and retail prices. The idea is to avoid "margin squeezes", so that an equally efficient competitor should be able to enter the downstream market: the access price charged to competitors should therefore not exceed the price charged by the integrated firm on the competitive segment, minus the incremental cost of that firm on the competitive segment. For example, in the U.S. the Interstate Commerce Commission expressed a preference for the use of ECPR in railroad disputes.

There are also various forms of mandated linkages between access charges. The bottleneck firm may be forced to offer the same tariffs to all users (nondiscrimination rules, ban on tying), or even to charge a single per-unit price. Or, it may be required to charge a price of access not exceeding its price for the final use of the bottleneck segment (for example, the access charge for the local telephone network may not be allowed to exceed the price of local calls for residential or business consumers).

Last, there may be mandated linkages between several firms' access prices, as in the case of reciprocity in access charges for two competing telecommunications networks (to the extent that each network, regardless of its size, enjoys monopoly power on the termination of calls to its subscribers, each network is an essential facility for the other).

– *"Common Carrier" policies*. By this expression, we mean the policy of turning the vertical structure of the industry upside down. It might appear that in a complementary goods industry, labeling one segment the "upstream segment" and the other the "downstream segment" is purely semantic. The analysis of Section 2 shows that it is not, because the downstream firms not only purchase goods (inputs) from the complementary segment but also are the ones who interact with the final consumers. Later, we will ask whether, in presence of differential competitiveness of the two segments, it is desirable to locate the more competitive segment upstream or downstream. The relevance of this question is illustrated (in a regulatory context) by Order 436 which created a structure that allows U.S. gas producers to directly sign contracts with the gas customers (and purchase access from the pipeline bottleneck) rather than staying mere suppliers of inputs to pipelines packaging a bundle of production and transport to final customers.

– *Disclosure requirements*. Another tool in the policymaker's box is the requirement that contracts for intermediate goods be made public, with the hope that more "transparency" in supply contracts will promote downstream competition. Note that transparency is not equivalent to the prohibition of access price discrimination among buyers. A disclosure requirement does not preclude different tariffs for different buyers.

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1.3. Roadmap

Foreclosure can be defined in different ways. For the purpose of this survey, we will define foreclosure as a situation in which: (i) a firm dominates one market (bottleneck good); and (ii) it uses its market power in the bottleneck good market to restrict output in another market, perhaps but not necessarily by discouraging the entry or encouraging the exit of rivals. As discussed earlier, we analyze two types of situation:

- *Vertical foreclosure* may arise when a firm controls an input that is essential for a potentially competitive industry. The bottleneck owner can then alter competition by denying or limiting access to its input.[11]
- When instead the bottleneck good is not an input but is sold directly to final users, *horizontal foreclosure* may arise when the firm somehow bundles the potentially competitive good and the bottleneck good.

With this distinction between vertical and horizontal foreclosure come two distinct views on exclusionary behavior. Vertical foreclosure is motivated by the desire to restore a market power that is eroded by a commitment problem; that is, the exclusionary practice aims at increasing the perpetrator's profit. By contrast, horizontal foreclosure is an act of predation; as other predatory behaviors, it reduces the predator's current profit and is meant to lower the competitors' profitability, with the ultimate goal of inducing their exit and ultimately recouping the lost profit.[12]

We will focus on theories based on the exploitation or protection of *market power*. We will not discuss alternative theories of foreclosure which are based for example on bargaining power,[13] price discrimination [where, say, the complementary and potentially competitive product is used as a counting device; see, e.g., Bowman (1957)], the avoidance of "multiprincipal externalities" [Bernheim and Whinston (1986), Martimort (1996), Segal (1999)], the preservation of industry rents [Comanor and Rey (2000)],[14] or "information-based favoritism" (in which the bottleneck segment favors a subsidiary in the procurement of the complementary good, because it has superior information about the subsidiary or because it internalizes part of its rent).[15]

[11] Vertical relations involve many other facets than foreclosure. In the first volume of the *Handbook*, Katz (1989) offers for example an overview of the use of vertical restraints to improve vertical coordination and to soften interbrand competition between rival vertical structures, as well as of the early literature on foreclosure; and Perry (1989) discusses other motivations for vertical integration, such as price discrimination, rent extraction or the avoidance of double marginalization.

[12] In Europe, a refusal to deal was assessed in *Commercial Solvents* (1974) from the point of view of the elimination of competitors; however, starting with *United Brands* (1978), the European Court of Justice no longer requires that the refusal to deal may lead to the competitors' exit.

The link between tie-ins and predation is discussed in more detail in Tirole (2005).

[13] On this, see Hart and Tirole (1990) and especially, Bolton and Whinston (1993); de Fontenay and Gans (2005) revisit the issue using the more flexible multilateral bargaining developed by Stole and Zwiebel (1996).

[14] While we will focus on the consequences of the existence of a bottleneck in one market, Comanor and Rey study some of the implications of multi-stage incumbency.

[15] There is also an abundant literature on the strategic commitment effect of vertical arrangements; see, e.g., Caillaud and Rey (1995) for a review.

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We will also abstract from the closely related access issues in regulated industries.[16] In such industries, price controls (and/or explicit or implicit earnings-sharing schemes)[17] often prevent regulated firms from making money in the bottleneck segment and create incentives for them to reap supra-normal returns in the competitive segment, which can only be achieved by foreclosing access to the bottleneck. For example, the regulation of access prices may induce the bottleneck owner to delay interconnection or degrade interconnection quality. Of course, to the extent that competition policy looks into the regulatory toolbox for possible remedies, some of the most salient public policies in the regulatory context are also prominent in the antitrust environment.

Finally, our definition of foreclosure, which involves two distinct markets, also rules out some exclusionary practices which may prevail within a single market, such as the use of long-term exclusive dealing arrangements as entry barriers [see Aghion and Bolton (1987) and Rasmusen, Ramseyer and Wiley (1991)]. We will nevertheless discuss the relationship between the long-term contracting literature and our notion of foreclosure in Section 4.

The objective of this chapter is twofold. First, it summarizes recent developments in the analysis of foreclosure, and sometimes extends the existing literature, by considering new modes of competition or by studying the impact of various forms of competition policy. In so doing, it develops a critical view of what, we feel, are misguided or insufficient policy interventions. Second, it builds a preliminary checklist of exclusionary complaints and bottleneck defenses, which may be useful for thinking about foreclosure.

The chapter is organized as follows. Section 2 focuses on vertical foreclosure. It first provides an informal overview of the argument, before developing the conceptual framework and identifying the private rationale for foreclosure. It also examines the impact of policies such as nondiscrimination laws and "common carrier" type policies, and applies the foreclosure argument to an analysis of vertical mergers and exclusive contracts. Section 3 turns to horizontal foreclosure through tie-ins. After an informal overview of the main arguments, it first focuses on Whinston's (1990) theory of entry deterrence, and then turns to recent developments relative to the impact of tie-ins on innovation and entry. Section 4 reviews theoretical contributions on exclusionary contracts, while Section 5 studies possible defenses for exclusionary behaviors. Section 6 concludes.[18]

[16] We refer the reader to existing surveys of the access pricing question: Laffont and Tirole (1999), Armstrong (2002).

[17] For example, the firm that is subject to cost-plus regulation in one market and is unregulated in another, potentially competitive market, has an incentive to allocate as much as possible of the common and fixed costs to the regulated market, with the result that entry will be more difficult in the competitive market. More generally, what matters is the sensitivity of the firm's profit to cost reductions in the various markets in which it is active: the firm will wish to "inflate" its costs in the markets that are subject to cost-based regulation and thus "subsidize" the goods that are either not regulated or subject to a more "price-cap" oriented regulation; see the discussion in Section 3.5.2 of Armstrong and Sappington (2007).

[18] Some of the themes covered in Sections 2 and 4 are covered in a more informal way by Vickers (1996).

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2. Vertical foreclosure

For all its prominence in competition law, the notion of foreclosure until recently had poor intellectual foundations. Indeed, the intellectual impetus in the late seventies (reflected in the American antitrust practice of the eighties) cast serious doubt about its validity. In particular, the Chicago School, led, in this instance, by Bork (1978) and Posner (1976), thought that the "leverage" concept resulted from a confusion about the exercise of monopoly power. It argued that there is a single source of monopoly profit, and that a bottleneck monopolist can already earn the entire monopoly profit without extending its market power to related segments; and so in the absence of efficiency gains, vertical integration cannot increase the profitability of the merging firms. Relatedly, it questioned the rationale for excluding downstream competitors, who by offering product diversity, cost efficiency or simply benchmarking of the internal downstream producer, can be the source of extra monopoly profits.

Consider the following quintessential bottleneck situation: An upstream monopolist, U, produces a key input for downstream use. There is potential competition in the downstream segment, but it can emerge only if competitors have proper access to U's essential input. The bottleneck owner can therefore alter and even eliminate downstream competition by favoring one downstream firm – e.g., a downstream affiliate – and excluding others. According to the foreclosure doctrine, U has indeed an incentive to do so, in order to extend its monopoly power to the downstream segment. However, as pointed out by the Chicago School critique, in such a situation there is a single final market and therefore only one profit to be reaped, which U can get by exerting its market power in the upstream segment; U thus has no incentive to distort downstream competition – imperfect competition in the downstream market may actually adversely affect U's bargaining power and/or create distortions that reduce the profitability of the upstream market.

The Chicago School view has had the beneficial effect of forcing industrial economists to reconsider the foreclosure argument and to put it on firmer ground. The reconciliation of the foreclosure doctrine and the Chicago School critique is based on the observation that an upstream monopolist in general cannot fully exert its monopoly power without engaging in exclusionary practices. This fact is little acknowledged except in the specific contexts of patent licensing and of franchising. Consider for example a patent that covers the unique technology that can be used in a given productive process. The patentholder is then the owner of an essential facility (in the economic sense; on the legal front, courts are unlikely to mandate access, the traditional corollary of the "essential facility" labeling). Yet the patentholder is unlikely to make much money if it cannot commit not to flood the market with licenses; for, if everyone holds a license, intense downstream competition destroys the profit created by the use of the patent. Therefore, a patentholder would like to promise to limit the number of licenses. There is however a commitment problem: Once the patentholder has granted n licenses, it is then tempted to sell further licenses. Such expropriation is ex post profitable for the licensor, but depreciates the value of the first n licenses and, if anticipated, reduces the patentholder's

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ex ante profit. Intellectual Property (IP) law explicitly acknowledges this fact by conferring entire freedom to contract on the patentholder (except in a set of specified cases, in which compulsory licensing may be applied by competition authorities and/or governments to force access to the bottleneck piece of IP against "proper compensation"). A similar point can be made for franchising. Franchisees are unlikely to pay much to franchisors if they do not have the guarantee that competitors will not set up shop at their doorsteps.

A bottleneck owner faces a commitment problem similar to that of a durable-good monopolist: Once it has contracted with a downstream firm for access to its essential facility, it has an incentive to provide access to other firms as well, even though those firms will compete with the first one and reduce its profits. This opportunistic behavior ex ante reduces the bottleneck owner's profit (in the example just given, the first firm is willing to pay and buy less). There is thus a strong analogy with Coase's durable good analysis.[19] As is well known, a durable-good monopolist in general does not make the full monopoly profit because it "creates its own competition": By selling more of the durable good at some date, it depreciates the value of units sold at earlier dates; the prospect of further sales in turn makes early buyers wary of expropriation and makes them reluctant to purchase. As we will see, the analogy with the durable-good model also extends to the means of restoring monopoly power: the upstream monopolist's keeping ownership of supplies, exclusive dealing, retail price floor, reputation of the monopolist not to expropriate, and so forth.

The licensing and franchising examples mostly involve binary decisions for input transfer (grant or not a license or franchising agreement). But the commitment problem is very general and extends to situations in which downstream firms purchase variable amounts of the essential input. It is then not surprising that the loss of monopoly power associated with the commitment problem is more severe, the more competitive the downstream segment.[20] This proposition has two facets. First, the upstream bottleneck's profit is smaller, the larger the number of downstream firms. Second, for a given number of downstream firms, the upstream profit is smaller, the more substitutable the downstream units.

Bottlenecks are rarely pure bottlenecks. They most often compete with inferior goods or services. In the presence of such "bypass opportunities", an upstream bottleneck owner must face both the commitment problem and the threat of second sourcing by the downstream firms. A couple of interesting insights result from this extension of the basic framework. First, a vertically integrated firm controlling the bottleneck in general may want to supply a limited but positive amount of the essential input to the downstream affiliate's competitors, who would otherwise purchase the inferior good. The prospect

[19] See Coase (1972), as well as Tirole (1988, ch. 1) for an overview.

[20] In a recent debate in France on manufacturer–retailer relationships, some have advocated that the tough competition observed in the French retail market (which appears to be tougher than in neighboring countries, and in part due to the presence of large chains of independent retailers) generates "too much" destructive competition among their suppliers.

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of productive inefficiency creates scope for profitable external sales by the bottleneck owner. Second, and relatedly, bypass possibilities create a distinction between two ways of restoring monopoly power, vertical integration and exclusive dealing. While exclusive dealing does not enable the bottleneck owner to supply several downstream firms, vertical integration in contrast provides enough flexibility to supply non-affiliates and yet favor the affiliate.

Our analysis has three broad policy implications. First, it does matter whether the more competitive of two complementary segments lies upstream or downstream. We show that prices are lower when the bottleneck owner lies upstream. This result is robust to the existence of bypass opportunities, and to the vertical structure of the industry (independent or vertically integrated bottleneck). Intuitively, an upstream bottleneck location has two benefits from a social welfare point of view. First, it creates a commitment problem not encountered by a downstream monopolist and thus reduces monopoly power. Second, in the presence of bypass opportunities, an upstream location of the bottleneck prevents productive inefficiency by creating a stage of competition that eliminates inferior substitutes. Our analysis thus shows that common carrier policies lower prices and raise production efficiency.

The second policy implication is that non-discrimination laws may have the perverse effect of restoring the monopoly power that they are supposed to fight. When an upstream bottleneck practices foreclosure by discriminating among competitors, it is tempting to impose a requirement that all competitors be offered the same commercial conditions. Non-discrimination rules however benefit the upstream bottleneck because, by forcing it to sell further units at the same high price as the initial ones, they help the bottleneck commit not to flood the market. A non-discrimination law is thus a misguided policy in this situation.[21]

The third policy implication is that ECPR (which was designed for a regulated environment, but is also used in antitrust contexts) often has little bite in unregulated environments. As pointed out by William Baumol in testimonies, ECPR only provides a link between access and final prices and is therefore only a partial rule. Moreover, the higher the final price, the higher the access price can be. In an unregulated environment, an integrated firm with upstream market power can thus exercise its market power by setting a high price for the final good and, at the same time, set a high access charge to prevent other firms in the competitive segment from becoming effective competitors.

Our analysis has also implications for business strategy. Interestingly, while the desire to foreclose often motivates vertical integration, it may alternatively call for divestiture. For example, we develop a rationale for the 1995 divestiture of AT&T manufacturing arm that is related to the official justification of this divestiture. With the impending competition in telecommunications between AT&T and the RBOCs, the latter, who were major buyers of AT&T equipment, would have been concerned that the AT&T

[21] To better focus on the impact of discrimination on the (in)ability to commit, this analysis does not account for potentially beneficial effects of bans on discrimination.

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manufacturing arm would exclude them in order to favor its telecommunication affiliate.[22] The RBOCs might therefore have turned to alternative manufacturers. We provide necessary and sufficient conditions under which this smaller-customer-base effect dominates the foreclosure effect, and thus divestiture is preferred by the bottleneck owner to vertical integration.

2.1. A simple framework

As indicated above, when the monopolized market supplies an input used by a downstream industry, the motivation for foreclosure cannot be the desire to extend market power, since there is a single final product and thus a single monopoly profit. Foreclosure can however serve to protect rather than extend monopoly power. We analyze this rationale using the simplest framework.

An upstream firm, U, is a monopoly producer of an intermediate product with marginal cost c. It supplies two undifferentiated downstream firms, D_1 and D_2 (see Figure 33.1). We will refer to the upstream segment as the "bottleneck" or "essential facility" segment and to the downstream segment as the "competitive" segment (although it need not be perfectly competitive[23]). The downstream firms transform the intermediate product into an homogeneous final one, on a one-for-one basis and at zero marginal cost. They compete in the final goods market characterized by an inverse demand function $p = P(q)$. We will assume that the demand function is "well-behaved", in that the profit functions are (strictly) quasi-concave and that the Cournot game exhibit strategic substitutability.[24] Let Q^m, p^m, and π^m denote the whole vertical structure's or industry's monopoly output, price, and profit:

$$
\begin{aligned}
Q^m &= \arg\max_q \big\{\big(P(q) - c\big)q\big\},\\
p^m &= P\big(Q^m\big),\\
\pi^m &= \big(p^m - c\big)Q^m.
\end{aligned}
$$

The interaction between the firms is modeled according to the following timing:

- Stage 1: U offers each D_i a tariff $T_i(\cdot)$; D_i then orders a quantity of the intermediate product, q_i, and pays $T_i(q_i)$ accordingly.
- Stage 2: D_1 and D_2 transform the intermediate product into the final good, observe each other's output and set their prices for the final good.

[22] In the absence of vertical separation, the integrated firm may attempt to create a level-playing field downstream through other means. A case in point is Nokia's creation of Nokia Mobile Software, an independent division separated from the rest of Nokia by a "Chinese Wall". This division writes the Nokia Series 60 middleware platform (running on top of the Symbian operating system) that is used not only by Nokia's phone division, but also by a number of its rival mobile makers. See Evans, Hagiu and Schmalensee (2006) for more detail.

[23] Despite perfect substitutability. The downstream firms may for example compete à la Cournot (see below); they could alternatively engage in some tacit collusion.

[24] A sufficient condition for that is $P'(q) + P''(q)q < 0$ for all q.

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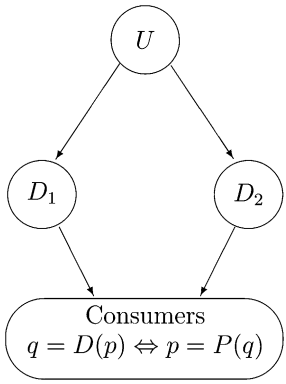

Figure 33.1. Basic framework.

This timing depicts a situation in which the supplier produces to order before the final consumers formulate their demand. The downstream firms are capacity constrained by their previous orders when they market the final product. Alternatively, the transformation activity is sufficiently time consuming that a downstream firm cannot quickly reorder more intermediate good and transform it if its final demand is unexpectedly high, or reduce its order if its final demand is disappointingly low. In Appendix C, we discuss the case in which final consumers are patient enough and the production cycle is fast enough that the downstream firms produce to order. Technically, the difference between these two modes of production resembles the distinction between Cournot and Bertrand competition.

We focus on perfect Bayesian equilibria. Given the quantities purchased in the first stage, the downstream firms play in the second stage a standard Bertrand–Edgeworth game of price competition with capacity constraints. For simplicity, we assume that the marginal cost c is sufficiently large relative to the downstream marginal cost (zero) that if the downstream firms have purchased quantities q_1 and q_2 in the viable range, they find it optimal to transform all units of intermediate product into final good and to set their price at $P(q_1 + q_2)$.[25] The second stage can then be summarized by Cournot revenue functions $P(q_1 + q_2)q_i$. As for the first stage, two cases can be distinguished, according to whether the tariff offered to one downstream firm is observed by the other or not.

2.1.1. Commitment, observability and credibility

Let us first consider, as a benchmark, the case where both tariffs offered by U are observed by both D_1 and D_2. In that case, U can fully exert its market power

[25] See Tirole (1988, ch. 5) for more detail.

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and get the entire monopoly profit [see for example Mathewson and Winter (1984) and Perry and Porter (1989)]. For example, U can achieve this result by offering $(q_i, T_i) = (Q^m/2, p^m Q^m/2)$[26]: both D_1 and D_2 accept this contract and together sell the monopoly quantity, Q^m, at the monopoly price p^m.[27] In this world, there is no rationale for foreclosure. The upstream monopolist can preserve its monopoly power without excluding one of the competitors.

Sticking to those contracts, however, is not credible if the contracts are secret or can be privately renegotiated. Suppose for example that U and D_2 have agreed to $q_2 = Q^m/2$ (and $T_2 = p^m Q^m/2$); U and D_1 would then have an incentive to agree to the quantity, q_1, that maximizes their joint profit, i.e.:

$$q_1 = \arg\max_q \{[P(Q^m/2 + q) - c]q\} = R^C(Q^m/2) > Q^m/2,$$

where R^C denotes the standard Cournot reaction function, and the last inequality derives from a standard revealed preference argument.[28] Hence, U has an incentive to secretly convince D_1 to buy more than $Q^m/2$. Anticipating this, firm D_2 would turn down the monopolist's offer.

2.1.2. Secret contracts

From now on, we consider the game in which in the first stage, U offers *secret* contracts (that is, D_i observes the contract it is offered, but not the contract offered to D_j). In this game, U is subject to the temptation just described and thus faces a credibility problem. The contracts offered by U in equilibrium, as well as the responses from D_1 and D_2, depend on the nature of each downstream firm's conjectures about the contract offered to its rival. Since there is considerable leeway in specifying those beliefs, there are many perfect Bayesian equilibria: but, as we will see, one equilibrium stands out as the only plausible one in this context and we will therefore focus on this equilibrium.

[26] Since U has perfect information on D_1 and D_2 it can actually dictate their quantity choices – subject to their participation constraint – via adequately designed tariffs of the form "(q_i, T_i)": $T(q) = T_i$ if $q = q_i$ and $+\infty$ otherwise. Since U moreover makes take-it-or-leave-it offers, it can set T_i so as to extract D_i's entire profit.

[27] Although downstream firms are symmetric, an asymmetric allocation of the monopoly output between them would do as well. The symmetric allocation is however strictly optimal when downstream cost functions are (symmetric and) strictly convex.

[28] The first-order conditions for $q \equiv Q^m/2$ and $\hat{q} \equiv R^C(Q^m/2)$ are respectively $P(2q) - c + 2qP'(2q) = 0$ and $P(q + \hat{q}) - c + \hat{q}P'(q + \hat{q}) = 0$; since $P' < 0$, they cannot coincide for $\hat{q} = q$, and thus $\hat{q} \neq q$. From a revealed preference argument,

$$[P(q + q) - c](q + q) \geqslant [P(q + \hat{q}) - c](q + \hat{q}),$$

$$[P(q + \hat{q}) - c]\hat{q} \geqslant [P(q + q) - c]q,$$

implying $P(q + q) \geqslant P(q + \hat{q})$, and thus (since $\hat{q} \neq q$), $\hat{q} > q$.

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To illustrate the role of conjectures, suppose that D_1 and D_2 assume that U makes the same offer (even unexpected ones) to both of them. Then it is credible for U to offer $(q_1, T_1) = (q_2, T_2) = (Q^m/2, p^m Q^m/2)$: Expecting that any offer it receives is also made to its rival, D_i refuses to pay more than $P(2q)q$ for any quantity q; U thus maximizes $(P(2q) - c)2q$ and chooses $q = Q^m/2$. Hence, under such a *symmetry* assumption on the downstream firms' conjectures, U does not suffer from any lack of credibility.

This symmetry assumption, which concerns unexpected offers (i.e., out-of-equilibrium ones) as well as expected ones, is however not very appealing. When the supplier supplies to order, it is more plausible to assume that, when a firm receives an unexpected offer it does not revise its beliefs about the offer made to its rival. Secrecy together with upstream production on order implies that, *from the point of view of the upstream monopolist*, D_1 and D_2 form two completely separate markets (of course, D_1 and D_2 themselves perceive a strong interdependency). Thus the monopolist has no incentive to change its offer to D_j when it alters D_i's contract. Such conjectures are called *passive* or *market-by-market-bargaining* conjectures.[29]

Under passive conjectures, D_i, regardless of the contract offer it receives from U, expects D_j to produce the candidate equilibrium quantity, q_j, and is thus willing to pay up to $P(q+q_j)q$ for any given quantity q. U, who extracts all of D_i's expected profit by making a take-it-or-leave-it offer, offers to supply q_i so as to maximize the joint profit in their *bilateral* relationship, namely:

$$q_i = \arg\max_q \left\{ \big(P(q + q_j) - c\big)q \right\} \equiv R^C(q_j).$$

Hence, under passive conjectures the equilibrium is unique and characterized by the Cournot quantities, price and profits:

$$\begin{aligned}
&q_1 = q_2 = q^C, \quad \text{where } q^C = R^C\big(q^C\big) > Q^m/2,\\
&p_1 = p_2 = p^C = P\big(2q^C\big) < p^m,\\
&\pi_U = \big(p^C - c\big)2q^C = 2\pi^C < \pi^m,\\
&\pi_{D_1} = \pi_{D_2} = 0.
\end{aligned}$$

[29] Conjectures can be passive only if the downstream units have perfect information about the bottleneck's marginal cost; for example, assume that the bottleneck has private information about this marginal cost. The tariff offered to D_1, say, then signals information about the marginal cost; for example, a two-part tariff with a low marginal price may reveal a low marginal cost and therefore signal that D_2 is also offered a tariff with a low marginal cost and will produce a high quantity.
Thus, when the bottleneck has private information about its marginal cost, the downstream firms' conjectures can no longer be "passive". But they may still reflect the fact that the bottleneck bargains "market-by-market", that is attempts to maximize its profit in any given intermediate market (where an "intermediate market" corresponds to a D_i) without internalizing the impact of the contract on the other market, since its profits in the two markets are unrelated. A lack of transparency of the bottleneck's cost may nevertheless improve the bottleneck's commitment ability. The Coase problem with incomplete information about the bottleneck's cost function is developed in White (2000).

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This result, due to Hart and Tirole (1990), and further analyzed by O'Brien and Shaffer (1992) and McAfee and Schwartz (1994), highlights the commitment problem faced by the supplier. Even though it is in a monopoly position, its inability to credibly commit itself gives room for opportunistic behavior and prevents it from achieving the monopoly outcome.

As already mentioned, this outcome is closely related to the phenomenon underlying the Coasian conjecture on the pricing policy of a durable good monopolist. If the monopolist can commit to future prices, it can obtain the monopoly profit by committing itself to never set its price below the monopoly level. However, once all monopoly sales have taken place (in the first period), it has an incentive to lower its price and exploit the residual demand. If the monopolist cannot commit itself on its future pricing policy, the buyers then delay their purchase in order to benefit from lower future prices, and the profit is reduced.

Suppose more generally that there are n identical downstream competitors. Then, by the same argument, the passive conjectures equilibrium is symmetric and satisfies

$$q = R^C\big((n-1)q\big),$$

where q is the output per downstream firm. Thus, the commitment problem becomes more severe, the larger the number of downstream firms. Indeed, the retail price on the competitive segment tends to marginal cost c and the industry profit tends to zero as the number of firms tends to infinity. Thus, we would expect bottleneck owners to be keener to foreclose access to the essential facility, the more competitive the downstream industry. The analogy with the durable good model again is obvious. There, the monopolist's commitment problem increases with the number of periods of sales. Indeed, and this is Coase's famous conjecture, the monopolist's profit vanishes as opportunities to revise prices become more and more frequent.[30]

Adding downstream firms is one way of increasing the intensity of downstream competition. Another relevant impact of competition on the extent of the commitment problem is obtained by varying the degree of downstream product differentiation. Let us, for the sake of this exercise only, depart from the perfect substitutes assumption and allow the two downstream firms to produce differentiated products. Under our assumptions, Bertrand–Edgeworth competition with capacities q_1 and q_2 yields retail prices $p_1 = P_1(q_1, q_2)$ and $p_2 = P_2(q_2, q_1)$. The equilibrium of the overall game is *still the Cournot equilibrium* of the simpler game in which the downstream firms face marginal cost c. If, as we would normally expect, the ratio of Cournot industry profit over monopoly profit increases with the degree of differentiation, the incentive to restore monopoly power is stronger, the more substitutable the downstream products.

[30] Caprice (2005a) shows that this effect is mitigated when the upstream dominant firm competes with an alternative supplier. In that case, while an increase in the number of downstream firms still decreases industry profits, it also allows the dominant supplier to get a bigger share of this smaller pie.

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• *Restoring monopoly power*. In contrast with conventional wisdom, foreclosure here aims at *reestablishing rather than extending* market power: In order to exert its market power the upstream monopolist has an incentive to alter the structure of the downstream market. For example, excluding all downstream firms but one eliminates the "Coasian pricing" problem and restores U's ability to sustain the monopoly price; *exclusive dealing*, which de facto monopolizes the downstream market, thus allows U to exert more fully its upstream market power. [We define here exclusive dealing as an upstream firm's commitment not to deal with alternative downstream firms. Examples include exclusive license or franchise contracts.]

Alternatively, U may want to *integrate downwards* with one of the downstream firms, in order to eliminate the temptation of opportunism and credibly commit itself to reduce supplies to downstream firms.[31] For, suppose that the upstream firm internalizes the profit of its downstream affiliate, and that it supplies the monopoly quantity Q^m to this affiliate and denies access to the bottleneck good to non-integrated downstream firms. The integrated firm then receives the monopoly profit π^m. Any deviation to supply non-integrated producers can only result in a lower industry profit, and therefore in a lower profit for the integrated firm.

The bottleneck monopolist may conceive still other ways of preserving the monopoly profit. For instance, as noted by O'Brien and Shaffer (1992), a *market-wide resale price maintenance* (RPM), in the form of a price floor, together with a return option[32] would obviously solve the commitment problem; O'Brien and Shaffer further show that squeezing downstream margins through individual price ceilings can also help eliminate the scope for opportunism. Alternatively, allowing *tariffs* to be *contingent on both firms' outputs* is another such instrument: A contract of the form "$q_i = Q^m/2, T_i = p^m Q^m/2$,

[31] Again, there is an analogy with Coase's durable good model. A standard way for a durable-good monopolist of restoring commitment power is to refrain from selling. A durable-good monopolist who leases the good assumes ownership of existing units and thus is not tempted to expropriate the owners of previous production by flooding the market (it would expropriate itself), in the same way the integrated bottleneck owner is not tempted to expropriate its affiliate by supplying other downstream firms.

[32] The possibility for downstream units to return the wares at the marginal wholesale price is in general needed for obtaining the monopoly solution. Suppose that $c = 0$, and that when both sellers charge the same price but supply more than the demand at this price, the rationing follows a proportional rule (so, sellers sell an amount proportional to what they bring to the market). Let the upstream firm supply $q^m/2$ to each downstream firm and impose price floor p^m. Then the upstream firm can supply some more units at a low incremental price to one of the sellers, thus expropriating the other seller.

Relatedly, McAfee and Schwartz (1994) consider *most-favored-customer* (MFC) clauses. They allow downstream firms who have accepted a "first-stage" individualized contract offer to replace it in a "second stage" (that is, before downstream product market competition) by any offer made to any other downstream firm. They show that such MFC clauses do not quite solve the monopolist's commitment problem. By contrast, De Graba (1996) shows that, by offering two-part tariffs and by allowing downstream firms to apply the MFC term-by-term (that is, to choose the contract $(\min\{F_i\}, \min\{w_i\})$, where $\min\{F_i\}$ is the minimum of the fixed fees and $\min\{w_i\}$ is the minimum of the wholesale unit prices offered in the first stage), the monopolist restores its commitment power and is able to achieve the monopoly profit.

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Table 33.1
Solving the commitment problem

Exclusionary behavior	Analogue for the durable-good monopolist
Exclusive dealing	Destruction of production unit
Profit sharing/vertical integration	Leasing
Retail price floor	Most favored nation clause
Reputation for implicit exclusive dealing	Reputation for not flooding the market
Limitation of productive capacity	Limitation of productive capacity

together with a hefty penalty paid by the supplier to the buyer if the buyer's competitor is delivered a higher quantity of the intermediate good, and thus produces a higher quantity of the final good" solves the opportunism problem.[33]

Recalling the various ways in which a durable-good monopolist can restore its commitment power[34] suggests several other commitment policies for the bottleneck owner. In an oft repeated relationship, the bottleneck owner may build a reputation with D_1, say, for practicing "implicit exclusive dealing". That is, the bottleneck owner may sacrifice short-term profit by not supplying D_2 in order to build a reputation and extract high payments from D_1 in the future, in the same way a durable-good monopolist may gain by refraining from flooding the market. In another analogy with the durable-good model, the bottleneck owner gains from facing a (publicly observed) tight capacity constraint (or more generally from producing under decreasing returns to scale). The downstream firms are then somewhat protected against expropriation by the capacity constraint.[35] Some of these analogies with the durable-good model are listed in Table 33.1.

2.1.3. Empirical evidence

2.1.3.1. Experimental evidence Martin, Normann and Snyder (2001) test this theory of foreclosure (with an upstream monopolist and a downstream duopoly) using experimental techniques. They compare three possible games: non-integration with public or secret offers and vertical integration. The first and the third, according to the theory, should yield the monopoly outcome, while the second should result in the Cournot outcome.

Martin et al. find only partial support for the theory. The monopolist's commitment problem is apparent in the data: total output and profit are similar and close to the

[33] In a smoother vein, the upstream monopolist could mimic vertical integration with contracts that capture all realized downstream profits, e.g., tariffs $T_i(q_i, q_j) = P(q_i + q_j)q_i$ that charge D_i according to the level of input delivered to D_i and D_j – a small discount for the particular choice $q_i = Q^m/2$ might help downstream firms to coordinate on the desired outcome – or contracts based on downstream revenues, if observable, rather than input – a contract of the form "give back (almost) all of your revenue" also eliminates the risk of opportunistic behavior.

[34] On this, see Tirole (1988, pp. 84–86).

[35] Alternatively, the upstream firm benefits if the downstream firms face capacity constraints.

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monopoly level in the first and third games; by contrast, output is often, although not always, significantly higher and profit lower in the second game. But in addition, integration allows more surplus to be extracted from the unintegrated downstream firm, suggesting that bargaining effects play also a role. Under vertical integration, in the majority of cases the integrated player gets all the profit, as the theory predicts; downstream firms thus accept to get only a small profit, contrasting with other experiments in which players tend to reciprocate (retaliate) by wasting value when they are offered a small share of the pie.[36] In the non-integrated treatments, the industry profits are instead more evenly shared between the upstream monopolist and downstream firms.

Relatedly, Martin et al. indirectly investigate the nature of out-of-equilibrium beliefs under secret offers, by looking at downstream acceptance decisions as functions of the contract offer. They find that these beliefs are highly heterogeneous, and on the whole somewhere in between passive and symmetric beliefs. (Note, incidentally, that, as in other experiments, the rational behavior of a "rational player" does not coincide with the rational behavior under common knowledge of rationality. In particular, deviations by the upstream monopolist may signal some irrationality and it is not longer clear that passive conjectures are as rational as they are under common knowledge of rationality.)

2.1.3.2. Field studies Alternatively, one can look at the impact of vertical mergers on downstream rivals and end users. According to the foreclosure theory reviewed above, vertical integration may help upstream bottlenecks solve their commitment problem.[37] (At least) three implications may be tested:

(a) downstream rivals (D_2) receive less input from or pay a higher price to the upstream firm with market power (U), or more generally discrimination between D_1 and D_2 tilts market shares in the favor of D_1;
(b) if D_2 is publicly traded, then D_2's stock price goes down when the merger is announced;[38]
(c) the final customers suffer from the merger. Their decrease in welfare can be measured in (at least) two ways:
   – a decrease of their stock price if they are publicly listed,
   – an increase in the futures price if there is a future market for the final good.

As usual, the potential anti-competitive effects need to be traded off against potential benefits of vertical integration (such as the encouragement of investment in specific

[36] See, however, Roth et al. (1991) on the lack of fairness concerns in competitive environments.

[37] We are not aware of any empirical study testing another implication of foreclosure theory, namely that "turning an industry upside down" by mandating access to bottlenecks may make it more competitive (see below the discussion of the U.S. gas industry). This implication might be tested for example in the railroad or airline industries.

[38] This is not strictly the case in the model above, because U is assumed to extract the entire rents of the downstream units, and thus D_2's stock price does not react to the merger $U - D_1$. Relaxing this extreme assumption, e.g., by conferring some bargaining power on the downstream firms or by introducting private information about the latter's costs (so as to generate downstream rents), yields implication (b).

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aspects), and more generally the various social benefits that are invoked in favor of a more lenient attitude of antitrust authorities toward market foreclosure (see Section 5).

Nor are individual tests perfect evidence of foreclosure effects. Test (a) (the destruction of the level-playing field between D_1 and D_2), if positive, may be alternatively interpreted through a standard monopoly pricing story, and might be positive even if D_1 and D_2 did not compete in the same product market (in which case foreclosure could not be a motive for vertical integration): When U has asymmetric information about D_1 and D_2's technology and profit, U may charge wholesale prices largely above its marginal cost because a fixed fee then does not suffice to handle the allocation of the downstream firm's rent. By contrast, if D_1's profit accrues to U, then U has an incentive to charge an internal marginal transfer price to D_1, regardless of whether D_1 and D_2 compete in the product market.[39]

Test (b) is subject to the potential criticism that specific increases in the merged entity's efficiency may hurt downstream rivals even in the absence of foreclosure intent. Namely, a merger that, say, encourages specific investments and reduces D_1's marginal cost makes D_1 a fiercer rival in the downstream product market. By contrast, mergers whose efficiency gains result from a reduction in fixed costs would have no such effect.

Test (c) is subject to the caveat that pre-merger stock or futures prices reflect market anticipations. Therefore, the evolution of such a price at the time of the merger depends on the impact of that particular merger, but also on what alternative scenario was anticipated as well. For example, if U was a potential entrant in the downstream market and decides instead to acquire one of the existing competitors, then market indicators may react negatively to the merger even in the absence of any foreclosure concern.[40]

We are aware of few empirical studies of modern foreclosure theory. Needless to say, this is an area that would deserve further investigations. Chipty (2001) considers implication (a) in the cable industry, and shows that integrated cable operators exclude rival channels. Snyder (1994, 1995a, 1995b) takes route (b), and conducts event studies looking at downstream rivals' stock market price reaction to various public announcements of a merger or of antitrust authorities's steps to undo existing mergers. His study of the vertical integration of beer manufacturers and pubs in the UK (Snyder, 1994, 1995a) looks at the reaction of the stock price of Guinness (then the only publicly listed non-integrated major beer producer) to the Monopolies and Mergers Commission's successive moves during its investigation of foreclosure in the brewing industry. He documents a positive reaction of Guinness's stock price to the MMC's and the government's anti-integration moves. His study of vertical integration of upstream crude

[39] While a vertical merger would thus generate discrimination between the integrated and non-integrated downstream firms, this would occur through a modification of the contract with the integrated subsidiary, while foreclosure motives would also involve a modification of the terms offered to the non-integrated firms. Thus, in principle, one might be able to distinguish the two types of motivations.

[40] Fridolfsson and Stennek (2003) stress a similar point in the context of horizontal mergers. When a merger is announced, the share prices of formerly potential targets and acquirers are reduced, since they are now out of play. Anti-competitive mergers may thus reduce competitors' share prices, despite increasing their profits; as a result event studies may not detect the competitive effects of mergers.

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oil production and downstream refining in the U.S. oil industry (Snyder, 1995a, 1995b) delivers a small effect (negative impact of integration decision on rivals' stock price in event studies). Mullin and Mullin's (1997) study U.S. Steel's 1905–1906 "acquisition"[41] of a huge amount of low-extraction-cost iron ore properties on the Western Mesabi Range. Mullin and Mullin follow, inter alia, route (c), by measuring the event-study impact of the merger on the largest net consumers of iron and steel (railroads); they argue that the merger turned out to benefit these final consumers, suggesting that vertical integration was motivated by efficiency considerations (on which they bring another form of evidence).[42]

2.1.4. Policy implications

The previous subsection has presented the basic motivation for foreclosure and stressed the strong analogy with the Coasian pricing problem. We now derive some policy implications.

Upstream versus downstream bottlenecks The "Coasian pricing problem" is more likely to arise when bottlenecks are at more upstream levels, that is, when they have to supply (competing) intermediaries to reach final consumers. To see this, consider the more general framework, where two complementary goods, A and B, must be combined together to form the final good (on a one-to-one basis: one unit of good A plus one unit of good B produces one unit of the final good), good A being produced by a monopolist M (at constant marginal cost (c) whereas good B is produced by two competing firms C_1 and C_2 (at no cost).[43] In the case of telecommunications, for example, good A may correspond to the local fixed link segment and good B to the long distance segment. To stick to the previous framework, we denote by $p = P(q)$ the inverse demand for the final good.

The case where M is "upstream" (Figure 33.2a) is formally equivalent to the one analyzed above: M sells good A to C_1 and C_2, who combine it with good B to provide consumers with the final good. If M can make secret offers to both C_1 and C_2, then opportunism prevents M from fully exerting its monopoly power. The upstream monopolist obtains the Cournot profit.

If instead M is "downstream" (that is, C_1 and C_2 supply M, who then deals directly with consumers, as in Figure 33.2b), the situation is different: Being at the interface with consumers, M is naturally inclined to "internalize" any negative externality between C_1 and C_2, and is thus induced to maintain monopoly prices. Assuming M can still make

[41] More properly, the signing of a long-term lease giving U.S. Steel the exclusive right to mine.

[42] Riordan (1998) however questions their conclusions. In particular, he argues that incumbent railroads might well have benefited from *rising* steel prices, which would have limited entry and expansion plans.

[43] We use the generic notation $\{M, C_1, C_2\}$ when the location is endogenous – as here – or irrelevant – as in the horizontal foreclosure case studied in Section 3 – and the specific one $\{U, D_1, D_2\}$ for fixed vertical structures – such as studied previously.

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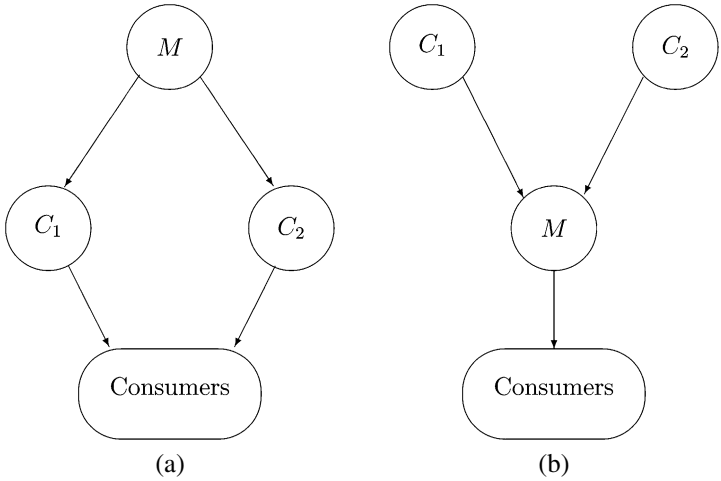

Figure 33.2. Upstream (a) versus downstream (b) bottlenecks.

take-it-or-leave-it offers to both C_1 and C_2, M can now at the same time extract all profits from them and charge the monopoly price to final consumers.[44] Hence, from either the consumers' or total welfare perspective, it is preferable to put the more competitive segment downstream. For example, in the above mentioned telecommunications example, it is preferable to let consumers deal directly with the competing long distance operators who then buy access from the fixed link operator. This idea may provide a rationale for the U.S. gas reform (FERC order 436, 1985)[45] and the "common carrier" concept, although some caution must be exerted in view of the regulatory constraints in those industries.

Non-discrimination laws Non-discrimination laws are often motivated by the protection of final consumers against abuses of a dominant position. It is well known that in

[44] Does this result depend on the assumption that the monopolist has all the bargaining power? Consider for example the opposite extreme: The upstream competitors make take-it-or-leave-it contract offers $T_i(q_i)$ to the downstream monopolist. This situation has been analyzed in depth by the literature on "supply functions equilibria" [e.g., Back and Zender (1993), Bernheim and Whinston (1986, 1998), Green and Newbery (1992), and Klemperer and Meyer (1989)]. As is well known, supply function games have multiple equilibria [see, e.g., Back and Zender (1993) and Bernheim and Whinston (1998)]. On the other hand, it is possible to select among differentiable equilibria by introducing enough uncertainty [Klemperer and Meyer (1989)]. This selection yields the same Bertrand competition outcome ($T_i(q_i) = 0$ for all q_i) as for the polar distribution of bargaining powers.

[45] Before the reform, pipelines (the bottleneck) sold gas to customers (distribution companies, large industrial customers) and purchased their gas internally or from independent producers who had no direct access to customers. Since the reform, producers can purchase access from pipelines and intereact directly with customers.

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other contexts non-discrimination laws may have ambiguous effects, since they may favor some consumers to the detriment of others. But in the context described above, these laws adversely affect all consumers and total welfare: they eliminate opportunistic behavior and allow the bottleneck owner to fully exercise its monopoly power.[46]

To see this, return to the basic (Cournot) framework in which the monopolist is located upstream, and assume that U is restricted to offer the same tariff to both D_1 and D_2[47]:

- Stage 1: U offers the same tariff $T(\cdot)$ to both D_1 and D_2; D_i then orders a quantity of intermediate product, q_i and pays $T(q_i)$ accordingly.
- Stage 2: D_1 and D_2 transform the intermediate product into final good, observe each other's output and set their prices for the final good.

This game is played under complete information at each point of time. Thus there is no scope for opportunistic behavior from U. Formally, the situation is the same as with secret offers but "symmetric" beliefs, and in equilibrium U gets the entire monopoly profit. An *example* of an optimal tariff is $T(q) = F + wq$, where the fixed fee F and the wholesale price w satisfy:

$$q^C(w) = Q^m/2,$$
$$F = \big(p^m - w\big)Q^m/2,$$

where $q^C(w)$ denotes the Cournot equilibrium quantity (per firm) when firms' unit cost is w:

$$q^C(w) = \hat{q} \quad \text{such that} \quad \hat{q} = \arg\max_q \big\{\big(P(q+\hat{q}) - w\big)q\big\}.$$

In other words, the marginal transfer price w is set so as to lead to the desired monopoly price and quantities, and F is used to extract D_i's profit. Hence, if the upstream firm cannot discriminate between the two downstream firms (but can still offer a non-linear tariff, or at least require a – uniform – franchise fee), it can fully exert its market power and maintain the monopoly price: Non-discrimination laws here reduce consumer surplus and total welfare by enabling the monopolist to commit.

To obtain the monopoly profit, the upstream monopoly can alternatively offer the following non-discriminatory two-part tariff:

$$T(q_i) = \pi^m + cq_i.$$

[46] O'Brien and Shaffer (1992) already made this point in the context of Bertrand downstream competition. Caprice (2005b) notes that restoring commitment by banning price discrimination is not necessarily undesirable when there is an alternative supplier, since the dominant supplier may then want to commit to lower wholesale prices – see the discussion in footnote 52.

[47] This supposes some degree of ex post transparency; yet, in the absence of a ban on discrimination, there would still scope for opportunism if the downstream firms must sign their own contracts before observing the terms offered to the rivals.

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That is, the wholesale price is equal to marginal cost and the fixed fee equal to the monopoly profit. It is then an equilibrium for D_1 to sign an agreement and for D_2 to turn it down.[48] The competitive sector then makes no profit, and the upstream monopolist obtains the full monopoly profit by monopolizing the downstream sector. Note that *the fixed fee de facto transforms a potentially competitive downstream industry into a natural monopoly* (*increasing returns to scale*) *industry*. Price discounts, an instance of second-degree price discrimination, are here a perfect substitute for the prohibited third-degree price discrimination. It is also interesting to note that such foreclosure ideas partly underlied the rationale for the 1936 Robinson–Patman Act in the U.S., although considerations such as differential access to backward integration (not to mention intense lobbying) were relevant as well.[49]

2.2. Restoring monopoly power: vertical integration

As we observed, vertical integration helps the upstream monopolist U to circumvent its commitment problem and to (credibly) maintain monopoly prices. Suppose that U integrates with D_1 as in Figure 33.3b. The upstream monopolist, if it receives D_1's profit, internalizes the impact of sales to D_2 on the profitability of units supplied to its subsidiary. Consequently, the "expropriation" problem disappears and U restricts supplies to D_2 as is consistent with the exercise of market power. We first analyze in detail the foreclosure effect of vertical integration under the possibility of bypass and then derive some policy implications.

2.2.1. Vertical integration and bypass of the bottleneck segment

In the simple framework above, vertical integration leads to the complete exclusion of the non-integrated downstream firm. This is clearly an extreme consequence, driven in particular by the absence of alternative potential supplier for D_2. We show however that the same logic holds, even when there exists a competing but less efficient second source for D_2.[50] The new feature is then that the vertically integrated firm may supply its competitor on the downstream segment, a sometimes realistic outcome.

[48] To be certain, there is a coordination problem here. But this problem is readily solved if U contacts one of the downstream firms first.

[49] If U is restricted to use *linear* prices, then the outcome is even worse for consumers and economic welfare, as well as for the monopolist, who still can commit but cannot prevent double marginalization.
Formally, when the above game is modified by restricting the tariff $T(\cdot)$ to be of the form $T(q) = wq$, U sets w so as to maximize $\Pi_U \equiv (w(Q) - c)Q$, where $w(Q) \equiv (q^C)^{-1}(Q/2)$ satisfies, from the downstream first-order conditions: $w(Q) = P(Q) + P'(Q)Q/2$. Hence, $\Pi'_U = P - c + P'Q + (2P' + P''Q)Q/2$ is negative for $Q = Q^m$, since the sum of the first three terms is then equal to zero and the term in bracket is then negative. Therefore, U "picks" a total quantity $Q < Q^m$ whenever its objective function is quasi-concave. This reflects the fact that U does not take into account the impact of a decrease of output on the downstream firms' profits.

[50] Here the other upstream firm produces a substitute. An interesting topic for future research would look at a bottleneck consisting of *complementary* goods produced by different upstream suppliers. Amelia Fletcher

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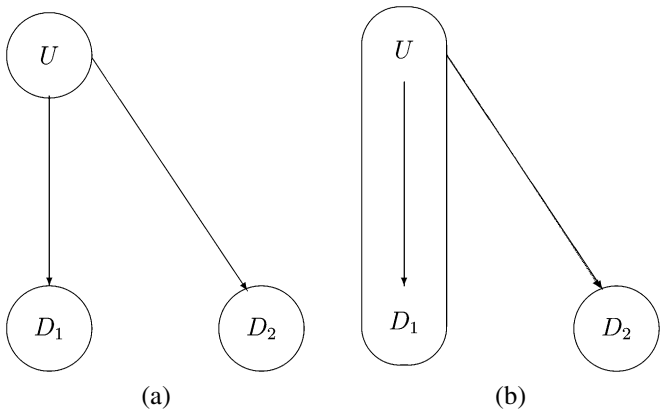

Figure 33.3. Vertical integration.

We generalize the model by introducing a second supplier, $\hat{U}$, with higher unit cost[51] $\hat{c} > c$. The timing is now as follows:

- Stage 1: U and $\hat{U}$ both secretly offer each D_i a tariff, $T_i(\cdot)$ and $\hat{T}_i(\cdot)$; each D_i then orders a quantity of intermediate product to each supplier, q_i and $\hat{q}_i$, and pays $T_i(q_i)$, $\hat{T}_i(\hat{q}_i)$, accordingly.
- Stage 2: D_1 and D_2 transform the intermediate product into final good, observe each other's output and set their prices for the final good.

In the absence of integration (Figure 33.4a), U, being more efficient, ends up supplying both D_1 and D_2, although under conditions that are more favorable to downstream units (lower fixed fees) than before, due to the potential competition from $\hat{U}$. More precisely [see Hart and Tirole (1990) for a formal proof], U supplies, as before, q^C to both downstream firms, but for a payment equal to $\pi^C - \max_q\{(P(q+q^C) - \hat{c})q\}$, since each downstream firm can alternatively buy from $\hat{U}$, who is willing to supply them at any price $\hat{p} \geqslant \hat{c}$. That is, the introduction of the alternative supplier does not affect final prices and quantities or the organization of production, but it alters the split of the profit between U and the downstream firms.[52]

suggested to us that a joint-marketing agreement (for example through the formation of a patent pool without independent licensing) might reduce welfare, despite the fact that the goods are complements, if it inhibits secret price discounts by creating protracted negotiations between upstream firms.

[51] We assume that the suppliers' costs are known. Hart and Tirole (1990) allow more generally the costs to be drawn from (possibly asymmetric) distributions. They show that U has more incentive to integrate vertically than $\hat{U}$ if realizations of c are statistically lower than those of $\hat{c}$, in the sense of first-order stochastic dominance.

[52] Interestingly, this may not be true in the case of public contracts. In the absence of $\hat{U}$, U could for example maintain the monopoly outcome by offering both firms ($q_i = Q^m/2$, $T_i = \pi^m/2$). When $\hat{U}$ is present, U could try to maintain the monopoly outcome ($q_i = Q^m/2$) and simply reduce the price to $\pi^m/2 - \hat{\pi}$, where $\hat{\pi} = \max\{[P(Q^m/2+q) - \hat{c}]q\}$. However, if $\hat{U}$ is not too inefficient, namely, if $\hat{Q}^m = \max\{[P(q) - \hat{c}]q\} >$

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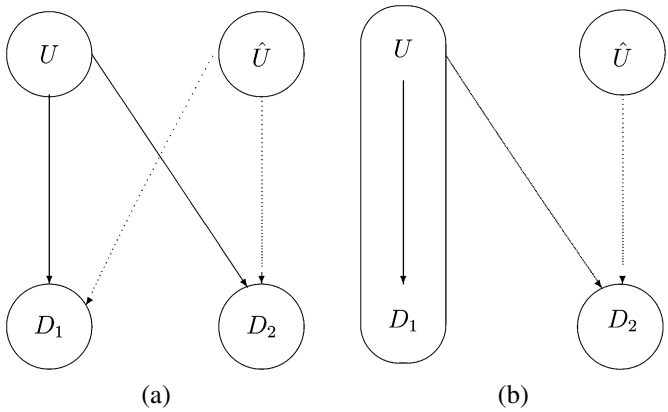

Figure 33.4. Vertical integration and bypass.

If U and D_1 integrate (Figure 33.4b), however, they again have an incentive to restrict supplies to D_2 as much as possible; however, D_2 can turn to $\hat{U}$ and buy $\hat{R}^C(q_1) \equiv \arg\max_q\{[P(q+q_1)-\hat{c}]q\}$. Consequently, in equilibrium U still supplies both downstream firms (and $\hat{U}$ does not sell), but the equilibrium quantities $\{q_1^C, q_2^C\}$ correspond to the "asymmetric" Cournot duopoly with costs c and $\hat{c}$, characterized by

$$q_1^C = R^C\left(q_2^C\right) \quad \text{and} \quad q_2^C = \hat{R}^C\left(q_1^C\right),$$

where $\hat{R}^C(q_1) \equiv \arg\max_q\{[(P(q+q_1))-\hat{c}]q\}$.

Hence, vertical integration between U and D_1 still leads to a reduction in the supply to D_2, who now faces a higher opportunity cost ($\hat{c}$ instead of c). This new configuration entails a reduction of aggregate production as $-1 < R^{C\prime}(q) < 0$ and $\hat{R}^C(q) < R^C(q)$ imply $2q^C < q_1^C + q_2^C$ (see Figure 33.5); although q_1 increases, it increases less than q_2 decreases. Note however that production efficiency is maintained: Although U wants to reduce q_2 as much as possible, it still prefers to supply q_2^C rather than letting $\hat{U}$ supply it. Denoting by π_1^C and π_2^C the corresponding Cournot profits, the equilibrium profits are given by

$Q^m/2$, $\hat{U}$ would destroy this candidate equilibrium by offering $\hat{Q}^m$ to one downstream firm, at a lump-sum price between $\hat{\pi}$ and $\hat{\pi}^m$: that downstream firm would accept this contract, thereby discouraging the other firm from accepting U's offer. The analysis of competition in public contracts can actually be surprisingly complex – see Rey and Vergé (2002). Even when the alternative supply comes from a competitive fringe that does not behave strategically, the dominant manufacturer may deviate from joint profit maximization, e.g., by offering lower input prices, in order to reduce the rents obtained by the downstream firms – see Caprice (2005b), who notes that banning price discrimination may be a good idea in that case, since doing so may allow the dominant manufacturer to commit itself to low prices; this effect disappears, however, when contracts can be contingent on who supplies who: the dominant supplier can then reduce downstream rents by offering lower prices only "off the equilibrium", if one firm were to go to the alternative supplier.

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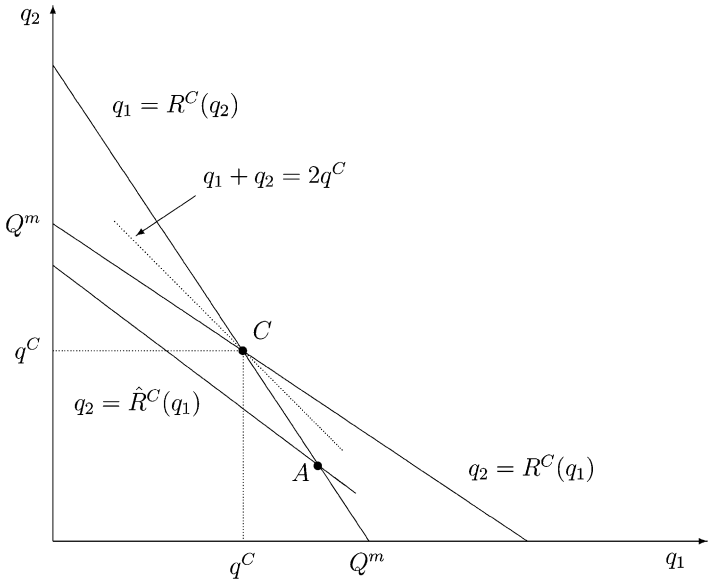

Figure 33.5. C: Cournot equilibrium ($c_1 = c_2 = c$). A: Asymmetric Cournot equilibrium ($c_1 = c < c_2 = \hat{c}$).

$$\pi_{U+D_1} = \pi_1^C + (\hat{c} - c)q_2^C, \qquad \pi_{D_2} = \pi_2^C.$$

Hence, D_2 is hurt by vertical integration, while $U - D_1$'s aggregate profit is higher, since industry profit is higher.[53] Vertical integration thus benefits the integrated firms and hurts the non-integrated one. Although it maintains production efficiency, it lowers consumer surplus and total welfare. Furthermore, the higher the cost of bypassing the bottleneck producer, the larger the negative impacts on consumers and welfare.[54] Last, it is interesting to note that vertical integration is more profitable, the less competitive the bypass opportunity (the higher $\hat{c}$ is).

The motivation for foreclosure is again here the preservation of an *existing* market power in a segment. By contrast, in Ordover, Saloner and Salop (1990), an upstream firm has no such market power and faces instead an equally efficient supplier. Yet, it is shown that such a firm may have an incentive to integrate vertically if (i) it can commit to limit its supplies to the downstream rivals and hence to expose them to the upstream competitor's market power thus created, and (ii) the upstream competitor can charge only linear prices so that its exercise of market power on the non-integrated down-

[53] The aggregate quantity is now lower, and lies between Q^m and $Q^C = 2q^C$ (and $q_1^C + q_2^C = Q^m$ for $\hat{c}$ sufficiently large), and production efficiency is maintained.

[54] Note that $\hat{U}$ or D_2 cannot gain by "fighting back" and integrating themselves. In equilibrium, D_2 gets actually exactly as much as it would being integrated with $\hat{U}$. For more general situations, in which "bandwaggoning" may occur, see Hart and Tirole (1990).

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stream firm operates through a high wholesale price rather than a high fixed fee. Several authors have built on Ordover et al. and relaxed some of their assumptions. In particular, Choi and Yi (2000) and Ma (1997) dispense in different settings with the commitment assumption, although not with the linear pricing one.[55]

2.2.2. Policy implications

Since vertical integration can lead to foreclosure and have a negative impact on consumers and total welfare, it is natural to ask which type of policy, short of structural separation, might nullify or at least limit this negative impact.

Upstream versus downstream bottleneck We noted that, in the absence of vertical integration, it is socially desirable to ensure if feasible that the most competitive segment of the market has access to final consumers. This is still the case under vertical integration as we now show.

Let us first consider the *no bypass* case, with a monopolist M in one segment (good A) and a competitive duopoly (C_1 and C_2) in the other segment (good B). Integration between M and, say, C_1, then leads to the perfect monopoly outcome even if the competitive segment is downstream (see the above analysis). In that case, whether the competitive segment (good B) or the monopolistic one (good A) is downstream does not matter (that is, given vertical integration between M and C_1, which segment is at the interface with consumers is irrelevant; however, M and C_1 only have an incentive to integrate if the bottleneck is upstream because a downstream bottleneck does not face the commitment problem).

In the richer framework with *possible bypass of the bottleneck segment*, however, whether this bottleneck is upstream or downstream again matters. The idea is that, when the bottleneck is downstream, then the less efficient alternative supplier cannot be shut down, which results in productive inefficiency. To see this, assume that there is now an alternative, but inferior supplier, $\hat{M}$, for good A. If the segment for good A is upstream, then formally the situation is the same as the one described in the previous subsection: The outcome is the asymmetric Cournot outcome $\{q_1 = R^C(q_2),\ q_2 = \hat{R}^C(q_1)\}$, but production is efficient (M supplies both C_1 and C_2). If instead good A is downstream (that is, M and $\hat{M}$ deal directly with final consumers), then, whether M is integrated with D_1 or not, both M and $\hat{M}$ have access to good B at marginal cost (zero), and M chooses to offer $q_1 = R^C(q_2)$, whereas $\hat{M}$ offers $q_2 = \hat{R}^C(q_1)$. As a result, the equilibrium quantities and prices are the same in both cases and correspond to the asymmetric Cournot duopoly, but production is organized inefficiently (q_2^C is produced by the inefficient alternative supplier $\hat{M}$, entailing a social loss $(\hat{c} - c)q_2^C$). [Note that M, if located downstream, is indifferent between integrating upstream with C_1 and remaining

[55] See also Salinger (1988) and Gaudet and Long (1996).

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Table 33.2
Equilibrium allocation

	No bypass (without $\hat{M}$)			Bypass (with $\hat{M}$)	
	VI	NI		VI	NI
BU	M	C	BU	AC	C
BD	M	M	BD	AC	AC
				IP	IP

Notes. Vertical Integration (VI) or No Integration (NI); Bottleneck Upstream (BU) or Downstream (BD); M: pure Monopoly outcome; C: Cournot equilibrium ($c_1 = c_2 = c$); AC: Asymmetric Cournot equilibrium ($c_1 = c,\ c_2 = \hat{c}$); IP: Inefficient Production (loss $(\hat{c} - c)q_2^C$).

unintegrated.] Furthermore, whether the bottleneck is integrated or not, *it is again socially desirable to have the most competitive segment* (*good B*) *downstream, i.e. at the interface with final consumers*. Table 33.2 summarizes the equilibrium allocation.

ECPR[56] We now show that ECPR may not preclude or impose any constraint on foreclosure in our framework. That is, assuming that vertical integration between the upstream bottleneck and a downstream firm has taken place, the equilibrium outcome in the absence of ECPR satisfies ECPR.

Let us assume as a first step that bypass of the bottleneck is infeasible. As seen above, in the absence of any constraint the integrated firm $U - D_1$ *de facto* excludes D_2 and charges the monopoly price, p^m, in the final good market. We can check that the integrated bottleneck's optimal policy can be made consistent with ECPR by offering a linear access price w_2 to D_2 that (a) satisfies ECPR and (b) excludes D_2. Assuming as above that downstream unit costs are zero, to meet ECPR the access price must satisfy $w_2 \leqslant p^m - 0 = p^m$. But this cap on the access price does not really help D_2 to enter the market effectively. Indeed, suppose that the integrated firm sets a linear access charge $w_2 = p^m$, and that it produces $q_1 = Q^m$ in equilibrium. Buying q_2 units of intermediate good at that price p^m and transforming (at no cost) this intermediate good into final good yields:

$$\big[P\big(Q^m + q_2\big) - w_2\big]q_2 < \big[P\big(Q^m\big) - w_2\big]q_2 = 0.$$

D_2 has thus no viable activity under ECPR.

Second, consider the case where there is an alternative, less efficient supplier for the intermediate good ($\hat{U}$, with unit cost $\hat{c} > c$). In that case, the integrated firm $U - D_1$ produces $q_1^C > q^C$ whereas the non-integrated one, D_2, buys the intermediate good at $w_2 = \hat{c}$ and produces $q_2^C < q^C$; note that the equilibrium price for the final good,

[56] A much broader analysis of the impact of ECPR (in regulated and unregulated markets) can be found in Armstrong (2002).

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$\hat{p}^C \equiv P(q_1^C + q_2^C)$, is necessarily higher than D_2's marginal cost, $\hat{c}$. Since $\hat{p}^C > \hat{c}$ and $w_2 = \hat{c}$ in the range where the threat of bypass is a constraint for the upstream monopolist, ECPR is again satisfied by the foreclosure outcome.

We conclude that, with or without the possibility of bypass, ECPR has no bite. The problem of course is not that ECPR is "wrong" per se, but rather that it is expected to perform a function it was not designed for.[57]

2.3. Restoring monopoly power: exclusive dealing

The previous section reviewed the dominant firm's incentives to vertically integrate in order to extend its market power. When used for that purpose, vertical integration gives rise to foreclosure and thus generates a social cost (vertical integration may also yield social benefits, which we discuss in the next section). To evaluate the social costs and benefits of preventing vertical integration, however, it may be necessary to investigate the alternative strategies available to dominant firms for implementing foreclosure and the relative costs of these strategies. One such strategy is "exclusive dealing" or "exclusive supply" agreements.[58]

2.3.1. Basic framework: exclusive dealing as a substitute for vertical integration

Consider, first, the basic framework, in which an upstream monopolist, U, sells to two downstream firms, D_1 and D_2. Vertical integration with, say, D_1, then allows U to monopolize the entire industry in the Cournot case. Consequently, D_2 is excluded from the market. Assuming now that vertical integration is prohibited, the upstream monopolist U can nevertheless achieve the same outcome by signing an exclusive agreement with D_1: By entering into such an agreement, U de facto commits itself not to sell to D_2 and thus eliminates the risk of opportunism. In this simple framework, an exclusive dealing arrangement is thus a perfect substitute for – and arguably a more straightforward solution to the commitment problem than – vertical integration. In particular, a policy that would prevent vertical mergers would have no effect if exclusive dealing were allowed.

Because it introduces a rigid constraint, exclusive dealing may actually be privately and socially less desirable than vertical integration. This is for example the case if there is some room for other upstream or downstream firms under vertical integration, as we now demonstrate.[59]

[57] See, e.g., Baumol, Ordover and Willig (1995) and Laffont and Tirole (1999) for a discussion of the facts that ECPR is only a partial rule, and that ECPR, even when it is optimal in the presence of other well-calibrated instruments, cannot achieve the optimum in the absence of these other instruments.

[58] Depending on the context, exclusive dealing agreements can take various forms: exclusive territories for retailers, exclusive license, and so form. These exclusive dealing agreements involve a commitment not to deal with other downstream firms, which may be easier to monitor and to enforce, and thus more credible than a commitment to deal with them "up to some level" (e.g., half of the monopoly quantity).

[59] Conversely, there may be circumstances where vertical integration might be an inferior substitute to exclusive dealing (e.g., because of internal organizational costs); a policy that would be more restrictive against exclusive deals than against vertical integration might then lead again to an alternative, less desirable solution.

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2.3.2. Exclusive dealing generates production inefficiency in the presence of bypass

Consider next the case where there is an alternative, less efficient supplier, $\hat{U}$, with higher cost than U: $\hat{c} > c$. Although vertical integration with D_1 does not allow U to maintain the monopoly outcome, it nevertheless entails some foreclosure of D_2 and leads to a reduction of total output. However, in this context, the most efficient supplier, U, still supplies both downstream firms D_1 and D_2: U indeed does not want D_2 to buy from its rival (and in equilibrium, U supplies D_2 exactly the amount that D_2 would have bought from $\hat{U}$). In contrast, an exclusive agreement with D_1 would lead to the same reduction in output, but would moreover introduce an additional efficiency loss, since in that case D_2 would have to buy from $\hat{U}$ (compared with vertical integration, the additional welfare loss is equal to the loss in profit, namely $(\hat{c} - c)q_2^C$).[60]

Exclusive dealing is clearly profitable when the alternative supplier is quite inefficient, since in the limit case where $\hat{U}$ does not impose any competitive constraint, U gets the full monopoly profit with exclusive dealing and only the Cournot profit otherwise. When $\hat{U}$ is quite efficient (that is, $\hat{c}$ close to c), however, U may prefer serving both downstream firms. To see this, suppose that, before negotiating with D_1 and D_2, U can choose to auction off an exclusive dealing contract. If U does not offer exclusivity, the Cournot outcome (q^C, q^C) is achieved but each D_i gets a rent, equal to $r^N = \max_q\{(P(q^C + q) - \hat{c})q\}$; U thus obtains $\pi_U^N(\hat{c}) = 2(\pi^C - r^N)$, which is positive as long as $\hat{c} > c$. If instead U auctions the right to be supplied exclusively, the asymmetric Cournot outcome $(q_1^C(\hat{c}), q_2^C(\hat{c}))$ is achieved (where q_1^C and q_2^C, which coincide with q^C when $\hat{c} = c$, are respectively increasing and decreasing in $\hat{c}$) and each downstream firm bids up to what it would earn if it were to lose the auction, which is equal to $r^E = \max_q\{(P(q_1^C(\hat{c}) + q) - \hat{c})q\}$. Thus, by auctioning an exclusive deal, U can earn $\pi_U^E(\hat{c}) = \pi_1^C - r^E$. Both options (offering exclusivity or not) yield zero profit when the second supplier is equally efficient ($\pi_U^N = \pi_U^E = 0$ when $\hat{c} = c$) and become more profitable as $\hat{U}$ becomes less efficient; as already noted, the second option clearly dominates when $\hat{U}$ is sufficiently inefficient (π_U^1 is capped by the Cournot profit, while π_U^2 increases up to the full monopoly profit), but the first option might dominate when $\hat{U}$ is quite efficient ($\hat{c}$ close to c) and Cournot quantities do not react too much to cost asymmetry.[61]

[60] Chen and Riordan (in press) point out that a vertically integrated firm might still be able to monopolize the industry by entering into an exclusive deal with D_2, thereby committing itself not to compete in the downstream market; thus, vertical integration and exclusivity may together succeed in monopolizing the industry, even when vertical integration or exclusivity alone would not achieve that result.

[61] If a small asymmetry had no impact on quantities (i.e., $q_1 = q_2 = \hat{q}$ in the various configurations for $\hat{c}$ close to c), then clearly $\pi_U^N(\hat{c}) = 2(\hat{c} - c)\hat{q} > \pi_U^E(\hat{c}) = (\hat{c} - c)\hat{q}$. When both demand and costs are linear, however, quantities respond "enough" to cost asymmetry to make exclusive dealing always profitable; one can check that, for $P(q) = 1 - q$ and $c = 0$, U's profits are respectively $\pi_U^N(\hat{c}) = \frac{2}{9}(1 - (1 - \frac{3}{2}\hat{c})^2)$ and

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2.3.3. Exclusive dealing and downstream product differentiation

Consider now the case where there is no alternative supplier, but there are two downstream firms producing differentiated products, which are sufficiently valuable that an integrated monopoly would choose to produce both. As in Section 2.3.2, vertical integration of the bottleneck with D_1 may again not lead to the full monopolization of the industry, but in general maintains D_2 alive. That is, the integrated firm $U - D_1$ may want to supply D_2, although in a discriminatory way, rather than forcing D_2 completely out of the market. In contrast, an exclusive agreement with D_1 would lead *de facto* to the exclusion of D_2, and might thus result in yet another inefficiency and reduction in welfare.[62]

2.3.4. Discussion

In the two situations just analyzed, exclusive dealing yields less profit to U than vertical integration, and ruling out vertical mergers but not exclusive dealing arrangements thus forces U to choose a socially less desirable outcome. In the first case, an exclusive dealing arrangement between the efficient upstream supplier and one of the downstream firms forces the other downstream firm(s) to switch to an alternative, less efficient supplier. In the second case, the exclusive dealing arrangement *de facto* excludes rival downstream firms and thus reduces the choice offered to final consumers, in contrast to what happens under vertical integration.

This raises an important issue for policy design: There is no point forbidding one practice (here, vertical integration) if it leads the firms to adopt practices (here, exclusive agreements) that are even less desirable from all (firms' and consumers') perspectives.

2.4. Further issues

Needless to say, our treatment is far from exhaustive. Let us mention a number of important topics or further developments.

– *Private incentives not to exclude*. We have emphasized the bottleneck's incentive to exclude in order to restore market power. To be certain, exclusion need not be complete, as when the bottleneck producer faces competition from a less efficient rival; but still

$\pi_U^E(\hat{c}) = \frac{1}{9}((1+\hat{c})^2 - (1-2\hat{c})^2)$, and thus

$$\mathrm{d}\pi_U^E(\hat{c})/\mathrm{d}\hat{c} = \frac{2}{3}(1-\hat{c}) > \mathrm{d}\pi_U^N(\hat{c})/\mathrm{d}\hat{c} = \frac{2}{3} - \hat{c}.$$

[62] There again, exclusive dealing is profitable as long as downstream differentiation remains limited, but may otherwise become unprofitable (in particular, U prefers serving both D_1 and D_2 when they do not really compete against each other).

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then, the bottleneck owner does everything it can to restrict downstream output and just prefers to substitute its own production for that of the upstream rival. There are at least two situations, though, in which the bottleneck producer is less eager to exclude (we only sketch the reasoning; details and further discussion is provided in Appendix A).

First, independent users of the intermediate good may sink investments that orient their technology toward that of the upstream bottleneck or toward an alternative technology, for which there are competitive suppliers. They will choose the latter if they anticipate that the upstream bottleneck will practice foreclosure, for example if it has integrated downstream. The problem is one of commitment: to prevent inefficient choices of bypass technologies, the bottleneck owner would like to commit not to foreclose, which may require divesting downstream units, committing not to choose an exclusive customer, and so forth. Appendix A discusses in this light the voluntary divestiture of AT&T's equipment division (Lucent Technologies).

Second, and reversing the protection-of-specific-investments argument, an upstream bottleneck owner who has to sink specific investment does not want to face the prospect of hold-up in a bilateral monopoly situation with a favored downstream user [Chemla (2003)]. It is well known that competition protects investments in environments in which efficient long-term contracts are difficult to write. Certain forms of foreclosure may have the undesirable side-effect of leading to the expropriation of the upstream monopolist's investment through ex post bargaining.

– *The "Coasian logic" applies beyond industrial markets*. For example, in Cestone and White (2003), a financial intermediary (bank, venture capitalist, etc.) must develop some expertise in order to assess whether a line of business is promising, how to tailor the contract to the technology, or how to monitor the borrower. But once the intermediary has sunk the corresponding investment, nothing prevents it from funding another venture in the same line of business. That is, the financial intermediary becomes an upstream bottleneck who may be (sequentially) tempted to finance many competing ventures and may therefore not be able to extract rents (and possibly recoup the initial investment). The response to Coase's problem emphasized in Cestone–White is the ownership of equity stakes by the intermediary, which, at the cost of diluting the borrower's incentives, at least force the intermediary to internalize some of the loss of profit associated with the funding of competing ventures, while a debt contract would be more efficient in the absence of a commitment problem.

– *General results on contracting with externalities*. In an important, more abstract paper on contracting with externalities, Segal (1999) looks at more general situations in which a principal contracts with multiple agents and the contract with a particular agent exerts externalities on other agents (product-market-competition externalities in our framework). He obtain general results on the extent of trade between the principal and the agents when contracts are secret, as a function of the nature of the externalities, and then studies the case in which the principal is able to make public commitments.

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– *Alternative conjectures*. As we have seen, the passive-conjecture assumption is a reasonable one in the Cournot situation in which the upstream monopolist produces to order. It is much less appealing in the case of Bertrand competition, and indeed in many games of contracting with externalities, where the contract signed with one downstream competitor affects the contracting terms that the upstream monopolist would like to offer to the competitor's rivals.

This strategic interdependence among the contracts signed with the different competitors has two implications. First, at the technical level, it creates non-concavities and, as a result, pure-strategy equilibria with passive beliefs may not exist anymore. This is because the gain from a multilateral deviation, i.e. a simultaneous change in the contracts offered to D_1 and D_2, may then exceed the total gains of the unilateral deviations, i.e. stand-alone modifications of the contract offered to one of the downstream firms. Rey and Vergé (2004) show that the unique "contract equilibrium", characterized by O'Brien and Shaffer (1992) using bilateral deviations, does not survive multilateral deviations when the cross elasticity is at least half of the direct demand elasticity.[63] Second, a downstream firm should anticipate that, if the supplier offers it an out-of-equilibrium contract, the latter has an incentive to change the contracts offered to the others. Passive beliefs thus appear less plausible. McAfee and Schwartz (1994) propose to consider instead *wary beliefs* where, when it receives an unexpected offer, a downstream firm anticipates that the supplier acts optimally with its rivals, given the offer just received. Rey and Vergé (2004) show that, when demand is linear, wary beliefs equilibria exist even when passive beliefs equilibria fail to exist, and these equilibria exhibit some degree of opportunism: the upstream firm does not fully exploit its market power, although it performs better than when downstream firms hold passive beliefs; in addition, prices are lower with Cournot than with Bertrand downstream competition.[64]

Segal and Whinston (2003) take another route and investigate in more general settings the set of conclusions that are robust to the choice of conjectures. They fully characterize equilibrium profits in offer games.

– *Bidding games*. We have mostly supposed so far that the upstream firm has the initiative and makes a take-it-or-leave-it offer to each downstream firm. Another stream of the literature studies situations where instead downstream rivals bid for the input supplied by an upstream monopolist. In the bidding games considered by Segal and Whinston (2003) and Martimort and Stole (2003), where the downstream rivals make

[63] Segal and Whinston (2003) note a similar existence problem when the manufacturer faces non-constant returns to scale. McAfee and Schwartz (1995) also point out that, when contracts are observed before the actual stage of downstream competition, the unique candidate equilibrium for passive beliefs may generate negative profits.

[64] Rey and Vergé also confirm the insight of O'Brien and Shaffer (1992), who pointed out that RPM can help an upstream manufacturer to exploit its market power. The idea is that RPM allows the upstream monopolist to squeeze its retailers' margins, thereby eliminating any scope for opportunism.

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the offers but the upstream monopolist eventually chooses how much to supply, the equilibrium outcome is again competitive; in essence, each bidder then exerts an externality on the other, which the contracts cannot internalize despite using a common supplier.

In contrast, when the downstream firms eventually determine quantities and the offers are public, they can protect themselves again opportunistic behavior by the rivals, by offering a flexible contract that allows them to adapt their actual purchases to the terms offered by the rivals' contracts. Marx and Shaffer (2004) stress however that, even when contracts are public, coordination among the downstream firms may still fail and exclusive dealing may arise instead. The intuition is as follows: in any equilibrium where both downstream firms are active, the supplier must be indifferent between supplying both or only one firm, but each firm benefits from being an exclusive agent. This can be achieved through an exclusive dealing contract or, as noted by Marx and Shaffer, by making the fixed fee partly conditional on the downstream firm's eventually purchasing a positive quantity; in effect, a high enough conditional fixed fee deters the upstream monopolist from supplying its input to the rival, as the downstream firm would not purchase – and thus not pay the fee – in that case.[65] Rey, Thal and Vergé (2005) however show that allowing for contingent offers, where the terms of the contract depend on exclusivity, leads to the industry integrated outcome, with both retailers active and each receiving its contribution to total profits.

Another strand of literature looks at how downstream rivals may want to lock in the supplies of a competitively supplied input in order to monopolize the downstream market. In Stahl (1988) and Yanelle (1997), competing downstream firms bid up to corner supplies so as to become a downstream monopoly. In equilibrium, a single firm acquires all supplies and charges the monopoly price in the downstream price in the downstream market. This firm however makes no profit because it spends this monopoly profit to bid up supplies.

In Riordan (1998), the upstream market is served by a competitive industry, with an upward sloping supply curve. The downstream market is populated by a dominant firm and a competitive fringe. The dominant firm enjoys a first mover advantage in contracting for its input requirements. The upstream industry then supplies the downstream competitive fringe. An increase in the dominant firm's purchase of the input raises the fringe's marginal cost of production through a higher wholesale price (since the upstream supply curve is upward sloping) – a foreclosure effect; at the same time, the downstream dominant firm is not eager to produce much downstream and therefore to buy much upstream.

In this context, Riordan analyzes the impact of a prior and exogenous ownership stake in the upstream industry ("vertical integration"); that is, the dominant firm starts with input supplies $k_0 \geqslant 0$ and may want to increase its supplies beyond k_0. Riordan shows that an increase in k_0 raises both the wholesale and the final prices. Intuitively,

[65] The conditional fixed fee can for example be set equal to the profit that the downstream firm can expect to achieve under exclusivity; the non-conditional part of the fee can then take the form of an upfront payment from the supplier to the downstream firm (as in the case of listing fees paid by manufacturers to large retailers).

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the initial ownership stake makes it cheaper for the dominant firm to raise the fringe's marginal cost though an increase in the wholesale prices (the dominant firm is protected by ownership against the price increase for the first k_0 units). This increased foreclosure raises the downstream price as well. It would be interesting to investigate[66] whether the dominant firm has an incentive to buy the ownership stake k_0, though. In fact, the expectation of higher wholesale price raises the cost of acquiring a unit ownership stake, as k_0 grows. So the dominant firm ends up paying for the wholesale price increase, which may well dissuade it from acquiring the stake in the first place.

3. Horizontal foreclosure

We now turn to horizontal foreclosure, referring to situations in which: (i) a firm M is present in two final markets, A and B; and (ii) this firm M has substantial market power in market A, called for simplicity the "monopoly segment" and faces actual or potential competition in market B, labeled the "competitive segment". In such a situation, the traditional "leverage" concern is that M could foreclosure competitors in market B by tying the bottleneck good A to its own offering in B. This leverage theory has been used in many high-profile cases involving complements – particularly when product B has low value, or is even useless, unless combined with product A (memory or software and CPUs for mainframe computers, parts or maintenance services and original equipment, and so forth).

However, as the Chicago School pointed out, tying need not be a rational anticompetitive strategy for M. The key point is that, even though good A is sold separately, so there are indeed two markets and two profits to be made, M can extract its profit through its pricing in the monopoly market A rather than through seeking to exercise monopoly power in the adjacent market B. Furthermore, when the second product is a complement to the first, a monopolist that can exploit its market power for its own monopolized product has no interest in excluding low-cost and high-quality varieties from the market since their presence makes its own product more attractive to consumers: reducing competition in market B makes good A less desirable to the consumers.

To illustrate this, suppose that good B is useless unless combined with good A.[67] To simplify, suppose that consumers want one unit of each good. With a slight abuse of notation, consumers derive surplus A from good A alone, and an additional surplus B from M's version of good B, while several independent producers can produce a better version of good B, yielding a higher surplus $\hat{B} \geqslant B$ (provided, of course, that they also consume good A). M has constant unit costs a and b, respectively, in the two markets, while B-rivals produce at a lower cost $\hat{b} \leqslant b$.

[66] Along the lines of Burkart, Denis and Panunzi (1998), Joskow and Tirole (2000) and Gilbert, Neuhoff and Newbery (2004).

[67] A situation that would look very similar to that considered for vertical foreclosure. The crucial difference, though, is that good B (the counterpart of the "downstream" good) and good A are here sold separately.

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– *Bundling*. By tying the bottleneck good A to its own version of B, M can foreclose rivals in market B and thus become a monopolist in both markets; it can then either sell the bottleneck good at price A and the other good at price B or the combination of the two goods at price $P^M = A + B$; both options result in a per-customer profit of

$$\pi^M = A - a + B - b.$$

– *Unbundling*. By contrast, in the absence of foreclosure, competition among the independent B producers leads them to offer the better version of B at their low marginal cost; consumers thus derive on market B a surplus equal to $\hat{B} - \hat{b}$; but then, M can increase the price it charges for good A from A to up to $A + \hat{B} - \hat{b}$ and realize a per-customer profit of

$$\pi^M + \Delta,$$

where

$$\Delta \equiv (\hat{B} - B) + (b - \hat{b})$$

denotes the technological advantage of the rivals. In other words, M loses from foreclosing access and becoming a B-monopolist. The point is that any additional surplus provided by B-competitors increases consumers' valuation of the bottleneck good, which M can then extract (at least partially) by exerting its market power on that segment.

Here again, the Chicago School view has led industrial economists to reconsider the leverage argument. Three lines of argument have been developed.[68]

First, when the products are relatively independent, the above observation does not apply: a second source of monopoly power does not devalue M's original monopolized product. If in addition the monopolist has a realistic chance of driving competitors out of – or of discouraging entry in – the adjacent market, then committing to sell the two goods as a bundle, and only as a bundle, can serve as a strategic commitment to be a tough competitor in market B – since then, any lost sale in B implies a lost sale as well in the core market A – and can thus deter potential competitors in market B.

Second, even when the two goods are complements, entry in the adjacent market B may facilitate entry in the monopolized market A. Then, the incumbent monopolist M may be tempted to deter entry in the adjacent market in order to help prevent entry in its core market.

Last, the mere fact that the integrated firm M is present in two complementary markets A and B affects that firm's incentives to invest in B, since any increase in competition in B enhances consumers' willingness to pay for the monopolized product in A. This, in turn, alters rivals' incentives to invest and innovate in the adjacent market.

These arguments are discussed in turn in the next three sections.

[68] See Whinston (2001) for an informal survey of this literature.

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3.1. Entry deterrence in the tied market

The first response to the Chicago critique in the case of adjacent markets is Whinston's (1990) classic paper. His idea is best illustrated in the case in which goods A and B are *independent*. Suppose that M, the monopolist in market A, faces potential competition in market B from an entrant E, who has not yet incurred a fixed cost of entry. Whinston's key insight is that tying the two goods makes M de facto more aggressive in market B, and thus may discourage the rival from entering that market. A tie-in may thereby increase M's overall profit.

For example, consider the same example as above, except that:

- the demands for the two goods A and B are independent; that is, consumers as before have unit demands for each good, but now derive utility from good B whether or not they buy good A;
- in the B market, one potential entrant, E, must incur a sunk cost of entry in order to be active in the market;
- before the entry decision, M decides whether to sell the two goods as a bundle – and only as a bundle. Bundling then cannot be undone and therefore has commitment value.

So the timing goes as follows: (i) M chooses whether to bundle; (ii) E decides whether to enter, in which case it incurs a fixed cost f (in per-customer terms); (iii) M and E choose their prices (that is, depending on the bundling decision, M sets either a price P for the bundle or two distinct prices for A and B, while E sets a price for its B version if it entered the market).

– *Unbundling*. If goods A and B are sold separately, M sells the former at price A, so as to extract all consumer surplus, and thus makes a per-customer profit or margin $m_A = A - a$ on the A segment; in market B, E enters and drives M out of the market, yielding a profit Δ for E and a surplus $B - b$ for the consumers.

– *Bundling*. Suppose instead that M decides to sell the two goods as a bundle. For consumers, buying this bundle amounts to buying M's version of good B at an effective price of $P - A$. For M, the opportunity cost of a sale of good B is no longer b, but

$$b' = b - m_A;$$

that is, M's fictitious margin on good B should not be computed simply using B's marginal cost of production, b, but should also reflect the fact that M loses a sale on A (with value m_A) every time it loses a sale of B. This generates a more aggressive behavior by M in case of entry, since M would be willing to charge an effective price as low as b'; in other words, in order to maintain its sales M would be willing to charge for the bundle a price P as low as its marginal cost of production: $P = a + b$. This, of course, reduces E's profit, since E is now facing a more aggressive behavior from M in market B.

Tying can then successfully deter entry if E's competitive advantage, Δ, is small compared to the surplus generated by the bottleneck good, $m_A = A - a$; more precisely:

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– if $\Delta < m_A$, M wins the competition since consumers prefer buying the bundle at marginal cost $a + b$ rather than buying the entrant's product at marginal cost $\hat{b}$:

$$(A + B) - (a + b) > \hat{B} - \hat{b} = B - b + \Delta \quad \Leftrightarrow \quad \Delta < m_A;$$

in that case, E cannot win the B market since M is willing to charge an "effective" price below the entrant's quality-adjusted cost;

– if $\Delta > m_A > \Delta - f$, if it enters E wins the competition but at a price which is too low to cover the cost of entry; E's margin m_E must be such that

$$\hat{B} - \hat{b} - m_E = B - b + \Delta - m_E \geqslant (A + B) - (a + b)$$

or

$$m_E \leqslant \Delta - m_A,$$

and thus does not allow E to recoup the per-customer entry cost f.

In both cases, bundling allows M to discourage E from entering the market. In the end, M charges $P = A + B$ for the bundle, and enjoys de facto per-customer profit $B - b$ in market B.[69]

This simple example identifies several conditions for a tie-in to be profitable[70]:

(a) *M must commit itself to a tie-in*. Otherwise, once entry occurs, M no longer has an incentive to bundle A and B. Suppose indeed that the potential competitor has already sunk the entry cost and is thus present in market B. In the absence of bundling M loses market B but makes a per-customer profit m_A in market A. In contrast, bundling reduces M's profit by Δ even if M wins the competition with the entrant: in order to maintain its position, M charges a maximal price of

$$P = A + b - \Delta$$

and makes a per-customer profit of only $m_A - \Delta$.

Therefore, the use of tying as an entry barrier relies on a strong commitment. Such commitment is more likely to obtain through technological choices (for example, making A irreversibly incompatible with competitive B versions, or by designing the two goods as a single integrated system) than through purely commercial bundling, where prices or conditional rebates can be subject to renegotiation, particularly in response to entry.

(b) *The strategy must deter entry (or induce exit) of competitors in market B*. As just observed, a tie-in is self-defeating if competitors stay in the market, because it increases the intensity of price competition: firms are more eager to make such price concessions, since a concession for one component then generates sales for all the components of the bundle.

[69] With variable demands (e.g., heterogeneous preferences) for the two goods, bundling per se can reduce M's profitability; even in that case, however, bundling may be a profitable strategy when it deters entry – see the discussion in Whinston (1990).

[70] Nalebuff (2003a) provides a full discussion of tying issues in the light of recent cases.

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(c) *Goods A and B must be rather independent*. As pointed out by Whinston, when goods A and B are complementary the Chicago critique applies: the exit of competitors from market B mutilates good A (which it did not do under independent demands) and thus anticompetitive tie-ins are less likely for very complementary segments; if for example good B were useless unless combined with good A, then M would have no incentive to deter entry, since the entrant's competitive edge on B would reinforce consumer demand for the monopolized good A.

Suppose for instance that M is a price leader and modify the above-described stage (iii) as follows: M first choose its price(s) – for the bundle or for its components – and then E, if it entered, sets its price for B. Then, absent bundling and following E's entry, M would charge a low price (slightly above) $\hat{b} - (\hat{B} - B) = b - \Delta$ (thus below its own cost) for its B component, forcing E to sell at cost, and would recover (almost) all of E's added value through a high price $(A + B + \Delta)$ on the bottleneck component A. Of course, in practice M may not be able to extract all of E's added value: in the absence of price leadership, competition may allow E to keep part or even all of its technological advantage (Δ).[71] Still, M would have no incentive to bundle and deter entry, and as long as it extracts *some* of E's efficiency gain, it would actually have an incentive *to unbundle* and to encourage entry in the B-market.[72]

REMARK (*bundling and competition*). The fact that bundling intensifies competition has been further emphasized by Matutes and Regibeau (1988) and Economides (1989), who focus on the compatibility choices of competing firms that each offer all components of a system.[73] When firms opt for compatibility, "market-by-market" competition prevails, where firms compete separately for each component; in contrast, under incompatibility, consumers cannot "mix-and-match" rival firms' components: competition in bundles thus prevails and competition is again more intense.[74] The argument applies as

[71] When M and E set their prices simultaneously, there are many equilibria, generating any sharing of the gain Δ – see, e.g., Ordover, Sykes and Willig (1985). In particular, the prices that emerge when M acts as a price leader still constitute an equilibrium outcome when M and E set their prices simultaneously; the equilibrium that would obtain under the price leadership of E is also an equilibrium, in which E keeps all of its technological advantage Δ. Eliminating weakly dominated strategies however excludes any below cost pricing strategy for M and would thus single out the equilibrium where the entrant obtains all the benefits of its competitive advantage Δ.

[72] See Whinston (1990) for a fuller discussion of situations where tying can be a profitable entry deterrence device.

[73] Bundling, like (in-)compatibility choices, are examples of endogenous switching costs. Therefore, many insights from the analysis of switching costs [see Farrell and Klemperer (2007) for a detailed survey] apply here as well.

[74] These papers thus focus on the case of perfect complements, whereas Whinston (1990) studies mainly the case of independent goods. The distinction between independent goods and complements tends however to be blurred when total demand is fixed (the "whole market" is served, say). In the absence of bundling, or with compatible technologies in the case of complements, the same market-by-market competition then obtains whether the goods are complements or independent, while bundling or incompatible technologies

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well to the case of mixed bundling, where firms set different prices for stand-alone components and bundles (in practice, this can take the form of conditional discounts, where consumers receive a discount on one component if they buy another component from the same firm).[75] Nalebuff (2000) extends the analysis to the case of an integrated firm competing against non-integrated rivals for a system with many components (that is, one firm offers a version of all components, and competes with a different firm for each component). Nalebuff points out that, while bundling intensifies price competition, it also gives a larger market share to the integrated firm than the latter would have without bundling; this is because the unintegrated firms face double – or multiple – marginalization problems.[76] Nalebuff further shows that, as the number of components becomes large (and double marginalization problems thus pile up), the gain in market share may become so important as to offset the price reduction that stems from the more intense competition. In that case, bundling may actually *benefit* the integrated firm.

In many markets, the complementary goods are or may be purchased sequentially (examples include razors and blades, mobile telephones and accessories such as car chargers, new cars and spare parts, and computers and component upgrades). In such markets, it is sometimes feared that manufacturers may tie the additional equipment to the original one, or else make their original equipment incompatible with the additional equipment of rival manufacturers, in order to "lock in" consumers and weaken price competition in the subsequent market. In that case, however, anticipating this risk of opportunism consumers are willing to pay less for their initial purchases.[77] That is, such as strategy would backfire, since the weakened ex post competition in the additional equipment market triggers stronger competition for the original sales.[78,79]

lead in both cases to the same system competition (a possible caveat concerns the possibility of buying two bundles in order to "mix and match", which may be relevant when unit costs are low and in the absence of technical integration). The distinction between independent and complementary goods plays a more important role when total demand is elastic; with complements, there is then an interaction across markets even in the absence of bundling.

[75] Choi submitted to the European Commission, in the context of the GE/Honeywell merger, a model in which a firm produces two complementary goods (e.g., aircraft engines and avionics) and competes with unintegrated firms in each market. Assuming linear demand and cost, Choi showed that rivals face tougher competition and can lose market share, in spite of lower prices, when the integrated firm is allowed to set a price for the bundle, in addition to component prices – see Choi (2001) and Nalebuff (2003b) for a fuller discussion of this case.

[76] The integrated firm recognizes that cutting the price of one component boosts the demand for complementary components. In the absence of bundling, however, this benefits all components – its own and the rivals' ones; in contrast, with bundling the integrated firm knows that any sacrifice in the price of one component benefits its own complementary components – and only its own – while unitegrated firms still fail to take into account such positive feedback.

[77] Even if consumers rationally anticipate this opportunism, the incentive still exists ex post as long as the supplier is unable to commit to future prices.

[78] See Klemperer (1995) for a comprehensive survey of oligopolistic competition with switching costs.

[79] Manufacturers will thus have an incentive to limit their ability to hold up the consumers. This can be done by developing a reputation; however, reputation building may prove difficult when the prices of the

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3.2. Protecting the monopolized market

While a monopolistic supplier would suffer from the exit of efficient producers of complementary goods, this exit may make it easier to protect the position of the bottleneck supplier in its core market. This is for example the case when entry in one segment facilitates or encourages entry in the other segment. Two variants of this idea have been explored. Choi and Stefanadis (2001) emphasize that, when entry is risky (e.g., when it involves R&D projects that may or may not succeed), tying the two goods A and B reduces the expected return of entry in *each* market, since entry in one market is then profitable only when entry is successful in the other market as well; tying may in that case deter entry in *both* markets. Carlton and Waldman (2002) focus instead on the presence of economies of scope between entry decisions in the two markets. We explore these two ideas in turn.

We use a framework similar to the one above, except that M initially benefits from a monopoly position in both markets A and B, and that the two goods are valuable only when used together (perfect complementarity). In addition, we suppose now that an entrant E can potentially enter both markets.[80]

– *Risky entry*. Following Choi and Stefanadis (2001), suppose that in each market E can invest in R&D in order to enter that market. More precisely, by investing f in R&D in any of the two markets, E succeeds with probability ρ in developing a better variety of the good in question, which it can then produce at a lower cost; as before, we will denote by Δ the total gain in quality and cost. For simplicity, we assume symmetry between the two goods, and in particular Δ is the same for both. The R&D projects in the two markets are stochastically independent and the timing is as follows:

- M decides whether to bundle the two goods; tying is then irreversible and, in addition, customers cannot undo the tie, nor do they want to add a second version of a good they already have (either the technologies are incompatible or the marginal cost, and therefore the price of a component is high)[81];

subsequent purchases are not readily observable or when there is uncertainty about the exact need for additional equipment or services. Another possibility is to reduce endogenous switching costs and opt for "open standards" [Garcia Mariñoso (2001)], grant licenses, and so forth, so as to commit to strong competition in the additional equipment and services, as stressed in the second-sourcing literature – see Farrell and Gallini (1988) and Shepard (1987), and Kende (1998) for a recent application.

[80] The analysis would apply as well to the case of independent entrants in the two markets. Potential coordination problems might then reinforce M's incentive to bundle and deter entry; see Choi and Stefanadis (2001) for an example of such a coordination problem with variable levels of investment.

[81] This latter possibility is less relevant in the case of information goods since the marginal cost is very small (indeed, many Windows equipped computers now have at least three media players besides Microsoft's own version).

In the absence of a technological constraint, customers would be willing to pay up to Δ to use the entrant's component on top of the bundle and the impact of tying then largely depends on the production cost of the component. If the entrant produces one component at a marginal cost $\hat{a}$, it cannot sell that single component

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- in each market, E decides whether to invest in R&D;
- M and E (in case of successful entry) set their price(s).

If E succeeds in entering both markets, it replaces M and gets 2Δ. If instead E succeeds in one market only, its profits depend on whether M tied the two goods. If M bundled the two goods, E gains nothing if it enters only one market, since one good is useless without the other. Since there is no point investing in only one market, E does not invest at all whenever

$$2f > 2\rho^2\Delta.$$

In the absence of bundling, and when E enters in one market only, competition takes place between M and E. As already noted, many equilibria then exist, in which M and E share the efficiency gain Δ in different ways.

If E fully appropriates Δ whenever a R&D project is successful, whatever the outcome of the other R&D project. E therefore chooses to invest – and then invests in both markets – if and only if

$$f < \rho\Delta.$$

Therefore, tying deters R&D and thus entry in both markets whenever

$$\rho^2 < \frac{f}{\Delta} < \rho.$$

Tying is then a profitable strategy for M since with probability ρ^2 it prevents E from replacing M in both markets, and M gains nothing when E enters a single market.[82]

As the analysis makes clear, the riskiness of entry projects plays a key role here. If both R&D projects were certain, entry would occur whenever $f < \Delta$, with or without bundling.[83]

at a profitable price if $\hat{a} > \Delta$, but can still get $\Delta - \hat{a}$ otherwise. Thus, when marginal costs are very small, in the absence of some form of technical integration tying would not prevent the entrant from retrieving most of its added value.

[82] If M can appropriate a share λ of E's technological gain when E enters in only one market (e.g., if M has a chance to act as a price leader), tying deters investment and entry occurs "less often", namely if and only if (R&D investments are strategic complements, so that E undertakes either both projects or none):

$$\rho\big[1 - \lambda(1-\rho)\big] < \frac{f}{\Delta} < \rho;$$

furthermore, if it does deter investment, tying is profitable only when avoiding eviction by the entrant (with would otherwise happen with probability ρ^2) matters more to the monopolist than getting a share λ of the technological gain when only one project succeeds (which would happen with probability $2\rho(1-\rho)$).

[83] It suffices that entry be risky in at least one market; tying may then deter investment and entry in the other market – which in turn may deter entry in the first one. For example, suppose that investing f brings the technological gain Δ with certainty in market A, whereas investing $\hat{f} = \rho f$ brings the innovation with probability ρ in market B. Then, in the absence of tying, entry would occur in both markets whenever $\Delta > f$, whereas with tying, entry (in both markets) only occurs when $\rho(2\Delta) > (1+\rho)f$, that is, when $\Delta > (1+\rho)f/(2\rho)(> f)$.

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– *Economies of scale and scope*. Suppose now, following Carlton and Waldman (2002), that entry takes more time in one market than in the other. By reducing the profitability of being in one market only, tying may then again deter E from entering either or even both markets.[84] More precisely, suppose that:

- there are two periods, 1 and 2, and two perfect complements A and B; in each period, consumers have unit demands as before; to simplify notation we suppose that the interest rate is zero (firms maximize the sum of the profits obtained in the two periods);
- at the beginning of period 1, M decides whether to bundle the two goods; as before, tying is then irreversible and cannot be undone by customers;
- it is initially easier to enter the "adjacent market" (B) than the "core market" (A): E can enter market B in either period, while it can enter market A only in period 2; to market $i = A, B$, E must incur a fixed cost f_i (once for all);
- for simplicity, entry is not risky[85];
- in the absence of tying, when E enters in one market only, it fully appropriates its efficiency gain in that market;
- absent tying, entry in market A is profitable (we relax this assumption below), whereas entry in market B is profitable only when it generates profits in both periods: letting f_i and Δ_i denote, respectively, the cost of entry and E's technological edge in market i, we have:

$$f_A < \Delta_A, \qquad \Delta_B < f_B < 2\Delta_B;$$

in addition, entry in both markets is profitable only if E enters market B in period 1:

$$\Delta_A + \Delta_B < f_A + f_B < \Delta_A + 2\Delta_B.$$

In the absence of tying, E enters market B in period 1 and market A in period 2, and then drives M out of the market. By tying the two goods together, M reduces the profitability of E's entering market B, from $2\Delta_B - f_B > 0$ to $\Delta_B - f_B < 0$. Tying thus deters E from entering market B, which allows M to protect its position and maintain its monopoly profit over the two periods.

Carlton and Waldman also point out that E may want to enter the core market in order to get a larger share of its efficiency gain in the adjacent market, rather than to exploit any efficiency gain in the core market itself. In that case again, tying may block entry in both markets. To see this, suppose now that: (i) when E enters market B only, in the absence of tying M appropriates a share λ of E's efficiency gain; and (ii) the following conditions hold:

$$\Delta_A < f_A < \Delta_A + \lambda\Delta_B,$$

[84] The analysis would formally be the same if, instead of two periods, there were two independent demands for good B: a stand-alone demand for B and a demand for the system $\{A, B\}$. In that case again, tying would reduce E's profitability, by restricting its customer base to those consumers that are interested in B on a stand-alone basis.

[85] That is, $\rho = 1$ in the previous notation.

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$$\Delta_A + \Delta_B < f_A + f_B < (1-\lambda)\Delta_B + \Delta_A + \Delta_B.$$

The first set of conditions asserts that, while entry in A is not per se profitable, it becomes profitable when it allows E to fully appropriate the share of the technological gain Δ_B that M would otherwise appropriate; thus, absent bundling, E enters both markets rather than market B only. The second set of conditions asserts that, as before, entering both markets in period 2 is not profitable whereas, absent bundling, entering market B in period 1 and market A in period 2 is profitable. In such a situation, tying the two goods blocks entry in both markets, since entry then generates profits in the second period only.

The analyses of Choi and Stefanadis and of Carlton and Waldman apply to industries where innovating in adjacent segments is sufficiently costly: if E were to enter the B-market anyway, there would be no point tying the two goods. For the sequential entry scenario, entry in the core segment must moreover be sufficiently delayed that the entrant does not want to incur the cost of entering the adjacent markets only; as pointed out by Carlton and Waldman, the argument is therefore more relevant when the core product A has both a long imitation lag (so that tying reduces the profitability of entering the B-segment during a significant amount of time) and a short lifetime (so that the profitability of eventually entering both segments is limited).

Finally, it would be interesting to explore further the dynamics of these models. If dominance and the strategic use of the multi-entry problem lead to high incumbency profits, then there is a high incentive to become the new incumbent.[86] E may therefore decide to enter, even if entry is unprofitable in the "short run" (period 2). It would therefore be important to add periods $3, 4, \ldots$, to see if tying can still play a significant role.

3.3. Innovation by the monopoly firm in the competitive segment

It is sometimes argued that incumbent firms have an incentive to strategically invest in R&D in adjacent markets, in order to discourage competitive efforts (including innovation) by rival producers. On the face of it, this concern seems at odds with the standard intuition that innovation is desirable, that competition should apply to the innovation process as well as to manufacturing processes, and that intellectual property should be protected. Forcing M to share its innovation with its B-competitors might for example create an undesirable asymmetry in the competitive process. First, sharing induces the independent B-suppliers to free ride, reducing their R&D effort and probably product diversity. Second, access policies of this type could imply a de facto line-of business restriction, as M might stop engaging in innovations that would be competed away (note, though, that from the Chicago School argument, M still has *some* incentive to innovate even if it is forced to share the resulting intellectual property, as improvements in the

[86] For analyses of dynamic contestability in different environments, see Fudenberg and Tirole (2000), Maskin and Tirole (1987, 1988) and Segal and Whinston (2007).

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adjacent market benefits M's core activity). Both arguments advocate protecting M's rights over its innovation.

While this simple analysis is broadly correct, there is a twist, though, that has been analyzed by Farrell and Katz (2000)[87]: R&D competition in market B is affected by the presence of one of the competitors, M, in the adjacent market A. Suppose for the sake of argument that A is sold on a stand-alone basis (a similar analysis applies to the case in which M produces an input that is then used internally by its B-division or sold to independent producers of good B). Then the value of A is higher, the lower the quality-adjusted price of the product offered (by M or its competitors) in segment B. This implies that M benefits from innovation in market B in two ways: directly through sales of component B if M's innovation in the B market is superior to those of its rivals; and indirectly through the increase in demand for good A – and this even if M's B-component remains inferior to its rivals'. The direct effect involves no asymmetry with B-market competitors, but the indirect effect exists only for the multi-product firm.

To fix ideas, suppose for example that all B-competitors produce the same good (no differentiation) and that innovations reduce production costs in that market. The indirect or spillover effect is then clearly identified when M's innovation in market B is dominated by a rival's innovation, in which case M makes no profit in the B-segment. In that case, a small increase in the quality of M's innovation in market B still leaves it dominated and thus does not generate any profit to M's B-division. Yet it increases M's profit if it forces the efficient B-rival to lower its price (squeezing quasi-rents from the independent B-producer), and thereby boosts the demand for complementary good A. This indirect effect takes another form when M's innovation in the B-segment dominates its rivals'. Then, beyond the direct impact on market B, a marginal increase in the quality of M's innovation increases the demand for M's integrated solution (this is an example of the vertical externality effect identified in Section 2).

The spillover effect implies that M's R&D efforts in segment B are higher than they would be if M's R&D division did not internalize the profit in the A segment. In turn, M's enhanced R&D effort reduces that of its rivals. As Farrell and Katz (2000) show, the overall welfare impact of M's B-division internalizing M's A-division's interests is ambiguous.

As usual, we should clarify the nature of the policy intervention that is being contemplated. Short of imposing structural remedies, no antitrust decision will prevent M's B-division from internalizing the A-division's interests; hence, the above analysis may seem irrelevant as it stands. One remedy that antitrust authorities may be tempted to adopt consists in mandating M to share its innovation in market B for some reasonably low licensing fee. This would not impact M's indirect benefit of innovation, which would still exert pressure on B-competitors and contribute to enhance demand for systems; however, this duty to share would reduce the direct benefit of innovation on market B; innovation sharing thus reduces investments by M (and may eliminate

[87] See also Choi et al. (2003).

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them if there are fixed costs of R&D), and raises investments by rivals, with potentially detrimental welfare consequences, especially if M has substantial R&D expertise and is likely to produce a superior innovation.

The ambiguity of the welfare analysis suggests that such antitrust involvement is overall unlikely to foster innovation unless one demonstrates that (a) the reduction in independent B-producers' R&D effort due to M being vertically integrated more than offsets the increase in that of M, and (b) M's B-division can be effectively duplicated by entry in the B-market (e.g., through an effective divestiture and in the absence of economies of scope). It is therefore not surprising that antitrust authorities have traditionally shunned direct intervention in the competitive market.

Even if an analysis of this kind were used in a particular case as the basis for anti-trust intervention, the resulting intervention would run counter to the tradition of intellectual property law. That tradition seeks to resolve the tension between the benefits of competition and the protection of innovation by protecting the innovation from direct imitation, while encouraging rival innovations. Indeed (as the analysis above makes clear), while the quality of the best innovation determines the gross benefits to consumers who purchase it, the price at which they buy (and therefore the net benefits of the purchase) is determined by the quality of the second-best innovation (this is the same phenomenon as the fact that the price paid by the winner in an auction is determined by the valuation of the second-highest bidder). Consequently an innovation by rivals plays an important role in the process of keeping prices low, a role that IP law has consistently sought to protect. By contrast, intervention to restrict innovation by M in the B-segment would essentially consist in removing one firm's IP protection in order to protect the innovation of another firm from post-innovation rivalry.

Choi (2004) analyzes the impact of tying, rather than integration as such, on R&D incentives in the tied market. He considers a situation where M has a monopoly position in market A and faces competition in adjacent market B (goods A and B may, but need not be complements).[88] Choi starts from the observation that, in such a situation, tying generally increases competition and lowers prices, but also allows M to capture a larger share in the tied good market (as discussed in Section 3.1); as a result, tying tilts the R&D incentives in favor of M; tying can thus be interpreted as a credible commitment device to more aggressive R&D investment by M, and can discourage rivals' R&D investments. The change in R&D incentives allows M to increase its profits in the future, and can thus make tying a profitable strategy even if it intensifies competition in the short-term. The welfare implications are again ambiguous, since in the short-run tying reduces prices but restricts customer choice, and in the longer run it increases one firm's R&D incentives but reduces it rivals'.

[88] Relatedly, Choi (1996) considers the case where firms engage in a pre-emptive patent race for systems (that is, firms compete for both components); he shows that tying can mitigate the rent dissipation that can arise in such situations.

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3.4. Summary

Competition in the adjacent market brings product variety, lower costs and lower prices. The Chicago School pointed out that competition in that market thereby enhances the value of the bottleneck good and boosts its owner's profit when the bottleneck good is marketed on a stand-alone basis and the two goods are complements. Bundling and foreclosure therefore must be either efficiency-driven or motivated by predatory intents. We reviewed two predation stories and hinted at their strengths and limits. First, bundling may be a way of deterring entry in (or inducing exit from) the adjacent market when goods are not complements (at least for a substantial fraction of the users). Second, bundling may allow a dominant firm to maintain its dominant position in its bottleneck market.

Given that the motivations for bundling may be rather unrelated to anti-competitive motives,[89] and that most firms, dominant or not, bundle goods and services on a routine basis, a rule of reason seems appropriate. The issue for economists is then to guide competition authorities in their handling of antitrust cases. To the extent that the anti-competitive foreclosure theories reviewed in this section are in fine predation stories (foreclosure in general leading, from the Chicago School argument, to a short-term profit sacrifice by the tying firm, with the prospect of a later recoupment), one possible approach is to treat tying cases through the lens of predatory behavior.[90] Whether one agrees with this viewpoint or not, there is clearly a need for economists to come up with clearer guidelines for the antitrust treatment of tying behaviors by dominant firms.

4. Exclusive customer contracts

Following our definition of foreclosure, we have so far discussed alternative ways in which an incumbent firm may strategically use its market power in one market in order to restrict competition in a related market. In some situations, the incumbent may use this market power to protect its position in the *same* market, even in the absence of interaction with related markets. For example, a supplier that currently benefits from a monopoly position may deter entry by locking customers into long-term exclusive arrangements. However, a Chicago critique again applies: customers should be reluctant to agree to such exclusive arrangements and should demand an appropriate compensation, that would dissipate the profitability of these arrangements.

To see this more precisely, suppose that an incumbent monopolist, M, faces a customer, C. This user is willing to buy one unit, which costs c and brings a gross surplus

[89] Among them: distribution cost savings, compatibility cost savings, accountability (liability, reputation) benefits, protection of intellectual property, market segmentation and metering; we discuss these efficiency motives in Section 5.

[90] For a discussion of the costs and benefits of this approach, see Tirole (2005) and the comments thereupon by Carlton and Waldman and by Nalebuff.

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of S; and assume that a potential entrant E can enter with a lower cost $\hat{c} \leqslant c$ and generate a higher surplus $\hat{S} \geqslant S$. In the absence of entry, M could exploit its monopoly position, charge a price of S and thus get $S - c$ in profit. If instead entry occurs, competition drives the price down to $c + (\hat{S} - S)$; consumers then get a net surplus $S - c$, while E earns $\Delta = \hat{S} - S + c - \hat{c}$ and M is out of the market.

To prevent entry, M could try to lock-in the user through an exclusive contract. To capture this possibility, consider for example the following two-stage game:

- in the first stage, the incumbent offers C an exclusive contract at a given price p;
- in the second stage, if the exclusive contract has been accepted, C buys from M at price p; otherwise, E chooses whether to enter and then compete with M as above.

In the first stage, C anticipates that it will no longer benefit from competition if it signs an exclusive contract; thus, C does not accept an exclusive contract at a price p higher than c (which gives him the "competitive" surplus of $S - c$), so that such an exclusive contract cannot be profitable for M.

4.1. Exclusionary clauses as a rent-extraction device

Recognizing this issue, Aghion and Bolton (1987) pointed out that M could still use exclusive contracts in order to extract some of the entrant's technological advantage, Δ. For example, consider the following penalty contract: C buys from M at price p, or else must pay a penalty for breach d to M.[91] Then, in order to attract C, E must offer a price $\hat{p}$ such that $\hat{p} + d \leqslant p + \hat{S} - S$, or

$$\hat{p} \leqslant (p + \hat{S} - S) - d.$$

That is, the penalty for breach d is actually paid by E, and thus plays the role of an entry fee. It is then optimal for M to set d so as to reap the entrant's technological advantage. For example, the contract $(p = c, d = \Delta)$ forces the entrant to offer a price $\hat{p} = \hat{c}$, thus allowing M to appropriate Δ.

In this simple example, M can fine-tune the penalty for breach so as to extract the entire efficiency gain of the entrant, and thus entry occurs whenever it is efficient. The penalty for breach may discourage the entrant from investing in the new technology, though. Furthermore, Aghion and Bolton point out that, in practice, there may be some uncertainty about the entrant's technological superiority; in that case, maximizing its expected profit, the incumbent takes the risk of foreclosing entry if E is not much more efficient than M, so as to extract more of the efficiency gains when E has a large technological advantage.

EXAMPLE. Suppose that (i) E faces initially an uncertain cost (the same logic would apply to uncertainty about the quality advantage); and (ii) M and C sign a contract before this uncertainty is resolved. Once the cost $\hat{c}$ is realized, E decides whether to

[91] An alternative interpretation of this contract is that C pays d for the option of buying a unit at a price $p - d$.

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enter the market, in which case it incurs an infinitesimal fixed cost of entry.[92] If for example $\hat{S} = S = 1$, $c = 1/2$ and $\hat{c}$ is uniformly distributed over [0, 1], in the absence of any exclusivity entry occurs whenever $\hat{c} < 1/2$: if $\hat{c} \geqslant 1/2$, E does not enter and M earns $S - c = 1/2$ while if $\hat{c} < 1/2$, E enters and earns $\hat{c} - c$; since entry occurs with probability $1/2$, and E's expected cost is $1/4$ in case of entry, M's and E's expected profits are respectively $1/4$ and $1/8$. Now, suppose that M and C could levy a (non-contingent) *entry fee* f from E, and share the proceeds as desired; entry would then only occur when $\hat{c} + f \leqslant c$, thus with probability $(1/2 - f)$. Since entry per se does not affect M and C's total surplus (since E appropriates all the gain from its cost advantage when it enters), M and C would maximize the expected revenue from the fee, $(1/2 - f)f$ and thus choose $f = 1/4$, generating in this way an extra expected gain of $1/16$; entry would thus be restricted, and would only occur when $\hat{c} \leqslant 1/4$. But M and C can precisely achieve this outcome be signing a penalty contract of the form ($p = 3/4$, $d = 1/2$). Indeed, with this contract C is assured to pay no more than $3/4$ and thus earns the same expected profit as in the absence of exclusivity ($1/4$), while E only enters when $\hat{c} \leqslant p - d = 1/4$ and M earns either $p - c = 1/4$ in the absence of entry or $d = 1/2$ in case of entry. This contract thus replicates the optimal entry fee; entry is again restricted, while M's expected profit is increased by $1/16$.[93]

RENEGOTIATION. That exclusive contracts (in the form of a penalty for breach) have an exclusionary impact relies on the assumption that M and C cannot renegotiate their contract (say, M would forgive some of the penalty for breach) once E has made an offer. Otherwise, whenever this offer generates a surplus higher than $S - c$, M and C would indeed renegotiate the terms of their contract (say, M would forgive some of the penalty for breach) so as to benefit from E's offer. Given this, E would and could enter whenever entry is efficient. This point is recognized by Spier and Whinston (1995), who however emphasize that M may still have an incentive to block entry by over-investing in improving its own technology: by doing so, M forces E to concede a better deal; this strategic benefit can then be shared by M and C, e.g., through a lump-sum transfer in their initial contract.[94]

To see this more precisely, suppose for simplicity that M and E only differ in their costs of production ($\hat{S} = S$) and consider the following timing:

[92] This assumption ensures that E enters only if it can earn a positive profit. In the absence of any fixed cost, E would always "enter" the market and exert pressure on M; the analysis would be similar, in the sense that M's exclusionary behavior would lead to production inefficiency (that is, E may not supply C although it is more efficient than M).

[93] While M gets here the entire revenue from the fee, this revenue could be redisbuted to C through a simultaneous reduction in p and d.

[94] The general issue here is the commitment value of a contract that can be renegotiated later on. Katz (1991) and Caillaud, Jullien and Picard (1995) point out that such a contract may still involve some commitment when the relationship is subject to agency problems; e.g., in the form of moral hazard or adverse selection. See Caillaud and Rey (1995) for an introduction to this literature. In Spier and Whinston's model, there is indeed "moral hazard" since signing an exclusive agreement affects M's incentives to invest in its own technology.

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(i) M offers an exclusive contract at a stipulated price of p, which C accepts or refuses.
(ii) M decides whether to invest in its technology: investing I reduces M's cost from $c = \bar{c}$ to $c = \underline{c}$; M's investment decision and/or actual cost is publicly observed.
(iii) E's cost $\hat{c}$ is drawn from a distribution over $[0, S]$ and publicly observed; E then sets its price, $\hat{p}$.
(iv) M and C can renegotiate their initial agreement (or sign one if M's first offer had been rejected); we assume that M and C bargain efficiently – as we will see, the division of the gains from trade is however irrelevant.
(v) C chooses its supplier.

Suppose that C accepts an exclusive contract with a stipulated price $p \leqslant S$. At stages (iv) and (v), either there is no renegotiation and C buys from M at p (this occurs if $\hat{p} > c$, since there is then no gain from renegotiation) or renegotiates the exclusivity agreement (if $\hat{p} \leqslant c$).[95] Anticipating this, at stage (iii) E does not enter if $\hat{c} > c$, otherwise it enters and quotes a price equal to c, leading M and C to renegotiate their initial agreement while minimizing their gains from renegotiation.[96] Therefore, entry occurs whenever it is efficient, *given* M's cost level, c. However, under an exclusive contract, M's ex post payoff is $p - c$, with or without renegotiation: C must buy at price p absent any renegotiation, and when renegotiation takes place, E leaves (almost) no gain from it, implying that M gets again $p - c$. This, in turn, implies that M chooses to invest whenever

$$\bar{c} - \underline{c} > I.$$

By contrast, M's investment is socially desirable only if

$$\left[1 - \hat{F}(\bar{c})\right](\bar{c} - \underline{c}) + \int_{\underline{c}}^{\bar{c}} (\hat{c} - \underline{c})\, \mathrm{d}\hat{F}(\hat{c}) > I,$$

where $\hat{F}$ denotes the cumulative distribution of E's cost. Note that the social benefit, which appears on the left-hand side of the above inequality, is lower than $\bar{c} - \underline{c}$; therefore, exclusivity leads to over-investment relative to what would be socially desirable, whenever

$$\left[1 - \hat{F}(\bar{c})\right](\bar{c} - \underline{c}) + \int_{\underline{c}}^{\bar{c}} (\hat{c} - \underline{c})\, \mathrm{d}\hat{F}(\hat{c}) < I < \bar{c} - \underline{c}.$$

In that case, after signing up a customer into a (renegotiable) exclusivity contract, M invests in its technology in order not only to reduce its cost when E is inefficient, but also

[95] Technically, there is no need for renegotiation when $\hat{p} = c$. To avoid an "openess" problem, however, we assume that M and C then take E's offer.

[96] This is why the relative bargaining power of M and C is irrelevant, as long as they bargain efficiently. Since it is strictly desirable for the two parties to renegotiate as long as $\hat{p} < c$, by setting a price (close to) $\hat{p} = c$, E induces renegotiation but actually appropriates (almost) all of the gains from it.

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to force E to offer a better price ($\underline{c}$ instead of $\bar{c}$) when it efficient; this, however, implies that E enters less often than it would if M did not invest in its technology (E no longer enters when $\underline{c} < \hat{c} < \bar{c}$).[97]

More generally, exclusivity contracts in which downstream customers commit to purchase from an upstream supplier have the potential to deter investments by competing upstream suppliers. In Aghion and Bolton (1987), these investments take the form of an all-or-nothing entry decision. But the investment choice may more generally refer to an investment scale. In Stefanadis (1997), two upstream firms compete in the R&D market to obtain a patent on a process innovation that reduces the marginal cost of supplying the input. An exclusive contract with a downstream customer reduces the profitability of R&D for the upstream rival, and therefore the rival's R&D effort. In equilibrium, upstream firms lock in customers through exclusive contracts in order to reduce their rival's R&D expenditures in the subsequent innovation markets.

4.2. Scale economies and users' coordination failure

In a second contribution in the same paper, Aghion and Bolton (1987) also point out that the incumbent supplier, M, can play customers against each other in other to deter the entry of a more efficient competitor. While Aghion and Bolton's original analysis relies on commitment to conditional contracts[98] that may be difficult to implement (e.g., because of legal restrictions), Rasmusen, Ramseyer and Wiley (1991) and Segal and Whinston (2000) have shown that their insight is robust in the presence of scale economies.[99] To see this, suppose for example that there are n customers and that entry is viable only if E can sign up at least $m + 1 < n$ customers. M can therefore block entry by "bribing" a targeted group of $n - m$ customers into exclusive arrangements, by sharing the rents it gets from exploiting its monopoly power vis-à-vis the remaining m customers. This strategy is clearly successful when the monopoly rents exceed the benefits that the targeted customers can hope to derive together from free entry.

Even if this condition does not hold, however, M can still successfully deter entry by "playing customers against each other", that is, by relying on poor coordination among the customers: while customers may be better off if all reject exclusivity, they may fail to coordinate and accept exclusivity if they anticipate that the others will do – M may then not even need to bribe any customer.

Segal and Whinston (2000) stress that M's ability to discriminate among customers enhances the scope for successful exclusion. Without discrimination, M would fail to

[97] Whether M would invest in the absence of any initial agreement depends, among other things, on the price that E charges when it is less efficient than M and on C's ex post bargaining power. Spier and Whinston (1995) however confirm that M's incentive to invest (and thus limit entry) is maximal under exclusivity.

[98] Aghion and Bolton assumed that M could commit itself to charge prices that are conditional on how many customers accept exclusivity.

[99] Rasmusen, Ramseyer and Wiley (1991) meant to focus on non-discriminatory contracts but actually assume some form of discrimination. Segal and Whinston (2000) clarify this issue as well as the respective role of discriminatory offers and of customers' coordination problems.

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deter the entry of an equally efficient competitor if customers coordinate – even only tacitly – on their favored equilibrium. By contrast, with discriminatory offers the above-mentioned scheme may succeed even if customers can explicitly coordinate their buying decisions.[100]

A related insight is obtained by Bernheim and Whinston (1998), who study a situation in which two suppliers compete sequentially for two customers. Bernheim and Whinston in particular show that the first customer may strategically choose to "exclude" one supplier so as to share with the other supplier the additional profits from its enhanced bargaining position vis-à-vis the second customer. To see this more precisely, consider the following framework:

- M and E simultaneously offer a contract to a first customer, C_1; each contract can be conditional on exclusivity (that is, it can stipulate different terms, depending on whether C_1 contracts with the other supplier as well). C_1 then accepts or rejects each offer; if C_1 buys a positive quantity from E (exclusively or not), E enters and incurs a fixed cost f;
- Then, M and E offer conditional contracts to a second customer, C_2; there again, contracts can be conditional on exclusivity and C_2 then chooses its supplier(s).

The payoffs are as follows. Let S_i denote the surplus that C_i can generate from dealing with both M and E (assuming that E enters) and S_i^M and S_i^E the surplus that C_i generates when dealing with M or E only. We assume that M and E offer partial substitutes:

$$S_i^M + S_i^E > S_i \big(> S_i^M, S_i^E > 0\big).$$

We will moreover assume that E's entry is socially efficient; that is,

$$S > S^M,$$

where

$$S \equiv S_1 + S_2 - f$$

denotes the total net surplus generated by the two suppliers and

$$S^M \equiv S_1^M + S_2^M$$

denotes the total surplus generated by M only.

Consider now the last stage of the game. Bernheim and Whinston show that, while this "common agency subgame" may involve both exclusive and non-exclusive equilibria, there is a Pareto-dominant equilibrium (for the suppliers); this equilibrium maximizes the joint surplus of the suppliers and the customer. If E entered the market, the

[100] This scheme is an example of "divide-and-conquer" strategies that were initially explored by Innes and Sexton (1994). Fumagalli and Motta (2006) stress however that such strategies are more difficult to implement when buyers are competing against each other, since then it is more difficult to compensate a deviant buyer who wants to buy from the more efficient entrant.

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equilibrium involves no exclusivity and each supplier gets its "contribution" to the total surplus; that is, M gets $S_2 - S_2^E$, while E gets $S_2 - S_2^M$.[101] If instead E did not enter, then M enjoys a monopoly position and gets S_2^M.

Consider now the first stage. The same logic prevails, except that the relevant surpluses account for the suppliers' payoffs in the subsequent contracting stage. Thus, if C_1 chooses to deal with E (exclusively or not), E enters and the joint surplus of M, E and C_1 is given by

$$\hat{S} \equiv S_1 + \left(S_2 - S_2^E\right) + \left(S_2 - S_2^M - f\right);$$

the substitutability between the two suppliers implies that $\hat{S}$ is smaller than the total surplus S. If this substitutability is large enough, $\hat{S}$ may be even smaller than S^M, the surplus generated by M. In this case, while entry would be efficient (since $S > S^M$), the outcome of the first stage is that C_1 deals exclusively with M, so as to make M the monopoly supplier of C_2. That is, taking into account M's monopoly profit on C_2, M and C_1 can together generate more profits by excluding E, even if they could extract all of E's contribution to their joint surplus. Exclusive dealing then emerges as an anti-competitive device against (E and) C_2. The argument relies again on some form of coordination failure between the customers: if the two customers could side-contract, C_2 would be willing to compensate C_1 for opting for a non-exclusive relationship with M.

4.3. Summary

The Coasian or commitment theory of foreclosure reviewed in Section 2 insisted on the detrimental impact of downstream competition on upstream profit. To avoid the erosion of profit, downstream access to the upstream bottleneck was reduced relative to what would be socially optimal (assuming the very existence of this upstream bottleneck). By contrast, in the theories reviewed in this section, downstream users (who do not compete against each other) in a sense receive "too much" access to the bottleneck. In the rent-extraction theory, penalties for breach are used to force a more efficient upstream entrant to reduce its price; in the entry-deterrence theory, penalties for breach expose customers to a free-riding problem when the entrant faces a large fixed cost of entry and therefore needs a broad and profitable enough market in order to become a competitive threat. Either way, long-term contracts may create inefficiencies.

We have only touched on the issues associated with penalties for breach and dynamic price discrimination. More general approaches are surveyed by Armstrong (2006), Fudenberg and Villas-Boas (2005) and Stole (2007). Also, to draw tentative guidelines such as the ones that are currently debated for the application of European Article 82 on abuses of dominance, one needs to discuss possible efficiency defenses; we review some of them in the next section.

[101] The condition $S_2 - S_2^M < f$ would thus ensure that E does not want to enter when it fails to deal with C_1.

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5. Potential defenses for exclusionary behaviors

Vertical or horizontal foreclosure may be socially beneficial in certain circumstances. First, it may enhance innovators' benefit from R&D efforts and thus foster their incentives to innovate or develop new products. Second, in situations where unrestrained competition in downstream or adjacent markets leads to excessive entry and duplication of fixed costs, foreclosure may help reducing excessive entry. Finally, integration may improve coordination between firms, for example by providing better incentives to monitor their efforts; foreclosure then is an undesired by-product of a useful institution. We briefly examine these defenses in turn. For expositional purposes we first focus on defenses that are relevant for vertical foreclosure, although some of them apply as well to horizontal foreclosure; we then turn to defenses that are specific to tying.

5.1. Efficiency arguments for (vertical) foreclosure

– *Forbearance as a reward to investment or innovation*. The antitrust authorities may refrain from prosecuting foreclosure activities because the monopoly position thus obtained compensates the bottleneck for its investment or innovative activity. This efficiency defense is similar to the logic underlying the patent system – as already noted, a prospective licensee would not pay much for using a new technology if it anticipates the licensor to "flood the market" with licensees. In both cases society is willing to tolerate static inefficiency, such as monopoly pricing, in order to promote dynamic efficiency. The same issue as for patents then arises: To what extent is forbearance an optimal mechanism for providing innovators with a rent? As recognized in *Aspen*, one cannot impose a general duty to deal with competitors. And even when such a duty is warranted, it would be unreasonable to mandate competitors' access to each and every aspect of a firm's activity on an unbundled basis.

Our discussion suggests one plausible dividing line to answer the question of when it is most desirable to force access: Is the origin of the bottleneck increasing returns to scale or scope (as may be the case of a bridge, a stadium, or a news agency) or an historical accident? Or does the bottleneck result from an innovative strategy? Intervention to avoid foreclosure and consequently to reduce the bottleneck profit seems more warranted in the former than in the latter case.

– *Free-riding by the downstream units on the marketing expenses of the upstream firm*. This argument states that the upstream firm must be able to recoup marketing expenses that will benefit downstream units. This argument is related to the above argument of forbearance as a reward to investment (see the discussion of Chemla's work in Appendix A.2).

– *Excessive entry*. Entry typically involves significant fixed costs, and excessive entry can therefore result in an inefficient duplication of these costs. In the absence of foreclosure, excessive entry can indeed occur due to the so-called "business-stealing"

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effect: when contemplating entering the market, a firm does not take into account that its prospective customers will in part simply switch away from existing products; the revenue generated by its product may thus exceed its social value.[102] In this context, foreclosure may be socially desirable when the duplication of the fixed cost is particularly harmful, and vertical or horizontal integration may yield a socially better outcome than no integration. We provide in Appendix B a short analysis of this issue using our vertical foreclosure framework.[103] The validity of this argument may however be difficult to assess in practice, since the characterization of the socially optimal number of firms is generally a complex matter.

– *Monitoring benefits of vertical integration*. Benefits of vertical integration are often mentioned as efficiency defenses. For example, control of a supplier by one of the buyers may put someone in charge of making sure that the technological choices of the supplier are in the best interest of the buyers. To be certain, the integrated buyer may then use its control right over the supplier to engage in non-price foreclosure, for instance by insisting on technological specifications that are biased in its favor. And, as in this paper, it may overcharge the buyers while keeping an internal transfer price equal to marginal cost and thus practice price foreclosure. These foreclosure practices are then arguably an undesirable by-product of an otherwise desirable activity, namely monitoring.

– *Costly divestitures*. Antitrust enforcers and regulators are often reluctant to force vertical separation because of the disruptive cost of disentangling deeply intertwined activities. That is, even if they would have prohibited the merger of two vertically-related firms, they do not order a divestiture when faced with the fait accompli of vertical integration.

– *Costly expansion of capacity or the costs incurred in order to provide access*. We have assumed that the cost of supplying competitors of a vertically integrated firm is the same as the cost of internal purchases. In practice, the former may exceed the latter, either because upstream decreasing returns to scale make marginal units more costly to supply than inframarginal ones, or because there is a genuine asymmetry between the costs of supplying the downstream affiliate and its competitors, due for example to compatibility costs. In essence, this efficiency defense amounts to saying that there is no foreclosure because discrimination among competitors is cost-based.

[102] See Salop (1979) and Mankiw and Whinston (1986) for detailed analyses of this issue.

[103] See Vickers (1995) for a related analysis of the relative cost and benefits of vertical integration in the context of a *regulated* upstream monopolist in which the regulator (i) controls the upstream firm's price but not its profit, (ii) operates direct transfers to the firm, and (iii) has no statutory power to regulate downstream entry. In this context, vertical integration leads to a higher (regulated) access price (since it is more difficult to extract the information from the integrated firm, the incentive scheme must be more high-powered, resulting in a higher access charge) but less duplication of fixed cost (because of foreclosure).

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– *Fear of being associated with inferior downstream partners who might hurt the firm's reputation*. We have assumed that the only negative externality of supply by a downstream firm on the other downstream firms and thus indirectly on the upstream bottleneck is price mediated. That is, downstream entry depresses the final price and thus the industry profit; but it increases social welfare. There may be some other negative externalities on the upstream firm that are less socially desirable. In particular, misbehavior by a downstream firm may spoil the reputation of other downstream firms and of the upstream bottleneck. This argument, which relies on the existence of monitoring of the downstream firms, is often invoked for example in a franchising context, and used to justify strict quality controls.

– *Universal service*. It is sometimes argued that universal service obligations imposed by the regulator or the law should be compensated by a greater leniency vis-à-vis foreclosing behaviors; see, e.g., the 1993 decision of the European Commission in *Corbeau* (Decision *C 320/91*). This argument is simply a variant of the general argument that fixed costs must be recouped by market power in some market. And again one must wonder whether foreclosure is the most efficient means of creating market power.[104]

5.2. *Efficiency arguments for tying*

As we said earlier, some of the defenses listed above apply also in the horizontal context. Others are specific to that context. The most obvious such defense is the distribution cost savings associated with marketing two products together instead of separately. Other standard defenses of tying include:

– *Preventing inefficient substitution*. When two separately marketed goods are combined in variable proportions, market power over one good distorts customers' choices over the relative use of the two goods.[105] Consider for example a monopolist that produces a durable good, for which maintenance and repair services can be supplied by independent providers. If the monopolist prices its original equipment above (marginal) cost while maintenance is priced at cost, customers rely excessively on maintenance and replace their equipment insufficiently often. By tying the aftermarket services to the original purchase of the equipment, the monopolist generates more efficient replacement decisions, which improves social welfare. A similar argument applies when there is competition among original equipment manufacturers and customers face switching costs – in that case, tying can also improve both social and consumer welfare.[106]

[104] There is a further debate as to whether universal service should be financed through mark-ups on specific segments, as opposed to the policy of creating a competitively neutral universal service fund financing universal service through industry-wide taxes.

[105] See Vernon and Graham (1971), Schmalensee (1973), Su (1975), Warren-Boulton (1974) and Rust (1986).

[106] See Carlton and Waldman (2001), who further stress that monopolizing the used parts markets can be efficient when the supplier of the original equipment is also in the best position for re-manufacturing used parts into replacement parts.

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– *Metering*. Relatedly, tying consumables may allow a supplier to meter usage and thus discriminate between high- and low-intensity users.[107] While such third-degree price discrimination has in general ambiguous welfare implications,[108] it can allow the supplier to recoup large investments and foster incentives to develop new products.

– *Signaling quality*. Tying consumables to the sale of the original equipment can give a high-quality seller an effective tool for signaling the quality of its product, when quality is not readily observable to buyers.[109] Indeed, if the manufacturer charges usage (through the tied consumables) rather than the initial purchase of the equipment, consumers then "pay" for the equipment only if they really use it, once they have found out its true quality.

6. Concluding remarks

Despite recent advances, some progress must still be made in order to better anchor the concept of foreclosure within the broader antitrust doctrine. First, a better integration between theory and applications should be achieved. This chapter has offered some guiding principles for thinking about the incentives for, and the feasibility and welfare implications of foreclosure. The link could be further strengthened. Relatedly, further empirical investigations will allow us to get a better feel for the magnitude of the effects involved and to assess the relevance of not only the scope for foreclosure, but also the theoretical factors affecting this scope (such as the competitiveness of upstream segments, the availability of alternative foreclosure strategies, or the location of the bottleneck).

In our discussion of efficiency defenses we hinted at some considerations calling for a milder antitrust treatment of exclusionary behavior, as when the bottleneck results from innovation or investment rather than returns to scale or scope, legal and regulatory interventions, or historical accident. Still, this discussion of efficiency defenses was somewhat of an addendum to the treatment of the anticompetitive effect, and the two should be better integrated.

This call for a unified treatment actually does not solely apply to theory. Indeed, the legal and regulatory framework exhibits, as we noted, a remarkable dichotomy between the treatment of intellectual property in which the practice of foreclosure is widely viewed as acceptable (except for some recent pushes for compulsory licensing and open access in certain contexts) and other areas in which foreclosure is systematically

[107] In *Chicken Delight* (1971), for example, the franchiser used packing items to measure the volume of activity of its franchisees; the franchiser's mark-up over the packing items then implemented a reliable revenue-sharing scheme. See Chen and Ross (1993, 1999) for applications to aftermarket services with, respectively, monopolistic and competitive manufacturers.

[108] See Katz (1987) and Tirole (1988).

[109] See Schwartz and Werden (1996).

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viewed as socially detrimental. We have shown that the broad conceptual framework is the same, and offered guiding principles as to when foreclosure should be opposed or tolerated.

While we have tried to provide a comprehensive theoretical treatment within the confines of the topic of this paper, it would be desirable to broaden the scope of analysis in several directions. More complex forms of essential facilities have emerged, and corresponding theoretical frameworks should be developed. First, in markets such as telecommunications or the Internet, in which final consumers interact with each other through the mediation of the platforms' operator they are connected to, bottlenecks are endogenous in that they depend on the outcome of the "downstream" competition for consumers (by contrast, in our analysis, the bottleneck pre-exists downstream competition). Namely, each operator must rely on its competitors to terminate the connections initiated by their own consumers.[110] This competitive bottleneck problem, in which each operator needs access to its rivals' customers, exhibits many new and interesting features.[111] For example, an operator can reduce its need for access to a bottleneck it does not control by gaining market share and "internalizing" the interactions demanded by its customers. Furthermore, small players have more, rather than less, market power than big players in the wholesale market, provided that the latter are forced to interoperate; for, all players have the same – full monopoly – power on terminations toward their customers, and small players can demand very high termination prices without moving final prices much.

Bottlenecks that are governed by a cooperative arrangement rather than owned by a single entity would also deserve a full treatment on their own. Such bottlenecks can result from a desire to reap economies of scale, as in the case of a credit card or agricultural cooperative, or to eliminate multiple marginalization and offer a one-stop-shopping facility, as in the case of patent pools and joint marketing agreements. They can be run as for-profit entities or as not-for-profit associations. They raise interesting questions about the extent of access that should be granted to customers and for potential members. The previous considerations as to where the bottleneck nature comes from are relevant here as well. So, for example, a bottleneck created by economies of scale should in principle grant broad access, as long as this access does not amount to pure free riding on investments (financial and informational-learning) made by previous members. But the joint provision of the bottleneck gives rise to new questions such as the impact of new members on the governance of the bottleneck (with the possibility that dissonant objectives may hamper the functioning and reduce the efficiency of the bottleneck). We leave these and other fascinating issues for further research.

[110] Unless consumers "multi-home" on several platforms, a topic that has been studied only recently; see, e.g., Rochet and Tirole (2003).

[111] See, e.g., Armstrong (1998) and Laffont, Rey and Tirole (1998a, 1998b) for early analyses of telecommunications networks competition in a deregulated environment. More recent developments and further references to the subsequent literature can be found in Armstrong (2002), Laffont et al. (2003) and Jeon, Laffont and Tirole (2004).

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Appendix A. Private incentives not to exclude

Section 2 emphasized the bottleneck owner's incentive to use various foreclosure strategies to preserve its market power. This section investigates whether the foreclosure activity can backfire on the bottleneck owner.

A.1. The protection of downstream specific investment: the 1995 AT&T divestiture

Interestingly, the foreclosure logic implies that a bottleneck owner may in some circumstances want to refrain from integrating vertically. To understand this, recall that under vertical integration, the excluded rivals on the competitive segment suffer a secondary line injury. Anticipating this, they may refrain from investing in assets that are specific to their relationship with the bottleneck owner, as these have low value if their firms have limited access to the essential input. This in turn may hurt the upstream bottleneck, which has a smaller industrial base downstream. And the independent downstream firms may start investing in assets that are specific to other upstream firms ($\hat{U}$) rather than to the bottleneck (U).

These ideas shed light on AT&T's 1995 voluntary divestiture of its manufacturing arm, AT&T Technology (now Lucent). One must recall that until then, AT&T and the RBOCs, who are major purchasers of AT&T made equipment, hardly competed in the final good markets. With AT&T's slow entry into the Intralata and the local telecommunications markets and with the 1996 Telecommunication Act allowing the RBOCs to enter the long distance market (provided that local loop competition developed sufficiently), competition between AT&T and the RBOCs on the final good markets was likely to become substantial. Consequently, the RBOCs may have been concerned about a possible foreclosure by AT&T Technology whenever such exclusion would favor the telecommunication branch of AT&T. There was thus a possibility that in a situation of vertical integration and increased product competition, the RBOCs would have turned more and more to alternative and non-vertically integrated manufacturers such as Northern Telecom, Alcatel, Siemens, or the Japanese manufacturers. The very threat of foreclosure could have substantially hurt AT&T's manufacturing arm, with the short-term gain from foreclosure more than offset by a long-term loss of manufacturing market share.

Let us formalize this argument in an extended version of the foreclosure model of Section 2. There are two upstream firms (manufacturers): U with unit cost c, and $\hat{U}$ with unit cost $\hat{c} > c$; U can be thought of as being AT&T Technology and $\hat{U}$ as being a rival manufacturer, since we will be primarily interested in those segments in which AT&T Technology had some competitive advantage and therefore foreclosure may occur. There are two downstream firms D_1 and D_2, both with unit cost 0; we will think of D_1 as being the telecommunications services branch of AT&T and D_2 as being the RBOCs. Last, there are two markets: market A (long distance) and market B (local).

Recall our basic argument: The integrated firm $U - D_1$ may want to divest when the competition between D_1 and D_2 gets more intense because D_2 then becomes more

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concerned about foreclosure and wants to sever or at least limit its relationship with U. We model this idea in a very simple albeit extreme way: We start from a situation of line-of-business restrictions in which D_1 is in market A only and D_2 is in market B only. Then line-of-business restrictions are lifted and D_1 and D_2 compete head-to-head in both markets. To formalize the idea that D_2 makes technological decisions (choice of standard, learning by using, etc.) that will in the future make purchases from U or $\hat{U}$ more desirable, we assume that ex ante D_2 makes a costless, but irreversible choice between U and $\hat{U}$. That is, ex post D_2 can purchase from a single supplier. This assumption is much stronger than needed, but models the basic idea in a very straightforward way. We also assume, without loss of generality, that D_1 picks U as its supplier.

The timing is as follows:

- Stage 1: U and D_1 decide whether they stay integrated or split.
- Stage 2: D_2 makes a technological choice that determines its supplier (U or $\hat{U}$).
- Stage 3: U and D_1 secretly agree on a tariff $T_1(\cdot)$. Simultaneously and also secretly, with probability α, the supplier chosen by D_2 at stage 2 makes a take-it-or-leave-it offer $T_2(\cdot)$ to D_2; with probability $1-\alpha$, D_2 makes a take-it-or-leave-it offer $T_2(\cdot)$ to this supplier. Then, the downstream firms order quantities from their suppliers and pay according to the agreed upon tariffs.
- Stage 4: D_1 and D_2 transform the intermediate product into the final goods. In case of line-of-business restrictions, each downstream firm sells the output in its own turf (markets A and B, respectively). In case of head-to-head competition, D_1 and D_2 observe each other's output in each market and set their prices for the final good in each market.

This timing calls for some comments. The last two stages are standard, except that we here have two final markets. Also, we introduce a more evenly distributed bargaining power: D_2 obtains on average a fraction $1-\alpha$ of the profit made in its relationship with the selected supplier (the same can be assumed for D_1, but this is irrelevant). We had earlier assumed that $\alpha = 1$, so D_2 never made any profit when facing a single supplier; we could maintain this assumption but find it more elegant to introduce some sharing of profit so that D_2 not be indifferent as to its choice of technology at stage 2.

We now analyze this game.

A.1.1. Line-of-business restrictions

Under line-of-business restrictions, D_1 and D_2 are monopolists in their respective markets. At stage 2, D_2 selects U as its supplier, as

$$(1-\alpha)\pi_B^m(c) > (1-\alpha)\pi_B^m(\hat{c}),$$

where $\pi_B^m(\tilde{c})$ is the monopoly profit in market B for unit cost $\tilde{c}$. Thus, the RBOCs turn to AT&T Technology if the latter has a competitive advantage.

Note also that, under line-of-business restrictions, vertical integration between U and D_1 has no impact on markets as foreclosure is not an issue.[112]

[112] A $U - D_1$ merger could however be motivated by (unmodeled) efficiency considerations.

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A.1.2. Head-to-head competition

Let us now assume that D_1 and D_2 are in both markets. If U and D_1 are *vertically integrated*, then from Section 2.2, we know that if D_2 selects U at stage 2, D_2 is completely foreclosed from both downstream markets at stage 3. It then makes zero profit. By contrast, when selecting the inefficient supplier $\hat{U}$, D_2 makes a strictly positive profit as long as $\hat{U}$ is not too inefficient, that is as long as $\hat{c}$ is below the monopoly price for cost c in at least one of the markets. This formalizes the notion that the non-integrated downstream firm is likely to switch supplier when competition is introduced and the former supplier remains vertically integrated. Note that such switching generates production inefficiency.

Let $\pi_i^C(c, \hat{c})$ denote the Cournot profit in market $i = A, B$ of a firm with marginal cost c facing a firm with marginal cost $\hat{c}$; and let

$$\pi^C(c, \hat{c}) \equiv \pi_A^C(c, \hat{c}) + \pi_B^C(c, \hat{c})$$

be the overall profit.[113] This is the profit made by the integrated firm $U - D_1$ under head-to-head competition.

Let us now assume *vertical separation* of U and D_1. Then, for the same reason as under line-of-business restrictions, D_2 selects U at stage 2 as

$$(1 - \alpha)\pi^C(c, c) > (1 - \alpha)\pi^C(\hat{c}, c).$$

The aggregate profit of U and D_1 is then $(1 + \alpha)\pi^C(c, c)$. We thus conclude that it is in the interest of U and D_1 to split if and only if:

$$(1 + \alpha)\pi^C(c, c) > \pi^C(c, \hat{c}).$$

This condition admits a simple interpretation: Vertical integration results in foreclosure and in a flight of the non-integrated firm to the rival manufacturer. Foreclosure has a beneficial impact on the merging firms' profit but the loss of a downstream consumer is costly if U has some bargaining power in negotiations, that is if $\alpha > 0$. For $\hat{c}$ large, the *foreclosure effect* dominates[114]; conversely, the *smaller-customer-base effect* dominates for $\hat{c}$ close to c. More generally, strong downstream competition (e.g., from the removal of line-of-business restrictions) and/or weak upstream competition make foreclosure, and thus vertical integration, more attractive.[115]

[113] $\pi_i^C(c, \hat{c})$ should be replaced with $\pi_i^m(c)$ if $\hat{c} \geqslant p_i^m(c)$.

[114] For example, if $\hat{c} \geqslant \max(p_A^m(c), p_B^m(c))$, then $\pi^C(c, \hat{c}) = \pi^m(c) = \pi_A^m(c) + \pi_B^m(c) > 2\pi^C(c, c)$.

[115] We have assumed that D_2 has the same bargaining power $(1-\alpha)$ vis-à-vis U and $\hat{U}$. A new effect appears if D_2 has more bargaining power with $\hat{U}$, say because $\hat{U}$ is competitive, than with U. Then, due to differential bargaining positions, under head-to-head competition a divestiture may not suffice for U to keep D_2 as a customer. For example, if $\hat{U}$ is a competitive fringe producing at cost $\hat{c}$, D_2 buys from an unintegrated U if and only if $(1 - \alpha)\pi^C(c, c) > \pi^C(\hat{c}, c)$. It is easy to show that there exists α such that it is optimal for

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A.2. Protecting upstream investment through downstream competition

Chemla (2003) develops the (Williamsonian) argument that downstream competition protects the bottleneck's investment against expropriation in a situation in which the downstream firms have non-negligible bargaining power. There is then a general trade-off between foreclosing competition downstream so as to exploit monopoly power and preserving competition there in order to protect upstream rents.

The thrust of his analysis is as follows: A bottleneck owner U faces n identical downstream firms $D_1, \ldots, D_n$. Consider the Cournot set up of Section 2, except that the bargaining power is split more evenly:

- Stage 1: U picks the number of downstream firms $m \leqslant n$ that are potentially active later on. For example, it communicates its technical specifications to m firms and these specifications are indispensable due to compatibility requirements. Without these specifications a downstream firm starts development "too late" and cannot compete at stages 2 and 3.
- Stage 2: With probability α, U makes secret take-it-or-leave-it offers $T_i(\cdot)$ to each D_i (in the subgroup selected at stage 1). With probability $1-\alpha$, all D_i's make (separate) take-it-or-leave-it offers $T_i(\cdot)$ to U. D_i then orders a quantity of intermediate product q_i and pays $T_i(q_i)$ accordingly.
- Stage 3: The D_i's that were selected at stage 1 transform the intermediate product into the final good, observe each other's output and set their prices for the final good.

Chemla further assumes that the bottleneck's cost $C(Q)$ is strictly convex rather than linear. The role of this assumption will become apparent shortly. The intuition for his results can be grasped from looking at the two polar cases of bargaining power. When $\alpha = 1$, the bottleneck has the entire bargaining power, and is only limited by the Coasian commitment problem. To commit not to supply beyond the monopoly output at stage 2, U optimally selects $m = 1$, that is forecloses the market. When $\alpha = 0$, the downstream firms have all the bargaining power. Under linear costs, they would entirely extract the bottleneck's rent at stage 2. This is not so under decreasing returns to scale in the provision of the essential input, as long as $m \geqslant 2$. In order for an offer by D_i to be accepted by U, D_i's payment must be at least equal to the incremental cost of q_i, and therefore each downstream firm must pay its incremental cost (close to the marginal cost for m large), leaving a rent to the bottleneck owner (as inframarginal costs are lower than incremental costs under decreasing returns to scale). Thus a bottleneck owner

$U - D_1$ to divest (for that α) if and only if

$$2\pi^C(c, c) > \pi^C(c, \hat{c}) + \pi^C(\hat{c}, c).$$

This condition is the necessary and sufficient condition for the existence of franchise-fee (or royalty-free) licensing in a Cournot duopoly (the firm with cost c licenses its technology to its rival with initial cost $\hat{c}$ for a franchise fee). It holds if $\hat{c}$ is close to c and does not hold for large $\hat{c}$'s [Katz and Shapiro (1985)], a conclusion in line with that obtained in the text.

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may not want to engage in exclusionary practices when contracts are incomplete, in the sense that the bottleneck owner cannot contract on price when selecting the number m of buyers, and when the bottleneck owner has limited bargaining power against the remaining buyers of the essential input.

In this bargaining power story the upstream bottleneck has a motivation not to foreclose, namely the transfer of bargaining power. But this motivation is unrelated to social concerns, and it has actually too little incentive from a social viewpoint not to foreclose. Chemla also considers a second variation of the basic framework, in which U chooses some non-contractible investment e in marketing or design, that shifts the demand curve $p = P(Q, e)$ upwards: $\partial P/\partial e > 0$. This industry specific investment is chosen between stage 1 and stage 2 in the timing above and is observed by the downstream firms. Picking $m > 1$ protects somewhat the upstream firm against expropriation of the benefits of its investment when bargaining power lies downstream. That is, downstream competition at stage 2 gives the bottleneck owner an incentive to invest that would not exist if there were a single downstream firm ($m = 1$) that would impose a payment exactly equal to the bottleneck cost. Chemla shows that the bottleneck investment increases with the number of competing downstream firms m. This gives the upstream bottleneck a second incentive not to foreclose, which fits with the social concern of protecting investments.

Appendix B. Excessive entry and vertical foreclosure

As mentioned in Section 5, foreclosure may have the merit of limiting entry in situations where entry would otherwise be excessive. We briefly analyze this potential benefit in the context of vertical foreclosure. Consider our basic framework, except that there is now a large number of potential competitors, $D_1, D_2, \ldots$, for the production of the downstream good, and that in the first stage, after U's contract offer, each downstream firm D_i chooses whether to enter (and accept the contract), in which case it has to pay a fixed cost f. [This fixed cost is a technological production cost and does not include the fixed fee associated with a two-part tariff for the intermediate good.]

All downstream firms produce the same homogeneous good, so that efficiency would dictate only one downstream entrant. To capture the risk of excessive entry, we further suppose that each D_i does not observe its competitors' entry decisions.[116] Under passive conjectures, U then offers each D_i an efficient bilateral contract, which can be thought of as a two-part tariff with a marginal access price equal to marginal cost c.

Let us denote by $\pi^C(n)$ and $Q^C(n) = nq^C(n)$ the per firm gross profit and the total output in the standard (Cournot) oligopolistic equilibrium with n active firms:

$$\pi^c(n) = \max_q \left\{ \left[P\left((n-1)q^C(n) + q\right) - c \right] q \right\}.$$

[116] If entry were observable and contracts made contingent on the number of active firms, then U could perfectly monitor the number of active firms and achieve the entire monopolization of the industry by allowing only one active firm downstream.

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And let us define:

$$\hat{\pi}(n) = \max_q \{[P(Q^C(n) + q) - c]q\}.$$

In words, $\hat{\pi}(n)$ is the maximum profit gross of the fixed cost that a non-entering downstream could obtain if it entered, assuming that there are already n active firms, offering the output corresponding to the standard n-firm oligopolistic equilibrium. The functions $\pi^C(\cdot)$ and $\hat{\pi}^C(\cdot)$ are decreasing.

In the absence of vertical integration, a necessary and sufficient condition for an equilibrium with n active downstream firms is

$$\pi^C(n) \geqslant f \geqslant \hat{\pi}(n).$$

There may be several such equilibria. The optimal number of entrants for the industry, i.e. for U who in equilibrium recovers all profits through the fixed fee, maximizes total Cournot net profit $n[\pi^C(n) - f]$ in the relevant range defined above. Since total Cournot gross profit, $n\pi^C(n)$, is decreasing in n, so is total Cournot net profit. So the industry optimum has n_b entrants such that $\hat{\pi}(n_b) = f$, and the lowest industry profit is reached for n_w entrants such that $\pi^C(n_w) = f$; this latter equilibrium corresponds to the standard free entry equilibrium and yields zero profit to all firms.

Under vertical integration, U forecloses the downstream market. As a result the number of active downstream firms is equal to the one that is desirable from the point of view of productive efficiency ($n_i = 1$), but the price is the monopoly one. For example, in the linear demand case ($P(Q) = d - Q$), $n_w = (d - c)/\sqrt{f} - 1$, $n_b = (d - c)/2\sqrt{f} - 1$, and $Q^C(n) = (n/(n + 1))(d - c)$. If in the absence of foreclosure the firms end up in the "worst" equilibrium (from their point of view, but also from the point of view of the duplication of fixed costs), then foreclosure is socially desirable when the parameter $(d - c)/\sqrt{f}$ lies between 2 and 6.

Appendix C. Vertical foreclosure with Bertrand downstream competition

In the vertical foreclosure framework of Section 2, downstream competition was modeled in a Cournot, or more precisely in a Bertrand–Edgeworth way. It should however be clear that the commitment problem described above is robust to the nature of downstream competition. This Appendix notes however that a formalization "à la Bertrand" rather than "à la Bertrand–Edgeworth" is by no means straightforward and has not been properly addressed in the literature. With Bertrand competition, the marginal price charged to one downstream firm directly affects the profitability of the contracts signed with its competitors. Passive beliefs (which, recall, are the natural conjectures in the Bertrand–Edgeworth timing) thus appear less plausible, since downstream firms should anticipate that, if the supplier deviates with one of them, it has an incentive to change the contracts offered to the others. In addition, there may exist no equilibrium with passive beliefs, because the gain from a multilateral deviation may now exceed the total gains of the unilateral deviations.

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To study this existence problem, let us assume that downstream firms produce differentiated goods, with symmetric final demands $D^i(p_1, p_2) = D(p_i, p_j)$, and change the timing as follows:

- Stage 1: U secretly offers each D_i a tariff $T_i(q_i)$.
- Stage 2: D_1 and D_2 simultaneously set their prices, p_1 and p_2, and then order q_1 and q_2 so as to satisfy demand (consumers observe both prices and choose freely between D_1 and D_2).

Assuming passive conjectures, D_i expects D_j to set the same equilibrium price p_j, regardless of the contract D_i is offered by U. Hence, given this expected price p_j, when facing a tariff $T_i(q_i)$, D_i chooses p_i so as to maximize $p_i D(p_i, p_j) - T_i(D(p_i, p_j))$. Assume that U can only charge two-part tariffs:

$$T_i(q_i) = F_i + w_i q_i.$$

D_i's first-order condition is

$$(p_i - w_i)\partial_1 D(p_i, p_j) + D(p_i, p_j) = 0, \tag{C.1}$$

which defines a reaction function $\tilde{R}^B(p_j; w_i)$ that is increasing in w_i ("B" stands for "Bertrand competition"). Given the candidate equilibrium price p_j, U will then "choose" D_i's price so as to maximize their aggregate profit:

$$(p_i - c)D(p_i, p_j) + (w_j - c)D(p_j, p_i).$$

This price p_i is characterized by

$$(p_i - c)\partial_1 D(p_i, p_j) + D(p_i, p_j) + (w_j - c)\partial_2 D(p_j, p_i) = 0. \tag{C.2}$$

Combining (C.1) and (C.2) yields:

$$(w_i - c)\partial_1 D(\cdot) + (w_j - c)\partial_2 D(\cdot) = 0. \tag{C.3}$$

Conditions (C.3), where $\partial_i D(\cdot)$ is evaluated at the Nash equilibrium retail prices, provide a system of two equations with two unknowns, the wholesale prices. A full rank argument then implies $w_1 = w_2 = c$: The equilibrium marginal transfer price equals the marginal cost. This in turn implies that a *candidate* equilibrium (for passive conjectures) must yield the Bertrand price and profit (with $R^B(p) \equiv \tilde{R}^B(p; c)$):

$$p_1 = p_2 = p^B < p^m \quad \text{such that} \quad p^B \equiv R^B\left(p^B\right)$$
$$\pi_U = 2\pi^B < \pi^m.$$

The reader may find this result, due to O'Brien and Shaffer (1992),[117] surprising for the following reason. The presumption under passive conjectures is that the downstream competitors wage whatever form of competition is relevant, internalizing exactly the

[117] They moreover show that the Bertrand equilibrium is still the unique candidate equilibrium, even when U can offer general non-linear tariffs.

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marginal cost of upstream production. There is an extra twist under Bertrand competition, though: Because orders lag price setting, a change in the wholesale price w_i charged to a downstream competitor i affects its final price p_i and thus the profit $(w_j - c)D(p_j, p_i)$ made on downstream competitor j. But this indirect effect (which does not exist when orders are placed before demand is realized) vanishes exactly when $w_i = c$, that is when the wholesale price is equal to marginal cost.

Let us now show that, if demands are symmetric and the cross-price elasticity is at least one-half of the own-price elasticity, there exists no passive conjectures equilibrium. [Note that in the Hotelling case, the cross-price elasticity is equal to the own-price elasticity at a symmetric equilibrium. More generally what is needed for the reasoning below is that there is enough substitutability between the two products.]

With passive conjectures, the upstream firm's profit can be written as $\pi_i(w_i, w_j) + \pi_j(w_j, w_i)$, where

$$\pi_i(w_i, w_j) = \big(p_i^r(w_i) - w_i\big)D\big(p_i^r(w_i), p_j\big) + (w_i - c)D\big(p_i^r(w_i), p_j^r(w_j)\big),$$

and π_j is defined analogously. Fixing anticipated equilibrium prices (this is the passive conjectures assumption), $p_i^r(w_i)$ is defined by

$$p_i^r(w_i) = \arg\max(p_i - w_i)D\big(p_i, p_j^e\big).$$

Using the first-order condition for $p_i^r(\cdot)$, it is easy to show that at the candidate equilibrium $(w_i = c)$,

$$\frac{\partial^2 \pi_i}{\partial w_i^2} = \frac{\partial D^i}{\partial p_i}\frac{\mathrm{d}p_i^r}{\mathrm{d}w_i}, \qquad \frac{\partial^2 \pi_i}{\partial w_i \partial w_j} = \frac{\partial D^i}{\partial p_j}\frac{\mathrm{d}p_j^r}{\mathrm{d}w_j}, \qquad \frac{\partial^2 \pi_i}{\partial w_j^2} = 0.$$

And so, the Hessian of $\pi_i + \pi_j$ is semi-definite negative only if

$$-\frac{\partial D^i}{\partial p_i} > 2\frac{\partial D^i}{\partial p_j}$$

(using the symmetry of the candidate equilibrium). Thus, if the cross-price elasticity is at least half of the own-price elasticity, U's above profit is not locally concave, implying that there exists a profitable multilateral deviation; therefore, there exists no passive conjectures equilibrium.

To circumvent this existence problem, Rey and Vergé (2004) consider the notion of *wary beliefs* introduced by McAfee–Schwartz, where a downstream firm that receives an unexpected offer then anticipates that the supplier acts optimally with its rivals, given the offer just received. In the context of linear model, Rey and Vergé show that wary beliefs equilibria exist even when passive beliefs equilibria fail to exist, and these equilibria exhibit some degree of opportunism: the upstream firm does not fully exploit its market power, although it performs better than when downstream firms have passive beliefs.

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Vertical integration

Let us now assume that U and D_1 merge. The thorny issue of conjectures no longer arises since the non-integrated unit then knows that the integrated one purchases at marginal cost, and by construction the integrated downstream firm knows the tariff offered to the other one.

Through the choice of the marginal transfer price to D_2, w_2, U generates for D_2 a response to its expected price p_1^e given by

$$p_2^r\big(w_2; p_1^e\big) = \arg\max_{p_2}(p_2 - w_2)D\big(p_2, p_1^e\big).$$

[This is the same reaction curve as previously, but we now explicit the rival's expected price.]

Conversely, given a transfer price w_2 and an expected retail price p_2^e, $U - D_1$'s optimal response is given by

$$p_1^r\big(w_2; p_2^e\big) = \arg\max_{p_1}\big\{(p_1 - c)D\big(p_1, p_2^e\big) + (w_2 - c)D\big(p_2^e, p_1\big)\big\}.$$

Hence, a marginal transfer price w_2 generates a conditional equilibrium $(\hat{p}_1(w_2), \hat{p}_2(w_2))$ given by $p_1 = p_1^r(w_2; p_2)$ and $p_2 = p_2^r(w_2; p_1)$. The optimal transfer price then maximizes

$$\big(\hat{p}_1(w_2) - c\big)D\big(\hat{p}_1(w_2), \hat{p}_2(w_2)\big) + \big(\hat{p}_2(w_2) - c\big)D\big(\hat{p}_2(w_2), \hat{p}_1(w_2)\big).$$

Assuming the retail prices are strategic complements, both $\hat{p}_1$ and $\hat{p}_2$ increase with w_2. Moreover, the curve $\mathcal{F} \equiv (\hat{p}_1(w_2), \hat{p}_2(w_2))_{w_2}$ of feasible price pairs goes through the Bertrand equilibrium point (for $w_2 = c$), and never crosses the curve $p_1 = R^m(p_2)$.[118] Moreover, as w_2 goes to $+\infty$ (which amounts to exclusive dealing with D_1), $p_2(w_2)$ goes to $+\infty$ too (since $p_2(w_2) > w_2$). Hence the curve $\mathcal{F}$ crosses the curve $p_2 = R_2^m(p_1)$ to the left of the monopoly point M (see Figure 33.6).

It is clear that, starting from B ($w_2 = c$), a small increase in w_2, which increases both prices $\hat{p}_1$ and $\hat{p}_2$, strictly increases $U - D_1$'s aggregate profit. Hence vertical integration yields $w_2 > c$. The point I which represents the optimal pair of prices (p_1^*, p_2^*) actually lies above the curve $p_2 = R^m(p_1)$. To see this, evaluate the impact of a slight increase in w_2, starting from the value w_2 such that $\hat{p}_2 = R^m(\hat{p}_1(w_2))$:

$$\begin{aligned}
&\frac{\mathrm{d}}{\mathrm{d}w_2}\big(\big(\hat{p}_1(w_2) - c\big)D\big(\hat{p}_1(w_2), \hat{p}_2(w_2)\big) + \big(\hat{p}_2(w_2) - c\big)D\big(\hat{p}_2(w_2), \hat{p}_1(w_2)\big)\big)\\
&\quad= \frac{\mathrm{d}}{\mathrm{d}w_2}\big(\big(\hat{p}_1(w_2) - c\big)D\big(\hat{p}_1(w_2), p_2\big) + (p_2 - c)D\big(p_2, \hat{p}_1(w_2)\big)\big)\big|_{p_2=\hat{p}_2(w_2)}\\
&\quad= \big(\hat{p}_2(w_2) - w_2\big)D_2\big(\hat{p}_2(w_2), \hat{p}_1(w_2)\big)\frac{\mathrm{d}\hat{p}_1}{\mathrm{d}w_2} > 0,
\end{aligned}$$

[118] $p_1(w_2) = R^m(p_2(w_2)) \equiv \arg\max_{p_1}(p_1 - c)D(p_1, p_2(w_2)) + (p_2(w_2) - c)D(p_2(w_2), p_1)$ would require $p_2(w_2) = w_2$, which is impossible.

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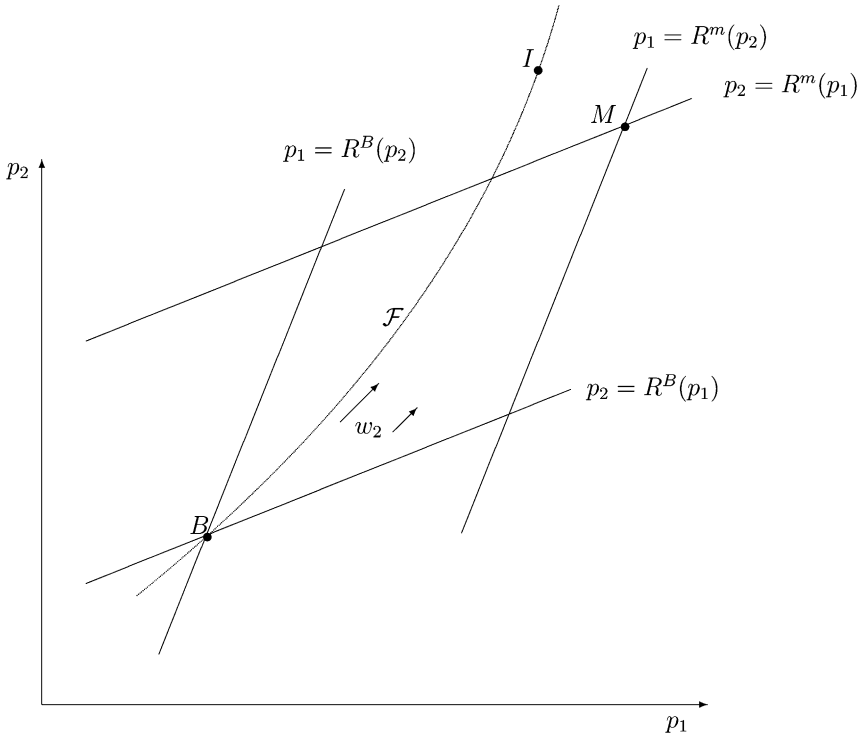

Figure 33.6. Bertrand competition and vertical integration.

where the first equality stems from $\hat{p}_2 = R^m(\hat{p}_1)$. Note finally that the equilibrium prices satisfy $w_2 > c$ and $p_2^* > p_1^*$ (since I lies to the right of $p_1 = R^m(p_2)$ and above $p_2 = R^m(p_1)$). In that sense, vertical integration does lead to foreclosure: The unintegrated firm D_2 faces a higher marginal transfer price and sets a higher price than its rival. Foreclosure in general is incomplete, however, when the two downstream firms are differentiated: In that case, vertical integration yields more profit than exclusive dealing (which would correspond here to $w_2 = \infty$).

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EVALUATING VERTICAL MERGERS: A POST-CHICAGO APPROACH

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I. INTRODUCTION

Antitrust law governs both horizontal and vertical agreements. These agreements include joint pricing, exclusivity arrangements, and mergers. In evaluating horizontal agreements, there is general consensus how such agreements can facilitate collusive pricing. The proper antitrust treatment of vertical agreements is far more controversial. In this area, there is no consensus about whether and how anticompetitive effects can occur. There is perhaps no better example than in the area of vertical price agreements, where one prominent commentator has called for replacing per se illegality with per se legality.[1]

The antitrust treatment of vertical mergers also has been highly controversial. Antitrust treatment of vertical mergers was extremely restrictive in such cases as *Brown Shoe*[2] and *Ford-Autolite*.[3] However, strong criticism of those cases by Chicago School commentators and others led to a new perspective in which vertical mergers were viewed as generally competitively neutral or procompetitive.[4]

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[1] Richard A. Posner, *The Next Step in the Antitrust Treatment of Restricted Distribution: Per Se Legality*, 48 U. CHI. L. REV. 6 (1981).

[2] Brown Shoe Co. v. United States, 370 U.S. 294 (1962).

[3] Ford Motor Co. v. United States, 286 F. Supp. 407 (E.D. Mich. 1968), *aff'd*, 405 U.S. 562 (1972).

[4] *See* ROBERT H. BORK, THE ANTITRUST PARADOX 225 (1978); Robert H. Bork et al., *The Goals of Antitrust: A Dialogue on Policy*, 65 COLUM. L. REV. 363 (1965); Thomas G. Krattenmaker & Steven C. Salop, *Anticompetitive Exclusion: Raising Rivals' Costs to Achieve Power Over Price*, 96 YALE L.J. 209 (1986).

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This more benign view formed the foundation of the 1984 Department of Justice Merger Guidelines[5] and 1985 Vertical Restraints Guidelines.[6] It also led to a highly permissive vertical restraints policy during the Reagan and Bush Administrations, apart from the AT&T divestiture.[7] For example, the Department of Justice (DOJ) under the Reagan and Bush Antitrust Divisions prevented only a single vertical merger, the proposed combination of Showtime and The Movie Channel with a number of film distributors.[8] During the same period, the Federal Trade Commission (FTC) brought one vertical merger action—the Goodrich-Diamond Shamrock proposed merger.[9] But both these mergers had important horizontal as well as vertical merger elements.

This record on vertical integration has come under recent attack. For example, Congressman Jack Brooks stated:

> It is not that vertical integration of production and distribution automatically poses a competitive threat of foreclosure and barriers to entry to new entrants; it may not. The difficulty faced is that vertical mergers, for the past 12 years, were deemed barely worthy of any careful competitive scrutiny at all by the antitrust enforcement agencies. This was a gross abdication of responsibility, and I know that such a cavalier approach won't be repeated with the current leadership at the Justice Department and FTC.[10]

Attitudes like this have led to increased enforcement efforts against vertical integration. One of Assistant Attorney General Bingaman's first official acts was to repeal the Vertical Restraints Guidelines. The DOJ recently issued a complaint (and settled) a vertical tying-exclusive dealing case against Electronic Payment Systems,[11] the owner of the MAC ATM network. It also obtained a consent decree in the TCI-Liberty recombination.[12] The DOJ and the Federal Communications Commission (FCC)

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[5] U.S. Department of Justice Merger Guidelines (1984), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,103, at 20,564 [hereinafter 1984 DOJ Merger Guidelines].

[6] U.S. Department of Justice Vertical Restraints Guidelines (1985), *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,105, at 20,577 [hereinafter 1985 DOJ Vertical Restraints Guidelines]. These Guidelines were rescinded by the Clinton Administration in 1993.

[7] United States v. AT&T Co., 552 F. Supp. 131 (D.D.C. 1982), *aff'd sub nom.* Maryland v. United States, 460 U.S. (1983).

[8] *See* Lawrence J. White, *Antitrust and Video Markets: The Merger of Showtime and The Movie Channel as a Case Study, in* VIDEO MEDIA COMPETITION: REGULATION, ECONOMICS AND TECHNOLOGY 338 (Eli M. Noam ed., 1985).

[9] B.F. Goodrich Co., 110 F.T.C. 207 (1988).

[10] Letter from Congressman Jack Brooks, Chairman of the House Judiciary Committee, to DOJ Assistant Attorney General Anne Bingaman and FTC Chairman Janet Steiger (Nov. 4, 1993).

[11] United States v. Electronic Payment Sys., Inc., Civ. No. 94-208 (D. Del. Apr. 21, 1994) (complaint); 59 Fed. Reg. 44,757 (Aug. 30, 1994).

[12] United States v. Tele-Communications, Inc., 59 Fed. Reg. 24,723 (May 12, 1994). The FTC also obtained a consent decree with TCI in the potential vertical acquisition of

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investigated the acquisition of McCaw Communications by AT&T and the DOJ obtained a conduct-oriented consent decree.[13] In response to a Congressional mandate, the FCC similarly is engaged in extensive rulemaking to govern vertical integration in the cable television business.[14]

This renewed concern also reflects the current view among economists that vertical mergers can lead to anticompetitive effects under certain circumstances. The Chicago School critique of vertical merger policy has precipitated a more refined analysis of vertical mergers. These new post-Chicago theories neither ignore nor reject the economic analysis of the Chicago School. Instead, they apply the newer methodology of modern industrial organization theory to more realistic market structures in which vertical mergers can have anticompetitive effects. Although this scholarship certainly does not suggest a return to the *Brown Shoe* view of vertical mergers, it does identify situations where vertical mergers and other vertical restraints can raise significant competitive concerns.[15]

Paramount by QVC, an entity in which TCI has a partial ownership interest. Tele-Communications, Inc., 58 Fed. Reg. 63,167 (Nov. 30, 1993). The consent decree was withdrawn when QVC failed in its bid to purchase Paramount.

[13] United States v. AT&T, 59 Fed. Reg. 44,158 (Aug. 26, 1994). In addition, Bell Atlantic and Nynex sued in district court to block the acquisition. That case ultimately settled before trial.

[14] The Cable Television Consumer Protection and Competition Act of 1992, Pub. L. No. 102-385, 106 Stat. 1460 (1992); First Report and Order in the Matter of Implementation of Sections 12 and 19 of the Cable Television and Consumer Protection Act: Development of Competition and Diversity in Video Programming Distribution and Carriage, MM Docket No. 92-165, released Apr. 1, 1992; Report and Order and Further Notice of Proposed Rulemaking in the Matter of Implementation of Sections 11 and 13 of the Cable Television and Consumer Protection Act: Horizontal and Vertical Ownership Limits, Cross-Ownership Limitations and Anti-Trafficking Provisions, MM Docket No. 92-264, released July 23, 1993; Second Report and Order in the Matter of Implementation of Sections 11 and 13 of the Cable Television and Consumer Protection Act: Horizontal and Vertical Ownership Limits, MM Docket No. 92-264, released Oct. 22, 1993.

[15] There is now an extensive literature in economics and law analyzing the competitive concerns raised by vertical mergers that goes back at least to JOE S. BAIN, BARRIERS TO NEW COMPETITION 1–41 (1956). For a sampling of recent articles, see Krattenmaker & Salop, *supra* note 4; Janusz A. Ordover et al., *Nonprice Anticompetitive Behavior by Dominant Firms Toward the Producers of Complementary Products*, *in* ANTITRUST AND REGULATION: ESSAYS IN MEMORY OF JOHN J. MCGOWAN 115–130 (Franklin Fisher ed., 1985); Michael A. Salinger, *Vertical Mergers and Market Foreclosure*, 77 Q.J. ECON. 345 (1988); Oliver Hart & Jean Tirole, *Vertical Integration and Market Foreclosure*, BROOKINGS PAPERS ON ECONOMIC ACTIVITY 205 (1990); Louis Kaplow, *Extension of Monopoly Power Through Leverage*, 85 COLUM. L. REV. 515 (1985); Janusz A. Ordover et al., *Equilibrium Vertical Foreclosure*, 80 AM. ECON. REV. 127 (1990) [hereinafter Ordover, *Equilibrium*]; David Reiffen, *Equilibrium Vertical Foreclosure: Comment*, 82 AM. ECON. REV. 694 (1992); Janusz A. Ordover et al., *Equilibrium Vertical Foreclosure: Reply*, 82 AM. ECON. REV. 698 (1992) [hereinafter Ordover, *Reply*]; Eric B. Rasmussen et al., *Naked Exclusion*, 81 AM. ECON. REV. 1137 (1991); Jeffrey Church & Neil Gandal, Equilibrium Foreclosure and Complementary Products (Sackler Institute of Economics, Tel-Aviv University Working Paper No. 3-93 March 1993). For recent surveys of the economics literature, see, e.g., Martin K. Perry, *Vertical Integration: Determinants and*

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Given these new attitudes toward vertical mergers among policy makers and economists, it is appropriate to distill the latest economic learning. This article is a step in that direction. We explain how vertical mergers can lead to anticompetitive effects and identify a number of factors that affect the likelihood and magnitude of those effects. We also discuss the efficiency benefits of vertical mergers and how the net competitive impact can be evaluated.

Part II of the article sets out the Chicago School critique of 1960s-style vertical merger law and explains how a theory of anticompetitive vertical mergers is consistent with modern microeconomics. Part III discusses the efficiency benefits of vertical mergers and a general methodology for balancing efficiency benefits against anticompetitive harms. Parts IV through VI discuss three categories of anticompetitive concerns from vertical mergers: input and customer foreclosure, information exchange, and evasion of regulation.

II. THE POST-CHICAGO ANALYSIS OF VERTICAL MERGERS

The permissive policy toward vertical mergers, derived from the Chicago School, is premised on a simple economic model. In contrast, the post-Chicago approach relies on more realistic and complex economic analysis that facilitates the identification of anticompetitive concerns that have less importance in the Chicago School approach.

A. THE CHICAGO SCHOOL CRITIQUE OF 1960s VERTICAL MERGER LAW

The Chicago School critique of *Brown Shoe* and other antitrust challenges to vertical mergers is based on two main tenets. First, the mere fact that a vertical merger forecloses rival firms' access to the supply of inputs produced by one input supplier does not mean that the net supply of inputs available to those rival firms has been reduced. When the rivals lose access to the input supplies produced by one firm, they are likely to gain access to the input suppliers that previously supplied the merging supplier's downstream merger partner. In that case, according to Chicago School theory, the vertical merger does not reduce the net supply available to rivals. Instead, it merely realigns purchase patterns among competing firms.[16]

Effects, *in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 183 (Richard Schmalensee & Robert Willig eds., 1989); Michael L. Katz, *Vertical Contractual Relations*, *in* 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 655 (Richard Schmalensee & Robert Willig eds., 1989); and the many articles cited therein. For analyses by antitrust lawyers schooled in economics, see 3 PHILLIP AREEDA & DONALD TURNER, ANTITRUST LAW ¶ 736 (1978); HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE 283–89, 329–49 (1994).

[16] As Bork points out, the cure for such naive allegations of foreclosure could be "an industry social mixer" to facilitate the realignment. BORK, *supra* note 4, at 232.

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Second, the Chicago School utilizes an oversimplified microeconomic model to conclude that vertical mergers carried out by a monopolist cannot enhance monopoly power. The idea is that there is only a "single monopoly profit" that can be earned by the monopolist, whether or not the monopolist is vertically integrated.[17] Instead of enhancing monopoly power, the only economic motive for vertical merger is to reduce costs by achieving synergies.

Post-Chicago industrial organization economics accepts, as a starting point, these criticisms of pre-Chicago foreclosure theory. However, it has extended the economic models to more realistic assumptions that reach a more refined understanding of foreclosure. The modern industrial organization literature has formulated models of vertical integration in which vertical mergers lead to real foreclosure in which the net supply of inputs available to rivals is decreased. Models have been formulated in which monopoly power may be created or enhanced—and monopoly profits thereby increased—by vertical mergers that have little or no efficiency benefits. In these post-Chicago models, some vertical mergers can be anticompetitive, although others are procompetitive.

Post-Chicago analysis also relaxes the restrictive assumptions upon which the single monopoly profit theory is based. In particular, the single monopoly profit theory relies on the following four assumptions:[18]

(1) there is a monopoly input supplier, whose monopoly is protected by prohibitive barriers to entry;

(2) the monopoly is unregulated;

(3) there is perfect competition in the downstream output market; and

(4) the technology for producing output involves usage of all inputs in fixed proportions.

In the absence of these four assumptions, the single monopoly profit result no longer holds. Instead, vertical mergers may be motivated by either monopoly power, economic efficiency concerns, or both.

When the input market is not a monopoly, the analysis of vertical mergers is altered. Vertical mergers in these circumstances can have anticompetitive or procompetitive effects through a number of mechanisms. A vertical merger can create barriers to entry or expansion by foreclosing or disadvantaging unintegrated rivals. A vertical merger also

[17] *Id.* at 229.

[18] An analogous version would center the monopoly in the output market and perfect competition in the input market. Relaxing those assumptions alters the results analogously to the results discussed in the text below.

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can facilitate tacit or express pricing coordination among the competing input suppliers. In either case, a vertical merger may lead to a reduction in net input supply to rivals, not just a supply realignment.

Further, even if there is an input monopolist but that monopolist's price is regulated, a vertical merger can be used to evade price control regulations. A vertical merger also can be used to facilitate price discrimination, where price discrimination by an unintegrated monopolist would be constrained by regulation or a competitive output market.

By contrast, when there is not perfect competition in the output market, a vertical merger has the potential to reduce costs and increase efficiency by eliminating a double monopoly markup on input costs. When the output technology is not in fixed proportions, a vertical merger also has the potential to reduce costs by eliminating distortions in efficient input usage that arise from noncompetitive input prices.

Although the original Chicago School commentators focused primarily on the efficiency benefits of vertical mergers, they did identify some competitive concerns. For example, they paid close attention to the potential for collusion and recognized evasion of regulation as a potential concern. Nevertheless, the original Chicago School approach placed little credence in the harm from foreclosure. This rejection of foreclosure as a competitive concern has two sources in addition to those identified earlier. First, the Chicago School approach is based on an assumption that barriers to entry generally are low. Second, the Chicago approach pre-dated the recent interest among economists in game theory and strategic behavior. Along with other advances in economic theory, the game theoretic analysis of strategic behavior forms the core of what has been termed the post-Chicago approach.[19] The strategic behavior models study the decisions of firms that take rivals' likely reactions to their conduct into account when making their decisions. These involve models of strategic oligopoly conduct rather than the models of simple monopoly and perfect competition that form the foundations of the traditional Chicago School approach.[20]

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[19] *See* Oliver Williamson, *Antitrust Enforcement: Where It's Been, Where It's Going*, 27 ST. LOUIS U. L.J. 289 (1983); Herbert Hovenkamp, *Antitrust Policy After Chicago*, 84 MICH. L. REV. 213, 274–80 (1985); Carl Shapiro, *The Theory of Business Strategy*, 20 RAND J. ECON. 125 (1989).

[20] Chicago School economist George Stigler was a pioneer in the modern analysis of oligopoly theory. George J. Stigler, *A Theory of Oligopoly*, 72 J. POL. ECON. 44 (1964). However, that work had little impact on the Chicago School approach to monopoly conduct or vertical relationships. *Cf.* Carl Shapiro & David J. Teece, *Systems Competition and Aftermarkets: An Economic Analysis of* Kodak, 39 ANTITRUST BULL. 135 (1994).

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These more realistic models of competitive behavior form the basis for a richer analysis of vertical mergers and their potential anticompetitive or procompetitive effects. In such a light, vertical mergers should be neither universally condemned nor universally applauded.

B. THE POST-CHICAGO APPROACH TO VERTICAL MERGERS

Because many vertical mergers create vertical integration efficiencies between purchasers and sellers, many if not most vertical mergers are either procompetitive or competitively neutral. Potential efficiency benefits involve improved coordination in pricing, production, and design that can reduce costs and improve product quality. They also involve more efficient input usage and promotion.

Some vertical mergers, however, have the potential for anticompetitive effects by creating, enhancing, or facilitating the exercise of market power. The competition affected may be in the sale of inputs produced by one merger partner (the "upstream" or "input" market), the sale of the products produced by the other merger partner that uses these inputs (the "downstream" or "output" market), or in markets that are "ancillary" to the input and output markets.[21]

Antitrust concerns regarding anticompetitive effects arise from three main sources.[22] First, vertical mergers can lead to exclusionary effects by increasing rivals' costs of doing business. This may involve raising their input costs by foreclosing their access to important inputs or foreclosing their access to a sufficient customer base. We refer to these respectively as input foreclosure and customer foreclosure. This exclusionary conduct may involve unilateral and/or the increased likelihood of coordinated conduct in the upstream and downstream markets.[23]

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[21] Inputs are the products and services used to produce the goods and services sold by firms. These include such conventional inputs as raw materials, intermediate products which may be finished, energy, and labor. They may also include access to product standards and certifications, as well as wholesale and retail distribution services. As discussed in more detail later, distribution sometimes can be properly viewed as an output in that the distributor may purchase the product from the manufacturer, whereas in other situations distribution can be properly viewed as an input into the production and sale of a product.

[22] These three general classes of competitive harm are recognized in the 1984 DOJ Merger Guidelines, *supra* note 5, § 4.2. However, only the most extreme example of exclusionary conduct is treated in detail. The Vertical Merger Guidelines focus on a somewhat different example of information exchange. The analysis of evasion of regulation is similar to the authors'.

[23] Unilateral conduct refers to behavior that involves independent strategies by competing firms. Coordinated conduct refers to tacit understandings or agreements between competing firms about what strategies to follow. *See also* U.S. Department of Justice and Federal Trade Commission 1992 Horizontal Merger Guidelines § 2, *reprinted in* 4 Trade Reg. Rep. (CCH) ¶ 13,104 [hereinafter 1992 Horizontal Merger Guidelines].

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Second, vertical mergers can facilitate tacit or express coordinated conduct by facilitating the exchange of pricing and other competitively sensitive information in either the input or output market.

Third, vertical mergers can permit a firm to evade a variety of pricing regulation. For example, a vertical merger can help a regulated firm to evade cost-based, maximum price regulation by setting an artificially high transfer price on inputs sold by the upstream division to the downstream division and, as a result, shift profits from the regulated to the unregulated market. A vertical merger also can help a firm to evade statutes or regulations that prohibit price discrimination.

C. THE FORD-AUTOLITE "HYPOTHETICAL"

The various theories of anticompetitive harm from vertical mergers can be illustrated and better understood in the context of a hypothetical vertical merger. Consider a stylized variation of the Ford-Autolite merger.[24] The acquisition involved the purchase of a spark plug manufacturer, Electric Auto-Lite, by Ford Motor Company in 1961. For purposes of illustrating the analysis, the input and output markets are pictured in the "Bubble Diagram" in Figure 1. To begin the analysis, consider a possible input market defined as the sale of spark plugs at the wholesale level. This input market is comprised of Autolite, Champion, and A.C. Delco, a division of General Motors, as well as a number of fringe producers that sold mainly in the aftermarket. These spark plugs are sold to the domestic automobile producers (OEMs). A key output market for analyzing the vertical merger is the sale of new automobiles containing spark plugs. The sellers in this output market are the domestic producers, Ford, General Motors, Chrysler, and AMC, as well as the foreign automobile manufacturers like Volkswagen that were selling in the U.S. market at the time. In addition, as discussed below, an ancillary market comprised of aftermarket retailers such as The PepBoys, Sears, and so on, may be relevant to the analysis.

On the procompetitive side, the merger could reduce costs or improve product quality for both Ford and Autolite. The merger might permit Ford and Autolite to coordinate better the design of a new generation of spark plugs, or to coordinate production. If the spark plug market is imperfectly competitive, the merger might increase efficiency by reducing the transfer price Ford pays for plugs and reduce Ford's inefficient

[24] We will use this case to illustrate the analytic framework, not to evaluate the validity of the result reached in the actual matter. To that end, we will treat the case more as a hypothetical than as a real case and alter the assumed facts for illustrative purposes. The historical facts of the case are detailed in the district court opinion, Ford Motor Co. v. United States, 286 F. Supp. 407 (E.D. Mich. 1968), *aff'd*, 405 U.S. 562 (1972).

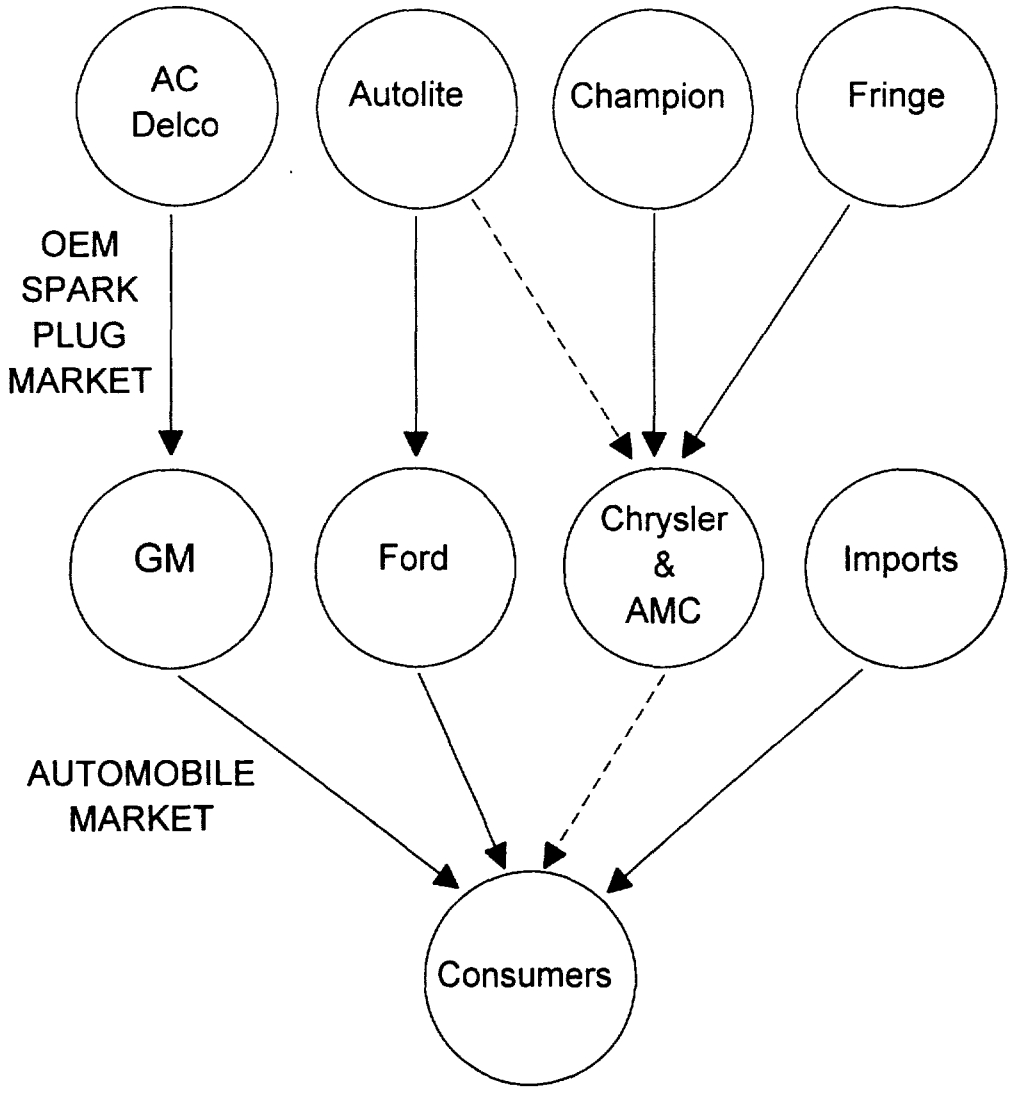

Figure 1. Input foreclosure Ford-Autolite "hypothetical"

substitution away from spark plugs in response to a noncompetitive premerger price, or it might better align the incentives of Ford and Autolite in other ways. These benefits could lead to more competition in the spark plug and automobile markets.

On the anticompetitive side, there are three distinct concerns. First, the vertical merger might harm consumers by excluding competition. Foreclosure in the input market would occur if the price of spark plugs sold to Ford's automobile competitors were raised, thereby enabling Ford to raise the price of new automobiles. Customer foreclosure in the output market would occur if the other spark plug manufacturers—Champion, for example—were denied access to Ford as a customer. Such customer foreclosure might raise Champion's variable costs or drive Champion

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below minimum viable scale, thereby enabling Autolite to raise the price of spark plugs either to OEMs, aftermarket distributors, or both. Second, the merger also might facilitate collusion or pricing coordination among spark plug manufacturers if Champion and Delco use Ford as a conduit for exchanging information with Autolite, and vice versa. Third, the vertical merger might be used to evade regulations. For example, if the automobile industry were subject to price regulation and Ford's price were regulated on the basis of its costs, it might attempt to evade the regulation by having Autolite increase the price of spark plugs it sells to Ford.

Using the hypothetical as background, a detailed framework for evaluating vertical mergers and balancing procompetitive against anticompetitive concerns can be developed. Because vertical mergers generally are evaluated by the enforcement authorities before they are consummated, in this article we follow the approach of evaluating proposed vertical mergers.

III. EFFICIENCY BENEFITS FROM VERTICAL MERGERS

The first area to be examined involves the efficiency benefits that may result from a vertical merger. A variety of efficiency benefits that can reduce costs, improve product quality, and reduce prices may ensue from vertical mergers.

A. THE ROLE OF EFFICIENCIES IN VERTICAL MERGER ANALYSIS

Antitrust takes the general view that cooperation among firms in a vertical relationship in general has greater efficiency potential than does cooperation among horizontal competitors. It is consistent with basic antitrust principles, therefore, to place greater weight on efficiency benefits in analyzing vertical mergers than in analyzing horizontal restraints.[25] For this same reason, vertical mergers are evaluated under the rule of reason.[26]

In general, efficiency benefits can be weighed in evaluating the net competitive impact either by measuring the benefits on a case-by-case

[25] *See* 1992 Horizontal Merger Guidelines, *supra* note 23, § 4. One important possible exception concerns whether vertical merger is necessary to achieve the claimed efficiencies, rather than utilizing a contract short of merger that does not involve the direct sharing of profits. Such an analysis of alternatives is carried out in the horizontal merger context under the 1992 Horizontal Merger Guidelines.

A vertical contract short of merger sometimes may be more likely to be sufficient to achieve efficiency benefits, relative to the horizontal merger situation. One reason is that firms often are wary about cooperating with their competitors. A second is that cooperation with competitors necessary to achieve the efficiencies often will raise price-fixing concerns.

[26] Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36 (1977).

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basis or by adjusting the required threshold of competitive harm or some combination of the two.[27] Given that most vertical mergers generally lead to some efficiency benefits, it may be appropriate to adjust the threshold upwards, even before any case-by-case analysis of efficiency benefits. That is, the complaining party would be required to demonstrate, as a threshold matter, a significant likelihood of consumer injury even before the merging parties are faced with the need to demonstrate positive net competitive impact on the basis of offsetting specific efficiency benefits flowing from the merger. Indeed, because vertical mergers often will not raise a significant likelihood of consumer harm, in most cases it will be unnecessary to gauge the efficiency benefits of a specific proposed merger to evaluate net competitive impact.[28]

Where vertical mergers both create efficiency benefits and raise significant competitive concerns, however, those conflicting effects must be weighed and balanced, so that the net economic effect can be measured. To arrive at the net economic impact, the sources of efficiency benefits must be identified. Those benefits may then be weighed and balanced against the sources of competitive harms.

B. SOURCES OF EFFICIENCY BENEFITS FROM VERTICAL MERGERS

The types of efficiency benefits flowing from vertical mergers can be organized into several categories for purposes of illustration.[29]

1. *Coordination in Design and Production*

Vertical mergers can facilitate better coordination between input suppliers and output producers with respect to product design and production. Design coordination can lead to lower costs, higher product quality, and shorter lead times for new products. Feedback from buyers to sellers

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[27] *See, e.g.*, BORK, *supra* note 4, at 226; Timothy J. Muris, *The Efficiency Defense Under Section 7 of the Clayton Act*, 30 CASE W. RES. L. REV. 381 (1980); Gary Roberts & Steven C. Salop, Efficiency Benefits in Dynamic Merger Analysis (unpublished manuscript on file with author).

[28] Balancing efficiency benefits against competitive harms raises a number of issues regarding the economic welfare standard, the likelihood that cost savings will diffuse to other competitors, and whether a merger is reasonably necessary to attain the claimed benefits. These issues will not be addressed here. For a detailed discussion in the horizontal merger context, see Roberts & Salop, *supra* note 27.

[29] This discussion is not intended to be exhaustive, although most efficiency claims can be stated in terms of the categories set out here. For more extensive discussion of efficiency benefits, see Perry, *supra* note 15, at 183, 191–92. *See also* RICHARD A. POSNER & FRANK H. EASTERBROOK, ANTITRUST: CASES, ECONOMIC NOTES AND OTHER MATERIALS 869–70 (2d ed 1981); BORK, *supra* note 4, at 226–27 (1978); MILTON HANDLER ET AL., CASES AND MATERIALS ON TRADE REGULATION 572 (1979); Continental T.V., Inc. v. GTE Sylvania Inc., 433 U.S. 36, 54–57 (1977).

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can improve quality control and lead to product innovations over time.[30] Production coordination, by assuring supply or customers, for example, can lead to lower costs by reducing required inventories, rationalizing schedules to mitigate downtime and overtime inefficiencies, and optimizing run sizes.[31]

Such coordination may be facilitated by vertical merger in that the parties can better trust one another when they are pursuing a common, single-minded goal of joint profit maximization. In contrast, if the firms are independent, the input supplier has the incentive to compromise the needs of its multiple customers. Similarly, the buyer may fear that its ideas are being used to benefit its competitors in the output market. In short, vertical mergers can reduce the potential for opportunism.[32]

Although these potential benefits are real, they do not flow automatically from every vertical merger. In addition, in industries in which technology entails only partial vertical integration, in which certain unintegrated firms are dealing with integrated rivals, some of the coordination benefits necessarily may come at the expense of imposing higher costs on rivals. For example, if an input must be designed to uniform standards and the integrated firm chooses the standards preferred by the downstream division, those uniform standards may be inferior for other unintegrated customers. A compromise standard may not be chosen by the integrated firm even if it is optimal.[33]

2. *Eliminating Free Riding by Internalizing Incentives*

Vertical integration can eliminate premerger free riding by either merger partner. This benefit occurs by coordinating the incentives of the merger partners to carry out actions that benefit the other. Just as integration can alter incentives in a way that harms competition, integra-

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[30] Thomas M. Jorde & David J. Teece, *Innovation and Cooperation: Implications for Competition and Antitrust*, 4 J. ECON. PERSP. 75 (1990) (asserting that innovation requires feedback mechanisms between firms).

[31] MICHAEL E. PORTER, COMPETITIVE STRATEGY: TECHNIQUES FOR ANALYZING INDUSTRIES AND COMPETITORS (1980).

[32] *See* Ronald Coase, *The Nature of the Firm*, 4 ECONOMICA 386 (1937); OLIVER E. WILLIAMSON, MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS (1975); Benjamin Klein et al., *Vertical Integration, Appropriable Rents and the Competitive Contracting Process*, 21 J.L. & ECON. 297 (1978); Michael H. Riordan & Oliver E. Williamson, *Asset Specificity and Economic Organization*, 3 INT'L J. INDUS. ORG. 365 (1985); David J. Teece, *Vertical Integration and Vertical Divestiture in the U.S. Oil Industry*, Institute for Energy Studies, Stanford Univ. (1976). *But see* Richard Levin, *Vertical Integration and Profitability in the Oil Industry*, 2 J. ECON. BEHAV. ORG. 215 (1981).

[33] These issues are discussed in more detail in Joseph Farrell & Garth Saloner, *Systems Competition Versus Component Competition*, Paper Presented at FTC/DOJ/ABA Conference, Post-Chicago Economics: New Theories—New Cases? Wash., D.C., May 26–27, 1994.

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tion also can alter incentives in ways that benefit competition. This efficiency also is closely related to the coordination efficiencies discussed above.

Consider the impact of product promotion by the downstream firm before the merger. Promotion can raise the profits of the firm by increasing demand for the product. Before the merger, for example, Ford would balance the costs of promotion against the increased net revenue (i.e., revenue net of costs) likely generated. Ford would not, however, take into account any increased net revenue flowing to its independent input supplier, (say) Autolite before the merger, from the demand generated by the promotion. As a result, promotion that can lead to incremental joint net revenue to Ford and Autolite that exceeds their combined incremental costs may not be undertaken.[34]

In contrast, a vertical merger will internalize the benefits to the input supplier. In making its decisions, Ford would take into account the impact on Autolite. This change in the incentives of the downstream division will lead to increased downstream promotion that increases the profits of the integrated firm. A similar analysis can be carried out for upstream promotion or other investments by either party.

3. *Rationalizing Input Usage*

When the input market is not perfectly competitive, the input price may exceed the marginal cost level, which leads to inefficient usage among substitutable inputs absent vertical integration. For example, suppose imperfect competition among spark plug producers leads to noncompetitive spark plug prices. In that case, automobile producers have the incentive to engage in cost-reducing input substitution, such as electrical or fuel injection system changes to improve spark plug life, or a reduced number of cylinders.

Although this type of substitution may be cost-effective from the buyer's view because the input is priced high in excess of marginal cost, it does not lead to economically efficient input usage. Economic efficiency dictates that input usage be determined by marginal costs, not by prices that exceed marginal costs. A vertical merger may eliminate this inefficient input usage when the integrated firm supplies inputs to itself. The integrated firm generally will transfer the input to its downstream

[34] For example, suppose that promotional expenditures by the downstream firm of $100 lead to increased net revenue to the downstream firm of $80 and increased net revenue to the upstream firm of $50. This promotion will be forgone before the merger because costs ($100) exceed downstream benefits ($80). However, it will be undertaken after the merger because total benefits ($130) exceed costs.

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division at marginal cost, not at a price in excess of marginal cost.[35] As a result, the integrated firm may be able to reduce its costs, which provides it with the incentive to increase its output and reduce its output price. Although this is an efficiency-based rationale for vertical merger, the benefits may or may not be sufficient to offset the competitive harms from anticompetitive exclusion or other sources.[36]

4. *Eliminating Double Markup of Costs*

When both the input and output markets are imperfectly competitive, output prices are increased above the competitive level and possibly even above the monopoly level, as marginal input costs are marked up twice, once by the input supplier and once by the output producer. Under these circumstances, when the integrated firm can efficiently supply inputs to itself, a vertical merger of a firm with a supplier of a variable input can reduce output prices by eliminating one of the two markups. This result occurs because the integrated firm will have the incentive to transfer the variable input to the downstream division at a transfer price equal to marginal cost, which then will be marked up by the downstream division. Thus, the vertical merger can reduce output prices and increase consumer and aggregate economic welfare.[37] In this way, a vertical merger can be a consumer-benefiting correction to an imperfectly competitive input market.

To evaluate the magnitude of this potential efficiency benefit, the structure of the upstream and downstream markets must be evaluated.

[35] Internal transfer prices in excess of costs may be used to provide incentives to the upstream and downstream division in a decentralized organization structure. They may also be used in certain circumstances as a basis for management compensation as a method of facilitating coordination in the downstream market. Chaim Ferstmann & Kenneth L. Judd, *Equilibrium Incentives in Oligopoly*, 77 AM. ECON. REV. 927 (1977).

[36] If efficiencies are evaluated on a case-by-case basis, the conditions necessary to cause output price to fall could, in principle, be evaluated for this monopoly case. To illustrate this, consider the extreme case in which a monopolist input supplier merges with one of a number of competitive downstream output producers. That monopolist will have the incentive to engage in input foreclosure as well as to rationalize its input usage at the downstream level. Taking both incentives into account simultaneously, the impact on output prices depends on demand and cost conditions. Thus, consumer welfare and aggregate economic welfare could fall, despite the efficiency benefit. For further discussion on input usage, see Parthasaradhi Mallela & Babu Nahata, *The Theory of Vertical Control with Variable Proportions*, 88 J. POL. ECON. 1009 (1980); Herman C. Quirmbach, *The Path of Price Changes in Vertical Integration*, 94 J. POL. ECON. 1110 (1986); Michael A. Salinger, *Vertical Mergers and Market Foreclosure*, 103 Q.J. ECON. 345 (1988); Frederick R. Warren-Boulton, *Vertical Control with Variable Proportions*, 82 J. POL. ECON. 783 (1974); Michael Waterson, *Vertical Integration, Variable Proportions and Oligopoly*, 92 ECON. J. 129 (1982); Frederick Westfield, *Vertical Integration: Does Product Price Rise or Fall?*, 71 AM. ECON. REV. 334 (1981); *see also* Perry, *supra* note 15.

[37] *See* Herbert Spengler, *Vertical Integration and Antitrust Policy*, 53 J. POL. ECON. 347 (1950); Fritz Machlup & Martha Taber, *Bilateral Monopoly, Successive Monopoly, and Vertical*

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If either market performs competitively before the merger, there will be no double markup. In that case, no efficiency benefit will occur. Instead, this efficiency benefit is dependent upon the input market for a variable input being imperfectly competitive. Even in this case, however, if the downstream division of the integrated firm is a big buyer that was able to negotiate a nearly competitive price before the merger, then the double markup will be small and the efficiency gains will be limited accordingly.[38]

Assuming that the integrated firm can supply significant variable inputs to itself and a significant double markup can be eliminated, it will be necessary to balance these efficiency benefits against any competitive harms identified. In some circumstances, the combination of eliminating a double markup and foreclosure may lead to the need to balance price reductions by the integrated firm against cost and price increases by unintegrated competitors.

5. *Efficiency Losses Suffered by Foreclosed Competitors*

Where a vertical merger increases the costs to unintegrated competitors, those increased costs do harm rivals. However, they do not necessarily represent real efficiency losses. Real efficiency losses are involved only to the extent that the higher costs are not simply transfers to input suppliers but rather lead to inefficient input usage by the competitors. There also are efficiency losses when resource use in the output market is distorted by precluding lower-cost production by efficient competitors.

The competitive analysis of vertical mergers also involves an examination of the competitive concerns that can arise. These competitive concerns can be classified into three categories: anticompetitive exclusion, information exchange, and evasion of regulation. In the next three sections, we analyze those competitive theories in detail.

IV. ANTICOMPETITIVE EXCLUSION

Vertical integration by merger can increase the merged firm's incentives to engage in exclusionary conduct in its pricing, marketing, and purchasing decisions at both the input (or upstream) and customer (or downstream) levels. At the input level, this may involve the upstream division raising the input price it charges to rivals of the downstream division or refusing to supply them. At the customer level, this may

Integration, 27 ECONOMICA 101 (1960); *see also* JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 177 (1988).

[38] When inputs are differentiated, the integrated firm may suffer some inefficiency by supplying inputs to itself if the input produced internally is not the optimal variety.

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involve refusing to purchase from rival input suppliers. This exclusionary conduct may involve purely unilateral behavior or the vertical merger may facilitate pricing coordination at either level. Competitors may be harmed by having their costs raised above the premerger level or by causing them to exit from the market. The conduct may harm competition by giving the integrated firm the power to raise or maintain input or output prices above the competitive level.

By increasing the likelihood of anticompetitive exclusion, vertical mergers permit the integrated firm to achieve, enhance, or maintain market power, the essence of what is proscribed by the antitrust laws. A finding that input foreclosure raises a real potential for harm to competition, however, does not mean that, on balance, a proposed vertical merger necessarily is anticompetitive. Likely efficiency benefits also must be weighed in order to gauge the likely net competitive impact of a transaction.

A. INPUT FORECLOSURE

Input foreclosure refers to exclusionary conduct by the upstream division of an integrated firm with the purpose of excluding rivals from access to important inputs or raising their costs of such inputs. The incentive for the upstream division to exclude or raise the input price it charges to the competitors of the downstream division is easy to explain. By raising their input costs or otherwise excluding downstream rivals, an integrated firm can place downstream rivals at a cost disadvantage in the downstream market. Other input suppliers may not take up the slack because, for example, their ability to expand is limited, their effective market power has increased, or the input foreclosure itself facilitates coordinated pricing among input suppliers.

In these cases, if downstream rivals' costs are raised, the integrated firm may be able to effect an exercise of market power in the downstream market, either unilaterally or through coordination with its competitors. The parties to the downstream coordinated conduct may include those competitors disadvantaged by the higher input costs or other exclusionary conduct. In a sense they are induced to cooperate somewhat involuntarily as a result of their higher costs. In this way, the integrated firm achieves market power, that is, the power to raise or maintain price above the competitive level in the output market.[39]

[39] The integrated firm may not have classical unilateral market power, that is, the power to control price by profitably restricting its own output. Instead, it achieves exclusionary market power, that is, the power to raise price above the competitive level by excluding competitors and forcing other market participants to raise prices. An integrated firm that achieves exclusionary market power may remain a price-taker in a seemingly competitive

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This exclusionary conduct harms consumers through higher downstream prices. Efficiency also can be reduced in two ways from this conduct. First, the consumer deadweight loss involves an efficiency loss as consumers reduce their purchases. Second, the higher cost borne by rivals may lead those firms to utilize an inefficient input mix and the market shares of relatively more efficient firms may also be reduced.

The input foreclosure theory can be illustrated by using the hypothetical version of the Ford-Autolite merger and the Bubble Diagram in Figure 1. The acquisition by Ford gives Autolite the incentive to increase its prices to Ford's rivals in the domestic automobile market, thus giving rivals saddled with higher costs the incentive to raise the price they charge for automobiles or cut back their output. In this way, Ford gains because it can increase its own price, its market share, or both. Thus, Ford's exclusionary conduct gives it market power—the power to raise price above the previous, more competitive level—and consumers are harmed by the higher automobile prices.

The merger-induced incentive to raise input prices arises because the demand for inputs and the demand for outputs are interrelated. For example, if the upstream division raises the input price it charges to the rivals of the downstream division, the downstream division will be able to sell more output at the premerger price. Before the merger, the upstream and downstream divisions make profit-maximizing price and output decisions without considering the effect on the other's profits that flow from these demand interdependencies.[40] After the merger, these demand externalities can be factored in, thereby possibly increasing the incentives of the upstream division to raise its prices to the benefit of the downstream division.[41]

There are a number of economic factors that affect the incentives of the integrated firm to raise input prices, the likely magnitude of any increase, and the overall profitability of the strategy for the integrated firm.

1. *Four-Step Analysis of Potential Anticompetitive Harm: In General*

Evaluation of the likelihood of competitive harm from input foreclosure and the incentives of the integrated firm to carry out an input foreclosure strategy involves a four-step analysis of the input and output

market. *See* Thomas G. Krattenmaker et al., *Monopoly Power and Market Power in Antitrust Law*, 76 GEO. L.J. 241, 258 (1987).

[40] This incentives analysis is formalized in the Appendix to this article.

[41] The fact that incentives are internalized does not imply that a vertical merger is anticompetitive. The efficiency benefits identified earlier in Part III also arise from the internalization of incentives.

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markets after the proposed merger. This analysis includes evaluation of market structure, conduct, and performance that is similar to conventional analysis of horizontal mergers, but tailored to the context of the specific competitive concerns involved in foreclosure analysis.

This four-step analysis is intended to evaluate the likelihood and magnitude of harm to competition, absent efficiency benefits. It also is intended to evaluate harm to competitors and profitability of the strategy to the integrated firm. This analysis then is combined with the evaluation of efficiency benefits in order to gauge the likely net competitive impact of the proposed vertical merger.

The first step evaluates the impact on input prices and rivals' costs. The inquiry here focuses on whether competitors' costs of the foreclosed input likely will increase after the vertical merger as a result of a change in incentives of the newly integrated firm and its input market competitors. If unintegrated rivals can substitute to equally cost-effective alternative inputs and effective input market competition is not reduced, then there would be no competitor harm. This analysis also evaluates the likely impact on the profits of the upstream division.

The impact on output prices flowing from any cost increase is evaluated in the second step. It analyzes the likely magnitude of the increase in rivals' costs and its implications for performance in the output market. The inquiry here focuses on whether output market prices likely will increase or whether, instead, rivals in the output market will maintain the ability and incentive to compete vigorously. In this way, the second step evaluates whether or not consumers in the output market are harmed, assuming first that the merger raises the costs of its rivals. The analysis in the second step also evaluates the profitability of the downstream division.

The third step evaluates the impact on prices in any ancillary markets relevant to the inquiry. Ancillary markets may be affected when price discrimination in the input market is infeasible or where there are demand or supply complementarities. For example, when Autolite raises battery prices to the auto manufacturers, it also may need to raise prices to aftermarket retailers. The inquiry here focuses on the impact on consumers, competition from rivals, and the profitability of the integrated firm.

Net anticompetitive impact is evaluated in the fourth step, in which the relative magnitudes of efficiency benefits and anticompetitive harm are weighed and balanced. In light of the potential for efficiency benefits and other concerns, courts have now made it clearer that higher input

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costs and harm to competitors do not by themselves demonstrate injury to competition.[42] The evaluation in Step 3 may demonstrate that competition among downstream firms may remain vigorous so that prices do not rise relative to the relevant competitive benchmark.[43] In this case, there would be no competitive harm, even if competitors are harmed by the merger and there are no efficiency benefits. This is a stringent standard that will permit most vertical mergers. Moreover, once the likely efficiency benefits from a particular vertical merger are evaluated, even fewer vertical mergers will be found to have an adverse net effect on competition.

2. *Step 1: Impact on Input Prices and Rivals' Costs*

If a vertical merger does not cause rivals' costs to increase, then those excluded competitors would not be harmed. More important, the newly merged firm would not gain market power and there would be no consumer harm in output markets. In that case, the profitability and incentive of the upstream division to raise its input prices or otherwise exclude downstream rivals also would be reduced, if not eliminated.

Rivals' costs may increase if rival input suppliers do not have the ability or incentive to expand output at current prices and if alternative inputs are imperfect substitutes. A number of factors are relevant in evaluating the incentives and abilities of rivals to expand, the potential harm to excluded competitors, the incentives of the integrated firm to carry out an input foreclosure strategy, and the impact on consumers.

a. Availability of Substitute Inputs

If output rivals can easily substitute to other equally cost-effective input suppliers, then those rivals will not be harmed. As a result, the integrated firm will have no incentive to attempt input foreclosure. This evaluation involves identifying close input demand substitutes in the event that the upstream division of the integrated firm were to increase the input price it charges to rivals of the downstream division. These close substitutes include the remaining current producers of the same input plus producers of alternative inputs that are equally cost-effective. This analysis in effect identifies a narrow hypothetical relevant market of equally cost-effective, nonforeclosed input suppliers.

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[42] *See* Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072 (1992); *see also* Brooke Group Ltd. v. Brown & Williamson Tobacco Corp., 113 S. Ct. 2578 (1993).

[43] The proper competitive benchmark would be the price that would occur but for the vertical merger. This usually would be the current price. However, in some circumstances, it might be a higher or lower price.

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A similar analysis could identify somewhat less cost-effective nonforeclosed input suppliers that would participate in the market if the input price rose (e.g., by a small but significant nontransitory amount). This in effect would define a broader hypothetical relevant market. This latter analysis also would identify the magnitude of the rivals' cost increase from substituting to these less cost-effective suppliers, on the assumption that these market participants do not increase their prices following the merger. The larger this cost increase, the greater the potential harm to the foreclosed rivals and the greater the potential harm to competition.

This analysis of availability of substitute inputs also is relevant for gauging the profitability of the input price increase by the integrated firm. The impact on profits from lost input sales is relevant to evaluating the incentives for the integrated firm to attempt input foreclosure. Even if an input price increase raises rivals' costs, that alone does not prove that the price rise is profitable to the integrated firm. The upstream division may lose so many input sales that the input market revenue lost exceeds the higher revenue on input sales retained plus the increased profits to the downstream division. These losses could be significant, for instance, if rivals do not match input price increases dollar for dollar.

b. Competition in the Foreclosed Input Market

If competing input suppliers that offer equally cost-effective inputs do not raise their prices in response to the vertically integrated firm raising its input prices, rivals' costs will not increase from the merger. To evaluate the incentive and ability of competing input suppliers to compete vigorously following the merger, consider first the narrow hypothetical relevant market comprised solely of nonforeclosed, rival input suppliers that offer equally cost-effective inputs, as discussed above.[44] If this market is both structurally competitive and participants have the ability to expand to fulfill the increased input demand without suffering a significant cost penalty, then it is less likely that the competing input suppliers will have the incentive to follow input price increases by the integrated firm. In this case, the vertical merger simply may lead to a realignment of supply relationships with no harm to competitors or competition.

In contrast, if competitors' equally cost-effective capacity is constrained so that they are unable to expand sufficiently at low cost in response to a unilateral input price increase by the integrated firm, then such an input price increase would stick and the integrated firm could, as dis-

[44] This market would include integrated firms that sell inputs to themselves and possibly to other firms as well.

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cussed earlier, gain downstream. Similarly, if rivals have the capacity to expand, but the structure of the hypothetical market of nonforeclosed rival sellers is conducive to coordinated pricing, then competing input suppliers may raise their prices in response to input price increase by the integrated firm.[45] This incentive follows because they face less intense competition from the integrated firm, as a result of its change in incentives.

Factual evaluation of these alternatives involves a detailed analysis of the input market, similar to the DOJ/FTC analysis for horizontal mergers, including the likely magnitude of uncommitted entry and excess capacity relative to the magnitude of potential foreclosure by the integrated firm, the HHI of the hypothetical relevant markets of nonforeclosed rival input producers, ease of entry, and other relevant competitive factors.[46]

c. Continued Competition by the Integrated Firm in the Input Market

The analysis in the previous section explains how a higher input price set by the integrated firm facilitates coordinated input price increases by non-foreclosed competing input producers. This analysis assumes, of course, that the integrated firm does not compete by undercutting the input price set by the nonforeclosed input suppliers. This is a plausible general assumption for a fairly concentrated market, even in the absence of formal agreements.[47] After all, if the upstream division of the integrated firm undercuts its competitors' input prices, that discount will harm its own downstream division by lowering the costs of output rivals. In effect, the upstream division will be competing against itself. Moreover, the discounts may set off a price war in the input market as competitors respond to the discount with price cuts of their own.[48]

[45] These incentives also may limit the input suppliers' incentives to agree to defensive vertical integration with a foreclosed output producer.

[46] The fact that the input market performs competitively before the merger is not a guarantee that it will perform competitively after the merger. If the integrated firm forecloses rivals from its input, the vertical merger can facilitate unilateral or coordinated input price increases.

[47] We think this is a good empirical hypothesis for the case of large firms in the market for the long haul. However, it may not hold for certain static oligopoly models. For an analysis of this point in terms of the negotiation process for input purchases, see Hart & Tirole, *supra* note 37; Ordover, *Equilibrium*, *supra* note 15; Reiffen, *supra* note 15; Ordover, *Reply*, *supra* note 15.

[48] The likelihood of successful coordination also is increased because the newly integrated upstream and downstream divisions now can communicate about price, whereas that communication was constrained before the merger. In addition, the integrated firm has more to lose from a price war than did the independent divisions before the merger. On the other side, other input competitors may have a greater ability to undercut because they may have less to fear from a price war after the merger, assuming that the merged entity has increased incentives to raise input prices unilaterally. Of course, if the unilateral

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Despite this general view, in certain circumstances, it might be in the interest of the upstream division of the integrated firm secretly to undercut the prices of competing input suppliers, even if there is a risk that it will lead to an input price war that could unravel the input foreclosure strategy. This conduct would be more likely where the integrated firm has more to gain from the discounting and less to lose from a price war, if one occurs. For example, in the input market, discounting by the integrated firm would be more likely where the upstream division would succeed in expanding its input sales by a greater magnitude than its undercutting competitors.[49] Undercutting also would be more likely where there is less of an effect on price in the output market from input foreclosure, or where the downstream division only would be able to achieve a small post-merger market share.[50] In these circumstances, the integrated firm has less to lose if the foreclosure unravels. As a result, the merger is less likely to have anticompetitive effects, even absent efficiency benefits.

d. Elasticity of Input Demand

The likely post-merger increase in the price of the foreclosed input is constrained by the elasticity of demand for the foreclosed input. This elasticity is determined generally by producer substitution to other inputs, consumer substitution to other downstream products, and competition among downstream producers. If the foreclosed input represents a small share of firms' costs, then the derived demand for the input is less price elastic.[51]

If input demand is less elastic, the likelihood and magnitude of input price increases is enhanced. In the extreme, for example, if a set of spark plugs is absolutely essential to the construction of an automobile, then a spark plug monopolist could, in effect, control the automobile market and extract all the monopoly profits.[52] Moreover, when demand

incentives to raise input prices are strong, then coordinated conduct is not necessary for rivals to be harmed anyway.

[49] This depends on the degree of input product differentiation and the likelihood that the undercutting would be rapidly detected and matched by competitors, among other things. These are the same factors already examined in the analysis of the nonforeclosed input market discussed above.

[50] This set of issues is taken up in more detail in Step 2 below. If the downstream division has a small premerger market share and will gain little market share from input foreclosure, this reduced incentive to maintain the strategy also translates into a lesser incentive to raise input prices to begin with, just as it leads to a greater incentive to undercut.

[51] In conjunction with the input demand elasticity and other factors, the input cost share also can affect the magnitude of the increase in the output price from a particular increase in the input price. This related issue is taken up in Step 2 below.

[52] This is simply the single monopoly profit analysis. For example, suppose that the monopoly wholesale price were $7,500 and that the remaining manufacturing costs were

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is inelastic, it is a well-established principle that there is greater risk of collusion and pricing coordination.[53]

e. Price Discrimination in the Sale of the Input

The upstream division of the integrated firm sometimes will make input sales both to rivals of the downstream division in the output market segment and to noncompeting firms in an ancillary market segment.[54] For example, Autolite sold spark plugs both to automobile OEMs that competed with Ford and to aftermarket retailers that sold replacement spark plugs not in competition with Ford. The inability to price discriminate between these two customer groups can affect the overall profitability and welfare impact of input foreclosure in a number of complex ways.[55]

If price discrimination between rivals and nonrivals is not feasible, then the magnitude of the price increase may be smaller, compared to the situation where price discrimination is possible. For example, suppose an unintegrated Autolite would maximize profits by charging $100 to both aftermarket and OEM purchasers. Now, suppose further that Autolite wishes to raise the OEM price to $110 following the merger with Ford, while holding the OEM price to nonrivals at $100. If discrimination were infeasible, however, increasing the uniform price to $110 would not be profit-maximizing because of the lost revenue in the sale of

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$2,475. If a spark plug monopolist could charge perfectly competitive auto manufacturers $5,025 for a set of spark plugs, that would imply a total cost to the auto manufacturer of $7,500. If wholesale competition were perfect, then the auto price would equal marginal costs of $7,500.

Even if automobile manufacturers are not perfectly competitive, the plug monopolist could charge an extraordinary price. For example, assuming that the manufacturing cost will be doubled, a price of plugs equal to $1,275 would imply a manufacturer's cost of $3,750 (i.e., $1,275 + $2,475), which upon doubling yields the monopoly price of $7,500. In fact, the plug monopolist would charge more than this because of the double markup, as discussed *infra* Part VI.

[53] POSNER & EASTERBROOK, *supra* note 29, at 336; George Hay & Daniel Kelley, *An Empirical Survey of Price Fixing Conspiracies*, 17 J.L. & ECON. 13 (1974).

[54] As discussed in more detail below, output and ancillary market sales will not constitute separate antitrust markets when price discrimination is infeasible. In that case, the term market segments would be more appropriate.

[55] This discussion of price discrimination also applies generally to nonprice discrimination and refusals to deal. However, refusing to deal may be less effective in raising rivals' costs. Refusing to deal may lead the upstream division to suffer greater input sales losses than would a moderate discriminatory price increase, thereby reducing profitability. In addition, as discussed in detail in Ordover, *Equilibrium*, *supra* note 15, at 134, refusing to deal may create stronger incentives for defensive vertical integration (or variable cost reducing contracts) by the targeted rival. This is important because defensive vertical integration with an equally efficient input supplier sometimes could unravel the profitability of the input foreclosure strategy.

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aftermarket spark plugs.[56] Even with a uniform input price equal to (say) $105, that price increase would sacrifice some aftermarket profits because the new price is above the profit-maximizing $100 level. These lost profits would moderate Autolite's incentives to raise price. Perhaps it instead would choose to raise the uniform price only to $102, if at all.[57]

The reasoning (but not the result) is altered somewhat when the profit-maximizing price to nonrivals in the ancillary market segment (e.g., aftermarket sales) exceeds the optimal price to rivals (e.g., OEMs). In this case, if discrimination were infeasible, an increase in the uniform price actually would enhance the profits earned in the ancillary market. Even in this case, however, if price discrimination is infeasible, the optimal input price increase is moderated. This is because the premerger price is higher to begin with. Moreover, the profits of the downstream division that are taken into account after the merger are a smaller share of the total profits of the upstream division affected by a uniform input price increase than they would be for a discriminatory price increase. Thus, the extra component of profits created by vertical integration would have less impact on the optimal pricing by the newly integrated firm.[58]

This moderating influence of nondiscrimination on post-merger price increases may be mitigated if the vertical merger facilitates greater pricing coordination in sales to the noncompeting purchasers. First, a uniform price increase by Autolite may cause rival battery manufacturers

[56] This assumes that competitors do not raise their prices, an issue that is discussed below.

[57] For example, suppose that aftermarket buyers are more willing to substitute among spark plug brands than are OEMs. In that case, even a very small increase in its uniform price might cause Autolite to lose virtually all of its aftermarket sales. Accordingly, Autolite might even choose to continue to price at $100. (This is an example of the discontinuous upstream profit function discussed in the Appendix.)

[58] For example, in the Autolite hypothetical, suppose that the OEM channel accounted for 30% of spark plug sales and the aftermarket accounted for 70% of sales. Suppose that if price discrimination were possible, the integrated firm would charge a price of $100 per case to the OEMs and $110 to the aftermarket. Suppose further that the vertical merger would induce the integrated firm to raise the OEM price by $10 to $110, if price discrimination were possible. If price discrimination were impossible, however, suppose the premerger uniform price initially were set at $107, a price closer to the aftermarket price because that segment accounts for such a high percentage of the business. (As an illustrative first approximation, we assume the uniform price is a weighted average of the discriminatory prices, with weights equal to the shares of sales.) In that case, the merger might increase the uniform price by only $3 to $110. The uniform price increases by less because the OEM segment is $107 to begin with. (Of course, unlike the first example, at the post-merger price of $110, aftermarket profits no longer are sacrificed by the need to charge a uniform price.) If the ancillary market were (say) 90% of the business, then the merger might only raise the input price by $1, from $109 to $110.

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to raise their prices in response. Thus, it is possible without price discrimination that the vertical merger might cause Autolite to lead a general price increase. Second, the vertical merger might make Autolite a more willing participant in a cartel or in coordinating prices because Ford benefits when its competitors pay higher prices for batteries. Thus, the vertical merger may induce Autolite's aftermarket competitors to raise aftermarket prices in the belief that Autolite will follow.

This analysis is complicated by yet another factor. Even where an inability to price discriminate does moderate the input price increase, the overall input market impact is not necessarily reduced. This is because an input price increase now would apply to a broader class of customers. Absent discrimination, aftermarket purchasers also would suffer a price increase. Suppose also that absent price discrimination the size of the price increase following vertical integration is proportional to the share of Autolite's sales made in the output market segment.[59] In this case, the aggregate consumer harm resulting from the vertical merger is roughly independent of the aftermarket share of Autolite's sales. For example, suppose that aftermarket sales represent 90 percent of Autolite's sales and price would increase by $10 with price discrimination and $1 absent price discrimination. Aggregate consumer harm would be the same, because a $1 increase to 100 percent of the market is equivalent to a $10 increase to 10 percent of the market.[60]

In summary, the impact of an inability to price discriminate raises considerations that complicate the analysis of input prices and rivals' costs. While very little can be concluded given our analysis to date, the analysis does suggest that an inability to price discriminate is a more significant constraint on the profitability of input foreclosure and less likely to cause large welfare harm where (1) the profit-maximizing post-merger price in the output market segment exceeds the profit-maximizing price in the ancillary market segment, were price discrimination feasible; (2) a nondiscriminatory price increase does not facilitate coordinated pricing in the ancillary market segment; or (3) the size of the ancillary market segment dominates the size of the output market seg-

[59] If demand in the ancillary market segment is more elastic, then a uniform price increase may be less than proportional to the share of Autolite's sales made in that segment. This is because the lost sales in the aftermarket are more disciplinary. This case corresponds to the situation where Autolite's preferred aftermarket price is less than its preferred OEM price, were discrimination possible.

[60] Moreover, when price discrimination is possible, only the nonintegrated segment of the output market experiences a price increase. Because of this, when the proportionality assumption holds, the aggregate harm to consumers from a uniform price increase would be higher.

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ment, so that any post-merger uniform price increase would be de minimis.[61]

f. Acquisition of a Disruptive Input Purchaser

If the vertical merger involves a particularly disruptive input purchaser that competes in the output market, that may facilitate price increases by the sellers in the input market. For example, if one input purchaser that competes in the downstream market is able to negotiate low input prices before the merger, those low prices may cause rival input sellers also to charge lower input prices to the disruptive firm's rivals. This incentive arises from fear of losing more profitable input sales as the disruptive firm expands on the basis of its cost advantage. Alternatively, if upstream firms view sales to a particular buyer as sufficiently important, perhaps because of the size of that buyer's aggregate purchases, they may deviate from the terms of coordination in an attempt to gain sales from that firm. Under certain conditions, this could disrupt a marketwide agreement.[62]

If such a disruptive firm merges with an upstream competitor, its disruptive influence will be reduced. It will have no interest in disrupting upstream pricing coordination directed at its rivals. It will have a greater incentive to match the higher price of its downstream rivals in order to facilitate the coordinated input pricing. Thus, in situations where the downstream merger partner previously had been a disruptive input buyer, it is more likely that the merger will lead to input price increases that raise rivals' costs.

3. *Step 2: Anticompetitive Impact in the Output Market*

Even if the higher input price increases the costs of certain rivals that are the targets of the input market foreclosure, that does not by itself

[61] In some input markets, it is statutory or regulatory prohibitions rather than informational and arbitrage constraints that serve to prevent post-merger price discrimination against rivals. However, these legal provisions may be inadequate constraints on the pricing behavior of the newly integrated firm, in light of the difficulty in properly evaluating competition-based and cost-based justifications for price differentials and detecting the use of nonprice methods of discrimination. For example, after the merger, competing input suppliers might raise their input prices in the expectation that the upstream division of the integrated firm will raise its prices. In that case, the integrated firm might try to argue that it was simply meeting competition when it raised its prices. In evaluating this claim, how will the courts and regulatory authorities know which price is the "chicken" and which is the "egg"? Moreover, even where regulation can detect price discrimination, permitting the merger would require ongoing regulatory scrutiny of the merged entity and may prevent deregulation that otherwise would be in the public interest. Where regulators face such monitoring problems, less power should be attributed to antidiscrimination regulations.

[62] This latter analysis forms the basis for § 4.222 (Elimination of a Disruptive Buyer) in the 1984 Department of Justice Merger Guidelines. *See* 1984 DOJ Merger Guidelines,

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compel a finding of consumer injury. Competition from other downstream producers whose costs are not raised and demand substitution to other products may prevent the downstream division of the integrated firm from leading prices upward. This competition from nonexcluded firms generally will be a significant constraint on the ability of the newly merged firm to raise prices. A number of factors contribute to the evaluation of the competitive impact in the output market. This analysis of the output market also has implications for evaluating the potential gains in profitability to the integrated firm from implementing an input foreclosure strategy and, thus, its incentives to attempt the strategy if the proposed merger is consummated.

a. Availability of Substitute Products

If output consumers easily can substitute away from both the foreclosed competitors and the downstream division of the integrated firm when they raise prices of other products, without suffering a reduction in welfare or effective costs, then consumers will not be harmed by the input market foreclosure. This analysis in effect would identify a relevant downstream market of nonforeclosed competitors, including close demand substitutes and the newly integrated firm.[63]

b. Post-Merger Competition in the Output Market

Assuming that the costs of certain downstream rivals are increased by the input price increases or other input market foreclosure, the competition provided by those rivals likely will decline. However, if other output producers' costs are not raised, including other vertically integrated firms, competition from those firms and from producers of close substitute products may prevent output prices from rising above premerger levels. In this case, there would be harm to competitors, but not to competition.

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supra note 5, at 20,567. The Guidelines are susceptible to the criticism that under certain conditions the sellers might continue to coordinate their prices to buyers other than the disruptive buyer.

[63] In carrying out this evaluation, the analyst must be careful to avoid the *Cellophane* "fallacy." The anticompetitive effects of some proposed vertical mergers may not involve raising prices above current levels but, rather, preventing prices from falling down to lower, more competitive levels by deterring entry or cost reductions of rivals. If so, the determination of the relevant market should be sensitive to the "price down" nature of the allegation. The relevant market should not be defined by reference to price increases above the current level because such price increases are not relevant to the anticompetitive concerns. For a discussion of the *Cellophane* "fallacy," arising in United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377 (1956), see Krattenmaker et al., *supra* note 39, at 256–57 n.5, and the references cited therein. *See also* Eastman Kodak Co. v. Image Technical Servs., Inc., 112 S. Ct. 2072, 2084 (1992).

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To evaluate the incentive and ability of nonforeclosed competitors to compete vigorously following the merger, consider the narrow hypothetical relevant market comprised of nonforeclosed competitors discussed above. If this market is both structurally competitive and maintains the capacity to expand (without suffering a cost penalty) to fulfill the increased demand by consumers, then it is unlikely that output market competitors will have the incentive to follow the price increases of the integrated firm. This evaluation involves calculation of the HHI of this hypothetical relevant market, ease of entry, the likely magnitude of uncommitted entry relative to the magnitude of output reductions or price increases by the rivals that are the targets of the input market foreclosure, and other competitive factors.

In the context of the Ford-Autolite hypothetical, suppose that Autolite raises price to Chrysler and AMC. Suppose that Champion and the fringe follow the price increase. As a result, Chrysler's and AMC's costs will be increased, placing upward pressure on their prices. GM's costs may not rise because it is vertically integrated through Delco.[64] Indeed, Delco may be able to expand to support any expansion by GM. Imports are not foreclosed because they purchase spark plugs in their home markets.[65] Thus, after the merger, competition among these nonforeclosed competitors (Ford, GM, and the imports) will continue. This competition may be sufficient to maintain competitive prices, despite the reduction in Chrysler's and AMC's competitive vigor and output.

In contrast, depending on the facts, replacing output reductions by Chrysler and AMC with expansions at premerger prices by Ford, GM, and the imports may be impossible because of rising costs or capacity constraints. If so, even if the market were competitive, Ford's profits would rise as price rises. Ford in effect gains the power to raise its price to curtail the increased demand, and thus earn a higher price on a higher output. Of course, if Ford were the leading firm with a large market share, it also might have been able to exercise additional classical market power by unilaterally restricting its output further in order to achieve a higher margin.[66]

Moreover, the reduction in output from the two smaller manufacturers also would have the potential to facilitate coordinated pricing in the automobile market. Knowing that Chrysler and AMC may not be able

[64] Champion apparently supplied part of GM's requirements in the nonhypothetical case. That might suggest that Delco faces capacity constraints.

[65] We assume that U.S. tariffs and trade quotas prevent the import of those foreign spark plugs for sale to the domestic OEMs.

[66] Not only would this benefit GM, it also would benefit Ford, as prices increased.

to disrupt a pricing agreement, Ford and GM might better be able to coordinate their prices. To gauge this, one might calculate the HHI of a hypothetical market comprised solely of the nonforeclosed auto manufacturers.

Finally, the analysis of ease of entry and uncommitted entry must take into account the potential for the input market foreclosure to act as a barrier to entry by raising the price or reducing the supply of needed inputs. It is in this way that vertical mergers can create barriers to entry to firms that do not enter both markets simultaneously. Thus, the fact that the premerger output market is characterized by easy entry and expansion does not ensure this condition after the merger.[67] Similarly, the fact that the output market performs competitively before the merger is not a guarantee that it will continue to perform competitively once the merger reduces the competitive vigor of the foreclosed rivals.

c. Impact on the Profits of the Downstream Division of the Integrated Firm

As discussed above, the impact on the profits of the downstream division are relevant to the evaluation of the input foreclosure strategy. The greater are the potential gains to the downstream division from the input foreclosure strategy, the more likely it is that the exclusionary strategy will succeed.[68]

The impact on the profits of the downstream firm depends on a number of factors. The key factors are the likely magnitude of the increase in the price in the output market, the premerger market share of the downstream division and its likely output expansion, and the profit margin that it will earn on expanded sales. For example, in that output reductions by the foreclosed rivals are distributed in proportion to the market shares of the nonforeclosed firms, vertical mergers raise greater concerns when the premerger market share of the downstream division in the downstream market is larger. Put another way, input foreclosure is less profitable when the benefits of higher downstream prices must be shared with competing downstream firms accounting for a larger collective market share.

The profit margin is related to analysis of barriers to expansion facing the downstream division.[69] All of the factors evaluated in Step 1 have

[67] Of course, ease of simultaneous entry at both levels may not be affected by the merger.

[68] In addition, the more input foreclosure increases profits, the more likely the upstream division will be deterred from undercutting in the input market.

[69] The ability of the downstream division to expand is related to the profit margin it will earn on those expanded sales, of course. If the firm will suffer cost penalties from increased production, it will face effective capacity constraints.

EXHIBIT 53

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Equilibrium Vertical Foreclosure

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Equilibrium Vertical Foreclosure

By JANUSZ A. ORDOVER, GARTH SALONER, AND STEVEN C. SALOP*

We formulate a complete, but analytically simple, equilibrium model of vertical mergers to evaluate the logic of standard vertical foreclosure claims and the criticisms made of those claims. The model includes incentives of the integrated firm and unintegrated input suppliers to exclude rivals, the potential counter-strategies of competitors to these foreclosure threats, and the potential hold-out problem. In this fully specified model, vertical foreclosure can emerge in equilibrium. (JEL 610)

The competitive effects of vertical mergers have long been a source of controversy in economics and antitrust. One of the central issues in that debate involves vertical foreclosure; the exclusion that results when unintegrated downstream rivals are foreclosed from the input supplies controlled by the firm that integrates. Analogous effects occur when unintegrated upstream competitors are foreclosed from selling to the downstream division of the integrated firm.[1]

While foreclosure has been accepted in leading court decisions[2] and policy guidelines,[3] critics maintain that the theory itself is logically flawed. They claim that a vertically integrated firm will have no incentive to exclude its rivals, and if it did try to exclude them, rivals could protect themselves by contracting with other unintegrated firms.[4]

This controversy can be seen more clearly by making the vertical foreclosure theory more specific.[5] According to the theory, a single vertical merger can disadvantage downstream rivals as follows.[6] Consider a market in which the supply of inputs is competitive before the merger and there are no production efficiency benefits gained from vertical integration. After the merger, suppose the upstream division of the now-integrated firm refuses to supply inputs to the rivals of its downstream division.

This foreclosure of rivals from these supplies means that remaining suppliers will face less competition. As a result, they may be able to increase their profits by raising their input prices to the unintegrated down-

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[1]The other main strand of the debate concerns how vertical mergers can eliminate inefficiencies due to a double markup of input costs and substitution to other less efficient inputs. Similar models show how vertical mergers can be used to facilitate price discrimination against purchasers with less elastic demands. This literature is reviewed by Martin Perry (1989) and Jean Tirole (1988).

[2]See, for example, *Brown Shoe Co. v. United States*, 370 US 294 (1962) and *United States v. Aluminum Co. of America*, 44 F. Supp. 97, 121-44 (SDNY, 1941), 148 F. 2d 416, 436-38 (2d Cir., 1945).

[3]For example, the Department of Justice's 1984 Vertical Merger Guidelines.

[4]See Robert Bork (1978), pp. 222–45 and pp. 299–309, Richard Posner (1976), pp. 171–84, 196–207, Frank Easterbrook (1984), and Posner and Easterbrook (1981), pp. 869–76.

[5]In what follows, we focus on foreclosure of downstream rivals. The analysis of foreclosure of upstream rivals is analogous.

[6]For a general discussion of potential anticompetitive consequences of vertical mergers see Thomas Krattenmaker and Steven Salop (1986).

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stream firms.[7] These higher prices benefit the vertically integrated firm. If rivals' costs of inputs are increased, they will be forced to reduce their production and raise the prices they charge in the downstream market. This reduction in competition allows the downstream division of the integrated firm to increase its market share and its price. Thus the profits of the vertically integrated firm can rise, even if there are no production efficiency benefits flowing from the vertical integration.

The critics of vertical foreclosure raise a number of objections to these assertions. Each of these objections implies that the strategy of vertical integration and foreclosure of supply will not increase the overall profitability of the integrated firm. The objections deny the ability to use power in one market to "leverage" into a position of power in a second market. For example, Robert Bork (1978, p. 231) concludes:

> Vertical merger does not create or increase the firm's power to restrict output. The ability to restrict output depends on the share of the market occupied by the firm. Horizontal mergers increase market share, but vertical mergers do not.

There are six main objections to the foreclosure theory. First, the supply of inputs available to rivals is not necessarily reduced as a result of a vertical merger. This is because the integrated firm also reduces its demand for inputs produced by unintegrated suppliers. For example, if a firm with 10 percent of the output market purchases a supplier that accounts for 10 percent of the input market, it will not reduce the net supply available to rivals. Instead, it merely will necessitate a rearrangement in supply relationships.

[7]Krattenmaker and Salop term this version of the vertical foreclosure theory the "Frankenstein Monster" because the integrated downstream firm creates market power for the remaining upstream firms, giving them the power to raise input prices to its rival.

Second, critics assert that it may not be profitable for the integrated firm to foreclose its downstream rivals. Although the profits of the downstream division rise, the upstream division of the integrated firm loses input sales from its refusal to deal with rival downstream firms. These lost upstream profits may exceed the increased downstream profits. As a result, it does not follow necessarily that it is in the interest of the vertically integrated firm to foreclose downstream rivals.

Third, remaining suppliers may not have the incentive to raise their input prices. The foreclosure theory relies on the incentive of remaining suppliers to increase their input prices after they no longer face competition in the input market from the integrated supplier. But this reduction in competition is more apparent than real. If the remaining suppliers raise their input prices, downstream firms often can begin to produce the input themselves.

Even if such entry is assumed to be impossible, raising prices may still be unprofitable. If the remaining suppliers raise prices, their downstream customers will be placed at a cost disadvantage vis-à-vis the integrated firm and will be forced to reduce their input purchases. Stated more directly, unintegrated firms' input demands are highly elastic. Consequently, suppliers' incentives to increase prices even after the integrated firm forecloses those rivals from its input production are low.

Fourth, the foreclosed rivals have available a number of alternative counterstrategies to battle their exclusion. In particular, they can respond by vertically integrating with the remaining unintegrated input producers. This will enable them to obtain the inputs at the competitive price, thereby eliminating their cost disadvantage. Thus, the first firm to integrate will gain no market power.

Fifth, it is not obvious that the first downstream firm's bid to integrate with an upstream firm will succeed to begin with. The vertical foreclosure theory suffers from a potential holdout problem. Assuming that remaining input producers gain the power to increase their input prices to unintegra-

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ted downstream buyers, a holdout supplier would gain an advantage by remaining unintegrated. Unless the downstream firm bids enough to compensate its potential merger partner for this lost opportunity, its bid will fail. Each firm will hold out, in the anticipation that another supplier will merge and give it the ability to profitably raise its input price. If the downstream firm does try to compensate its potential merger partner for this lost opportunity, the profitability of the merger is decreased, possibly to the point that no merger will occur.

Finally, the vertical foreclosure theory suffers from one last potential flaw. Since the firm that is foreclosed is placed at a disadvantage, it ought itself to participate in the bidding for the scarce upstream resource. While this flaw is somewhat different from the earlier criticisms, in that it does not amount to a claim that vertical foreclosure will fail, it does make the theory incomplete.

In this paper, we set out a complete, but analytically tractable equilibrium model to evaluate the logic of the standard vertical foreclosure argument as well as the arguments advanced by its critics. Even though our model is simple, it includes the incentives of the integrated firm and remaining unintegrated input suppliers to exclude rivals, the possible counterstrategies of competitors to these threats of foreclosure, and the potential holdout problem. It also deals explicitly with the bidding for the scarce upstream resource.

We analyze the simplest vertical structure capable of capturing the essential elements of interest. In particular, we consider successive duopoly: two upstream firms initially provide an equal share of a homogeneous input to two downstream producers. These two downstream firms each produce a differentiated product in competition with the other, and initially have equal market shares. In order to focus exclusively on foreclosure rather than efficiency, we have structured the model so that double marginalization does not arise when the firms initially are unintegrated. This is accomplished by assuming Bertrand competition upstream.

We then allow for the possibility that a downstream firm acquires one of the upstream suppliers, leaving the rival with a single independent upstream supplier. However, the net supply available to the rival does not necessarily fall. Of course, if the integrated firm refuses to supply the unintegrated downstream firm, the remaining upstream supplier is endowed with a good deal of market power. We do not assume, however, that the integrated firm will refuse to deal with the remaining downstream rival. Rather, we examine several different scenarios for the way in which the input prices are determined. We also examine the possibility that the remaining downstream rival is able to counter the effect of the first vertical merger by itself merging with the remaining supplier. Finally, we require that the integrating downstream firm outbid its rival for the acquisition of the upstream firm, that is, we require bidding for the right to foreclose.

In this fully specified model, vertical foreclosure does emerge in equilibrium, provided the downstream firms' revenues are increasing in the price of the input. Then, when one of the firms integrates backward, thereby causing an increase in the input prices of the rival, downstream prices and revenues increase. Of course the profits of the unintegrated downstream firm decrease because it must pay the higher input costs. However, the sum of its profits and those of its supplier (which sum equals downstream revenues) increase. Therefore its loss in profits is less than the increase in the profits of its supplier. Accordingly, the unintegrated downstream firm cannot induce the upstream firm to merge and return to the *ex ante* position.

This argument holds for small increases in the upstream price. If the unintegrated upstream firm has an incentive to raise its price excessively, however, the unintegrated downstream firm will lose so much market share to its rival that its revenue will fall. Then the unintegrated firms will have an incentive to merge.

Thus, whereas the conventional critique of foreclosure theory has questioned the ability of the remaining upstream firm(s) to raise price, ironically, in this model a necessary condition is that it not be able to raise its price too much. Its ability to so raise the

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price will be reduced if it faces competition from other substitutes, or, as seems plausible, if the integrated firm is able to "keep a lid" on that price by announcing a price of its own at which it is prepared to supply the rival downstream firm.

The condition that the downstream firms' revenues be increasing in the price of the input tends to hold in the case of differentiated product price competition. There if a firm increases its price in response to an increase in the price of an input (an action the rival likes), the rival tends to respond in like manner, raising its own price: prices are strategic complements. In the case of Cournot competition with downward sloping best-response functions, in contrast, the firms' actions are strategic substitutes: if a firm reduces its output in response to an increase in the input price (an action the rival likes), the rival responds by increasing its own output, leading to a decrease in the former's revenues. Thus, while the analysis rests on certain features of the market structure, they are not the ones suggested by the conventional critique.

There is an earlier literature on vertical foreclosure which focuses on the case in which either the upstream or downstream tier of the industry is monopolized (or, at least, one firm has a dominant market position). That literature is concerned with the question of whether the dominant firm can increase its profitability by foreclosing some of the firms at the other level.[8] The fundamental difference here is our focus on vertical foreclosure by a firm to increase its market power in the level of the market which it currently shares with another rival.

Our work is related to that of Michael Salinger (1988). He examines whether vertical integration between successive oligopoly leads to higher or lower final goods prices. His model is more general than ours in that he allows for successive oligopoly rather than duopoly, and he allows for differing numbers of upstream and downstream firms. A similar body of work (focusing mainly on the duopoly case) also has been developed in the marketing literature.[9] However, none of this work examines the issues of counterstrategies and bidding which are the focus of our paper.

The paper is organized as follows: We begin by laying out the basic model in Section I. That section also establishes the unintegrated and fully integrated outcomes as benchmarks for our further analysis. In Section II, we analyze the model of vertical integration with differentiated products and establish the rationality of foreclosure in that setting.

In Section III, we study the robustness of our conclusions to changes in model specification. We show that the holdout problem may arise when upstream firms bid for downstream firm rather than vice versa because downstream firms earn positive profits before the merger. We also show that merger incentives depend on the nature of competition among the downstream firms. In particular, when downstream firms compete in quantities there are no foreclosure-creating vertical mergers in equilibrium because it is always profit-increasing for the unintegrated firms to merge in response to the initial

[8]See William Comanor (1967) for an early example of a paper in this line, and Jean Tirole (1988, pp. 193–4) for a survey of the issues. Tirole (1988, ch. 4) also provides an excellent survey of vertical restraints such as "exclusive dealing" (as discussed, for example, in Comanor and H. E. Frech, 1985, Frank Mathewson and Ralph Winter, 1987, and Marius Schwartz, 1987), and "exclusive territories" (as discussed, for example, in Patrick Rey and Joseph Stiglitz, 1986). The paper by Schwartz points to the importance of considering a retailer's rationality in accepting an exclusive dealing arrangement involving a higher wholesale price, while Mathewson and Winter emphasize the importance of considering competition among wholesalers for the right to be selected by the retailer. Those papers underscore the importance of considering a rich set of strategies and counterstrategies of the kind considered in the current paper. In a somewhat different vein, Philippe Aghion and Patrick Bolton (1987) show how a firm with a first-mover advantage can deter entry by entering into an exclusive contract with customers.

[9]Two good examples are Sridhar Moorthy (forthcoming) and Ann Coughlin and Birger Wernerfelt (1988).

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vertical merger. Finally, we consider the equilibria that can be implemented with two-part tariffs for inputs in lieu of a vertical merger. We argue that a two-part tariff contract between an input supplier and a buyer that does not specify prices to other buyers will not implement the anticompetitive equilibrium with foreclosure identified in Section II. Section IV concludes.

I. The Industry Structure and Benchmark Outcomes

In this section we lay out the structure of the market setting we examine and illustrate how the standard foreclosure argument can be applied to it. In the following section, we enrich the setting to model merger strategies, price-setting of the upstream good, and merger counterstrategies.

A. *Basic Model*

Two upstream firms, $U1$ and $U2$, provide a homogeneous input to two downstream firms, $D1$ and $D2$. For reasons that will become obvious soon, we assume that the input is produced with a constant returns to scale technology. At this point, we do not make any assumptions regarding the production technology for the outputs of $D1$ and $D2$.

Throughout the paper we assume static competition between the downstream firms and concentrate on the case where the firms produce differentiated products and use prices as their strategic variables. We denote by $Q^i(p_i, p_j)$, $i, j = 1,2$, the demand function for the product of firm i.

B. *Vertical Relationships*

There are numerous ways in which vertical relationships can be structured. In order to establish benchmark outcomes, it is useful to analyze two polar cases, (i) where neither downstream firm is vertically integrated (the "stand-alone" case); and (ii) where both are integrated and the internal transfer price is efficiently set at marginal cost. Where neither firm is vertically integrated, the input prices are determined by the nature of upstream competition. In the analysis of the benchmark case, we assume that when the stand-alone case obtains, the input suppliers compete in prices. Thus, Bertrand competition between $U1$ and $U2$ drives the input price to marginal cost.

Between these two extremes lie a variety of alternative pricing mechanisms. Of special interest to us will be those that can obtain when only one of the firms is vertically integrated. Then, the unintegrated firms may use long-term contracts to set nonlinear prices (such as two-part tariffs), for example, while an integrated firm may be able credibly to commit to internal transfer prices different from marginal cost.

C. *Equilibrium in the Downstream Market*

$D1$ and $D2$ engage in Bertrand competition which yields equilibrium prices, p_1^* and p_2^*. These prices are obtained by simultaneously solving the first-order conditions:

$$(1)\quad \pi'_{Di} = (p_i - v'_i)\cdot Q^i_i + Q^i(p_i, p_j) = 0, \qquad i, j = 1,2,$$

where $v'_i(Q_i, c_i)$ is Di's marginal cost of producing Q_i units of output when it is paying c_i for the relevant input. Q^i_i is the derivative of demand for the product produced by Di with respect to its own price.

The FOCs in equation (1), also generate the best-response functions, $B_i(p_j; c_i)$. From equation (1), comparative statics yield,

$$(2)\quad \partial B_i/\partial c_i = \left[(\partial v'_i/\partial c_i)\cdot Q^i_i\right]\Big/\pi''_{Di} > 0,$$

as long as the relevant input is normal, as we shall assume from now on. Hence, as the cost of the relevant input to the firm increases, the firm will increase its optimal price, holding rival's price constant.

We assume that the prices of the two final products are strategic complements, in the terminology of Jeremy Bulow et al. (1985), meaning that $\partial B_i/\partial p_j > 0$. This assumption is satisfied if the second cross-partial derivative, Q_{ij}, is not "too negative." It is satisfied, for example, when downstream demands are linear.

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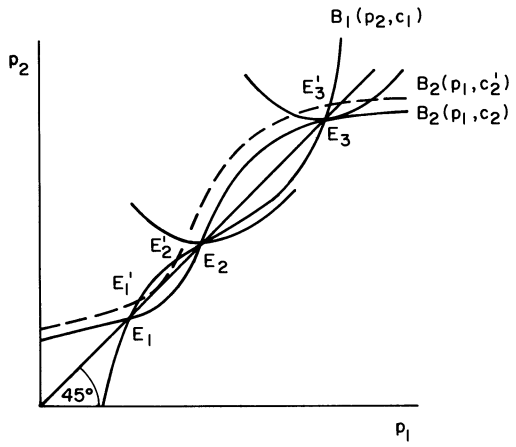

FIGURE 1. STABLE AND UNSTABLE EQUILIBRIA

These minimal restrictions placed on the demand and cost functions in the final goods market raise the possibility that there may be more than one Bertrand-Nash equilibrium in the downstream market. In the case of multiple equilibria, some are "unstable."[10] In Figure 1, E_1, E_2, and E_3 are the intersections of $D1$ and $D2$'s best-response functions. Equilibria E_1 and E_3 are stable, while E_2 is unstable. The dashed curve represents $D2$'s best-response function when its costs are increased slightly to c_2', leading to new equilibria E_1', E_2', and E_3', respectively. As shown, the movement from E_3 to E_3' increases $D1$'s profits, while the movement from E_2 to E_2' decreases them. (The concave curves through E_2 and E_3 represent $D1$'s isoprofit curves through those points: "higher" isoprofit curves represent higher levels of profit.) These results are summarized as:

Remark 1: An increase in the rival's input cost increases (resp., decreases) the equilibrium prices around a stable (resp., unstable) Bertrand-Nash equilibrium.

Furthermore, since

$$\partial \pi_{Di}/\partial c_j = \left(\partial \pi_{Di}/\partial p_j\right)\cdot\left(\partial p_j^*/\partial c_j\right),$$

then we also have:

Remark 2: An increase in the rival's input cost raises (resp., lowers) the firm's profits around the stable (resp., unstable) Bertrand-Nash equilibrium.

Two other questions regarding the profit effects of cost shifts remain: (i) whether or not an increase in the firm's own input cost may plausibly increase its profits; and (ii) whether or not an industrywide increase in costs increases a firm's profits. Now, an increase in the firm's own costs causes a change in profits given by:

$$(3)\qquad \partial \pi_{Di}/\partial c_i = -x_i + \left(p_i - v_i'\right)\cdot\left(Q_j^i\right)\cdot\left(\partial p_j^*/\partial c_i\right),$$

where x_i stands for Di's use of the input. The sign of this expression is ambiguous around a stable equilibrium. The case of interest is where that derivative is negative so that no firm would like to see its costs raised unilaterally. An industrywide cost increase is more likely to raise firms' profits than a unilateral increase because it leads to a greater change in equilibrium prices. In the case of linear demand (worked out in the Appendix), however, both types of cost increase lower firms' profits. Then, $D1$ and $D2$ will not tacitly collude to impose higher costs upon themselves.

D. *The Standard Foreclosure Argument*

With these preliminaries out of the way, we can state the foreclosure argument as follows. $D1$ acquires $U1$, say, and prevents it from selling the input to the unintegrated rival $D2$. $U1$'s withdrawal from the market potentially increases $U2$'s market power over the price of the input. In the market setting posited here, $U2$ becomes a monopolist supplier of the input to $D2$ and sets the price at

[10]See Jesus Seade (1980), Avinash Dixit (1986), or Jean Tirole (1988, pp. 323 ff.) for discussions of stability in oligopoly models. Stability is related to the convergence of dynamic adjustment processes. In this context, one imagines the thought experiment in which firm 1 chooses a price, then firm 2 chooses its static best-response to that price, then firm 1 chooses its best-response to firm 2's best-response, etc. If this process converges to the equilibrium, the equilibrium is said to be stable. Of course, in a static context, there is no practical content to the thought experiment.

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level c_2^m which maximizes its profits:

$$(4)\quad \pi_{U2}(c_2) = (c_2 - m)\cdot x_2^*(c_2; c_1 = m),$$

where m is the marginal cost of the input to $U1$. Obviously, $c_2^m > m$, which is the level that obtains under Bertrand competition in the input market.[11]

Focusing on stable equilibria, since $D1$'s profits are increasing in its rival's costs, the strategy of backward vertical integration makes $D1$ better off and lowers rival's profits. In addition, the strategy also increases downstream prices of both products. Because there are no efficiency gains from vertical integration, social welfare falls. Hence, on all accounts, $D1$'s integration with $U1$ is anticompetitive.

The preceding derivation of the anticompetitive consequences of the vertical merger is, however, woefully inadequate. First, why should $U1$ withdraw from the merchant market after the merger? May it not be in the interests of the merged $D1$-$U1$ firm to (partly) constrain $U2$'s market power by standing ready to supply $D2$ at some price? Second, why would $D2$ not be able to employ some counterstrategy that would protect its profit margins, for example by merging with $U2$? Finally, should $D2$ not be allowed to compete with $D1$ for the right to acquire the upstream supplier in the first place? And would such competition not render $D1$'s initial anticompetitive strategy unprofitable?

In the following section we consider a richer model which not only sheds some light on these questions but allows foreclosure through vertical merger to emerge as a fully rational, equilibrium strategy in a well-specified game.

II. A Game-Theoretic Model of Vertical Foreclosure

A. *Description of the Game*

In order to incorporate all the features of interest, we analyze a four-stage game. In the first stage, the "bidding" stage, the downstream firms have an initial opportunity to acquire one of the upstream suppliers. If there is only one merger, following the convention of the previous section, we suppose it to be between $D1$ and $U1$ and denote the merged firm by $F1$.

In the second stage, input prices are determined.[12] As we shall see, how input prices are set is a crucial determinant of the equilibrium of the overall game. It is therefore important to be careful how one models the second stage.

If no vertical merger takes place in stage one, $D1$ and $D2$ pay marginal cost for the input. If there is an acquisition, $D1$ continues to obtain the input at its true marginal cost. However, it is less clear what assumption about the price $D2$ must pay is most reasonable. We consider and contrast three possibilities:

(i) $F1$ and $U2$ simultaneously choose the input prices at which they are prepared to supply $D2$ (a la Bertrand).

(ii) $F1$ can commit to not supplying $D2$ at all. In this case only we consider the possibility that there exists an alternative, albeit inferior, source of the relevant input. The input can be obtained from that source for $\underline{c} > m$. This assumption enables us to parametrize the upstream price. Note, in particular, that if $\underline{c}$ is sufficiently high, $U2$ has monopoly power over $D2$, as in the previous section.

(iii) $F1$ is able to set an upper bound on the price that $D2$ faces by standing ready to supply it at a price c_{12}, which is determined by $F1$. To capture this, we consider the case in which $F1$ announces its linear price to $D2$ *before* $U2$ announces its price.

The major modeling difference is between (ii) and (iii) on one hand and (i) on the other. When (i) pertains, the merged firm is unable to resist the temptation of competing with $U2$ for $D2$'s business. However, a far-sighted $F1$ will realize that entering into competition of this kind will lower $D2$'s input price, which, in turn, will lead to lower

[11] This is true as long as the two downstream products are not perfect substitutes.

[12] Since input prices are determined before the output prices, it is proper to characterize the input suppliers as the upstream firms, as one of the referees reminds us.

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downstream prices. The downstream division of $F1$ would, generally, prefer that the upstream division exercises some pricing restraint. Assumption (ii) captures this restraint. However, it may not be in $F1$'s interest to completely withdraw from the upstream market. Indeed, as we shall show, it may not be in the interest of firm 1 to endow $U2$ with "too much" market power over to price of the input. Assumption (iii) provides $F1$ with the ability to constrain $U2$'s market power in the post-merger game.

In sum, as one moves from (i) to (iii), $F1$ has increasing control over the price of the input to $D2$. We show how the equilibrium of the game depends on this assumed degree of control.

In the third stage, if $D1$ acquired $U1$, $D2$ can bid for its supplier, $U2$. This allows us to analyze $D2$'s ability to counter the potentially adverse consequences of the previous merger by becoming vertically integrated itself. Since organization formation is less flexible than choices of prices, one might think that both opportunities for vertical mergers should logically come before the selection of input prices. Our focus, however, is on the desirability of the second merger assuming that the first has taken place. Considerations about the rationality of the second merger depend on the input price that $D2$ believes it will face if it does not merge. Thus considering the setting of input prices in stage 2 is a way of providing the relevant backdrop against which $D2$ makes its merger decision.

In the fourth stage, downstream prices are chosen, given input prices.

B. *Solving for the Equilibrium*

To solve for the equilibrium, we proceed by backward induction.

(i) *Stage Four*. This stage is simply the one-shot game analyzed in Section I.

(ii) *Stage Three*. In this stage, we inquire whether $D2$ should make a bid for $U2$, and whether it can make a bid that is attractive to $U2$. The answer to this question depends on the sum of the profits earned by $U2$ and $D2$, if they were to remain independent, as compared to those they would earn after a merger. If the latter profits are higher than the former, then the $U2$-$D2$ merger generates gains and we would expect such gains to be realized in an efficient bargain and the merger to take place.

If $D2$ and $U2$ merge, there will be full vertical integration in the industry. The profits earned by the merged entities will be $\pi_{Di}(m, m) \equiv \pi_i^O$, $i = 1, 2$, which are the levels that are realized absent integration and with Bertrand competition in the input market. We refer to these profits as "benchmark" profits. If $D2$ and $U2$ do not merge, $U2$ charges $D2$ an input price c_2 (which is determined in the second stage) and the sum of their profits, which we term "stand-alone profit" and denote by π^S, is

$$(5) \quad \pi^S(c_2) = \pi_{D2}(c_2) + \pi_{U2}(c_2, m).$$

$D2$ and $U2$ will not merge if and only if $\pi_{U2}(m, m) < \pi^S(c_2)$.

We must show that there exists some $c_2 > m$ for which this inequality is satisfied. To this end we differentiate equation (5) with respect to c_2. After using the envelope theorem and Shephard's lemma, we get:

$$(6) \quad \partial\pi^S/\partial c_2 = (c_2 - m)\cdot(dx_2/dc_2) + (\partial\pi_{D2}/\partial p_1)\cdot(\partial p_1^*/\partial c_2),$$

where dx/dc denotes the total equilibrium change in $D2$'s demand for the input following its increase in price. Note that, around the stable equilibrium, the first term is negative and the second is positive. Thus, when (6) is evaluated around $c_2 = m$ it leads to:

PROPOSITION 1: *If the initial equilibrium is stable, then a small increase in the price of an input above marginal cost to the unintegrated downstream firm increases the "stand-alone profit," π^S, defined in equation* (5).

The import of Proposition 1 is that, for at least some range of the input price c_2, the stand-alone profit of the two unmerged firms increases above the benchmark level, π_{D2}^0. This means that $D2$ cannot make an attractive enough merger offer to its (monopolistic) upstream supplier, $U2$. Consequently, if

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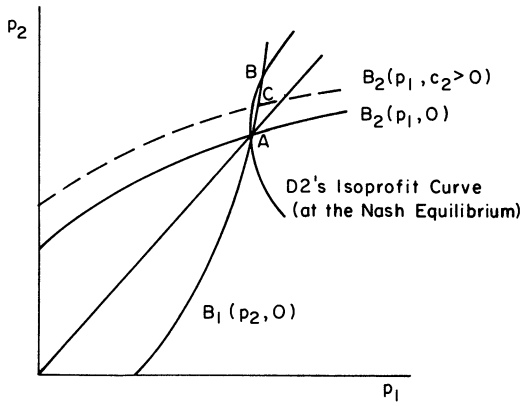

FIGURE 2. BEST-RESPONSE FUNCTIONS WITH PRICE AS THE STRATEGIC VARIABLE

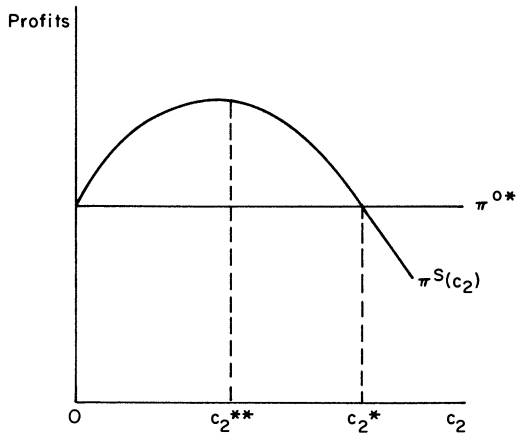

FIGURE 3. THE SUM OF PROFITS OF THE FORECLOSED FIRM AND ITS SUPPLIER

the equilibrium value of c_2 is in that range, $U2$ cannot resort to a merger as an effective counterstrategy.

The reason that such a range exists in the model analyzed here can be seen from Figure 2 which illustrates the benchmark equilibrium. There the locus of points which give $D2$ its benchmark level of profits is superimposed on the best-response curves. Since $D2$ has no costs and $U2$ has no revenues in the benchmark case, that curve also represents the locus of points where the sum of $D2$ and $U2$'s revenues are equal to the benchmark level.

A small increase in c_2 above m causes $D2$'s best-response function to shift up (as represented by the dashed line), and therefore p_1^* and p_2^* to increase, which increases downstream revenues (the new equilibrium, C, lies on a higher iso-revenue curve for $D2$). While $D2$ must pay more for the input, since this additional payment is captured by $U2$, combined profits are equal to $D2$'s revenues which increase.

Eventually a further increase in the input price decreases the "stand-alone" profit. As the markup $(c_2 - m)$ grows, the equilibrium output of $D2$ falls. Ultimately, $D2$'s revenues fall; then the profits earned by $U2$ are insufficient to compensate $D2$ for its lost profits. This occurs in Figure 2 when $D2$'s best-response function intersects $D1$'s best-response function above B. Stand-alone profit cannot fall below the benchmark level, π_{U2}^0, because that level can always be secured via merger. Figure 3 depicts the behavior of the stand-alone profit as a function of c_2.

(iii) *Stage Two.* In this stage input prices are determined. The only substantive case to consider is when $D1$ and $U1$ have merged to form $F1$. We have to consider three alternative pricing scenarios. In the first, $F1$ and $U2$ simultaneously choose the price to be charged to $D2$. Let c_{12} denote the price that $F1$ charges $D2$. Plainly for any c_2, $F1$ has an incentive to undercut, in the usual Bertrand fashion. So, in equilibrium $c_{12} = c_2 = m$.

The second alternative is that $F1$ commits not to sell to $D2$. Consider first the case where $D2$ does not have access to an inferior input substitute. Regardless of whether a $U2$-$D2$ merger subsequently occurs $U2$ earns $\pi_{U2}(c_2, m)$. This is because if a merger occurs, $D2$ must offer a high enough price to compensate $U2$ for what it would earn if it did not merge. Thus $U2$ sets the monopoly price c_2^m. If, however, $D2$ does have access to a substitute inferior product priced at $c < c_2^m$, then $D2$ will set c_{12} just below c.

The third, and most interesting alternative pricing scenario is when $F1$ offers to supply $D2$ at some price c_{12}. $U2$'s best reply to any such $c_{12} > m$ is to undercut it infinitesimally. Given this opportunity to constrain $U2$'s market power by precommiting to c_{12}, $F1$

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selects that price that makes the sum of stand-alone profits, π^S, equal to benchmark profits, π^0_{U2}, as calculated in Section I. In Figure 3, this input price is denoted by c_2^*. When input is priced at that level, $D2$ cannot make a merger offer that $U2$ would not refuse.

For the linear-linear case examined in the Appendix, $c_2^* < c_2^m$ so that $F1$ does exercise a competitive constraint over $U2$'s pricing power vis-à-vis $D2$. It is not clear whether this holds for all relevant demand and cost configurations.

To summarize the second stage: If $U2$ and $F1$ move simultaneously, then $c_2 = m$. If $F1$ commits not to supply $D2$ then $c_2^* = c_2^m$ in the case where there is no alternative source of supply and is equal to the lesser of c_2^m and c when there is one. Finally, if $F1$ can set a price to constrain $U2$, then $c_2 = c_2^*$.

(iv) *Stage One*. In this stage the initial acquisition(s) can be made. There are numerous ways in which one could formulate the actions in the acquisition stage. Bidding could be initiated either by the buyers or the sellers of the input. A bidder could bid for only one firm at the time or it could make multiple offers. Alternatively, each firm could be paired with a single target. Here we examine the simplest case where both firms bid for a designated upstream firm, say $U1$. The robustness of the results is taken up in Section III.

To see how this stage plays out, we first compare the payoffs from winning versus losing this initial bidding contest. For consistency, we assume that $D1$ is the winning bidder, in the event that there is a bid. Recall that there will be no bid if both firms correctly expect $D2$ to acquire $U2$ when it has a chance to deploy its counterstrategy in stage 3. Such acquisition will take place if the input is overpriced in stage 2. Then, with both firms vertically integrated profits are again at the "benchmark" level.[13]

So, the only interesting case is when the input is priced at c_2^*, so that $D2$ will be just indifferent between buying and not buying its supplier. How much is $D1$ willing to bid for $U1$? Note that if there is a merger, $D1$, as an owner of $F1$, makes $\pi_{D1}(p_1^*(m, c_2^*), p_2^*(c_2^*, m); m)$ on the downstream account. If $D1$ submits a losing bid, it will earn $\pi_{D1}(p_1^*(c_1^*, m), p_2^*(m, c_1^*); c_1^*)$. Here c_1^* is the input price that $D1$ will have to pay in the event that $D2$ prevails in the bidding game. Obviously, the maximum amount that $D1$ will be willing to bid, W^1, is the difference between these two profit levels. By an earlier assumption, downstream firm's profits decline as its costs increase unilaterally. Hence, $W^1 > 0$. In the symmetric case $W^1 = W^2 = W$. Given the assumed structure of the remainder of the game, $U1$ earns zero if it does not accept the offer so it accepts $D1$'s bid of W.[14]

C. *Equilibrium Summarized*

The unique equilibrium of the game is as follows:

If $F1$ and $U2$ set input prices simultaneously, so that $c_2 = 0$; or if $F1$ can only commit not to supply $D2$ without being able to constrain $U2$ so that $U2$ wants to charge $c_2^m > c_2^*$ and there is no substitute input at $c < c_2^*$, then no vertical merger takes place.

If $F1$ can commit not to supply $D2$ and there is a substitute input at $c < c_2^*$, then both firms bid $W(c)$ for $U1$. The offer is accepted and $D1$ faces the input cost of m while $D2$ pays c.

If there is no substitute product and $F1$ can commit to supply $D2$, both firms bid $W(c_2^*)$. $U1$ accepts the offer and $D1$ faces the input cost of m while $D2$ pays c_2^*.

D. *Welfare in Equilibrium*

It is immediate that a vertical merger between $U1$ and $D1$ raises both downstream prices. Obviously, consumers' welfare falls.

[13] Notice that we do not allow Di to make a bid for a Ui in Stage 3, in the event that the initial merger did not take place.

[14] Note that $D2$ cannot induce $U1$ to remain independent by offering $U1$ a lump-sum payment, L. Plainly, by pitting $D1$ against $D2$, $U1$ can always earn W. Hence L would have to be greater than W. But $D2$ is not willing to pay more than W.

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TABLE 1—THE INCENTIVE TO INTEGRATE IN THE LINEAR DEMAND CASE

d	$p_i^*(0,0)$	π_i^O	c_2^*	$p_1(0,c_2^*)$	$p_2(c_2^*,0)$	$\pi_{D1}(0,c_2^*)$	$\frac{\pi_{D1}(0,c_2^*)}{\pi_i^O}$	$\frac{p_1(0,c_2^*)}{p_1^*(0,0)}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
0	0.50	0.25	0.00	0.500	0.500	0.250	1.000	1.000
1	0.33	0.22	0.09	0.345	0.381	0.238	1.073	1.036
2	0.25	0.19	0.13	0.274	0.321	0.225	1.200	1.095
3	0.20	0.16	0.14	0.229	0.278	0.210	1.315	1.147
5	0.14	0.14	0.13	0.175	0.219	0.183	1.492	1.222
10	0.08	0.08	0.09	0.110	0.142	0.133	1.743	1.320
$d \to \infty$	0.00	0.00	0.00	0.000	0.000	0.000	2.250	1.500

The unintegrated downstream firm, $D2$, is made worse off as a result of the merger because only its input cost went up while the rival's cost remained at m. More surprisingly, perhaps, former $D1$ is also worse off: its net payoff is the same as $D2$'s in this symmetric game. Its gross profits are increased by the merger, of course. However, because it paid W to acquire $U1$ its net profits are lower than they would have been had there been no vertical merger: both downstream firms would be better off if the bidding war was never started—if publicly traded, their stock prices fall when the bidding commences! The game has a prisoners' dilemma structure: any firm that believes that the other will not bid for $U1$ can gain by buying up $U1$ at a low price and capturing the rents from the foreclosure of its rival. The fear of being foreclosed drives each firm to attempt to foreclose the other. As a result, all the rents from foreclosure are dissipated through the bidding and all the profits accrue to the upstream firm(s). In a richer model, with asymmetric downstream payoffs, for example, the foreclosing firm also could be made better off in equilibrium.

The clear winners thus are the upstream firms. $U1$ gets $W(c_2^*)$, while $U2$ earns $\pi_{U2}(c_2^*)$. Note that $U1$ is better off than $U2$. This follows from the fact that π_1^* exceeds π^S, due to the inefficient pricing of the input to $D2$. However, $D1$ and $D2$ earn the same *net* profits. Thus, $U1$'s shareholders obtain a better return on their shares than do $U2$'s shareholders. This is an attractive feature of the model because it obviates the possibility of the upstream target holding out hoping that the other firm will be taken over.

The net effect of a merger is a reduction in social welfare. This is because the merger does not remedy any existing market imperfection but, instead, leads to an inefficient pricing of the input to $D2$. The fact that additional profits accrue to the input suppliers does not overcome the losses to consumers.

While our analysis illustrates that vertical foreclosure may be rational, with the degree of generality in the above model, it is not possible to measure the size of the incentives to integrate there. In the Appendix we explicitly calculate the equilibria with and without a vertical merger for the case of linear demand for the case where the integrated firm is able to constrain the price which $U2$ can charge if there is a $U1$-$D1$ merger (scenario (iii)). We assume there that demand for good i is given by $q_i = 1 - bp_i + d(p_j - p_i)$, and that $m = 0$. We have carried out some calculations, setting $b = 1$.

Table 1 reports the results of those calculations for different values of d, which measures the sensitivity of each firm's demand to the difference in the firms' prices.

Notice from columns (2) and (6) that as d grows, competition between the downstream firms becomes so fierce that prices are driven to marginal cost, irrespective of whether there has been a merger or not. Therefore (as one can see from columns (3) and (7)), firm 1's profits vanish in the limit too.

Columns (8) and (9) present the results of most interest. The increase in $D1$'s prof-

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itability is given in (8). Clearly if $d = 0$ $D1$'s profitability is the same whether it merges with $U1$ or not. As d increases, however, the merger becomes increasingly profitable. In the limit, as $d \to \infty$, the merged firm's profits are increased by 125 percent.

Because profits become insignificant as d increases, it is possible that even a tiny percentage increase in price can result in a large percentage increase in profitability. In column (9), therefore, we directly examine the effect of a merger on $D1$'s equilibrium market price. While the percentage increases in price are smaller than those in profits, the figures are still sizable.

III. Robustness

In this section, we discuss the robustness of the results of Section II to three changes in the assumptions. First, we examine equilibrium outcomes when downstream firms compete in quantities rather than prices. Second, we discuss changes in the bidding formulation: we discuss what happens if the downstream firms can make offers to either of the upstream firms in stage 1, or if the upstream firms bid for a downstream firm. Finally, we discuss more general vertical contracts, such as two-part tariffs.

A. *Quantity Competition*

We now consider what happens when the downstream firms' actions are strategic substitutes. To do this we assume quantity competition in stage four, that the products are perfect substitutes, and that the unique Cournot equilibrium is stable. Under reasonable assumptions about marginal costs and revenues, Di's best reply to an expansion of output by Dj is to constrict its output.

Using the approach of Section II, we calculate the effect of an increase in c_2 on π^S, the stand-alone profits of $U2$ and $D2$. Differentiation gives:

$$(8)\quad \partial \pi^S / \partial c_2 = (c_2 - m)\, dx_2/dc_2 + (\partial \pi_{U2}/dq_1) \cdot (\partial q_1 / \partial c_2).$$

Around $c_2 = m$, the sign of this expression is governed by the sign of the second term. The sign of that term is unambiguously negative because an increase in c_2 induces expansion in $D1$'s output which, in turn, causes p_2 to fall for any given level of q_2. This depresses $D2$'s profits. Hence:

PROPOSITION 2: *When the downstream firms compete in quantities, the only equilibrium of the four-stage game entails no vertical merger.*

The intuition here can be obtained by reference to the taxonomy of strategic actions developed by Drew Fudenberg and Jean Tirole (1984). An increase in $D2$'s costs makes it "soft" (i.e., less aggressive) in its competition with $D1$. Accordingly in the case of strategic complements, apart from the fact that it must bear the higher costs itself, it favors a "fat-cat" posture. That is, if it has a less aggressive position vis-à-vis $D1$, more accommodating pricing results. In the case of strategic substitutes, however, $D2$ wants to maintain a "lean-and-hungry" look. That is, any gain in output and profitability for the $U2$-$D2$ "side of the market" must be gained at the expense of the $U1$-$D1$ side.

Thus the $U2$-$D2$ side of the market is made strictly worse off in aggregate if the price charged by $U2$ rises. Accordingly, $U2$ and $D2$ will always counter a $U1$-$D1$ merger with a merger of their own.

The relevant test of whether a vertical merger for the purposes of foreclosure can be successful, therefore, is whether the sum of the profits of the unintegrated firms will increase or not.

B. *Alternative Bidding Formulations*

As was discussed above, there are many possible alternative formulations of the bidding stages. Here we briefly discuss just two.[15]

First, suppose that the downstream firms can make offers to either upstream firm. If

[15] These cases are discussed in more detail in our working paper, Janusz Ordover, Garth Saloner, and Steven Salop (1988).

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we continue to assume that the downstream firms simultaneously make take-it-or-leave-it offers to the upstream firms, then the equilibrium analyzed in Section II remains an equilibrium. If $U2$ believes that $U1$ will accept $D1$'s offer, then there does not exist an offer that $D2$ can profitably make which will be acceptable to $U2$.[16]

Second, suppose that it is the upstream firms that bid for a downstream firm rather than *vice versa*. Thus, consider the case where in stage 1, $U1$ and $U2$ bid for $D1$ and in stage 3, $D2$ can become the target if the first merger occurred.

The main effect from this reformulation of the game is the reallocation of rents and the size of the winning bid in stage 1. The post-merger input and products' prices will be exactly as they would have been had it been the downstream firms bidding for the upstream supplier.[17]

C. *Alternative Vertical Contracts*

We now discuss alternatives to integration as ways of raising downstream prices. Our discussion focuses on the case of differentiated products and price competition, in light of Proposition 2.

To begin with let us note that where it is possible for firms to enter into alternative contractual relationships with their input suppliers, these may appear to be preferable to a merger. The purpose of these alternatives, like that of a fully-fledged vertical merger, is to raise downstream prices by affecting input costs.[18]

The key point of this section is easily illustrated with the help of Figure 3. There, with $c_1 = m$, c_2^{**} maximizes π^S, the sum of $U2$ and $D2$ profits. In order to induce $U2$ to charge that price rather than c_2^*, $D2$ can enter into a two-part tariff contract with its supplier under which the fixed fee transfer compensates $U2$ for not charging c_2^*. (This point is made by Bonanno and Vickers, 1988.) In our setting vertical integration is just the special form of two-part tariff where the price is equal to marginal cost and the fee is the purchase price.

Two observations can now be made. First, even if $U2$-$D2$ counter the $U1$-$D1$ merger with an optimal two-part tariff, the initial merger remains profitable. However, the bid price will be lower because the equilibrium downstream prices will be lower.

Second, it may appear that $U2$-$D2$ could replicate the outcome under a two-part tariff by first merging and then setting the *transfer price* at c_2^{**}. This conclusion is implausible because once these two firms have merged, there is an incentive to cut the transfer price below c_2^{**}. Furthermore, the rival who cannot easily monitor intra-firm pricing will, most likely, proceed on the expectation that transfer prices are set at efficient levels. As a result, the superior equilibrium cannot be replicated with a merger because a firm can-

[16]Of course there are other similar equilibria as well: $U2$ could be designated as the target and either $D1$ or $D2$ could be selected as the winning firms. Notice that providing the downstream firms with all the bargaining power creates an asymmetry in the resulting outcome. Although $U1$ and $U2$ are both viable targets and ought to be expected to compete for the right to be taken over, instead the downstream firms "designate" the winner who then gets the lion's share of the spoils. Formally, since the integrated firms do better than the unintegrated firms, requiring the upstream firms to each do equally well and the downstream firms to each do equally well would have to be accomplished by utilizing mixed strategies (with some resulting inefficiency) or resorting to correlated equilibria.

[17]Another effect of this reformulation is that a hold-out problem (discussed in detail in our working paper) can arise. To see how this might arise, consider the products are almost independent in demand. There the upstream firm that merges gains very little because the profits that accrue to the merged firm are only slightly increased by the increase in the input price to the unmerged rival. The unmerged upstream firm, in contrast, is suddenly endowed with monopoly power over the remaining downstream firm. Thus both upstream firms would prefer to be the firm that does not merge.

[18]This point is similar to that made by Cooper (1986), who points out that in a differentiated products context a firm (and its rival) may be made better off if it can commit to charging a higher price than the noncooperative equilibrium price. In Cooper's model the firm achieves this by offering a "most-favored-customer" contract which, once it has been implemented, gives the firm an incentive not to lower its price in the future.

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not credibly commit to internal transfer prices that are inefficient, in our view.[19]

The distinction between two-part tariffs and vertical integration can be brought out again by considering a game in which in the first stage, $D1$ and $D2$ present $U1$ with two-part tariff contracts. For example $D1$ may bid $\{f = W(c_2^*) > 0,\ c_1 = 0,\ c_2 = c_2^*\}$ which potentially replicates the equilibrium outcome under vertical integration. Notice, however, that the vertical contract must specify the price which $U1$ must charge $D2$. Moreover, since $U2$ has an incentive to secretly cheat on this contract and supply $D2$ at a lower price, the restrictive contract will only be feasible if $D1$ can monitor $U1$'s price. However, a contract that specifies $U1$'s merchant market prices is likely to run afoul of the antitrust laws. In contrast, a vertically integrated firm can more credibly commit to its merchant market price and may refuse to sell the input to the rival without risking antitrust litigation.[20]

IV. Conclusions

We have investigated how vertical integration can be used to achieve anticompetitive foreclosure of downstream firms from an essential source of supply. Our main conclusion is that anticompetitive foreclosure arises as an equilibrium phenomenon in a coherent model where sophisticated firms use a wide range of strategies and counterstrategies.

Our analysis indicates that the profitability of foreclosure involves a number of subtleties. However these subtleties are not the ones associated with the standard critique of foreclosure theory discussed in the introduction. Indeed, the central condition for successful foreclosure is simply that the unintegrated upstream firm's gain exceed the downstream firm's loss.

This condition can be satisfied in a model with differentiated products and price-setting because the sum of the profits of the foreclosed firm and its supplier increase (locally) if the foreclosed firm's price rises (and the rival's price adjusts optimally). In a quantity-setting, homogeneous goods model, by contrast, the sum of those profits decrease if the foreclosed firm's output decreases and the rival's adjusts optimally.

Moreover, even in the differentiated products case, the sum of the unintegrated firms' profits is reduced if the unintegrated upstream firm's market power is "too" great. This is because, in that case, the profit-maximizing price that it charges for its input will be so high that the downstream firm will have the incentive and ability to offer a mutually beneficial vertical merger. In this paper we have set out two of the ways in which the unintegrated upstream firm's market power may be limited. One is that the integrated firm may be able to constrain the upstream spot price. The other is that there may be an alternative (and inferior) competitive source of supply.

As another alternative, one could model the upstream industry as an oligopoly rather than a duopoly. In that case, a single vertical merger would not confer complete monopoly power on the remaining upstream firms. While competition among them would naturally constrain the upstream price, reducing the profitability of foreclosure, such competition also would reduce the potential for an effective counterstrategy on the part of the foreclosed downstream firm. The necessary modeling is not entirely straightforward, however. Since the interesting case is one in which the elimination of an upstream firm does have some effect on input prices, this requires specifying an upstream market in which the goods are at least somewhat differentiated (perhaps because of transportation costs). Enriching the model in this way is a possible avenue for future research.

The controversy surrounding the vertical foreclosure argument has traditionally been cast in the context of vertical integration. In

[19]Chaim Fershtman and Kenneth Judd, (1987) for example, analyze a model in which firms distort managers' compensation schedules in order to change their conduct in the product market. As here, there are strong incentives to cheat on these inefficient arrangements, especially in light of the fact that such internal arrangements are not easily monitored for deviations.

[20]It may also be easier to commit to a two-part tariff than an internal transfer price by coupling the two-part tariff with a most favored nation clause as in Salop (1986).

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order to address the questions raised in that debate we have, for the most part, kept to that formulation. Yet, as modern contract theory emphasizes, vertical integration is but one particular form of vertical contract. Indeed, as we have shown, there may exist incentives for firms to structure vertical relationships in ways that fall short of full vertical integration if they are so able. This richer formulation raises a number of interesting issues that we have only begun to explore.

APPENDIX

Here we solve the model in the "linear-linear" case. Thus, we assume the following: (i) upstream unit costs are equal to zero, $m = 0$; (ii) downstream marginal cost is equal to c_i, $i = 1,2$; and the demand functions are symmetric, that is, $q_i = 1 - bp_i + d(p_j - p_i)$, $i, j = 1,2$. It is useful to rewrite this as $q_i = 1 - kp_i + dp_j$, where $k = b + d$.

Our main objective is to analyze how the equilibrium prices, input cost, and purchase price vary with the value of d, which determines the degree of substitution between the two products. These comparative statics are reported in the text in Table 1.

Standard calculations yield the following reduced form equations:

$$(A1) \quad p_i^* = [(2k + d) + 2k^2 c_i + kdc_j] / (4k^2 - d^2),$$

$$(A2) \quad q_i^* = k[(2k + d) - (2k^2 - d^2)c_i + kdc_j] / (4k^2 - d^2),$$

$$(A3) \quad \pi_{Di}^* = (q_i^*)^2 / k.$$

When input is priced at $c_1 = c_2 = 0$, Di earns

$$(A4) \quad \pi_{Di}^0 = k / (2k - d)^2.$$

When $c_1 = 0$, $U2$'s profits are:

$$(A5) \quad \pi_{U2}(c_2) = kc_2[(2k + d) - c_2(2k^2 - d^2)] / (4k^2 - d^2).$$

Hence, $U2$'s unconstrained profit maximizing price is:

$$(A6) \quad c_2^m = (2k + d) / 2(2k^2 - d^2).$$

The maximum input price that forestalls the $U2$-$D2$ merger, denoted by c_2^*, solves

$$(A7) \quad \pi_{U2}(c_2) + \pi_{D2}^*(c_2, c_1 = 0) = \pi_{D2}^0.$$

Thus,

$$(A8) \quad c_2^* = (2k + d)\, d^2 / 2k^2(2k^2 - d^2) < c_2^m,$$

since $b, d > 0$.

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EXHIBIT 54 (REDACTED)

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EXHIBIT 56

Información Financiera Trimestral

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Comentarios de la gerencia [bloque de texto]

RESULTADOS
Segundo Trimestre 2023

GrupoMéxico TRANSPORTES

CDMX, 26 de julio del 2023

GMéxico Transportes, S.A.B. de C.V. ("GMXT" – BMV: GMXT*)

GMXT continúa capturando volúmenes incrementales como consecuencia de su intensivo programa de inversiones de capital de los últimos años. Se mantiene enfocado en el eficiente control de costos y mayor captura de participación de mercado con una continua mejora en el servicio y continuar siendo un agente clave para nuevas tendencias de dinamismo en el mercado.

Ferrosur – Acuerdo con el Gobierno Federal. – El día 31 de mayo de 2023 se suscribió un acuerdo con el Gobierno Federal, en el que se dispuso la entrega de los tramos ferroviarios comprendidos entre El Chapo-Coatzacoalcos, Coatzacoalcos-Medias Aguas e Hibueras-Minatitlán, que en su conjunto representan 127 kilómetros de vía principal. Se convino que, sobre la base del valor de reposición de activos, Ferrosur recibirá una extensión de los términos originales de su concesión hasta la conclusión de la vigencia original de la misma en 2048 y una ampliación de la vigencia de dicha concesión por un plazo adicional de ocho años en los mismos términos.

En virtud de este acuerdo, el Ferrocarril del Istmo de Tehuantepec S.A. de C.V., será responsable único de las condiciones óptimas de seguridad y de los costos y gastos derivados de la operación y el mantenimiento de la vía, laderos y patios, en los tramos referidos. Ferrosur solo deberá cubrir la tarifa correspondiente a su derecho de paso.

Ferrosur conserva íntegros sus derechos de paso en los tramos mencionados y en el tramo de Medias Aguas a Salina Cruz. La empresa seguirá ofreciendo un servicio de carga ferroviaria de calidad a sus usuarios.

Volumen. – Durante el 2T23 el volumen trasportado se incrementó 5.7% comparado con el 2T22 alcanzando 16,830 millones de toneladas-km netas. El crecimiento en volumen fue liderado por el segmento Automotriz con 36% en toneladas-km netas.

Ventas. – Los ingresos del 2T23 incrementaron 6.9% con respecto al mismo periodo del 2022, totalizando P$14,363 millones. Al cierre del 2T23, la mayoría de los segmentos muestran variaciones positivas en ingresos.

EBITDA. – Durante el 2T23 el EBITDA alcanzó un nivel récord situándose en **$6,761 millones,** un incremento de 14.0% comparado con el 2T22.

Inversiones 2023.– GMXT mantiene su compromiso con México ejerciendo una inversión histórica por P$9,068 millones incrementando la flota de arrastre y equipo ferroviario en general, en realizar obras en la red, así como en patios y terminales. La ejecución del plan de inversión 2023, que contempla proyectos de expansión y eficiencia que nos permitirán seguir aumentando el volumen de carga transportada y mejorando el servicio, así como optimizar el desempeño de nuestros indicadores de productividad, en beneficio de nuestros clientes.

(Millones de pesos)	Segundo Trimestre 2023	2022	Variación $	%	Enero – Junio 2023	2022	Variación $	%
Vol. Transportado (Millones Tons/Km)	16,830	15,928	902	5.7	34,128	31,825	2,303	7.2
Carros movidos	475,341	475,028	313	0.1	945,271	940,364	4,907	0.5
Ventas	$ 14,363	$ 13,438	$ 925	6.9	28,617	26,657	1,960	7.4
Costo de Ventas	$ 6,983	$ 6,886	$ 97	1.4	13,712	13,330	382	2.9
Utilidad de Operación	$ 4,878	$ 4,106	$ 772	18.8	9,848	8,431	1,417	16.8
Margen de Operación (%)	**34.0%**	**30.6%**	**+ 340 Bps**		**34.4%**	**31.6%**	**+ 280 Bps**	
EBITDA	$ 6,761	$ 5,930	$ 831	14.0	$ 13,610	$ 12,039	$ 1,571	13.0
Margen EBITDA (%)	**47.1%**	**44.1%**	**+ 300 Bps**		**47.6%**	**45.2%**	**+ 240 Bps**	
Utilidad Neta	$ 2,141	$ 2,033	$ 108	5.3	$ 4,245	$ 4,044	$ 201	5.0
Margen Utilidad (%)	**14.9%**	**15.1%**	**– 20 Bps**		**14.8%**	**15.2%**	**– 40 Bps**	

Volumen Transportado. – Durante el segundo trimestre los volúmenes transportados muestran incrementos en la mayoría de los segmentos.

Segmentos con mayor crecimiento respecto a ingresos, durante el segundo trimestre de 2023:

Segmento de Automotriz. – Mostró un crecimiento durante el segundo trimestre de 52% en ingresos y 21% en carros como consecuencia del incremento en la producción y aumento en participación de mercado de los principales productores de automóviles.

Segmento de Cemento. – Tuvo un crecimiento durante el segundo trimestre de 18% en ingresos y 10% en carros gracias al crecimiento de volumen de las compañías de cemento más importantes por aumento de demanda en EUA y México, además de trayectos más largos en las rutas de exportación.

Segmento de Industriales. – Mostró un crecimiento durante el segundo trimestre de 14% en ingresos y 9% en carros debido al crecimiento en la producción de carros nuevos de ferrocarril y al incremento en participación de mercado en abarrotes por aumento de nuestra flota de furgones.

Segmento de Químicos y Fertilizantes. – Tuvo un crecimiento durante el segundo trimestre de 12% en ingresos y 1% en carros, ya que los movimientos de resinas de plástica mejoran por la competitividad de precios contra Asia. Además, hubo mayor participación de mercado y más volumen gracias a las inversiones en infraestructura ferroviaria en terminales portuarias.

Resultados por Segmento

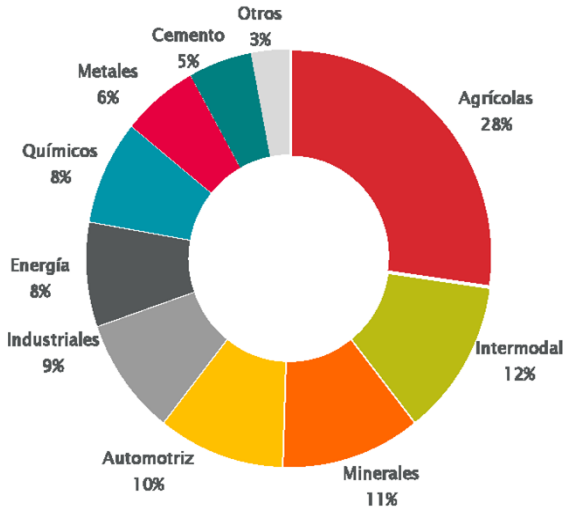
Contribución por segmento en ingresos, toneladas-km netas y carros al 30 de junio del 2023

Segmento	Por el año Ingresos 2023	2022	Variación	Carros cargados 2023	2022	Variación	Toneladas – km 2023	2022	Variación
Agrícolas	$ 7,645	$ 6,901	11%	150,415	140,325	7%	11,905	10,582	13%
Intermodal	$ 3,547	$ 3,646	-3%	348,820	359,255	-3%	3,716	3,475	7%
Minerales	$ 3,250	$ 3,434	-5%	100,069	115,185	-13%	5,527	5,514	0%
Automotriz	$ 2,904	$ 2,054	41%	74,749	63,962	17%	1,124	895	26%
Industriales	$ 2,452	$ 2,172	13%	77,108	70,729	9%	1,523	1,463	4%
Energía	$ 2,341	$ 2,151	9%	48,789	48,282	1%	2,897	2,324	25%
Químicos y Fertilizantes	$ 2,303	$ 2,253	2%	39,562	40,644	-3%	2,550	2,736	-7%
Metales	$ 1,836	$ 1,642	12%	50,564	49,283	3%	2,854	2,913	-2%
Cemento	$ 1,460	$ 1,231	19%	55,195	52,699	5%	2,032	1,922	6%
Otros ingresos	$ 878	$ 1,174	-25%						
Total al 30 de junio de 2023	**$ 28,617**	**$ 26,657**	**7%**						

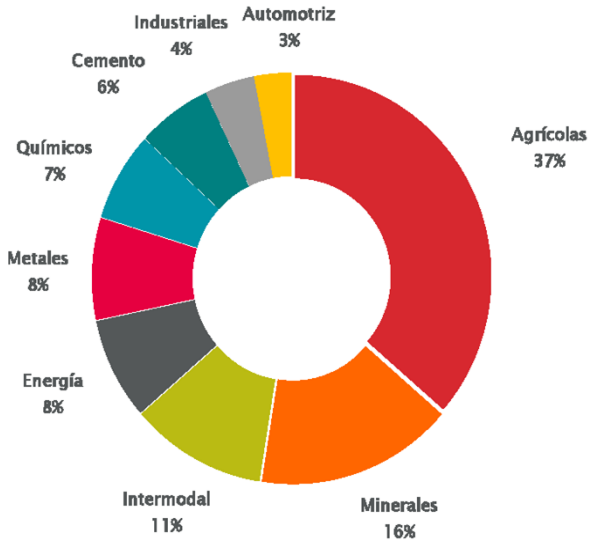
Segmento	Por el segundo trimestre								
	Ingresos			Carros cargados			Toneladas – km		
	2023	2022	Variación	2023	2022	Variación	2023	2022	Variación
Agrícolas	$ 3,853	$ 3,593	7%	73,243	72,853	1%	5,802	5,406	7%
Intermodal	$ 1,776	$ 1,895	–6%	179,253	182,821	–2%	1,981	1,807	10%
Minerales	$ 1,592	$ 1,772	–10%	48,191	58,296	–17%	2,764	2,795	–1%
Automotriz	$ 1,498	$ 984	52%	38,369	31,737	21%	576	424	36%
Industriales	$ 1,258	$ 1,099	14%	39,797	36,639	9%	757	696	9%
Químicos y Fertilizantes	$ 1,238	$ 1,101	12%	20,059	19,914	1%	1,302	1,310	–1%
Energía	$ 1,084	$ 1,028	5%	23,077	21,742	6%	1,294	1,121	15%
Metales	$ 880	$ 819	7%	24,929	25,230	–1%	1,326	1,420	–7%
Cemento	$ 730	$ 621	18%	28,423	25,796	10%	1,030	949	9%
Otros ingresos	$ 454	$ 525	–13%						
Total al 30 de junio de 2023	**$ 14,363**	**$ 13,438**	**7%**						

Nota: Ingresos y Toneladas – km cifras expresadas en millones

Ingresos por Segmento
P$ 28,617



Toneladas–Km Netas
34,128



Mejoras en Productividad. – Durante el 1S 2023, las prácticas operativas implementadas por GMXT, alineadas a los estándares de la industria en Norteamérica, fortalecieron la competitividad de nuestro servicio para atender las cadenas productivas de México, Estados Unidos y Canadá a través de nuestro servicio Falcon Premium, que operará entre los tres países, con conexión ferroviaria sin costuras.

La velocidad de trenes aumentó 3.6% pasando de 37.3 km/h a 38.6 km/h, facilitando un servicio eficiente y oportuno para nuestros clientes. De igual manera, la permanencia de carros en terminales mostró un avance de 17.2% disminuyendo a 21.4 horas, lo que permitió lograr una mejora del 6% en la velocidad de los carros. Así mismo, la eficiencia de nuestra operación de trenes permitió que el aprovechamiento de los caballos de fuerza

por tonelada mejorara 3.4% comparado con el año anterior. Gracias al desempeño de estos indicadores, se han reportado sólidos resultados operativos.

En el segundo semestre del 2023 GMXT se enfocará en mantener los niveles de productividad y en preservar la eficiencia de todos los procesos, para mantener la competitividad de nuestro servicio.

Dividendo. – Como resultado de la generación de flujo, el 17 de julio del 2023, el Consejo de Administración aprobó un dividendo en efectivo de $0.50 pesos por cada acción en circulación, mismo que será pagado en una sola exhibición el 25 de agosto de 2023.

Conferencia telefónica para discutir los resultados del Segundo Trimestre del 2023

GMéxico Transportes, S.A.B. de C.V. ("GMXT" –BMV: GMXT*) llevará a cabo su conferencia telefónica para comentar los resultados del segundo trimestre del 2023 con la comunidad financiera **el 27 de julio del 2023 a las 10:00 a.m.** (Hora de México). Una sesión de preguntas y respuestas para los analistas e inversionistas seguirá a la llamada.

Para participar en la llamada, es necesario registrarse en el siguiente link:

https://register.vevent.com/register/BIe52e23d444124d21b5708e31fef40c6d

- **Al momento de registrarse, se generará un PIN de confirmación personal para acceder a la llamada.**

Una vez registrado, favor de marcar 10 minutos antes del inicio de la conferencia:

(844) 543-0451	(Participantes desde Estados Unidos y Canadá)
(800) 283-2735	(Desde México)

Durante la conferencia telefónica, por favor ingrese a la presentación en vivo a través de **Webex en el siguiente enlace:**

https://ferromex.webex.com/ferromex/j.php?MTID=m75b7bc7df931e7b33fe6824d1833c716

La repetición de la llamada estará disponible a través de un enlace que se publicará en la página de internet www.gmxt.mx.

Relación con Inversionistas
Genaro Guerrero
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website: www.gmxt.mx

GMÉXICO TRANSPORTES, S.A.B. DE C.V. (GMXT)
ESTADOS FINANCIEROS CONDENSADOS (IFRS)

(En millones de pesos)	2do. Trimestre				Acumulado			
ESTADO DE RESULTADOS	**2023**	**2022**	**Variación**		**2023**	**2022**	**Variación**	
Ventas netas	**14,363**	**13,438**	**925**	**7%**	**28,617**	**26,657**	**1,960**	**7%**
Costo de ventas	6,983	6,886	97	1%	13,712	13,330	382	3%
Utilidad bruta	7,380	6,552	828	13%	14,905	13,327	1,578	12%
Márgen bruto	51.4%	48.8%			52.1%	50.0%		
Gastos de administración	526	499	27	5%	1,022	975	47	5%
PTU corriente	198	261	(63)	(24)%	464	501	(37)	(7)%
Otros (ingresos) gastos – Neto	(105)	(138)	33	(24)%	(191)	(188)	(3)	2%
EBITDA	**6,761**	**5,930**	**831**	**14%**	**13,610**	**12,039**	**1,571**	**13%**
Depreciación y amortización	1,883	1,824	59	3%	3,762	3,608	154	4%
Utilidad de operación	**4,878**	**4,106**	**772**	**19%**	**9,848**	**8,431**	**1,417**	**17%**
Márgen operativo	34.0%	30.6%			34.4%	31.6%		
Gasto por intereses	648	664	(16)	(2)%	1,302	1,312	(10)	(1)%
Ingreso por intereses	(173)	(180)	7	(4)%	(400)	(243)	(157)	65%
Valuación acciones GAP	–	147	(147)	(100)%	–	147	(147)	(100)%
(Utilidad) pérdida cambiaria, neto	192	30	162	540%	536	114	422	370%
Participación en subsidiaria no consolidada y en asociada	(23)	(33)	10	(30)%	(44)	(41)	(3)	7%
Utilidades antes de Impuestos	**4,234**	**3,478**	**756**	**22%**	**8,454**	**7,142**	**1,312**	**18%**
Impuestos	1,419	929	490	53%	2,870	2,020	850	42%
Utilidad Neta	**2,815**	**2,549**	**266**	**10%**	**5,584**	**5,122**	**462**	**9%**
Utilidad neta atribuida a participación no controladora	(674)	(516)	(158)	31%	(1,339)	(1,078)	(261)	24%
Utilidad Neta Controladora	**2,141**	**2,033**	**108**	**5%**	**4,245**	**4,044**	**201**	**5%**
BALANCE GENERAL								
Efectivo y valores equivalentes	11,794	12,586	(792)	(6)%	11,794	12,586	(792)	(6)%
Cuentas por cobrar	7,783	8,822	(1,039)	(12)%	7,783	8,822	(1,039)	(12)%
Inventarios	1,099	1,200	(101)	(8)%	1,099	1,200	(101)	(8)%
Gastos prepagados y otras cuentas por cobrar	1,837	2,334	(497)	(21)%	1,837	2,334	(497)	(21)%
Total Activo Circulante	**22,513**	**24,942**	**(2,429)**	**(10)%**	**22,513**	**24,942**	**(2,429)**	**(10)%**
Propiedades, maquinaria, equipo y concesiones – Neto	91,114	97,491	(6,377)	(7)%	91,114	97,491	(6,377)	(7)%
Crédito mercantil	3,643	4,184	(541)	(13)%	3,643	4,184	(541)	(13)%
Otros activos a largo plazo	957	3,592	(2,635)	(73)%	957	3,592	(2,635)	(73)%
Total Activo	**118,227**	**130,209**	**(11,982)**	**(9)%**	**118,227**	**130,209**	**(11,982)**	**(9)%**
Pasivo y Capital Contable								
Deuda a corto plazo	1,749	3,001	(1,252)	(42)%	1,749	3,001	(1,252)	(42)%
Pasivos acumulados	9,329	9,933	(604)	(6)%	9,329	9,933	(604)	(6)%
Total Pasivo Circulante	**11,078**	**12,934**	**(1,856)**	**(14)%**	**11,078**	**12,934**	**(1,856)**	**(14)%**
Deuda a largo plazo	26,851	28,640	(1,789)	(6)%	26,851	28,640	(1,789)	(6)%
Otros pasivos a largo plazo	13,276	17,065	(3,789)	(22)%	13,276	17,065	(3,789)	(22)%
Reserva para retiro voluntario y prima Antig.	441	410	31	8%	441	410	31	8%
Total Pasivo	**51,646**	**59,049**	**(7,403)**	**(13)%**	**51,646**	**59,049**	**(7,403)**	**(13)%**
Capital social	10,667	10,667	–	0%	10,667	10,667	–	0%
Otras cuentas de capital	1,423	8,178	(6,755)	(83)%	1,423	8,178	(6,755)	(83)%
Resultados acumulados	45,142	43,814	1,328	3%	45,142	43,814	1,328	3%
Total capital contable	**57,232**	**62,659**	**(5,427)**	**(9)%**	**57,232**	**62,659**	**(5,427)**	**(9)%**
Participación no controladora	9,349	8,501	848	10%	9,349	8,501	848	10%
Total Pasivo y Capital Contable	**118,227**	**130,209**	**(11,982)**	**(9)%**	**118,227**	**130,209**	**(11,982)**	**(9)%**

	2do. Trimestre				Acumulado			
ESTADO DE FLUJO DE EFECTIVO	**2023**	**2022**	**Variación**		**2023**	**2022**	**Variación**	
Resultado antes de impuestos a la utilidad	**4,234**	**3,478**	**756**	**22%**	**8,454**	**7,142**	**1,312**	**18%**
Depreciación y amortización	1,883	1,824	59	3%	3,762	3,608	154	4%
Participación en subsidiaria no consolidada y en asociada	(23)	(33)	10	(30)%	(44)	(41)	(3)	7%
Otros – Neto	531	656	(125)	(19)%	1,019	1,258	(239)	(19)%
Cambios en activos y pasivos circulantes	(2,258)	(2,285)	27	(1)%	(5,651)	(4,510)	(1,141)	25%
Efectivo generado por la operación	**4,367**	**3,640**	**727**	**20%**	**7,540**	**7,457**	**83**	**1%**
Adiciones a propiedades y equipo	(2,125)	(1,866)	(259)	14%	(3,244)	(3,326)	82	(2)%
Efectivo de ITM aportado por fusión	–	7,374	(7,374)	(100)%	–	7,374	(7,374)	(100)%
Otros – Neto	182	224	(42)	(19)%	413	297	116	39%
Efectivo utilizado en actividades de inversión	**(1,943)**	**5,732**	**(7,675)**	**0%**	**(2,831)**	**4,345**	**(7,176)**	**0%**
Dividendos pagados	(2,644)	(2,704)	60	(2)%	(5,297)	(5,282)	(15)	0%
Otros – Neto	(703)	(1,087)	384	(35)%	(1,725)	(1,663)	(62)	4%
Efectivo utilizado en actividades de financiamiento	**(3,347)**	**(3,791)**	**444**	**(12)%**	**(7,022)**	**(6,945)**	**(77)**	**1%**
Cambio neto en efectivo	**(923)**	**5,581**	**(6,504)**	**0%**	**(2,313)**	**4,857**	**(7,170)**	**0%**
Efectivo y valores realizables al inicio del año	**12,717**	**7,005**	**5,712**	**82%**	**14,107**	**7,729**	**6,378**	**83%**
Efectivo y valores realizables al final del año	**11,794**	**12,586**	**(792)**	**(6)%**	**11,794**	**12,586**	**(792)**	**(6)%**

Información a revelar sobre la naturaleza del negocio [bloque de texto]

GMéxico Transportes, S. A. B. de C. V. y subsidiarias (GMXT) es una sociedad tenedora de las acciones de un grupo de compañías dedicadas principalmente a prestar el servicio ferroviario de carga, multimodal y servicios auxiliares, así como cualquier actividad que directamente soporte y esté relacionada con dicho objeto, incluyendo cualquier otra actividad que sea complementaria a los servicios de transportación ferroviaria.

GMXT cuenta con las siguientes subsidiarias indirectas:

Ferromex es el operador ferroviario más grande de México, en términos tanto de cobertura por número de kilómetros como de número de carros usados en la prestación de sus servicios, y principalmente proporciona servicios de carga general e intermodal por ferrocarril, al igual que otros servicios auxiliares, y que incluyen el transporte de pasajeros, arrastres intraterminal y servicio de terminales automotrices, entre otros.

Ferromex cuenta con la cobertura más grande del sistema ferroviario mexicano con 7,120.0 km de vías principales y 1,010.5 km de ramales que abarcan alrededor del 71% de la superficie geográfica del país y casi 80% de su área industrial y comercial. La Compañía opera la flota ferroviaria más grande del país con 574 locomotoras y 22,558 carros de distintos tipos.

Ferrosur cuenta con las concesiones para operar la Vía Troncal del Sureste y la Vía corta Oaxaca – Sur que en su conjunto equivalen a 1,823 km de vías, así como una cesión parcial de derechos para usar, aprovechar y explotar la terminal especializada de ferrobuques en Coatzacoalcos, Veracruz. Ferrosur cuenta con 156 locomotoras y 4,206 carros de distintos tipos.

Florida East Coast Railway (FEC) ofrece servicios ferroviarios a lo largo de la costa este de Florida y es el proveedor del servicio a los puertos del sur de Florida: Miami, Everglades y Palm Beach. FEC ofrece servicios a lo largo de unos 565 km de vías férreas propias, con conexiones con CSX y Norfolk Southern en Jacksonville, Florida. FEC cuenta con 69 locomotoras, 8,773 carros de distintos tipos, 103 tractores y 994 trailers.

Texas Pacifico Transportation, LTD (TXPF) su principal actividad está relacionada con la prestación de servicios ferroviarios sobre una vía férrea de 616 km entre Presidio y San Angelo Junction en el estado de Texas. Mantiene intercambios con Union Pacific en Alpine y con BNSF Railway y Fort Worth and Western Railroad en San Angelo Junction. TXPF cuenta con 5 locomotoras.

Intermodal México (IMEX) provee servicios complementarios a las operaciones ferroviarias, tales como servicios intermodales, Cross Dock, servicios de transbordo, pre-trip, mantenimiento de carros ferroviarios y servicios de switching; cuenta con 11 terminales, 1,712 chasis y 36 grúas.

Información a revelar sobre los objetivos de la gerencia y sus estrategias para alcanzar esos objetivos [bloque de texto]

Estrategia de Negocios

GMXT ha implementado una estrategia comercial, bajo tres acciones:

Retener la Base de Clientes Actual. La prioridad de GMXT es retener su base de clientes existente. Para ello, la Compañía continúa invirtiendo una gran cantidad de recursos en fuerza motriz, equipo de arrastre y en modernos proyectos de infraestructura, diseñados para incrementar la eficiencia y confiabilidad del sistema. También se han celebrado contratos de arrendamiento para obtener equipo adicional a fin de proporcionar los equipos especializados requeridos cada vez más por clientes tales como: Cemex, PEMEX Logística, Ternium, De Acero, Crown Imports, entre otros.

Mayores Ventas para los Clientes Existentes. Esta parte de la estrategia de GMXT está encaminada a incrementar la participación de la Compañía en cada una de las necesidades de transporte de sus clientes. A fin de aprovechar la participación que la Compañía tiene en los negocios de los clientes, GMXT ha asignado importantes montos de inversión para incrementar la capacidad de su red y expandir sus instalaciones actuales con objeto de adaptarse a los nuevos tráficos. Dentro de esta estrategia, GMXT ha invertido en instalaciones de trasbordo de carga y centros de acopio a fin de convertir el movimiento de carga terrestre de autotransporte a ferroviario para aquellos clientes que necesiten servicios de puerta a puerta, por no contar con instalaciones ferroviarias. Igualmente se ha invertido en la construcción, ampliación o rehabilitación de espuelas y de vías público, así como en la construcción de terminales intermodales, de trasvase y automotrices.

Obtención de Nuevos Clientes. Con objeto de aumentar su participación de mercado, GMXT cuenta con un programa de prospección de clientes; analizando sus necesidades de transporte, la Compañía ha estado implantando nuevos servicios e innovaciones para los clientes potenciales a través de una venta estratégica en rutas y mercados de mayor valor agregado.

El principal énfasis estratégico ha sido en los siguientes temas:

- Continuar con inversiones a niveles adecuados, con el fin de mantener equipos e instalaciones modernas y eficientes.
- Mantener y mejorar los niveles de servicio a los clientes, enfocándose en los niveles de confiabilidad, seguridad y puntualidad respecto de sus servicios de transporte.
- Aprovechar la relación con su socio UP y con su aliado comercial BNSF, los dos ferrocarriles más grandes de Norteamérica, con la finalidad de tener acceso a las mejores prácticas operativas de la industria de transporte ferroviario.
- Conocer las necesidades específicas de sus clientes, con el propósito de hacer inversiones que permitan a GMXT contar con las instalaciones y Equipo Tractivo y de Arrastre, requeridos por el mercado para poder ofrecerles un servicio de clase mundial.
- Adaptarse a las necesidades de mercado, para captar nuevos clientes que actualmente son atendidos por otros medios de transporte.

Información a revelar sobre los recursos, riesgos y relaciones más significativos de la entidad [bloque de texto]

Grupo México y UP tienen una influencia significativa sobre la conducción del negocio y el control de Ferromex.

Grupo México es propietario del 70.27% de GMéxico Transportes, (17.12% es propiedad de Sinca Inbursa y Grupo Carso y el resto está distribuido en el gran público inversionista). Los propietarios del capital social en circulación de GFM son GMéxico Transportes en 74% y UP con el 26% a través de Mexican Pacific LLC. Grupo México controla a través de GMéxico Transportes, el 52.00% de las acciones representativas de capital social en circulación de GFM, quien es propietaria del 99.99% de las acciones de Ferromex. En general, todas las decisiones importantes de Ferromex deben de ser tomadas de común acuerdo entre Grupo México y UP. Grupo México tiene derecho a nombrar a ocho de los once consejeros de Ferromex, mientras que UP tiene derecho a nombrar tres consejeros. UP y Grupo México conjuntamente, y en algunos casos, conforme a ciertas limitaciones, Grupo México actuando por sí solo, tiene la facultad de tomar, todas las decisiones que requieren la aprobación del Consejo de Administración de Ferromex.

En consecuencia, las decisiones que tomen tanto Grupo México, como UP respecto de Ferromex, podrían ser favorables a sus intereses, pero desfavorables a los intereses de los Tenedores.

El Gobierno Federal tiene la facultad de revocar las Concesiones, en caso de incumplimiento por parte de la Compañía de las obligaciones establecidas en las mismas.

Las Concesiones son el principal activo de Ferromex y Ferrosur, y sin ellas, la Compañía no puede llevar a cabo sus negocios. Las Concesiones pueden ser revocadas por el Gobierno Federal por diversas razones, entre las que se incluyen, el interrumpir la prestación del servicio, realizar actos que impidan la operación de otros concesionarios, incumplir en el pago de indemnizaciones por daños que resulten de la prestación del servicio, aplicar tarifas superiores a las registradas con la SICT o incumplir con las obligaciones de Ferromex y Ferrosur incluidas en las Concesiones. Las Concesiones también pueden darse por terminadas en el caso de liquidación o quiebra de Ferromex y Ferrosur. En cualesquier de los citados casos de revocación o terminación, las operaciones y resultados de operación de Ferromex y Ferrosur se verían afectados en forma adversa y significativa y podrían traer como consecuencia que Ferromex incumpliere sus obligaciones de pago respecto de los Certificados Bursátiles.

Los aumentos en el precio de los combustibles podrían aumentar los costos de operación y podrían afectar negativamente los resultados de operación de Ferromex y Ferrosur.

Hasta el año 2016 la Secretaría de Hacienda y Crédito Público (SHCP) fijaba el precio de las gasolinas por debajo del costo de producción y de importación, por lo que el gobierno federal subsidiaba el costo real de los energéticos.

En el periodo comprendido del 1 de abril al 30 de junio de 2023 el precio del diésel disminuyó 2.2% comparado con el mismo periodo de 2022.

El incremento de ciertas variables macroeconómicas, así como el hecho de que se importa el 60% de las gasolinas y la disminución de la oferta de los combustibles a causa de la reducción de la producción de las refinerías en el país, sugieren que el precio del diésel seguirá creciendo en el corto plazo. El diésel es el principal insumo de Ferromex y Ferrosur, por lo que un alza en su precio provocará un incremento en los costos de operación que nuestros clientes verán reflejado en el cobro del descuento por sobrecargo de combustible.

A mediano plazo, se espera que la apertura del mercado energético repercuta en un decremento en el costo logístico de mover el diésel, resultando en una disminución en el precio final.

Ciertos factores ambientales.

Las operaciones de Ferromex y Ferrosur se encuentran sujetas al cumplimiento de la Legislación vigente en materia ambiental: Leyes, Reglamentos y Normas Oficiales Mexicanas (NOM), por lo que pueden iniciar procedimientos en contra de empresas que las infrinjan; Las instalaciones ferroviarias cumplen actualmente con las regulaciones ambientales, sin embargo, el transporte ferroviario está sujeto a numerosos riesgos, incluyendo accidentes, que podrían ocasionar impactos y daños al ambiente.

La Compañía considera que no será necesario realizar gastos extraordinarios en el futuro a efecto de cumplir con dicha legislación, y que las posibles exposiciones monetarias por eventos ambientales no han afectado ni se espera que afecten la situación financiera de Ferromex y Ferrosur ya que se observan cuidadosamente prácticas de operación de nuestras instalaciones y equipos para evitar y minimizar daños ambientales. Además, se tienen seguros por riesgos ambientales típicos de la industria ferroviaria.

Resultados de las operaciones y perspectivas [bloque de texto]

Estado de Resultados
(Miles de pesos)

	Enero-Junio		Variación	
	2023	**2022**	**MXN**	**%**
Ingresos	28,617,240	26,657,228	1,960,012	7
Costo de ventas	13,712,190	13,330,449	381,741	3
Utilidad bruta	**14,905,050**	**13,326,779**	**1,578,271**	**12**
Gastos generales	5,247,542	5,083,478	164,064	3
Otros gastos (ingresos)	(191,119)	(188,039)	(3,080)	2
Utilidad de operación	**9,848,627**	**8,431,340**	**1,417,287**	**17**
Costo financiero	1,438,283	1,330,962	107,321	8
Part. en utilidad de asoc.	(44,081)	(41,131)	(2,950)	7
Utilidad antes de imptos.	**8,454,425**	**7,141,509**	**1,312,916**	**18**
Impuestos a la utilidad	2,871,234	2,020,367	850,867	42
Interés minoritario	(1,338,645)	(1,077,519)	(261,126)	24
Utilidad Neta	**4,244,546**	**4,043,623**	**200,923**	**5**
Margen de utilidad	14.83%	15.17%		
EBITDA	**13,610,628**	**12,039,226**	**1,571,402**	**13**
CAPEX	**3,243,916**	**3,325,889**	**(81,973)**	**(2)**

Situación financiera, liquidez y recursos de capital [bloque de texto]

La situación financiera de la entidad se describe en cada una de las notas a los estados financieros que se encuentran en el anexo 800500.

Control interno [bloque de texto]

Control interno

El control interno de la Compañía es aplicado estrictamente mediante las políticas internas a las que se encuentran sujetos los funcionarios y empleados de la Compañía.

El sistema de control interno está apoyado con auditorías internas constantes, que reportan los resultados obtenidos a los directivos y a la Dirección General durante todo el año. Por otra parte, la Compañía cuenta con sistemas informáticos modernos y eficientes, que permiten obtener información al día en tiempo real y que mantiene bases de datos confiables, estos sistemas también facilitan la preparación eficiente de informes financieros.

La Compañía considera que, hasta la fecha, el sistema de control interno ha proporcionado razonable certidumbre de que se han evitado errores significativos o irregularidades, o que los mismos han sido detectados oportunamente.

Información a revelar sobre las medidas de rendimiento fundamentales e indicadores que la gerencia utiliza para evaluar el rendimiento de la entidad con respecto a los objetivos establecidos [bloque de texto]

ANALISIS FINANCIERO

AL 30 DE JUNIO DE 2023 y 2022

	2023	2022
RENTABILIDAD		
* Utilidad / Capital contable promedio - %	**12.3**	**12.0**
* Utilidad / Activo total promedio - %	**7.0**	**6.5**
LIQUIDEZ		
Razón de liquidez - veces	**2.0**	**1.9**
Prueba de ácido - veces	**1.9**	**1.8**
Activo disponible / Activo circulante - %	**52.4**	**50.5**
Rotación de inventarios - días	**37.6**	**39.2**
Días de cuentas por cobrar	**49.0**	**61.0**
APALANCAMIENTO		
Activo disponible / Pasivo total - %	**22.8**	**21.3**
Pasivo corto plazo / Pasivo total - %	**21.5**	**21.9**
Pasivo total-activo disponible. / Cap.contable - veces	**0.6**	**0.7**
Deuda total / (Deuda total + Cap Cont) - %	**30.0**	**30.8**
EFICIENCIA		
* Ingresos / Activo total promedio - veces	**0.5**	**0.4**
* Utilidad neta / Número Total de Empleados	**774.6**	**760.9**
FLUJO DE EFECTIVO		
Inversión neta de bajas/ Depreciación - veces	**0.9**	**0.9**

* Razón anualizada

[110000] Información general sobre estados financieros

Clave de cotización:	GMXT
Periodo cubierto por los estados financieros:	2023-01-01 al 2023-06-30
Fecha de cierre del periodo sobre el que se informa :	2023-06-30
Nombre de la entidad que informa u otras formas de identificación:	GMXT
Descripción de la moneda de presentación :	MXN
Grado de redondeo utilizado en los estados financieros:	Miles de pesos
Consolidado:	Si
Número De Trimestre:	2
Tipo de emisora:	ICS
Explicación del cambio en el nombre de la entidad que informa u otras formas de identificación desde el final del periodo sobre el que se informa precedente:	
Descripción de la naturaleza de los estados financieros:	Los Estados Financieros presentados, muestran la posición financiera de la compañía y los resultados de sus operaciones por el periodo comprendido del 1 de enero al 30 de junio de 2023, por lo que sirven de base para la elaboración de planes futuros y el diseño de políticas efectivas para la compañía.

Información a revelar sobre información general sobre los estados financieros [bloque de texto]

Seguimiento de análisis [bloque de texto]

[210000] Estado de situación financiera, circulante/no circulante

Concepto	Cierre Trimestre Actual 2023-06-30	Cierre Ejercicio Anterior 2022-12-31
Estado de situación financiera [sinopsis]		
Activos [sinopsis]		
Activos circulantes[sinopsis]		
Efectivo y equivalentes de efectivo	11,793,539,000	14,106,888,000
Clientes y otras cuentas por cobrar	7,978,932,000	7,775,956,000
Impuestos por recuperar	1,044,066,000	1,205,251,000
Otros activos financieros	0	0
Inventarios	1,099,424,000	1,102,998,000
Activos biológicos	0	0
Otros activos no financieros	597,122,000	302,312,000
Total activos circulantes distintos de los activos no circulantes o grupo de activos para su disposición clasificados como mantenidos para la venta	22,513,083,000	24,493,405,000
Activos mantenidos para la venta	0	0
Total de activos circulantes	22,513,083,000	24,493,405,000
Activos no circulantes [sinopsis]		
Clientes y otras cuentas por cobrar no circulantes	0	0
Impuestos por recuperar no circulantes	0	0
Inventarios no circulantes	0	0
Activos biológicos no circulantes	0	0
Otros activos financieros no circulantes	0	0
Inversiones registradas por método de participación	0	0
Inversiones en subsidiarias, negocios conjuntos y asociadas	867,037,000	485,180,000
Propiedades, planta y equipo	84,173,382,000	89,590,435,000
Propiedades de inversión	0	0
Activos por derechos de uso	5,323,550,000	5,661,056,000
Crédito mercantil	3,643,164,000	4,066,138,000
Activos intangibles distintos al crédito mercantil	1,616,186,000	1,185,890,000
Activos por impuestos diferidos	0	0
Otros activos no financieros no circulantes	90,420,000	87,991,000
Total de activos no circulantes	95,713,739,000	101,076,690,000
Total de activos	118,226,822,000	125,570,095,000
Capital Contable y Pasivos [sinopsis]		
Pasivos [sinopsis]		
Pasivos Circulantes [sinopsis]		
Proveedores y otras cuentas por pagar a corto plazo	5,788,766,000	5,720,702,000
Impuestos por pagar a corto plazo	931,424,000	1,123,706,000
Otros pasivos financieros a corto plazo	1,748,558,000	1,751,174,000
Pasivos por arrendamientos a corto plazo	1,414,729,000	1,585,589,000
Otros pasivos no financieros a corto plazo	761,103,000	1,150,536,000
Provisiones circulantes [sinopsis]		
Provisiones por beneficios a los empleados a corto plazo	0	0
Otras provisiones a corto plazo	433,702,000	239,442,000
Total provisiones circulantes	433,702,000	239,442,000
Total de pasivos circulantes distintos de los pasivos atribuibles a activos mantenidos para la venta	11,078,282,000	11,571,149,000
Pasivos atribuibles a activos mantenidos para la venta	0	0
Total de pasivos circulantes	11,078,282,000	11,571,149,000
Pasivos a largo plazo [sinopsis]		
Proveedores y otras cuentas por pagar a largo plazo	909,084,000	1,050,586,000
Impuestos por pagar a largo plazo	0	0

Concepto	Cierre Trimestre Actual 2023-06-30	Cierre Ejercicio Anterior 2022-12-31
Otros pasivos financieros a largo plazo	26,851,125,000	26,886,811,000
Pasivos por arrendamientos a largo plazo	2,910,833,000	3,731,557,000
Otros pasivos no financieros a largo plazo	0	0
Provisiones a largo plazo [sinopsis]		
Provisiones por beneficios a los empleados a Largo plazo	440,919,000	413,713,000
Otras provisiones a largo plazo	0	0
Total provisiones a largo plazo	440,919,000	413,713,000
Pasivo por impuestos diferidos	9,455,066,000	10,440,733,000
Total de pasivos a Largo plazo	40,567,027,000	42,523,400,000
Total pasivos	51,645,309,000	54,094,549,000
Capital Contable [sinopsis]		
Capital social	10,666,492,000	10,666,492,000
Prima en emisión de acciones	7,724,156,000	7,724,156,000
Acciones en tesorería	3,204,457,000	2,808,231,000
Utilidades acumuladas	45,143,173,000	45,252,706,000
Otros resultados integrales acumulados	(3,097,151,000)	1,684,185,000
Total de la participación controladora	57,232,213,000	62,519,308,000
Participación no controladora	9,349,300,000	8,956,238,000
Total de capital contable	66,581,513,000	71,475,546,000
Total de capital contable y pasivos	118,226,822,000	125,570,095,000

[310000] Estado de resultados, resultado del periodo, por función de gasto

Concepto	Acumulado Año Actual 2023-01-01 - 2023-06-30	Acumulado Año Anterior 2022-01-01 - 2022-06-30	Trimestre Año Actual 2023-04-01 - 2023-06-30	Trimestre Año Anterior 2022-04-01 - 2022-06-30
Resultado de periodo [sinopsis]				
Utilidad (pérdida) [sinopsis]				
Ingresos	28,617,240,000	26,657,228,000	14,363,836,000	13,438,018,000
Costo de ventas	13,712,190,000	13,330,449,000	6,983,605,000	6,885,758,000
Utilidad bruta	14,905,050,000	13,326,779,000	7,380,231,000	6,552,260,000
Gastos de venta	0	0	0	0
Gastos de administración	5,247,542,000	5,083,478,000	2,606,373,000	2,583,895,000
Otros ingresos	191,119,000	188,039,000	105,148,000	138,048,000
Otros gastos	0	0	0	0
Utilidad (pérdida) de operación	9,848,627,000	8,431,340,000	4,879,006,000	4,106,413,000
Ingresos financieros	1,592,260,000	503,153,000	915,873,000	397,685,000
Gastos financieros	3,030,543,000	1,834,115,000	1,583,315,000	1,059,237,000
Participación en la utilidad (pérdida) de asociadas y negocios conjuntos	44,081,000	41,131,000	22,660,000	32,786,000
Utilidad (pérdida) antes de impuestos	8,454,425,000	7,141,509,000	4,234,224,000	3,477,647,000
Impuestos a la utilidad	2,871,234,000	2,020,367,000	1,420,253,000	929,206,000
Utilidad (pérdida) de operaciones continuas	5,583,191,000	5,121,142,000	2,813,971,000	2,548,441,000
Utilidad (pérdida) de operaciones discontinuadas	0	0	0	0
Utilidad (pérdida) neta	5,583,191,000	5,121,142,000	2,813,971,000	2,548,441,000
Utilidad (pérdida), atribuible a [sinopsis]				
Utilidad (pérdida) atribuible a la participación controladora	4,244,546,000	4,043,623,000	2,140,365,000	2,032,937,000
Utilidad (pérdida) atribuible a la participación no controladora	1,338,645,000	1,077,519,000	673,606,000	515,504,000
Utilidad por acción [bloque de texto]				
Utilidad por acción [sinopsis]				
Utilidad por acción [partidas]				
Utilidad por acción básica [sinopsis]				
Utilidad (pérdida) básica por acción en operaciones continuas	0.9735	0.929	0.4909	0.467
Utilidad (pérdida) básica por acción en operaciones discontinuadas	0	0	0	0
Total utilidad (pérdida) básica por acción	0.9735	0.929	0.4909	0.467
Utilidad por acción diluida [sinopsis]				
Utilidad (pérdida) básica por acción diluida en operaciones continuas	0	0	0	0
Utilidad (pérdida) básica por acción diluida en operaciones discontinuadas	0	0	0	0
Total utilidad (pérdida) básica por acción diluida	0	0	0	0

[410000] Estado del resultado integral, componentes ORI presentados netos de impuestos

Concepto	Acumulado Año Actual 2023-01-01 - 2023-06-30	Acumulado Año Anterior 2022-01-01 - 2022-06-30	Trimestre Año Actual 2023-04-01 - 2023-06-30	Trimestre Año Anterior 2022-04-01 - 2022-06-30
Estado del resultado integral [sinopsis]				
Utilidad (pérdida) neta	5,583,191,000	5,121,142,000	2,813,971,000	2,548,441,000
Otro resultado integral [sinopsis]				
Componentes de otro resultado integral que no se reclasificarán a resultados, neto de impuestos [sinopsis]				
Otro resultado integral, neto de impuestos, utilidad (pérdida) de inversiones en instrumentos de capital	(4,687,628,000)	(1,159,014,000)	(2,234,284,000)	7,882,000
Otro resultado integral, neto de impuestos, utilidad (pérdida) por revaluación	(96,045,000)	12,908,000	(6,438,000)	(46,240,000)
Otro resultado integral, neto de impuestos, utilidad (pérdida) por nuevas mediciones de planes de beneficios definidos	0	0	0	0
Otro resultado integral, neto de impuestos, cambio en el valor razonable de pasivos financieros atribuible a cambios en el riesgo de crédito del pasivo	0	0	0	0
Otro resultado integral, neto de impuestos, utilidad (pérdida) en instrumentos de cobertura que cubren inversiones en instrumentos de capital	0	0	0	0
Participación de otro resultado integral de asociadas y negocios conjuntos que no se reclasificará a resultados, neto de impuestos	0	0	0	0
Total otro resultado integral que no se reclasificará a resultados, neto de impuestos	(4,783,673,000)	(1,146,106,000)	(2,240,722,000)	(38,358,000)
Componentes de otro resultado integral que se reclasificarán a resultados, neto de impuestos [sinopsis]				
Efecto por conversión [sinopsis]				
Utilidad (pérdida) de efecto por conversión, neta de impuestos	0	0	0	0
Reclasificación de efecto por conversión, neto de impuestos	0	0	0	0
Efecto por conversión, neto de impuestos	0	0	0	0
Activos financieros disponibles para la venta [sinopsis]				
Utilidad (pérdida) por cambios en valor razonable de activos financieros disponibles para la venta, neta de impuestos	0	0	0	0
Reclasificación de la utilidad (pérdida) por cambios en valor razonable de activos financieros disponibles para la venta, neta de impuestos	0	0	0	0
Cambios en valor razonable de activos financieros disponibles para la venta, neto de impuestos	0	0	0	0
Coberturas de flujos de efectivo [sinopsis]				
Utilidad (pérdida) por coberturas de flujos de efectivo, neta de impuestos	0	0	0	0
Reclasificación de la utilidad (pérdida) por coberturas de flujos de efectivo, neta de impuestos	0	0	0	0
Importes eliminados del capital incluidos en el valor contable de activos (pasivos) no financieros que se hayan adquirido o incurrido mediante una transacción prevista de cobertura altamente probable, neto de impuestos	0	0	0	0
Coberturas de flujos de efectivo, neto de impuestos	0	0	0	0
Coberturas de inversiones netas en negocios en el extranjero [sinopsis]				
Utilidad (pérdida) por coberturas de inversiones netas en negocios en el extranjero, neto de impuestos	0	0	0	0
Reclasificación por coberturas de inversiones netas en negocios en el extranjero, neto de impuestos	0	0	0	0
Coberturas de inversiones netas en negocios en el extranjero, neto de impuestos	0	0	0	0
Cambios en el valor temporal de las opciones [sinopsis]				
Utilidad (pérdida) por cambios en el valor temporal de las opciones, neta de impuestos	0	0	0	0
Reclasificación de cambios en el valor temporal de las opciones, neto de impuestos	0	0	0	0
Cambios en el valor temporal de las opciones, neto de impuestos	0	0	0	0
Cambios en el valor de contratos a futuro [sinopsis]				
Utilidad (pérdida) por cambios en el valor de contratos a futuro, neta de impuestos	0	0	0	0
Reclasificación de cambios en el valor de contratos a futuro, neto de impuestos	0	0	0	0

Concepto	Acumulado Año Actual 2023-01-01 - 2023-06-30	Acumulado Año Anterior 2022-01-01 - 2022-06-30	Trimestre Año Actual 2023-04-01 - 2023-06-30	Trimestre Año Anterior 2022-04-01 - 2022-06-30
Cambios en el valor de contratos a futuro, neto de impuestos	0	0	0	0
Cambios en el valor de márgenes con base en moneda extranjera [sinopsis]				
Utilidad (pérdida) por cambios en el valor de márgenes con base en moneda extranjera, neta de impuestos	0	0	0	0
Reclasificación de cambios en el valor de márgenes con base en moneda extranjera, neto de impuestos	0	0	0	0
Cambios en el valor de márgenes con base en moneda extranjera, neto de impuestos	0	0	0	0
Activos financieros a valor razonable a través del ORI [sinopsis]				
Utilidad (pérdida) en activos financieros a valor razonable a través del ORI, neto de impuestos	0	0	0	0
Ajustes por reclasificación de activos financieros a valor razonable a través del ORI, neto de impuestos	0	0	0	0
Monto del capital eliminado o ajustado contra el valor razonable de activos financieros reclasificados a través del ORI, neto de impuestos	0	0	0	0
ORI, neto de impuestos, de activos financieros a valor razonable a través del ORI	0	0	0	0
Participación de otro resultado integral de asociadas y negocios conjuntos que se reclasificará a resultados, neto de impuestos	0	0	0	0
Total otro resultado integral que se reclasificará al resultado del periodo, neto de impuestos	0	0	0	0
Total otro resultado integral	(4,783,673,000)	(1,146,106,000)	(2,240,722,000)	(38,358,000)
Resultado integral total	799,518,000	3,975,036,000	573,249,000	2,510,083,000
Resultado integral atribuible a [sinopsis]				
Resultado integral atribuible a la participación controladora	(536,790,000)	2,874,722,000	(99,532,000)	1,987,782,000
Resultado integral atribuible a la participación no controladora	1,336,308,000	1,100,314,000	672,781,000	522,301,000

[520000] Estado de flujos de efectivo, método indirecto

Concepto	Acumulado Año Actual 2023-01-01 - 2023-06-30	Acumulado Año Anterior 2022-01-01 - 2022-06-30
Estado de flujos de efectivo [sinopsis]		
Flujos de efectivo procedentes de (utilizados en) actividades de operación [sinopsis]		
Utilidad (pérdida) neta	5,583,191,000	5,121,142,000
Ajustes para conciliar la utilidad (pérdida) [sinopsis]		
+ Operaciones discontinuas	0	0
+ Impuestos a la utilidad	2,871,234,000	2,020,367,000
+ (-) Ingresos y gastos financieros, neto	902,317,000	1,069,157,000
+ Gastos de depreciación y amortización	3,762,001,000	3,607,886,000
+ Deterioro de valor (reversiones de pérdidas por deterioro de valor) reconocidas en el resultado del periodo	0	0
+ Provisiones	0	0
+ (-) Pérdida (utilidad) de moneda extranjera no realizadas	0	0
+ Pagos basados en acciones	0	0
+ (-) Pérdida (utilidad) del valor razonable	0	147,302,000
- Utilidades no distribuidas de asociadas	0	0
+ (-) Pérdida (utilidad) por la disposición de activos no circulantes	45,858,000	(4,438,000)
+ Participación en asociadas y negocios conjuntos	(44,081,000)	(41,131,000)
+ (-) Disminuciones (incrementos) en los inventarios	3,574,000	(95,067,000)
+ (-) Disminución (incremento) de clientes	(626,163,000)	(2,621,499,000)
+ (-) Disminuciones (incrementos) en otras cuentas por cobrar derivadas de las actividades de operación	(81,642,000)	(103,642,000)
+ (-) Incremento (disminución) de proveedores	(888,578,000)	3,857,855,000
+ (-) Incrementos (disminuciones) en otras cuentas por pagar derivadas de las actividades de operación	(145,822,000)	(2,728,938,000)
+ Otras partidas distintas al efectivo	0	0
+ Otros ajustes para los que los efectos sobre el efectivo son flujos de efectivo de inversión o financiamiento	0	0
+ Ajuste lineal de ingresos por arrendamientos	0	0
+ Amortización de comisiones por arrendamiento	(60,360,000)	(42,847,000)
+ Ajuste por valor de las propiedades	0	0
+ (-) Otros ajustes para conciliar la utilidad (pérdida)	24,166,000	33,199,000
+ (-) Total ajustes para conciliar la utilidad (pérdida)	5,762,504,000	5,098,204,000
Flujos de efectivo netos procedentes (utilizados en) operaciones	11,345,695,000	10,219,346,000
- Dividendos pagados	0	0
+ Dividendos recibidos	0	0
- Intereses pagados	0	0
+ Intereses recibidos	0	0
+ (-) Impuestos a las utilidades reembolsados (pagados)	2,718,520,000	1,789,407,000
+ (-) Otras entradas (salidas) de efectivo	0	7,374,333,000
Flujos de efectivo netos procedentes de (utilizados en) actividades de operación	8,627,175,000	15,804,272,000
Flujos de efectivo procedentes de (utilizados en) actividades de inversión [sinopsis]		
+ Flujos de efectivo procedentes de la pérdida de control de subsidiarias u otros negocios	0	0
- Flujos de efectivo utilizados para obtener el control de subsidiarias u otros negocios	0	0
+ Otros cobros por la venta de capital o instrumentos de deuda de otras entidades	0	0
- Otros pagos para adquirir capital o instrumentos de deuda de otras entidades	0	0
+ Otros cobros por la venta de participaciones en negocios conjuntos	0	0
- Otros pagos para adquirir participaciones en negocios conjuntos	0	0
+ Importes procedentes de la venta de propiedades, planta y equipo	17,065,000	60,461,000
- Compras de propiedades, planta y equipo	3,243,916,000	3,325,889,000
+ Importes procedentes de ventas de activos intangibles	0	0
- Compras de activos intangibles	0	0
+ Recursos por ventas de otros activos a largo plazo	0	0
- Compras de otros activos a largo plazo	0	0

Concepto	Acumulado Año Actual 2023-01-01 - 2023-06-30	Acumulado Año Anterior 2022-01-01 - 2022-06-30
+ Importes procedentes de subvenciones del gobierno	0	0
- Anticipos de efectivo y préstamos concedidos a terceros	0	0
+ Cobros procedentes del reembolso de anticipos y préstamos concedidos a terceros	0	0
- Pagos derivados de contratos de futuro, a término, de opciones y de permuta financiera	0	0
+ Cobros procedentes de contratos de futuro, a término, de opciones y de permuta financiera	0	0
+ Dividendos recibidos	0	0
- Intereses pagados	0	0
+ Intereses cobrados	395,634,000	236,563,000
+ (-) Impuestos a la utilidad reembolsados (pagados)	0	0
+ (-) Otras entradas (salidas) de efectivo	0	0
Flujos de efectivo netos procedentes de (utilizados en) actividades de inversión	(2,831,217,000)	(3,028,865,000)
Flujos de efectivo procedentes de (utilizados en) actividades de financiamiento[sinopsis]		
+ Importes procedentes por cambios en las participaciones en la propiedad en subsidiarias que no dan lugar a la pérdida de control	0	0
- Pagos por cambios en las participaciones en la propiedad en subsidiarias que no dan lugar a la pérdida de control	0	0
+ Importes procedentes de la emisión de acciones	0	0
+ Importes procedentes de la emisión de otros instrumentos de capital	0	0
- Pagos por adquirir o rescatar las acciones de la entidad	396,226,000	322,200,000
- Pagos por otras aportaciones en el capital	0	0
+ Importes procedentes de préstamos	0	0
- Reembolsos de préstamos	0	0
- Pagos de pasivos por arrendamientos financieros	0	0
- Pagos de pasivos por arrendamientos	1,147,348,000	1,015,549,000
+ Importes procedentes de subvenciones del gobierno	0	0
- Dividendos pagados	5,297,325,000	5,282,348,000
- Intereses pagados	1,268,408,000	1,297,952,000
+ (-) Impuestos a las ganancias reembolsados (pagados)	0	0
+ (-) Otras entradas (salidas) de efectivo	0	0
Flujos de efectivo netos procedentes de (utilizados en) actividades de financiamiento	(8,109,307,000)	(7,918,049,000)
Incremento (disminución) neto de efectivo y equivalentes al efectivo, antes del efecto de los cambios en la tasa de cambio	(2,313,349,000)	4,857,358,000
Efectos de la variación en la tasa de cambio sobre el efectivo y equivalentes al efectivo [sinopsis]		
Efectos de la variación en la tasa de cambio sobre el efectivo y equivalentes al efectivo	0	0
Incremento (disminución) neto de efectivo y equivalentes de efectivo	(2,313,349,000)	4,857,358,000
Efectivo y equivalentes de efectivo al principio del periodo	14,106,888,000	7,729,069,000
Efectivo y equivalentes de efectivo al final del periodo	11,793,539,000	12,586,427,000

[610000] Estado de cambios en el capital contable - Acumulado Actual

Hoja 1 de 3	Componentes del capital contable [eje]								
	Capital social [miembro]	Prima en emisión de acciones [miembro]	Acciones en tesorería [miembro]	Utilidades acumuladas [miembro]	Superávit de revaluación [miembro]	Efecto por conversión [miembro]	Coberturas de flujos de efectivo [miembro]	Utilidad (pérdida) en instrumentos de cobertura que cubren inversiones en instrumentos de capital [miembro]	Variación en el valor temporal de las opciones [miembro]
Estado de cambios en el capital contable [partidas]									
Capital contable al comienzo del periodo	10,666,492,000	7,724,156,000	2,808,231,000	45,252,706,000	0	0	0	0	0
Cambios en el capital contable [sinopsis]									
Resultado integral [sinopsis]									
Utilidad (pérdida) neta	0	0	0	4,244,546,000	0	0	0	0	0
Otro resultado integral	0	0	0	0	0	0	0	0	0
Resultado integral total	0	0	0	4,244,546,000	0	0	0	0	0
Aumento de capital social	0	0	0	0	0	0	0	0	0
Dividendos decretados	0	0	0	4,354,079,000	0	0	0	0	0
Incrementos por otras aportaciones de los propietarios	0	0	0	0	0	0	0	0	0
Disminución por otras distribuciones a los propietarios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por otros cambios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con acciones propias	0	0	396,226,000	0	0	0	0	0	0
Incrementos (disminuciones) por cambios en la participación en subsidiarias que no dan lugar a pérdida de control	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con pagos basados en acciones	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cobertura de flujos de efectivo y se incluyen en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor temporal de las opciones y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor de los contratos a futuro y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambios en el valor de márgenes con base en moneda extranjera y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Total incremento (disminución) en el capital contable	0	0	396,226,000	(109,533,000)	0	0	0	0	0
Capital contable al final del periodo	10,666,492,000	7,724,156,000	3,204,457,000	45,143,173,000	0	0	0	0	0

Hoja 2 de 3	Componentes del capital contable [eje]								
	Variación en el valor de contratos a futuro [miembro]	Variación en el valor de márgenes con base en moneda extranjera [miembro]	Ganancias y pérdidas en activos financieros a valor razonable a través del ORI [miembro]	Utilidad (pérdida) por cambios en valor razonable de activos financieros disponibles para la venta [miembro]	Pagos basados en acciones [miembro]	Nuevas mediciones de planes de beneficios definidos [miembro]	Importes reconocidos en otro resultado integral y acumulados en el capital contable relativos a activos no corrientes o grupos de activos para su disposición mantenidos para la venta [miembro]	Utilidad (pérdida) por inversiones en instrumentos de capital	Reserva para cambios en el valor razonable de pasivos financieros atribuibles a cambios en el riesgo de crédito del pasivo [miembro]
Estado de cambios en el capital contable [partidas]									
Capital contable al comienzo del periodo	0	0	0	0	0	0	0	0	0
Cambios en el capital contable [sinopsis]									
Resultado integral [sinopsis]									
Utilidad (pérdida) neta	0	0	0	0	0	0	0	0	0
Otro resultado integral	0	0	0	0	0	0	0	0	0
Resultado integral total	0	0	0	0	0	0	0	0	0
Aumento de capital social	0	0	0	0	0	0	0	0	0
Dividendos decretados	0	0	0	0	0	0	0	0	0
Incrementos por otras aportaciones de los propietarios	0	0	0	0	0	0	0	0	0
Disminución por otras distribuciones a los propietarios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por otros cambios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con acciones propias	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por cambios en la participación en subsidiarias que no dan lugar a pérdida de control	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con pagos basados en acciones	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cobertura de flujos de efectivo y se incluyen en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor temporal de las opciones y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor de los contratos a futuro y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambios en el valor de márgenes con base en moneda extranjera y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Total incremento (disminución) en el capital contable	0	0	0	0	0	0	0	0	0
Capital contable al final del periodo	0	0	0	0	0	0	0	0	0

Hoja 3 de 3	Componentes del capital contable [eje]							
	Reserva para catástrofes [miembro]	Reserva para estabilización [miembro]	Reserva de componentes de participación discrecional [miembro]	Otros resultados integrales [miembro]	Otros resultados integrales acumulados [miembro]	Capital contable de la participación controladora [miembro]	Participación no controladora [miembro]	Capital contable [miembro]
Estado de cambios en el capital contable [partidas]								
Capital contable al comienzo del periodo	0	0	0	1,684,185,000	1,684,185,000	62,519,308,000	8,956,238,000	71,475,546,000
Cambios en el capital contable [sinopsis]								
Resultado integral [sinopsis]								
Utilidad (pérdida) neta	0	0	0	0	0	4,244,546,000	1,338,645,000	5,583,191,000
Otro resultado integral	0	0	0	(4,781,336,000)	(4,781,336,000)	(4,781,336,000)	(2,337,000)	(4,783,673,000)
Resultado integral total	0	0	0	(4,781,336,000)	(4,781,336,000)	(536,790,000)	1,336,308,000	799,518,000
Aumento de capital social	0	0	0	0	0	0	0	0
Dividendos decretados	0	0	0	0	0	4,354,079,000	943,246,000	5,297,325,000
Incrementos por otras aportaciones de los propietarios	0	0	0	0	0	0	0	0
Disminución por otras distribuciones a los propietarios	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por otros cambios	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con acciones propias	0	0	0	0	0	(396,226,000)	0	(396,226,000)
Incrementos (disminuciones) por cambios en la participación en subsidiarias que no dan lugar a pérdida de control	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con pagos basados en acciones	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cobertura de flujos de efectivo y se incluyen en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor temporal de las opciones y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor de los contratos a futuro y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambios en el valor de márgenes con base en moneda extranjera y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Total incremento (disminución) en el capital contable	0	0	0	(4,781,336,000)	(4,781,336,000)	(5,287,095,000)	393,062,000	(4,894,033,000)
Capital contable al final del periodo	0	0	0	(3,097,151,000)	(3,097,151,000)	57,232,213,000	9,349,300,000	66,581,513,000

[610000] Estado de cambios en el capital contable - Acumulado Anterior

Hoja 1 de 3	Componentes del capital contable [eje]								
	Capital social [miembro]	Prima en emisión de acciones [miembro]	Acciones en tesorería [miembro]	Utilidades acumuladas [miembro]	Superávit de revaluación [miembro]	Efecto por conversión [miembro]	Coberturas de flujos de efectivo [miembro]	Utilidad (pérdida) en instrumentos de cobertura que cubren inversiones en instrumentos de capital [miembro]	Variación en el valor temporal de las opciones [miembro]
Estado de cambios en el capital contable [partidas]									
Capital contable al comienzo del periodo	633,383,000	7,724,156,000	1,711,958,000	44,007,170,000	0	0	0	0	0
Cambios en el capital contable [sinopsis]									
Resultado integral [sinopsis]									
Utilidad (pérdida) neta	0	0	0	4,043,623,000	0	0	0	0	0
Otro resultado integral	0	0	0	0	0	0	0	0	0
Resultado integral total	0	0	0	4,043,623,000	0	0	0	0	0
Aumento de capital social	10,033,109,000	0	0	0	0	0	0	0	0
Dividendos decretados	0	0	0	4,235,260,000	0	0	0	0	0
Incrementos por otras aportaciones de los propietarios	0	0	0	0	0	0	0	0	0
Disminución por otras distribuciones a los propietarios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por otros cambios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con acciones propias	0	0	824,860,000	0	0	0	0	0	0
Incrementos (disminuciones) por cambios en la participación en subsidiarias que no dan lugar a pérdida de control	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con pagos basados en acciones	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cobertura de flujos de efectivo y se incluyen en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor temporal de las opciones y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor de los contratos a futuro y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambios en el valor de márgenes con base en moneda extranjera y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Total incremento (disminución) en el capital contable	10,033,109,000	0	824,860,000	(191,637,000)	0	0	0	0	0
Capital contable al final del periodo	10,666,492,000	7,724,156,000	2,536,818,000	43,815,533,000	0	0	0	0	0

Hoja 2 de 3	Componentes del capital contable [eje]								
	Variación en el valor de contratos a futuro [miembro]	Variación en el valor de márgenes con base en moneda extranjera [miembro]	Ganancias y pérdidas en activos financieros a valor razonable a través del ORI [miembro]	Utilidad (pérdida) por cambios en valor razonable de activos financieros disponibles para la venta [miembro]	Pagos basados en acciones [miembro]	Nuevas mediciones de planes de beneficios definidos [miembro]	Importes reconocidos en otro resultado integral y acumulados en el capital contable relativos a activos no corrientes o grupos de activos para su disposición mantenidos para la venta [miembro]	Utilidad (pérdida) por inversiones en instrumentos de capital	Reserva para cambios en el valor razonable de pasivos financieros atribuibles a cambios en el riesgo de crédito del pasivo [miembro]
Estado de cambios en el capital contable [partidas]									
Capital contable al comienzo del periodo	0	0	0	0	0	0	0	0	0
Cambios en el capital contable [sinopsis]									
Resultado integral [sinopsis]									
Utilidad (pérdida) neta	0	0	0	0	0	0	0	0	0
Otro resultado integral	0	0	0	0	0	0	0	0	0
Resultado integral total	0	0	0	0	0	0	0	0	0
Aumento de capital social	0	0	0	0	0	0	0	0	0
Dividendos decretados	0	0	0	0	0	0	0	0	0
Incrementos por otras aportaciones de los propietarios	0	0	0	0	0	0	0	0	0
Disminución por otras distribuciones a los propietarios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por otros cambios	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con acciones propias	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por cambios en la participación en subsidiarias que no dan lugar a pérdida de control	0	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con pagos basados en acciones	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cobertura de flujos de efectivo y se incluyen en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor temporal de las opciones y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor de los contratos a futuro y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambios en el valor de márgenes con base en moneda extranjera y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0	0
Total incremento (disminución) en el capital contable	0	0		0	0	0	0	0	0
Capital contable al final del periodo	0	0	0	0	0	0	0	0	0

Hoja 3 de 3	Componentes del capital contable [eje]							
	Reserva para catástrofes [miembro]	Reserva para estabilización [miembro]	Reserva de componentes de participación discrecional [miembro]	Otros resultados integrales [miembro]	Otros resultados integrales acumulados [miembro]	Capital contable de la participación controladora [miembro]	Participación no controladora [miembro]	Capital contable [miembro]
Estado de cambios en el capital contable [partidas]								
Capital contable al comienzo del periodo	0	0	0	4,158,405,000	4,158,405,000	54,811,156,000	8,448,505,000	63,259,661,000
Cambios en el capital contable [sinopsis]								
Resultado integral [sinopsis]								
Utilidad (pérdida) neta	0	0	0	0	0	4,043,623,000	1,077,519,000	5,121,142,000
Otro resultado integral	0	0	0	(1,168,901,000)	(1,168,901,000)	(1,168,901,000)	22,795,000	(1,146,106,000)
Resultado integral total	0	0	0	(1,168,901,000)	(1,168,901,000)	2,874,722,000	1,100,314,000	3,975,036,000
Aumento de capital social	0	0	0	0	0	10,033,109,000	0	10,033,109,000
Dividendos decretados	0	0	0	0	0	4,235,260,000	1,047,088,000	5,282,348,000
Incrementos por otras aportaciones de los propietarios	0	0	0	0	0	0	0	0
Disminución por otras distribuciones a los propietarios	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por otros cambios	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con acciones propias	0	0	0	0	0	(824,860,000)	0	(824,860,000)
Incrementos (disminuciones) por cambios en la participación en subsidiarias que no dan lugar a pérdida de control	0	0	0	0	0	0	0	0
Incrementos (disminuciones) por transacciones con pagos basados en acciones	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cobertura de flujos de efectivo y se incluyen en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor temporal de las opciones y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambio en el valor de los contratos a futuro y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Importe eliminado de reserva de cambios en el valor de márgenes con base en moneda extranjera y se incluye en el costo inicial o en otro valor en libros del activo no financiero (pasivo) o compromiso en firme para el que se aplica la contabilidad de cobertura del valor razonable	0	0	0	0	0	0	0	0
Total incremento (disminución) en el capital contable	0	0	0	(1,168,901,000)	(1,168,901,000)	7,847,711,000	53,226,000	7,900,937,000
Capital contable al final del periodo	0	0	0	2,989,504,000	2,989,504,000	62,658,867,000	8,501,731,000	71,160,598,000

[700000] Datos informativos del Estado de situación financiera

Concepto	Cierre Trimestre Actual 2023-06-30	Cierre Ejercicio Anterior 2022-12-31
Datos informativos del estado de situación financiera [sinopsis]		
Capital social nominal	10,666,492,000	10,666,492,000
Capital social por actualización	0	0
Fondos para pensiones y prima de antigüedad	440,919,000	413,713,000
Numero de funcionarios	107	108
Numero de empleados	2,902	2,862
Numero de obreros	7,950	7,700
Numero de acciones en circulación	4,369,940,022	4,369,940,022
Numero de acciones recompradas	9,771,391	17,057,442
Efectivo restringido	0	0
Deuda de asociadas garantizada	0	0

[700002] Datos informativos del estado de resultados

Concepto	Acumulado Año Actual 2023-01-01 - 2023-06-30	Acumulado Año Anterior 2022-01-01 - 2022-06-30	Trimestre Año Actual 2023-04-01 - 2023-06-30	Trimestre Año Anterior 2022-04-01 - 2022-06-30
Datos informativos del estado de resultados [sinopsis]				
Depreciación y amortización operativa	3,762,001,000	3,607,886,000	1,883,637,000	1,824,244,000

[700003] Datos informativos- Estado de resultados 12 meses

Concepto	Año Actual 2022-07-01 - 2023-06-30	Año Anterior 2021-07-01 - 2022-06-30
Datos informativos - Estado de resultados 12 meses [sinopsis]		
Ingresos	56,532,021,000	52,850,792,000
Utilidad (pérdida) de operación	19,026,327,000	16,470,670,000
Utilidad (pérdida) neta	12,598,947,000	10,053,619,000
Utilidad (pérdida) atribuible a la participación controladora	10,037,552,000	7,882,096,000
Depreciación y amortización operativa	7,448,994,000	7,109,360,000

[800001] Anexo - Desglose de créditos

Institución [eje]	Institución Extranjera (Si/No)	Fecha de firma/contrato	Fecha de vencimiento	Tasa de interés y/o sobretasa	Denominación [eje]											
					Moneda nacional [miembro]						Moneda extranjera [miembro]					
					Intervalo de tiempo [eje]						Intervalo de tiempo [eje]					
					Año actual [miembro]	Hasta 1 año [miembro]	Hasta 2 años [miembro]	Hasta 3 años [miembro]	Hasta 4 años [miembro]	Hasta 5 años o más [miembro]	Año actual [miembro]	Hasta 1 año [miembro]	Hasta 2 años [miembro]	Hasta 3 años [miembro]	Hasta 4 años [miembro]	Hasta 5 años o más [miembro]
Bancarios [sinopsis]																
Comercio exterior (bancarios)																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Con garantía (bancarios)																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Banca comercial																
State Board of Administration of Florida	SI	2014-10-10	2034-10-01	FIJA 3.5%							23,849,000	0	24,518,000	25,382,000	26,276,000	246,321,000
TOTAL					0	0	0	0	0	0	23,849,000	0	24,518,000	25,382,000	26,276,000	246,321,000
Otros bancarios																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Total bancarios																
TOTAL					0	0	0	0	0	0	23,849,000	0	24,518,000	25,382,000	26,276,000	246,321,000
Bursátiles y colocaciones privadas [sinopsis]																
Bursátiles listadas en bolsa (quirografarios)																
CB-FERROMX 21	NO	2021-05-18	2028-05-09	FIJA 7.19%						1,688,697,000						
CB-FERROMX 21-2	NO	2021-05-18	2025-05-13	TIIE 28 DIAS + 0.20%			3,303,827,000									
CB-FERROMX 14	NO	2014-10-20	2024-10-07	FIJA 6.76%			1,998,926,000									
CB-GMXT 17	NO	2017-09-27	2027-09-17	FIJA 7.990%						13,472,430,000						
CB-GMXT 19	NO	2019-09-23	2029-09-10	FIJA 8.17%						6,064,748,000						
CB-GMXT 19-2	NO	2019-09-23	2023-09-18	TIIE 28 DIAS + 0.15%	1,724,709,000											
TOTAL					1,724,709,000	0	5,302,753,000	0	0	21,225,875,000	0	0	0	0	0	0
Bursátiles listadas en bolsa (con garantía)																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Colocaciones privadas (quirografarios)																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Colocaciones privadas (con garantía)																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Total bursátiles listados en bolsa y colocaciones privadas																
TOTAL					1,724,709,000	0	5,302,753,000	0	0	21,225,875,000	0	0	0	0	0	0
Otros pasivos circulantes y no circulantes con costo [sinopsis]																
Otros pasivos circulantes y no circulantes con costo																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Total otros pasivos circulantes y no circulantes con costo																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Proveedores [sinopsis]																
Proveedores																
PROVEEDORES NACIONALES M.N.	NO	2023-01-01	2023-01-01			1,848,070,000										
PROVEEDORES NACIONALES M.E.	SI	2023-01-01	2023-01-01									127,621,000				
TOTAL					0	1,848,070,000	0	0	0	0	0	127,621,000	0	0	0	0
Total proveedores																

Institución [eje]	Institución Extranjera (Si/No)	Fecha de firma/contrato	Fecha de vencimiento	Tasa de interés y/o sobretasa	Denominación [eje]											
					Moneda nacional [miembro]						Moneda extranjera [miembro]					
					Intervalo de tiempo [eje]						Intervalo de tiempo [eje]					
					Año actual [miembro]	Hasta 1 año [miembro]	Hasta 2 años [miembro]	Hasta 3 años [miembro]	Hasta 4 años [miembro]	Hasta 5 años o más [miembro]	Año actual [miembro]	Hasta 1 año [miembro]	Hasta 2 años [miembro]	Hasta 3 años [miembro]	Hasta 4 años [miembro]	Hasta 5 años o más [miembro]
TOTAL					0	1,848,070,000	0	0	0	0	0	127,621,000	0	0	0	0
Otros pasivos circulantes y no circulantes sin costo [sinopsis]																
Otros pasivos circulantes y no circulantes sin costo																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Total otros pasivos circulantes y no circulantes sin costo																
TOTAL					0	0	0	0	0	0	0	0	0	0	0	0
Total de créditos																
TOTAL					1,724,709,000	1,848,070,000	5,302,753,000	0	0	21,225,875,000	23,849,000	127,621,000	24,518,000	25,382,000	26,276,000	246,321,000

[800003] Anexo - Posición monetaria en moneda extranjera

	Monedas [eje]				
	Dólares [miembro]	Dólares contravalor pesos [miembro]	Otras monedas contravalor dólares [miembro]	Otras monedas contravalor pesos [miembro]	Total de pesos [miembro]
Posición en moneda extranjera [sinopsis]					
Activo monetario [sinopsis]					
Activo monetario circulante	704,969,000	12,035,230,000	0	0	12,035,230,000
Activo monetario no circulante	0	0	0	0	0
Total activo monetario	704,969,000	12,035,230,000	0	0	12,035,230,000
Pasivo monetario [sinopsis]					
Pasivo monetario circulante	192,155,000	3,280,470,000	0	0	3,280,470,000
Pasivo monetario no circulante	142,409,000	2,431,206,000	0	0	2,431,206,000
Total pasivo monetario	334,564,000	5,711,676,000	0	0	5,711,676,000
Monetario activo (pasivo) neto	370,405,000	6,323,554,000	0	0	6,323,554,000

[800005] Anexo - Distribución de ingresos por producto

	Tipo de ingresos [eje]			
	Ingresos nacionales [miembro]	Ingresos por exportación [miembro]	Ingresos de subsidiarias en el extranjero [miembro]	Ingresos totales [miembro]
INGRESOS POR FLETES				
INGRESOS POR FLETES	28,024,546,000	0	0	28,024,546,000
INGRESOS (EGRESOS) INTERLINEALES				
INGRESOS (EGRESOS) INTERLINEALES	(153,333,000)	0	0	(153,333,000)
INGRESOS TURISMO				
INGRESOS TURISMO	102,178,000	0	0	102,178,000
OTROS INGRESOS				
OTROS INGRESOS	643,849,000	0	0	643,849,000
TOTAL	28,617,240,000	0	0	28,617,240,000

[800007] Anexo - Instrumentos financieros derivados

Discusión de la administración sobre las políticas de uso de instrumentos financieros derivados, explicando si dichas políticas permiten que sean utilizados únicamente con fines de cobertura o con otro fines tales como negociación [bloque de texto]

La Compañía no tiene Instrumentos Financieros Derivados.

[800100] Notas - Subclasificaciones de activos, pasivos y capital contable

Concepto	Cierre Trimestre Actual 2023-06-30	Cierre Ejercicio Anterior 2022-12-31
Subclasificaciones de activos, pasivos y capital contable [sinopsis]		
Efectivo y equivalentes de efectivo [sinopsis]		
Efectivo [sinopsis]		
Efectivo en caja	709,000	709,000
Saldos en bancos	2,822,769,000	1,991,081,000
Total efectivo	2,823,478,000	1,991,790,000
Equivalentes de efectivo [sinopsis]		
Depósitos a corto plazo, clasificados como equivalentes de efectivo	0	0
Inversiones a corto plazo, clasificados como equivalentes de efectivo	8,970,061,000	12,115,098,000
Otros acuerdos bancarios, clasificados como equivalentes de efectivo	0	0
Total equivalentes de efectivo	8,970,061,000	12,115,098,000
Otro efectivo y equivalentes de efectivo	0	0
Total de efectivo y equivalentes de efectivo	11,793,539,000	14,106,888,000
Clientes y otras cuentas por cobrar [sinopsis]		
Clientes	7,783,316,000	7,180,638,000
Cuentas por cobrar circulantes a partes relacionadas	165,514,000	569,762,000
Anticipos circulantes [sinopsis]		
Anticipos circulantes a proveedores	0	0
Gastos anticipados circulantes	0	0
Total anticipos circulantes	0	0
Cuentas por cobrar circulantes procedentes de impuestos distintos a los impuestos a las ganancias	0	0
Impuesto al valor agregado por cobrar circulante	0	0
Cuentas por cobrar circulantes por venta de propiedades	0	0
Cuentas por cobrar circulantes por alquiler de propiedades	0	0
Otras cuentas por cobrar circulantes	30,102,000	25,556,000
Total de clientes y otras cuentas por cobrar	7,978,932,000	7,775,956,000
Clases de inventarios circulantes [sinopsis]		
Materias primas circulantes y suministros de producción circulantes [sinopsis]		
Materias primas	0	0
Suministros de producción circulantes	0	0
Total de las materias primas y suministros de producción	0	0
Mercancía circulante	0	0
Trabajo en curso circulante	0	0
Productos terminados circulantes	0	0
Piezas de repuesto circulantes	0	0
Propiedad para venta en curso ordinario de negocio	0	0
Otros inventarios circulantes	1,099,424,000	1,102,998,000
Total inventarios circulantes	1,099,424,000	1,102,998,000
Activos mantenidos para la venta [sinopsis]		
Activos no circulantes o grupos de activos para su disposición clasificados como mantenidos para la venta	0	0
Activos no circulantes o grupos de activos para su disposición clasificados como mantenidos para distribuir a los propietarios	0	0
Total de activos mantenidos para la venta	0	0
Clientes y otras cuentas por cobrar no circulantes [sinopsis]		
Clientes no circulantes	0	0
Cuentas por cobrar no circulantes debidas por partes relacionadas	0	0
Anticipos de pagos no circulantes	0	0
Anticipos de arrendamientos no circulantes	0	0
Cuentas por cobrar no circulantes procedentes de impuestos distintos a los impuestos a las ganancias	0	0
Impuesto al valor agregado por cobrar no circulante	0	0

Concepto	Cierre Trimestre Actual 2023-06-30	Cierre Ejercicio Anterior 2022-12-31
Cuentas por cobrar no circulantes por venta de propiedades	0	0
Cuentas por cobrar no circulantes por alquiler de propiedades	0	0
Rentas por facturar	0	0
Otras cuentas por cobrar no circulantes	0	0
Total clientes y otras cuentas por cobrar no circulantes	0	0
Inversiones en subsidiarias, negocios conjuntos y asociadas [sinopsis]		
Inversiones en subsidiarias	0	0
Inversiones en negocios conjuntos	0	0
Inversiones en asociadas	867,037,000	485,180,000
Total de inversiones en subsidiarias, negocios conjuntos y asociadas	867,037,000	485,180,000
Propiedades, planta y equipo [sinopsis]		
Terrenos y construcciones [sinopsis]		
Terrenos	22,163,399,000	25,008,775,000
Edificios	1,124,001,000	1,371,606,000
Total terrenos y edificios	23,287,400,000	26,380,381,000
Maquinaria	14,566,318,000	15,735,236,000
Vehículos [sinopsis]		
Buques	0	0
Aeronave	0	0
Equipos de Transporte	699,436,000	783,291,000
Total vehículos	699,436,000	783,291,000
Enseres y accesorios	0	0
Equipo de oficina	23,053,000	23,561,000
Activos tangibles para exploración y evaluación	0	0
Activos de minería	0	0
Activos de petróleo y gas	0	0
Construcciones en proceso	10,747,944,000	10,034,924,000
Anticipos para construcciones	0	0
Otras propiedades, planta y equipo	34,849,231,000	36,633,042,000
Total de propiedades, planta y equipo	84,173,382,000	89,590,435,000
Propiedades de inversión [sinopsis]		
Propiedades de inversión	0	0
Propiedades de inversión en construcción o desarrollo	0	0
Anticipos para la adquisición de propiedades de inversión	0	0
Total de Propiedades de inversión	0	0
Activos intangibles y crédito mercantil [sinopsis]		
Activos intangibles distintos de crédito mercantil [sinopsis]		
Marcas comerciales	0	0
Activos intangibles para exploración y evaluación	0	0
Cabeceras de periódicos o revistas y títulos de publicaciones	0	0
Programas de computador	0	0
Licencias y franquicias	0	0
Derechos de propiedad intelectual, patentes y otros derechos de propiedad industrial, servicio y derechos de explotación	0	0
Recetas, fórmulas, modelos, diseños y prototipos	0	0
Activos intangibles en desarrollo	0	0
Otros activos intangibles	1,616,186,000	1,185,890,000
Total de activos intangibles distintos al crédito mercantil	1,616,186,000	1,185,890,000
Crédito mercantil	3,643,164,000	4,066,138,000
Total activos intangibles y crédito mercantil	5,259,350,000	5,252,028,000
Proveedores y otras cuentas por pagar [sinopsis]		
Proveedores circulantes	1,975,691,000	2,160,663,000
Cuentas por pagar circulantes a partes relacionadas	202,816,000	183,130,000
Pasivos acumulados (devengados) e ingresos diferidos clasificados como circulantes [sinopsis]		

Concepto	Cierre Trimestre Actual 2023-06-30	Cierre Ejercicio Anterior 2022-12-31
Ingresos diferidos clasificados como circulantes	0	0
Ingreso diferido por alquileres clasificado como circulante	0	0
Pasivos acumulados (devengados) clasificados como circulantes	2,203,802,000	2,403,786,000
Beneficios a los empleados a corto plazo acumulados (o devengados)	0	0
Total de pasivos acumulados (devengados) e ingresos diferidos clasificados como circulantes	2,203,802,000	2,403,786,000
Cuentas por pagar circulantes de la seguridad social e impuestos distintos de los impuestos a las ganancias	1,261,647,000	905,193,000
Impuesto al valor agregado por pagar circulante	0	0
Retenciones por pagar circulantes	144,810,000	67,930,000
Otras cuentas por pagar circulantes	0	0
Total proveedores y otras cuentas por pagar a corto plazo	5,788,766,000	5,720,702,000
Otros pasivos financieros a corto plazo [sinopsis]		
Créditos Bancarios a corto plazo	23,849,000	27,047,000
Créditos Bursátiles a corto plazo	1,724,709,000	1,724,127,000
Otros créditos con costo a corto plazo	0	0
Otros créditos sin costo a corto plazo	0	0
Otros pasivos financieros a corto plazo	0	0
Total de otros pasivos financieros a corto plazo	1,748,558,000	1,751,174,000
Proveedores y otras cuentas por pagar a largo plazo [sinopsis]		
Proveedores no circulantes	0	0
Cuentas por pagar no circulantes con partes relacionadas	15,971,000	15,971,000
Pasivos acumulados (devengados) e ingresos diferidos clasificados como no circulantes [sinopsis]		
Ingresos diferidos clasificados como no circulantes	0	0
Ingreso diferido por alquileres clasificado como no circulante	0	0
Pasivos acumulados (devengados) clasificados como no corrientes	0	0
Total de pasivos acumulados (devengados) e ingresos diferidos clasificados como no circulantes	0	0
Cuentas por pagar no circulantes a la seguridad social e impuestos distintos de los impuestos a las ganancias	893,113,000	1,034,615,000
Impuesto al valor agregado por pagar no circulante	0	0
Retenciones por pagar no circulantes	0	0
Otras cuentas por pagar no circulantes	0	0
Total de proveedores y otras cuentas por pagar a largo plazo	909,084,000	1,050,586,000
Otros pasivos financieros a largo plazo [sinopsis]		
Créditos Bancarios a largo plazo	322,497,000	365,653,000
Créditos Bursátiles a largo plazo	26,528,628,000	26,521,158,000
Otros créditos con costo a largo plazo	0	0
Otros créditos sin costo a largo plazo	0	0
Otros pasivos financieros a largo plazo	0	0
Total de otros pasivos financieros a largo plazo	26,851,125,000	26,886,811,000
Otras provisiones [sinopsis]		
Otras provisiones a largo plazo	0	0
Otras provisiones a corto plazo	433,702,000	239,442,000
Total de otras provisiones	433,702,000	239,442,000
Otros resultados integrales acumulados [sinopsis]		
Superávit de revaluación	0	0
Reserva de diferencias de cambio por conversión	0	0
Reserva de coberturas del flujo de efectivo	0	0
Reserva de ganancias y pérdidas por nuevas mediciones de activos financieros disponibles para la venta	0	0
Reserva de la variación del valor temporal de las opciones	0	0
Reserva de la variación en el valor de contratos a futuro	0	0
Reserva de la variación en el valor de márgenes con base en moneda extranjera	0	0
Reserva de ganancias y pérdidas en activos financieros a valor razonable a través del ORI	0	0
Reserva por cambios en valor razonable de activos financieros disponibles para la venta	0	0
Reserva de pagos basados en acciones	0	0
Reserva de nuevas mediciones de planes de beneficios definidos	0	0

Concepto	Cierre Trimestre Actual 2023-06-30	Cierre Ejercicio Anterior 2022-12-31
Importes reconocidos en otro resultado integral y acumulados en el capital relativos a activos no circulantes o grupos de activos para su disposición mantenidos para la venta	0	0
Reserva de ganancias y pérdidas por inversiones en instrumentos de capital	0	0
Reserva de cambios en el valor razonable de pasivos financieros atribuibles a cambios en el riesgo de crédito del pasivo	0	0
Reserva para catástrofes	0	0
Reserva para estabilización	0	0
Reserva de componentes de participación discrecional	0	0
Reserva de componentes de capital de instrumentos convertibles	0	0
Reservas para reembolsos de capital	0	0
Reserva de fusiones	0	0
Reserva legal	0	0
Otros resultados integrales	(3,097,151,000)	1,684,185,000
Total otros resultados integrales acumulados	(3,097,151,000)	1,684,185,000
Activos (pasivos) netos [sinopsis]		
Activos	118,226,822,000	125,570,095,000
Pasivos	51,645,309,000	54,094,549,000
Activos (pasivos) netos	66,581,513,000	71,475,546,000
Activos (pasivos) circulantes netos [sinopsis]		
Activos circulantes	22,513,083,000	24,493,405,000
Pasivos circulantes	11,078,282,000	11,571,149,000
Activos (pasivos) circulantes netos	11,434,801,000	12,922,256,000

[800200] Notas - Análisis de ingresos y gastos

Concepto	Acumulado Año Actual 2023-01-01 - 2023-06-30	Acumulado Año Anterior 2022-01-01 - 2022-06-30	Trimestre Año Actual 2023-04-01 - 2023-06-30	Trimestre Año Anterior 2022-04-01 - 2022-06-30
Análisis de ingresos y gastos [sinopsis]				
Ingresos [sinopsis]				
Servicios	27,973,391,000	25,833,066,000	14,016,780,000	13,072,505,000
Venta de bienes	0	0	0	0
Intereses	0	0	0	0
Regalías	0	0	0	0
Dividendos	0	0	0	0
Arrendamiento	0	0	0	0
Construcción	0	0	0	0
Otros ingresos	643,849,000	824,162,000	347,056,000	365,513,000
Total de ingresos	28,617,240,000	26,657,228,000	14,363,836,000	13,438,018,000
Ingresos financieros [sinopsis]				
Intereses ganados	399,898,000	243,329,000	173,121,000	180,605,000
Utilidad por fluctuación cambiaria	1,192,362,000	259,824,000	742,752,000	217,080,000
Utilidad por cambios en el valor razonable de derivados	0	0	0	0
Utilidad por cambios en valor razonable de instrumentos financieros	0	0	0	0
Otros ingresos financieros	0	0	0	0
Total de ingresos financieros	1,592,260,000	503,153,000	915,873,000	397,685,000
Gastos financieros [sinopsis]				
Intereses devengados a cargo	1,302,215,000	1,312,486,000	648,447,000	663,990,000
Pérdida por fluctuación cambiaria	1,728,328,000	374,327,000	934,868,000	247,945,000
Pérdidas por cambio en el valor razonable de derivados	0	0	0	0
Pérdida por cambios en valor razonable de instrumentos financieros	0	147,302,000	0	147,302,000
Otros gastos financieros	0	0	0	0
Total de gastos financieros	3,030,543,000	1,834,115,000	1,583,315,000	1,059,237,000
Impuestos a la utilidad [sinopsis]				
Impuesto causado	2,777,279,000	2,442,784,000	1,314,964,000	1,101,470,000
Impuesto diferido	93,955,000	(422,417,000)	105,289,000	(172,264,000)
Total de Impuestos a la utilidad	2,871,234,000	2,020,367,000	1,420,253,000	929,206,000

[800500] Notas - Lista de notas

Información a revelar sobre notas, declaración de cumplimiento con las NIIF y otra información explicativa de la entidad [bloque de texto]

Actividades

GMéxico Transportes, S. A. B. de C. V. ("GMXT") y subsidiarias ("la Entidad") es subsidiaria de Grupo México, S. A. B. de C. V. ("GMéxico"). GMXT es una sociedad tenedora de las acciones de un grupo de compañías dedicadas principalmente a prestar el servicio ferroviario de carga, multimodal y servicios auxiliares, así como cualquier actividad que directamente soporte y esté relacionada con dicho objeto, incluyendo cualquier otra actividad que sea complementaria a los servicios de transportación ferroviaria.

El 11 de diciembre de 2014, mediante asamblea general extraordinaria de accionistas de Infraestructura y Transportes México, S.A. de C.V. ("ITM"), se autorizó una escisión de sus operaciones ferroviarias y la consecuente constitución de FM Rail Holding, S.A. de C.V. (FMRH) como una sociedad anónima de capital variable independiente. La escisión surtió efectos legales el día 23 de marzo de 2015.

El 30 de abril de 2016, mediante asamblea general extraordinaria de accionistas de FMRH, se aprobó el cambio de denominación social de la entidad, para quedar en GMéxico Transportes, S.A. de C.V.

GMXT cuenta con un programa de Certificados Bursátiles de fecha 19 de septiembre de 2017 por un monto total de $15,000,000,000.00 (quince mil millones de pesos 00/100 M.N.); el 18 de septiembre de 2019 se obtuvo una ampliación de dicho programa para llegar a $25,000,000,000.00 (veinticinco mil millones de pesos 00/100 M.N.). De dicho programa se cuenta con tres emisiones de Certificados Bursátiles vigentes y registrados en la Bolsa Mexicana de Valores, con las claves de cotización: "GMXT 17", "GMXT 19" y GMXT 19-2".

Los Certificados Bursátiles emitidos al amparo del Programa mencionado, se encuentran inscritos con el No. 3507-4.15-2018-001, 3507-4.15-2020-002-01 y 3507-4.15-2020-002-02, respectivamente, en la sección de valores del Registro Nacional de Valores.

El 9 de noviembre de 2017, GMXT anunció la colocación de su Oferta Pública Inicial (OPI) de acciones en la Bolsa Mexicana de Valores bajo el símbolo GMXT. La oferta consistió en una oferta pública global primaria de suscripción y pago de acciones y oferta pública global secundaria de venta de acciones.

Los estados financieros consolidados que se acompañan incluyen los de GMXT y sus subsidiarias que se mencionan a continuación:

Compañía	Porcentaje de participación %
Grupo Ferroviario Mexicano, S. A. de C. V. (GFM)	74%
Ferrosur, S. A. de C. V. (FSRR)	100%
Líneas Ferroviarias de México, S. A. de C. V. (LFM)	100%
Intermodal México, S. A. de C. V. (IMEX)	100%
GMXT US, Inc. (GMXTUS)	100%

GFM se constituyó el 14 de noviembre de 1996 con el objeto de participar en la privatización del Sistema Ferroviario Mexicano. En junio de 1997 GFM resultó ganador de la licitación del 80% de los títulos representativos del capital social de Ferrocarril Mexicano, S. A. de C. V. ("Ferromex"), en la que incluyó su oferta para adquirir el 20% restante de las acciones. El contrato de compra-venta del 100% de las acciones fue firmado el 18 de agosto de 1997, fecha en que GFM pagó el 30% del precio de venta de las acciones, y el restante 70% más intereses acumulados fue pagado el 19 de febrero de 1998, fecha en que GFM tomó el control de los activos y operaciones de Ferromex.

Al 30 de junio de 2023 y 2022, Ferromex es la principal subsidiaria de GFM y se dedica principalmente a prestar el servicio ferroviario de carga y multimodal y servicios auxiliares, así como cualquier actividad que directamente soporte y esté relacionada con dicho objeto, incluyendo cualquier otra actividad que sea complementaria a los servicios de transportación ferroviaria.

Ferromex fue constituida por el Gobierno Federal en junio de 1997 en conexión con la privatización del Sistema Ferroviario Mexicano, el cual había sido operado por Ferrocarriles Nacionales de México (FNM). El Gobierno Federal otorgó a Ferromex la concesión para operar la Vía Troncal Pacífico-Norte y la Vía Corta Ojinaga-Topolobampo por un período de 50 años (exclusiva por 30 años), renovable por un período igual, sujeto a ciertas condiciones, y le enajenó algunos activos fijos y materiales necesarios para la operación de Ferromex y un 25% de las acciones de la empresa Ferrocarril y Terminal del Valle de México, S. A. de C. V. (FTVM), compañía responsable de operar la terminal ferroviaria de la Ciudad de México. En agosto de 1999, Ferromex obtuvo los derechos para operar la concesión de la Vía Corta Nogales - Nacozari por un período de 30 años, renovable sin exceder 50 años, comenzando el 1 de septiembre de 1999.

Ferromex tiene el derecho de usar y la obligación de mantener en buenas condiciones los derechos de paso, vías, edificios e instalaciones de mantenimiento. La propiedad de dichos bienes e instalaciones es retenida por el Gobierno Federal y todos los derechos sobre esos activos se revertirán a favor del Gobierno Federal al término de las concesiones.

El día 26 de octubre de 2017 y 16 de noviembre de 2021, con la autorización de la SCT, se firmaron modificaciones al título de concesión de la vía troncal del Pacifico-Norte, ampliando 10 años 1 mes las condiciones de la concesión actual y modificando el plan de negocios, con lo que la Compañía estará realizando inversiones por $5,657 millones para llevar a cabo la construcción del libramiento ferroviario de Celaya.

El 13 de mayo de 2021, la Comisión Nacional Bancaria y de Valores autorizó a Ferromex un programa de certificados bursátiles hasta por un importe de $20,000,000,000.00 (veinte mil millones de pesos 00/100 M.N), con vigencia de cinco años. De dicho programa se cuenta con dos emisiones de Certificados Bursátiles registrados en la Bolsa Mexicana de Valores, con las claves de cotización: “FERROMX 21” y FERROMX 21-2”.

El día 30 de junio de 2017, GMXTUS concluyó la operación de compra de Florida East Coast Holdings Corp. (FEC). FEC ofrece servicios ferroviarios a lo largo de la costa este de Florida y es el proveedor del servicio a los puertos del sur de Florida: Miami, Everglades y Palm Beach. FEC ofrece servicios a lo largo de unos 565 km de vías férreas propias, con conexiones con CSX y Norfolk Southern en Jacksonville, Florida.

Infraestructura y Transportes Ferroviarios, S.A. de C.V. (ITF) se constituyó el 21 de noviembre de 2005 con el objeto de promover, constituir, explotar, organizar y administrar sociedades mexicanas o de cualquier otra nacionalidad, cuyo objeto podrá ser la prestación del servicio ferroviario de carga, de pasajeros, multimodal y servicios auxiliares, administración portuaria integral y servicio de transporte aéreo y aeropuertos.

El 24 de noviembre de 2005, ITF adquirió de Grupo Condumex, S.A. de C.V. y SINCA Inbursa, S.A. de C.V., el 99.99% de las acciones representativas del capital social de Ferrosur, S.A. de C.V. (Ferrosur) por $3,260,000.

El día 1 de diciembre de 2017, se hizo efectiva la fusión de ITF con GMXT, por lo cual a partir esa fecha GMXT reconoce directamente los activos y pasivos que tenía ITF al 30 de noviembre de 2017.

El 2 de marzo de 1995, el Gobierno Federal otorgó a Ferrosur la concesión para operar la Vía Troncal del Sureste, por un período de 50 años (exclusiva por 30 años), renovable por un período igual, sujeto a ciertas condiciones, y le enajenó algunos activos fijos y materiales necesarios para la operación y un 25% de las acciones de FTVM, compañía responsable de operar la terminal ferroviaria de la Ciudad de México. En diciembre de 2005, Ferrosur obtuvo los derechos para operar la concesión de la Vía Corta Oaxaca - Sur por un período de 30 años, renovable sin exceder de 50 años, comenzando el 1 de diciembre de 2005.

La Administración Portuaria Integral de Coatzacoalcos (APICOA), otorgó en octubre de 2005, a Terminales Transgolfo, S.A. de C.V. (TTG), empresa subsidiaria de Ferrosur, la cesión parcial de derechos para usar, aprovechar y explotar la terminal especializada de ferrobuques de uso particular y para terceros, por un período de 20 años, renovable por un período de 18 años, sujeto a ciertas condiciones.

Ferrosur y TTG tienen el derecho de usar y la obligación de mantener en buenas condiciones los derechos de paso, vías, edificios e instalaciones de mantenimiento, así como la terminal de ferrobuques. La propiedad de dichos bienes e instalaciones es retenida por el Gobierno Federal y todos los derechos sobre esos activos se revertirán a favor del Gobierno Federal al término de las concesiones.

LFM tiene como actividad principal promover, constituir, organizar, adquirir y tomar participación en el capital social de sociedades mercantiles, particularmente aquellas cuya actividad fundamental consista en la prestación de servicios de transportación en vías generales de comunicación. LFM es tenedora del 99.99% de las acciones representativas del capital social de Texas Pacifico Transportation, LTD, Texas Pacifico LP, Inc. y Texas Pacifico GP, LLC, empresas domiciliadas en Estados Unidos de Norteamérica, cuya principal actividad está relacionada con la prestación de servicios ferroviarios.

IMEX tiene como actividad principal promover, constituir, organizar, adquirir y tomar participación en el capital social de sociedades mercantiles, particularmente aquellas cuya actividad fundamental consista en la prestación de servicios de transportación en vías generales de comunicación.

El día 26 de abril de 2022, se hizo efectiva la fusión de ITM con GMXT, por lo cual a partir esa fecha GMXT fusionó los activos y pasivos que tenía ITM.

Por lo anterior, la Entidad recibió 10,823,039 acciones de Grupo Aeroportuario del Pacífico, S.A.B. de C.V. (GAP) que mantenía ITM como inversión en acciones. Durante los meses de julio a noviembre de 2022 se vendieron estas acciones.

Las concesiones también otorgan derechos de paso y arrastre a las compañías del grupo y las obligan a otorgar dichos derechos a concesionarios respecto de las vías concesionadas, entre otros derechos y obligaciones que establecen.

Adopción de las Normas Internacionales de Información Financiera nuevas y modificadas

Normas Internacionales de Información Financiera nuevas y modificadas ("IFRS" o "IAS") que son obligatorias para el año en curso

En el año, el Grupo ha aplicado enmiendas a las IFRS emitidas por el Consejo de Normas Internacionales de Información Financiera (IASB por sus siglas en inglés) que son obligatorias para períodos contables que comiencen en o después del 1 de enero de 2022. Su adopción no ha tenido un impacto material en las revelaciones o en los montos reportados en estos estados financieros

Enmiendas a IFRS 3 - Referencia al Marco Conceptual	El Grupo ha adoptado las enmiendas a la IFRS 3 *Combinaciones de negocios* por primera vez, en este año. Las enmiendas actualizan IFRS 3 en lo que se refiere al *Marco Conceptual* 2018 en lugar del *Marc*o Conceptual de 1989. También añadieron un requerimiento que, para obligaciones dentro del alcance de la IAS 37 *Provisiones, pasivos contingentes y Activos contingentes*, un comprador aplica la IAS 37 para determinar si a la fecha de adquisición es una obligación presente o existe como resultado de un evento pasado. Para gravámenes que estén dentro del alcance de IFRIC 21 *Gravámenes*, el comprador aplica IFRIC 21 para determinar si la obligación da lugar a un pasivo para pagar el gravamen que ocurrió en la fecha de adquisición.
Enmiendas a IAS 16 - Propiedad, Planta y	El Grupo ha adoptado las enmiendas a la IAS 16 *Propiedad planta y equipo* por primera vez en este año. Las enmiendas prohíben deducir del costo de un activo de propiedad, planta y equipo cualquier ingreso por la venta de bienes producidos, antes de que esté listo

Equipo - Ingresos antes de su uso planeado	para usarse, por ejemplo, ingresos generados mientras el activo se lleva a una ubicación y se realiza el acondicionamiento necesario para que sea operable en la manera que está destinado de acuerdo con las intenciones de la administración. Por consiguiente, una entidad debe reconocer esos ingresos por ventas y costos en resultados. La entidad mide los costos de esos bienes producidos conforme a la IAS 2 *Inventarios*. Las enmiendas también aclaran el significado de 'probar si un activo funciona adecuadamente'. Ahora, la IAS 16 especifica esto como una evaluación en la cual el desempeño físico y técnico del activo es capaz de ser usado en la producción o en el suministro de bienes o servicios, para renta u otros, o propósitos administrativos. Si no se presenta por separado en el estado de resultados integrales, los estados financieros deberán revelar las cantidades de ingresos y costos en resultados relacionados a partidas que no son una salida por las actividades ordinarias de la entidad, en la línea de partida(s) en el estado de resultados integrales donde se incluyan los ingresos y costos.
Mejoras Anuales a las normas IFRS 2018-2021	El Grupo ha adoptado las enmiendas incluidas en las Mejoras Anuales a las IFRS ciclo 2018-2020 por primera vez en el ejercicio. Las Mejoras Anuales incluyen enmiendas a cuatro normas: IFRS 9 Instrumentos Financieros La modificación aclara que en la aplicación de la prueba del '10%' para evaluar si se debe dar de baja un pasivo financiero, una entidad incluye solo las cuotas pagadas o recibidas entre la entidad (el prestatario) y el prestamista, incluyendo cuotas pagadas o recibidas por la entidad o por el prestamista en beneficio de otro. IFRS 16 Arrendamientos Las enmiendas eliminan la figura del reembolso por mejoras a los arrendamientos.

Normas IFRS emitidas que aún no son efectivas

En la fecha de autorización de estos estados financieros consolidados, la Entidad no ha aplicado las siguientes Normas IFRS nuevas y modificadas que se han emitido pero que aún no están vigentes:

Enmiendas a IFRS 10 e IAS 28 (enmiendas)	*Venta o contribución de activos entre un inversionista y su asociada o negocio conjunto*
Enmiendas a IAS 1	*Clasificación de los pasivos como corrientes o no corrientes.*
Enmiendas a la IAS 1 y a las Declaración práctica 2	*Revelación de las políticas contables*
Enmiendas a la IAS 8	*Definición de las estimaciones contables*

Enmiendas a la IAS 12	*Impuestos diferidos relacionados a los activos y pasivos que surgen de una sola transacción.*

La administración no espera que la adopción de los estándares antes mencionados tenga un impacto importante en los estados financieros consolidados de la Entidad en períodos futuros.

Información a revelar sobre juicios y estimaciones contables [bloque de texto]

Juicios contables críticos y fuentes clave para la estimación de incertidumbres

En la aplicación de las políticas contables, la administración de la Entidad hace juicios, estimaciones y supuestos sobre los valores de activos y pasivos. Las estimaciones y supuestos asociados se basan en la experiencia y otros factores que se consideran relevantes. Los resultados reales podrían diferir de estas estimaciones.

Las fuentes de incertidumbre clave en las estimaciones efectuadas a la fecha del estado de posición financiera, y que tienen un riesgo significativo de derivar un ajuste en los valores en libros de activos y pasivos durante el siguiente período financiero son como sigue:

-Inmuebles, maquinaria y equipo: La Entidad revisa la estimación de su vida útil y método de depreciación, el efecto de cualquier cambio en la estimación se reconoce de manera prospectiva. Adicionalmente, al final de cada período, la Entidad revisa los valores en libros de sus activos tangibles a fin de determinar si existe un indicativo de que estos han sufrido alguna pérdida por deterioro.

-Deterioro: La Entidad realiza pruebas deterioro cuando existen indicios y en el caso del crédito mercantil se realizan anualmente. Estas pruebas implican la estimación de flujos futuros de efectivo que obtendrá la Entidad y de la tasa de descuento más apropiada.

-Beneficios a los empleados: Se basan en valuaciones actuariales con supuestos relativos a tasas de descuento, tasas de incremento de salarios y otras estimaciones actuariales utilizadas. Los supuestos son actualizados en forma anual.

-Contingencias: La Compañía está sujeta a contingencias que de materializarse no tendrían un impacto en la situación financiera, desempeño o flujos de efectivo futuros.

-Valuaciones a valor razonable de activos y pasivos adquiridos en combinación de negocios. Las valuaciones a valor razonable incluyen la incorporación de juicios críticos tales como la determinación de la técnica apropiada de valuación, la determinación de datos para la valuación como tasas de descuento, proyecciones de ingresos, determinación de valores de reposición, vidas útiles remanentes, factores de estado, entre otros.

-Estimación de la tasa de descuento y plazo para el cálculo de los arrendamientos: La Entidad estima la tasa de descuento a utilizar en la determinación del pasivo por arrendamiento. También define el plazo de los arrendamientos como el periodo por el cual existe un compromiso contractual de pago, considerando el periodo no cancelable del contrato, así como las opciones de renovación y de terminación anticipada que es probable que se ejerzan.

La Entidad considera que los supuestos utilizados a la fecha de estos estados financieros consolidados son apropiados y bien fundamentados.

La Entidad también ha emitido juicios en la aplicación de ciertas normas contables. En particular, la Entidad ha concluido que sus concesiones no califican bajo el alcance de la *IFRIC 12, Acuerdos de Concesiones de Servicios*, debido a la naturaleza de la regulación a la que está sujeta.

Información a revelar sobre costos de ventas [bloque de texto]

Principales costos y gastos de operación

Los principales costos y gastos de operación se indican a continuación:

	2023	2022
Costos directos:		
Diésel, gasolina y gas natural	$ 4,487,481	$ 4,458,415
Mano de obra	3,828,284	3,464,515
Mantenimiento de terceros a locomotoras	795,964	765,059
Renta de carros (Car- Hire)	542,276	816,282
Servicios de conexión y terminal	357,518	292,750
Policía y vigilancia	324,652	285,484
Derechos de concesión	312,384	276,742
Materiales y refacciones para carros	296,572	270,582
Arrendamiento de equipo de arrastre y contenedores	194,161	177,964
Contratistas	157,076	181,441
Mantenimiento de terceros a carros	145,434	137,353
Sustracción de bienes	108,588	88,787
Pre-trip e inspección automotriz	54,998	47,511
Arrendamiento de locomotoras	(21,617)	8,191
Otros	2,128,419	2,059,373
Total costos directos	$ 13,712,190	$ 13,330,449
Gastos de administración:		
Sueldos	$ 437,827	$ 436,754
Honorarios y asesorías	220,103	201,858
Mantenimiento y materiales de equipo de cómputo	82,149	84,476
Gasto de viaje	21,357	19,032
Otros impuestos y derechos	6,976	2,599
Capacitación confianza	1,490	6,168
Arrendamiento de inmuebles	1,153	1,445
Otros	250,648	222,738
Total gastos de operación	$ 1,021,703	$ 975,070

Información a revelar sobre riesgo de crédito [bloque de texto]

Administración del riesgo de crédito

El riesgo de crédito se refiere al riesgo de que las contrapartes incumplan sus obligaciones contractuales resultando en una pérdida para la Entidad. En el caso de la Entidad, el principal riesgo de crédito surge de las cuentas por cobrar a clientes, partes relacionadas y otras.

Al 30 de junio de 2023 y 2022, la exposición máxima al riesgo de crédito asciende a $7,977,407, y $9,651,652, respectivamente.

Información a revelar sobre instrumentos de deuda [bloque de texto]

Deuda a largo plazo

La deuda a largo plazo se integra de la siguiente forma

Inicio	Vencimiento	Tasa	Banco	2023	2022
Deuda contratada en Pesos Mexicanos					
Noviembre 16, 2007 $1,500	Octubre 28, 2022	Fija 9.03%	Cert. Burs. FERROMX 07-2	-	1,500,000
Octubre 20, 2014 $2,000	Octubre 7, 2024	Fija 6.76%	Cert. Burs. FERROMX 14	2,000,000	2,000,000
Mayo 18, 2021 $1,692	Mayo 9, 2028	Fija 7.19%	Cert. Burs. FERROMX 21	1,692,000	1,692,000
Mayo 18, 2021 $3,308	Mayo 13, 2025	TIIE 28d + 0.20%	Cert. Burs. FERROMX 21-2	3,308,000	3,308,000
Septiembre 28, 2018 $13,525	Septiembre 17, 2027	Fija 7.99%	Cert. Burs. GMXT 17	13,525,000	13,525,000
Septiembre 28, 2018 $1,475	Septiembre 22, 2022	TIIE 28d + 0.20%	Cert. Burs. GMXT 17-2	-	1,475,000
Septiembre 23, 2020 $6,075	Septiembre 10, 2029	Fija 8.17%	Cert. Burs. GMXT 19	6,075,000	6,075,000
Septiembre 23, 2020 $1,725	Septiembre 18, 2023	TIIE 28d + 0.15%	Cert. Burs. GMXT 19-2	1,725,000	1,725,000
	Total deuda en pesos			$28,325,000	$31,300,000

Inicio	Vencimiento	Tasa	Banco	2023	2022
Deuda contratada en Dólares americanos:					
Septiembre 26, 2012 $30	16 pagos anuales: último en Octubre 1, 2034	Fija 3.50%	State Board of Administration of Florida	20,396	21,746
	Deuda en dólares			20,396	21,746
Equivalente deuda total en dólares				348,199	434,580
Equivalente deuda total en pesos				28,673,199	31,734,580
Costo de emisión de deuda				(73,516)	(92,962)
Porción circulante de la deuda a largo plazo				(1,748,558)	(3,001,436)
Deuda a largo plazo				$26,851,125	$28,640,182

Los vencimientos de la deuda por pagar a largo plazo son como sigue:

2024	$ 2,024,683
2025	3,333,547
2026	26,441
2027	13,552,366
2028 (en adelante)	7,987,314
Comisiones financieras	(73,226)
	$ 26,851,125

Los créditos establecen ciertas restricciones y obligaciones de hacer y no hacer, las cuales a las fechas de emisión de estos estados financieros consolidados se han cumplido.

Las tasas anuales promedio por los períodos terminados el 30 de junio de 2023 y 2022 fueron; Tasa de Interés Interbancaria de Equilibrio (TIIE) a 28 días de 11.49% y 8.02%, respectivamente, y la Tasa Libor a tres meses 5.55% y 1.63%, respectivamente.

Información a revelar sobre gestión del riesgo financiero [bloque de texto]

Categorías de instrumentos financieros y políticas de administración de riesgos

Las principales categorías de los instrumentos financieros son:

	Riesgo	2023	2022
Activos financieros:			
Efectivo y equivalentes de efectivo	(ii)	$ 11,793,539	$ 12,586,427
Préstamos y cuentas por cobrar:			
Clientes - Neto	(i)	7,783,316	8,821,356
Partes relacionadas	(i)	165,514	787,891
Otras	(i)	28,577	42,405
Otros activos a largo plazo- Neto	(i)	90,135	96,172
		$ 19,861,081	$ 22,334,251

	Riesgo	2023	2022
Pasivos financieros a costo amortizado:			
Porción circulante de la deuda a largo plazo	(ii) (iii)	$ 1,748,558	$ 3,001,436
Proveedores	(ii) (iii)	1,975,691	2,445,358
Cuenta por pagar neta a otros ferrocarriles	(ii) (iii)	414,610	538,045
Obligaciones por arrendamiento a corto plazo	(ii) (iii)	1,414,729	1,901,601
Pasivos acumulados a corto plazo	(ii) (iii)	2,222,894	2,216,274
Partes relacionadas por pagar	(i)	202,816	223,021
Partes relacionadas por pagar a largo plazo	(i)	15,971	15,971
Obligaciones por arrendamiento a largo plazo	(ii) (iii)	2,910,833	4,626,810
Pasivos acumulados a largo plazo	(ii) (iii)	893,113	1,068,192
Deuda a largo plazo	(ii) (iii)	26,851,125	28,640,182
		$ 38,650,340	$ 44,676,890

Los activos y pasivos de la Entidad están expuestos a diversos riesgos económicos que incluyen: (i) Riesgo de crédito, (ii) Riesgo de liquidez, (iii) Riesgos financieros de mercado (tasa de interés y divisas).

Información a revelar sobre impuestos a las ganancias [bloque de texto]

Impuestos a la utilidad

La Entidad está sujeta al ISR, cuya tasa es del 30% para 2023 y 2022 y continuará al 30% para 2024 y años posteriores.

a. La provisión para ISR se analiza como se muestra a continuación:

	2023	2022
ISR causado	$ 2,777,279	$ 2,442,784
ISR diferido	93,955	(422,417)
Total provisión	$ 2,871,234	$ 2,020,367

Información a revelar sobre activos intangibles [bloque de texto]

Títulos de concesión

El saldo de este rubro se integra como sigue:

	2023	2022
Título de concesión:		
Vía troncal sureste	$ 2,410,097	$ 1,935,850
Vía troncal Pacífico-Norte	1,338,770	1,338,770
Radiofrecuencias	36,688	36,688
Vía corta Nogales-Nacozari	20,500	20,500
Vías cortas	3,250	3,250
Vía corta Ojinaga-Topolobampo	2,674	2,674
Terminal Ferrobuque	500	500
	3,812,479	3,338,232
Amortización acumulada	(2,196,293)	(2,107,668)
	$ 1,616,186	$ 1,230,564

La amortización cargada a los resultados al 30 de junio de 2023 y 2022 fue $42,779 y $43,501, respectivamente.

Información a revelar sobre inventarios [bloque de texto]

Inventarios

El saldo de este rubro se integra por:

	2023	2022
Material de vía	$ 733,481	$ 843,174
Otras refacciones y materiales	365,943	357,278
	$ 1,099,424	$ 1,200,452

Información a revelar sobre inversiones contabilizadas utilizando el método de la participación [bloque de texto]

Inversión en acciones de asociada y otras inversiones permanentes

Ferromex y Ferrosur tienen cada una el 25% del capital social de FTVM, compañía responsable de operar la Terminal Ferroviaria de la Ciudad de México. Como se estableció en los lineamientos generales para la apertura a la inversión del

Sistema Ferroviario Mexicano, las empresas conectantes con la Terminal tendrían cada una el 25% de las acciones representativas de su capital social.

En diciembre de 2007, Ferromex adquirió 100 acciones de TTX Company, siendo la principal actividad de esta empresa el proveer equipo de arrastre a sus socios, principalmente los Ferrocarriles Clase I de América del Norte.

Derivado de la fusión de GMXT con ITM, se transfirieron a GMXT 10,823,039 acciones GAP que mantenía ITM, durante los meses de julio a noviembre de 2022 se llevaron a cabo la venta de estas acciones.

Las inversiones en acciones en asociada y negocio conjunto son:

Entidad	2023	2022	Número de acciones	% de Tenencia
FTVM	$ 707,888	$ 289,870	10,728,420	50%
GAP	-	3,031,425	10,823,039	2%
TTX Company	119,335	119,335	100	1%
Florida Dispatch Co.	39,814	39,814		50%
Total	$ 867,037	$ 3,480,444		

La participación en los resultados es de la siguiente manera:

Entidad	2023	2022
FTVM	$ 44,081	$ 41,131

Información a revelar sobre capital social [bloque de texto]

Capital contable

a. El capital social al 30 de junio de 2023 se integra como se muestra a continuación:

Descripción	Acciones	Importe
Porción fija	540,000	$ -
Porción variable	4,369,400,022	10,666,492
	4,369,940,022	$ 10,666,492

El día 30 de octubre de 2017, mediante asamblea general extraordinaria de accionistas, se aprobaron los siguientes cambios con relación al número y tipo de acciones de la Entidad:

-Conversión y reclasificación de acciones, representativas del capital social de la Entidad, para quedar integrado por 425,000,000 acciones ordinarias, nominativas, sin expresión de valor nominal, de serie única, equivalentes a cincuenta mil pesos, de las que corresponden 60,000 acciones a la parte fija; y 424,940,000 acciones a la parte variable.

-Split de acciones con relación a 1 a 9 acciones, para quedar en un total de 3,825,000,000, de las que corresponden 540,000 acciones a la parte fija; y 3,824,460,000 acciones a la parte variable.

-Emisión de 301,587,302 acciones nominativas, ordinarias, serie única, de libre suscripción y sin expresión de valor nominal, a efecto de que las acciones sean ofrecidas para su colocación en la oferta global.

El día 26 de abril de 2018, mediante asamblea ordinaria anual de accionistas, se aprobó la cancelación de 25,992,474 acciones representativas de la parte variable del capital social de la Sociedad, las cuales corresponden a las acciones no suscritas y pagadas en la oferta pública inicial de acciones de la Entidad.

El día 26 de abril de 2022, mediante asamblea extraordinaria de accionistas, se aprobó la fusión de la entidad en carácter de fusionante con ITM en carácter de fusionada.

La fusión se llevo a cabo considerando (i) por un lado, el precio promedio de cotización de la acción de la Sociedad, durante el periodo de 90 días comprendido entre el 24 de enero de 2022 y el 22 de abril de 2022, el cual resulta en el precio de $37.25 pesos y, (ii) por el otro lado, el precio promedio de cotización de las 10,823,039 acciones serie B representativas del capital de GAP propiedad de ITM, durante el periodo de 90 días comprendido entre el 24 de enero de 2022 y el 22 de abril de 2022, el cual resulta en el precio de $293.70 pesos, más $6,854,381,916.70 pesos en efectivo provenientes de la caja neta de ITM.

Como resultado de la fusión, se generó un aumento en el capital social de la Sociedad por un monto de $10,033,108,471.00 pesos, que es el monto total del capital contable de ITM (considerando el valor actualizado de las acciones de GAP y el valor del efectivo en caja neta de ITM), mediante la emisión de 269,345,194 acciones nominativas sin expresión de valor nominal, serie única, representativas de la parte variable del capital social de la Sociedad (las "Acciones de la Fusión"), las cuales serían distribuidas a los accionistas de ITM.

Como resultado de lo anterior, (i) GMéxico incrementó su participación en el capital social de GMXT pasando de 69.96% a 70.27%, (ii) Grupo Carso, S.A.B. de C.V. incrementó su participación en el capital social de GMXT pasando de 15.14% a 15.24%, y (iii) Sinca lnbursa, S.A. de C.V., Sociedad de Inversión de Capitales incrementó su participación en el capital social de GMXT pasando de 1.46% a 1.88%. Las acciones correspondientes a los accionistas minoritarios de ITM no identificados, serán mantenidas por la Sociedad y serán entregadas a dichos accionistas una vez que éstos sean identificados, salvaguardando todos los derechos de la legislación aplicable y los estatutos sociales que la Sociedad les otorga.

b. Durante 2023 y 2022 la Entidad efectuó los siguientes movimientos de capital:

En Asamblea General Ordinaria de Accionistas celebrada el 17 de abril de 2023, se aprobó el pago de un dividendo contra las utilidades acumuladas por $2,180,080 (equivalente a 0.50 pesos por cada acción en circulación), el cual se pagó en una sola exhibición el día 26 de mayo de 2023.

En Asamblea General Ordinaria de Accionistas celebrada el 24 de enero de 2023, se aprobó el pago de un dividendo contra las utilidades acumuladas por $2,173,999 (equivalente a 0.50 pesos por cada acción en circulación), el cual se pagó en una sola exhibición el día 24 de febrero de 2023.

En Asamblea General Ordinaria de Accionistas celebrada el 17 de octubre de 2022, se aprobó el pago de un dividendo contra las utilidades acumuladas por $2,176,437 (equivalente a 0.50 pesos por cada acción en circulación), el cual se pagó en una sola exhibición el día 25 de noviembre de 2022.

En Asamblea General Ordinaria de Accionistas celebrada el 19 de julio de 2022, se aprobó el pago de un dividendo contra las utilidades acumuladas por $2,179,396 (equivalente a 0.50 pesos por cada acción en circulación), el cual se pagó en una sola exhibición el día 26 de agosto de 2022.

En Asamblea General Ordinaria de Accionistas celebrada el 26 de abril de 2022, se aprobó el pago de un dividendo contra las utilidades acumuladas por $2,184,966 (equivalente a 0.50 pesos por cada acción en circulación), el cual se pagó en una sola exhibición el día 27 de mayo de 2022.

En Asamblea General Ordinaria de Accionistas celebrada el 24 de enero de 2022, se aprobó el pago de un dividendo contra las utilidades acumuladas por $2,050,294 (equivalente a 0.50 pesos por cada acción en circulación), el cual se pagó en una sola exhibición el día 25 de febrero de 2022.

c. La utilidad del ejercicio está sujeta a la disposición legal que requiere que, cuando menos, un 5% de la utilidad de cada ejercicio sea destinada a incrementar la reserva legal hasta que ésta sea igual a una quinta parte del importe del capital social pagado. La reserva legal puede capitalizarse, pero no debe repartirse a menos que se disuelva la sociedad, y debe ser reconstituida cuando disminuya por cualquier motivo.

d. La administración de la Entidad revisa la estructura de capital cuando presenta sus proyecciones financieras como parte del plan de negocio al Consejo de Administración y accionistas de la Entidad. Como parte de esta revisión el Consejo de Administración considera el costo de capital y sus riesgos asociados.

Información a revelar sobre riesgo de liquidez [bloque de texto]

Administración del riesgo de liquidez

La Entidad administra el riesgo de liquidez invirtiendo sus excedentes de efectivo en instrumentos de inversión sin riesgo para ser utilizados en el momento que la Entidad los requiera. La Entidad tiene vigilancia continua de flujos de efectivo proyectados y reales.

Los vencimientos de la deuda a largo plazo se presentan en la nota de instrumentos de deuda.

Al 30 de junio de 2023, los vencimientos contractuales de los pasivos financieros con base en los periodos de pago son como sigue:

2023	Menos de 1 año	Más de 1 año y menos de 5	Más de 5 años	Total
Deuda a corto plazo	$ 1,748,558	$ -	$ -	$ 1,748,558
Proveedores	1,975,691	-	-	1,975,691
Cuentas por pagar neta a otros ferrocarriles	414,610	-	-	414,610
Partes relacionadas por pagar	202,816	-	-	202,816
Obligaciones por arrendamiento a corto y largo plazo	1,414,729	2,805,701	105,132	4,325,562
Deuda a largo plazo		20,629,037	6,222,088	26,851,125
Intereses de deuda	2,297,867	6,357,874	615,192	9,270,933
Total	$ 8,054,271	$ 29,792,612	$ 6,942,412	$ 44,789,295

Al 30 de junio de 2022 los vencimientos contractuales de los pasivos financieros con base a los periodos de pago son por $51,931,717.

Información a revelar sobre riesgo de mercado [bloque de texto]

Riesgo de Mercado

Las actividades de la Entidad la exponen principalmente a riesgos financieros de cambios en tasas de interés y de tipo de cambio.

I. ***Administración de riesgo de la tasa de interés -*** La Entidad se encuentra expuesta a riesgos en la tasa de interés debido a los créditos contratados a tasas de interés Libor a un mes y tres meses, así como a tasa TIIE a 28 días.

El análisis de sensibilidad que determina la Entidad se prepara con base en la exposición a las tasas de interés de los créditos contratados no cubierta, sostenida en los créditos bancarios a tasas variables. Para ello, se prepara un análisis asumiendo que el importe del pasivo pendiente al final del período sobre el que se informa ha sido el pasivo pendiente para todo el año. Para medir el riesgo en las tasas de interés, se utiliza un incremento o decremento de 0.0112 y 0.0098 puntos para 2023 y 2022 respectivamente, lo cual representa la evaluación de la administración sobre el posible cambio razonable en las tasas de interés.

Si las tasas de interés hubieran estado 0.0112 puntos para 2023 y 0.0098 puntos para 2022 por encima/por debajo y todas las otras variables permanecieran constantes:

El resultado del año que terminó el 30 de junio de 2023 disminuiría/aumentaría $56,465 (2022: disminución/aumento por $63,649). Esto es principalmente atribuible a la exposición de la Entidad a las tasas de interés sobre sus préstamos a tasa variable.

II. **Administración de riesgo cambiario** - GMXT, Ferromex y Ferrosur realizan transacciones denominadas en moneda extranjera; consecuentemente está expuesta a fluctuaciones en el tipo de cambio, las cuales son manejadas dentro de los parámetros de las políticas aprobadas.

El siguiente análisis detalla la sensibilidad de GMXT, Ferromex y Ferrosur a un incremento/decremento de 3.4% para 2023 y 2.3% para 2022 que representan las tasas de sensibilidad utilizadas cuando se reporta el riesgo cambiario y representan la evaluación de la administración sobre el posible cambio razonable en las tasas de cambio. El análisis de sensibilidad incluye únicamente las partidas monetarias pendientes denominadas en moneda extranjera y ajusta su conversión al final de los ejercicios. Si se presentara un debilitamiento en los porcentajes señalados en el peso con respecto al dólar estadounidense, entonces habría un impacto comparable sobre los resultados de:

Efecto en miles de dólares estadounidenses

	30 de junio de 2023	**30 de junio de 2022**
Resultados	$ 12,525	$ (1,350)

(*) Principalmente atribuible a la exposición de los saldos de las cuentas por cobrar y por pagar en dólares estadounidenses en la Entidad al final del período sobre el que se informa.

La sensibilidad de GMXT, Ferromex y Ferrosur a la moneda extranjera ha disminuido durante el periodo actual principalmente por el decremento en clientes y préstamos bancarios, neto de incrementos en equivalentes de efectivo, proveedores y acreedores y por el efecto de incremento en el tipo de cambio.

En opinión de la administración, el análisis de sensibilidad no es representativo del riesgo cambiario inherente, ya que la exposición al final del año no refleja la exposición durante el año.

Los valores en libros de los activos y pasivos monetarios denominados en moneda extranjera al final del período sobre el que se informa son los siguientes:

a.La posición monetaria en dólares estadounidenses al 30 de junio es:

	2023	2022
Miles de dólares estadounidenses:		
Activos monetarios	US$ 704,969	US$ 309,460
Pasivos monetarios	334,564	368,727
Posición neta corta	US$ 370,405	US$ (59,267)
Equivalentes en pesos	$ 6,323,554	$ (1,184,433)

b. Las transacciones en moneda extranjera fueron como sigue:

	2023	2022
Ingresos:		
Ingresos por servicios	US$ 620,217	US$ 416,198
Renta de carros (Car-Hire)	23,050	23,294
Intereses	2,421	29
Venta de durmientes y refacciones	1,570	221
Recuperación de siniestros	1,096	4,959
Egresos:		
Renta de carros (Car-Hire)	US$ 63,235	US$ 66,483
Compra de material	54,367	42,937
Arrendamiento de equipo de arrastre	51,238	33,011
Mantenimiento de locomotoras y carros	19,807	11,206
Compra de activo fijo	9,348	16,791
Asistencia técnica y otros	6,719	3,699
Otros servicios	5,379	3,317
Maniobras	4,658	1,045
Arrendamiento de equipo tractivo	4,236	5,542
Gastos por siniestros	2,165	6,584
Arrendamiento de oficina	935	868

c.Valor razonable de los instrumentos financieros - El valor razonable de los instrumentos financieros presentados a continuación ha sido determinado por la Entidad usando la información disponible en el mercado u otras técnicas de valuación que requieren de juicio para desarrollar e interpretar las estimaciones de valores razonables, asimismo utilizan supuestos que se basan en las condiciones de mercado existentes a cada una de las fechas del estado de posición financiera. Consecuentemente, los montos estimados que se presentan no necesariamente son indicativos de los montos que la Entidad podría realizar en un intercambio de mercado actual. El uso de diferentes supuestos y/o métodos de estimación podrían tener un efecto material en los montos estimados de valor razonable.

Los importes de efectivo y equivalentes de efectivo de la Entidad, así como las cuentas por cobrar y por pagar de terceros y partes relacionadas, se aproximan a su valor razonable porque tienen vencimientos a corto plazo. La deuda a largo plazo de la Entidad se registra a su costo amortizado y, consiste en deuda que genera intereses a tasas fijas y variables que están relacionadas a indicadores de mercado. Para obtener y revelar el valor razonable de la deuda a largo plazo se utilizan los precios de cotización del mercado o las cotizaciones de los operadores para instrumentos similares.

Los importes en libros de los instrumentos financieros por categoría y sus valores razonables estimados al 30 de junio de 2023 y 2022, son como sigue:

	2023		2022	
	Valor en libros	Valor razonable	Valor en libros	Valor razonable
Activos financieros:				
Mantenidos al costo amortizado:				
Efectivo y equivalentes de efectivo	$ 11,793,539	$ 11,793,539	$ 12,586,427	$ 12,586,427
Cuentas por cobrar	7,783,316	7,783,316	8,821,356	8,821,356
Otras	194,091	194,091	830,296	830,296
Otros activos - neto	90,135	90,135	96,172	96,172
	$ 19,861,081	$ 19,861,081	$ 22,334,251	$ 22,334,251
Pasivos financieros mantenidos al costo amortizado:				
Cuentas por pagar	$ 1,975,691	$ 1,975,691	$ 2,445,358	$ 2,445,358
Partes relacionadas por pagar a largo plazo	218,787	218,787	238,992	238,992
Obligaciones por arrendamiento a corto y largo plazo	4,325,562	4,325,562	6,528,411	6,528,411
Pasivos acumulados a corto y largo plazo	3,530,617	3,530,617	3,822,511	3,822,511
Deuda a largo plazo, incluyendo la porción circulante	28,599,683	33,290,379	31,641,618	35,805,692
	$ 38,650,340	$ 43,341,036	$ 44,676,890	$ 48,840,964

Información a revelar sobre propiedades, planta y equipo [bloque de texto]

Inmuebles, maquinaria y equipo

El saldo de este rubro se integra como sigue:

	Saldo al 31 de diciembre de 2022	Adiciones directas	Bajas por ventas	Traspaso Título de Concesión	Efecto cambiario	Saldo al 30 de junio de 2023
Inversión:						
Vías y estructuras	$ 51,923,816	$ 1,650,552	$ -	$ (673,616)	$ (1,605,639)	$ 51,295,113
Terrenos	25,008,775	4,418	-	-	(2,849,794)	22,163,399
Locomotoras	20,238,503	464,015	(358,480)	(14,202)	(233,227)	20,096,609
Construcciones en proceso	10,034,924	54,413	-	-	658,607	10,747,944
Equipo de telecomunicaciones	8,892,185	527,198	(651,126)	(50,796)	(579,260)	8,138,201
Puentes, túneles y alcantarillas	6,839,194	13,678	-	-	(477,528)	6,375,344
Terminales y talleres	5,286,455	348,861	-	-	-	5,635,316
Equipo de arrastre	5,526,217	11,698	(3,351)	-	(136,507)	5,398,057
Equipo automotriz	3,023,894	54,678	(27,658)	-	(189,598)	2,861,316
Maquinaria y equipo	2,521,175	87,315	(5,343)	-	(160,525)	2,442,622
Edificios	2,455,489	9,830	-	(96,816)	(244,338)	2,124,165
Maquinaria de vía	1,909,314	798	(13,794)	(2,720)	-	1,893,598
Equipo de cómputo	764,214	2,356	(4,590)	-	-	761,980
Maquinaria de talleres	291,388	3,906	(348)	(1,425)	-	293,521
Intereses por capitalizar	276,599	7,960	-	-	-	284,559
Contenedores	173,628	-	(386)	-	-	173,242
Sistemas de comunicación y tráfico	103,201	-	-	-	-	103,201
Mobiliario y equipo de oficina	85,165	2,240	(42)	(1,769)	-	85,594
Total inversión	$ 145,354,136	$ 3,243,916	$ (1,065,118)	$ (841,344)	$ (5,817,809)	$ 140,873,781
Depreciación:						
Vías y estructuras	$ 22,878,466	$ 1,110,816	$ -	$ (265,274)	$ 45,370	$ 23,769,378
Locomotoras	13,109,242	504,714	(301,097)	(14,022)	(116,137)	13,182,700
Equipo de telecomunicaciones	4,915,340	496,167	(650,344)	(31,059)	70,141	4,800,245
Equipo de arrastre	3,074,531	84,070	(2,551)	-	(57,672)	3,098,378
Terminales y talleres	2,557,948	128,606	-	-	-	2,686,554
Puentes, túneles y alcantarillas	2,400,620	93,268	-	-	(99,703)	2,394,185
Equipo automotriz	2,240,603	87,725	(24,880)	-	(141,568)	2,161,880
Maquinaria de vía	1,329,312	75,959	(12,799)	(2,194)	-	1,390,278
Maquinaria y equipo	1,122,254	69,414	(5,197)	-	(67,953)	1,118,518
Edificios	1,083,883	53,256	-	(52,474)	(84,501)	1,000,164
Equipo de cómputo	598,388	36,122	(4,552)	-	-	629,958
Maquinaria de talleres	209,078	4,841	(348)	(773)	-	212,798
Sistemas de comunicación y tráfico	99,886	1,192	-	-	-	101,078
Contenedores	57,417	9,584	(386)	-	-	66,615
Mobiliario y equipo de oficina	61,604	2,279	(41)	(1,301)	-	62,541
Total depreciación acumulada	55,738,572	2,758,013	(1,002,195)	(367,097)	(452,023)	56,675,270
Reserva para bajas	25,129	-	-	-	-	25,129
Inversión neta	$ 89,590,435	$ 485,903	$ (62,923)	$ (474,247)	$ (5,365,786)	$ 84,173,382

	Saldo al 31 de diciembre de 2021	Adiciones directas	Bajas por ventas	Efecto cambiario	Saldo al 30 de junio de 2022
Inversión:					
Vías y estructuras	$ 49,681,183	$ 779,959	$ (111,397)	$ (346,549)	$ 50,003,196
Terrenos	26,546,853	286	-	(754,533)	25,792,606
Locomotoras	19,580,200	259,060	(139,478)	(53,398)	19,646,384
Construcciones en proceso	9,195,844	1,060,575	-	435,631	10,692,050
Equipo de telecomunicaciones	8,709,977	456,498	(428,307)	(162,534)	8,575,634
Puentes, túneles y alcantarillas	6,833,400	174,078	-	(124,258)	6,883,220
Equipo de arrastre	5,517,939	87,492	(34,606)	(35,596)	5,535,229
Terminales y talleres	4,874,546	185,602	-	-	5,060,148
Equipo automotriz	3,545,499	66,848	(240,294)	(360,247)	3,011,806
Edificios	2,486,909	47,037	-	(53,674)	2,480,272
Maquinaria y equipo	2,036,164	71,563	(3,819)	(37,821)	2,066,087
Maquinaria de vía	1,844,707	63,505	(3,458)	-	1,904,754
Equipo de cómputo	771,651	21,682	(22,423)	-	770,910
Maquinaria de talleres	278,448	-	-	-	278,448
Intereses por capitalizar	161,763	51,795	-	-	213,558
Sistemas de comunicación y tráfico	103,201	-	-	-	103,201
Mobiliario y equipo de oficina	84,606	177	(148)	-	84,635
Contenedores	83,684	-	(425)	-	83,259
Total inversión	$ 142,336,574	$ 3,326,157	$ (984,355)	$ (1,492,979)	$ 143,185,397
Depreciación:					
Vías y estructuras	$ 20,745,755	$ 1,174,308	$ (61,002)	$ (183,405)	$ 21,675,656
Locomotoras	12,445,353	479,131	(137,661)	(39,485)	12,747,338
Equipo de telecomunicaciones	4,616,559	391,710	(428,307)	162,032	4,741,994
Equipo de arrastre	2,945,393	113,631	(34,475)	(13,405)	3,011,144
Terminales y talleres	2,319,293	117,261	-	-	2,436,554
Puentes, túneles y alcantarillas	2,126,167	93,647	-	30,756	2,250,570
Equipo automotriz	2,355,958	137,714	(239,080)	(28,993)	2,225,599
Maquinaria de vía	1,235,805	71,976	(1,637)	-	1,306,144
Maquinaria y equipo	1,045,897	68,790	(3,819)	(12,600)	1,098,268
Edificios	1,013,805	56,641	-	(19,904)	1,050,542
Equipo de cómputo	596,841	32,181	(21,779)	-	607,243
Maquinaria de talleres	199,733	4,674	-	-	204,407
Sistemas de comunicación y tráfico	96,673	1,660	-	-	98,333
Mobiliario y equipo de oficina	57,373	2,288	(147)	-	59,514
Contenedores	50,293	3,873	(425)	-	53,741
Total depreciación acumulada	51,850,898	2,749,485	(928,332)	(105,004)	53,567,047
Reserva para bajas	24,404	268	-	-	24,672
Inversión neta	$ 90,461,272	$ 576,404	$ (56,023)	$ (1,387,975)	$ 89,593,678

La depreciación cargada a los resultados al 30 de junio de 2023 y 2022 fue por $ 2,758,013 y $ 2,749,485, respectivamente.

Información a revelar sobre partes relacionadas [bloque de texto]

Operaciones y saldos con partes relacionadas

a. Los saldos con partes relacionadas son:

	2023	2022
Por cobrar:		
Operadora de Minas e Instalaciones, S.A de C.V.	$ 45,031	$ 132,713
Union Pacific de México, S.A. de C.V.	35,653	-
Asarco, LLC	24,314	56,606
Mexicana de Cobre, S. A. de C. V.	23,695	17,071
Unión Pacific Railroad, Co.	14,638	47,273
Metalúrgica de Cobre, S.A. de C.V.	10,540	119,586
UP Logistic de México, S. de R.L.	8,359	33,267
Inmobiliaria Bosques de Ciruelos, S.A. de C.V.	2,664	2,097
Operadora de Minas Nacozari, S.A. de C.V.	608	5,360
Union Pacific Distribution Service, Inc.	12	14
Ferrocarril y Terminal del Valle de México, S.A. de C.V.	-	340,092
Central Gulf Railway, Inc. (CGR)	-	28,401
UPDS de México, S. de R.L. de C.V.	-	4,176
México Proyectos, Desarrollos y Servicios, S.A. de C.V.	-	1,145
Buenavista del cobre, S.A. de C.V.	-	84
México Constructora Industrial, S. A. de C. V.	-	6
	$ 165,514	$ 787,891
Por pagar a corto plazo:		
TTX Company	$ 112,843	$ 155,889
Ferrocarril y Terminal del Valle de México, S.A. de C.V.	32,153	-
Central Gulf Railway, Inc. (CGR)	24,316	-
Grupo México Servicios, S.A. de C.V.	11,950	37,172
Operadora de Cinemas, S.A. de C.V.	10,708	9,908
Grupo México, S.A.B. de C.V.	2,561	3,024
Fundación Grupo México, A.C.	2,143	-
Eólica el Retiro, S.A. de C.V.	1,921	5,447
Grupo México Servicios de Ingeniería, S.A. de C.V.	1,436	3,592
Mexico Constructora Industrial,S.A. de C.V.	1,023	3,396
PS Technology, Inc.	910	3,064
UPDS de México, S. de R.L. de C.V.	852	-
México Transportes Aéreos. S.A. de C.V.	-	1,526
Industrial Minera México, S.A. de C.V.	-	3
	$ 202,816	$ 223,021
Por pagar a largo plazo:		
Central Gulf Railway, Inc. (CGR)	$ 15,971	$ 15,971

b. Las operaciones con partes relacionadas efectuadas en el curso normal de sus operaciones fueron como sigue:

	2023	2022
Ingresos:		
Servicios de transportación prestados	$ 663,523	$ 737,365
Renta de carros (Car-Hire)	34,099	22,756
	$ 697,622	$ 760,121

	2023	2022
Egresos:		
Arrastres	$ 182,559	$ 159,351
Servicios de asesoría y licencias para el uso de software	95,726	73,603
Renta de carros (Car-Hire)	61,583	57,310
Maniobras	56,748	43,380
Arrendamiento de oficinas corporativas	17,194	17,605
Ajuste temporal de diésel	15,465	14,320
Asesoría financiera, legal y servicios administrativos	14,511	17,013
Derechos de paso	14,303	10,631
Activo fijo	13,471	30,849
Reparación de carros	4,611	-
Siniestros	204	-
Renta de equipo tractivo	8	-
Intereses y comisiones	-	614
	$ 476,383	$ 424,676

Información a revelar de las políticas contables significativas [bloque de texto]

Las políticas contables se encuentran reveladas en cada una de las secciones correspondientes.

Información a revelar sobre clientes y otras cuentas por cobrar [bloque de texto]

Cuentas por cobrar a clientes

	2023	2022
Cuentas por cobrar a clientes	$ 7,897,417	$ 8,948,775
Estimación de pérdidas crediticias esperadas	(114,101)	(127,419)
Clientes – Neto	$ 7,783,316	$ 8,821,356

El plazo de crédito promedio sobre los servicios de flete es de 45 días. No se hace ningún cargo por intereses sobre las cuentas por cobrar a clientes. La Entidad ha reconocido una estimación de pérdidas crediticias esperadas por la totalidad de las cuentas por cobrar irrecuperables, con antigüedad de 120 días o más.

Antes de aceptar cualquier nuevo cliente, la Entidad utiliza un sistema externo de calificación crediticia para evaluar la calidad crediticia del cliente potencial y define los límites de crédito por cliente.

Las cuentas por cobrar a clientes reveladas en los párrafos anteriores incluyen los montos que están vencidos al final del periodo sobre el que se informa, pero para los cuales la Entidad no ha reconocido estimación de pérdidas crediticias, aún así no ha habido cambio significativo en la calidad crediticia y los importes aún se consideran recuperables.

Cambio en la estimación de pérdidas crediticias esperadas:

	2023	2022
Saldos al inicio del año	$ (137,586)	$ (130,662)
Incremento en provisión	(10,509)	(14,469)
Cargos a la reserva	22,343	15,176
Resultado por conversión de moneda	11,651	2,536
Saldos al final del año	$ (114,101)	$ (127,419)

[800600] Notas - Lista de políticas contables

Información a revelar de las políticas contables significativas [bloque de texto]

Las políticas contables se encuentran reveladas en cada una de las secciones correspondientes.

Descripción de la política contable para costos de préstamos [bloque de texto]

Costos por préstamos

Los costos por préstamos generales o atribuibles directamente a la adquisición o construcción de activos para uso de la Entidad y que constituyen activos calificables que requieren de un período de tiempo substancial hasta que estén listos y útiles, se adicionan al costo de esos activos durante ese tiempo hasta el momento en que estén listos para su uso. Los costos sujetos a capitalización incluyen diferencias cambiarias relacionadas con préstamos denominados en moneda extranjera, y estos se consideran como un ajuste al gasto por interés hasta el equivalente a un gasto por interés en moneda local.

El ingreso que se obtiene por la inversión temporal de fondos de préstamos específicos pendientes de ser utilizados en activos calificables se deduce de los costos por préstamos para ser capitalizados.

Todos los otros costos por préstamos se reconocen en resultados durante el período en que se incurren.

Descripción de la política contable para la determinación de los componentes del efectivo y equivalentes de efectivo [bloque de texto]

Efectivo y equivalentes de efectivo

Consisten principalmente en depósitos bancarios en cuentas de cheques e inversiones en valores a corto plazo, de gran liquidez, fácilmente convertibles en efectivo y sujetos a riesgos poco significativos de cambios en valor. El efectivo se presenta a valor nominal y los equivalentes se valúan a su valor razonable; las fluctuaciones en su valor se reconocen en el costo financiero del período. Los equivalentes de efectivo están representados principalmente por inversiones en papel gubernamental con riesgo mínimo, en su caso, los riesgos que pudieran asociarse están relacionados con el mercado en donde operan, las tasas de interés asociadas al plazo, los tipos de cambio y los riesgos inherentes de crédito y liquidez del mercado.

Descripción de la política contable para activos financieros [bloque de texto]

Activos financieros

Los activos financieros se valúan inicialmente a valor razonable, más los costos de transacción, excepto por aquellos activos financieros clasificados como valor razonable con cambios a través de resultados.

Descripción de la política contable para deterioro del valor de activos financieros [bloque de texto]

Deterioro de activos financieros

Se sujetan a pruebas para efectos de deterioro al final de cada periodo sobre el cual se informa. Se considera que los activos financieros están deteriorados, cuando existe evidencia objetiva de que como consecuencia de uno o más eventos que hayan ocurrido después del reconocimiento inicial del activo financiero, los flujos de efectivo futuros estimados del activo financiero han sido afectados.

El valor en libros del activo financiero se reduce por la pérdida por deterioro directamente para todos los activos financieros, excepto para las cuentas por cobrar a clientes, donde el valor en libros se reduce a través de una cuenta de estimación de pérdidas crediticias. Cuando se considera que una cuenta por cobrar es incobrable, se elimina contra la estimación. La recuperación posterior de los montos previamente eliminados se convierte en créditos contra la estimación. Los cambios en el valor en libros de la cuenta de la estimación se reconocen en los resultados.

Descripción de la política contable para deterioro del valor de activos no financieros [bloque de texto]

Deterioro de activos de larga duración en uso

La Entidad revisa el valor en libros de los activos de larga duración en uso, ante la presencia de algún indicio de deterioro que pudiera indicar que el valor en libros pudiera no ser recuperable, considerando el mayor del valor presente de los flujos netos de efectivo futuros o el precio neto de venta en el caso de su eventual disposición. El deterioro se registra si el valor en libros excede al mayor de los valores antes mencionados. Los indicios de deterioro que se consideran para estos efectos son entre otros, las pérdidas de operación o flujos de efectivo negativos en el período si es que están combinados con un historial o proyección de pérdidas, depreciaciones y amortizaciones cargadas a resultados que, en términos porcentuales, en relación con los ingresos, sean substancialmente superiores a las de ejercicios anteriores, efectos de obsolescencia, competencia y otros factores económicos y legales. Al 30 de junio de 2023 y 2022, no existen indicios de deterioro en dichos activos.

Descripción de la política contable para impuestos a las ganancias [bloque de texto]

Impuestos a la utilidad

La Entidad está sujeta a las disposiciones de la Ley del Impuesto Sobre la Renta ("ISR"). El impuesto causado ISR, se basa en las utilidades fiscales de cada año determinado conforme a las leyes. La utilidad fiscal difiere de la ganancia reportada en la utilidad integral, debido a las partidas de ingresos o gastos gravables o deducibles aplicables. El pasivo de la Entidad por concepto de impuestos causados se calcula utilizando las tasas fiscales promulgadas al final del período sobre el cual se informa.

El impuesto diferido se reconoce sobre las diferencias temporales entre el valor en libros de los activos y pasivos incluidos en los estados financieros y las bases fiscales correspondientes utilizadas para determinar la utilidad fiscal. El pasivo por impuesto diferido se reconoce generalmente para todas las diferencias fiscales temporales gravables. Se reconoce un activo por impuestos diferidos, por todas las diferencias temporales deducibles y las pérdidas fiscales por amortizar, en la medida en que resulte probable que la Entidad disponga de utilidades fiscales futuras contra las que pueda aplicar esas diferencias temporales deducibles.

Los impuestos causados y diferidos se reconocen como ingreso o gasto en el estado consolidado de resultados y otros resultados integrales, excepto cuando se refieren a partidas que se reconocen en el renglón de otros componentes de la utilidad integral o directamente en el capital contable, en cuyo caso el impuesto también se reconoce en otros componentes de la utilidad integral.

Descripción de la política contable para activos intangibles distintos al crédito mercantil [bloque de texto]

Títulos de concesión

Están registrados a su costo de adjudicación. Dichos títulos se amortizan en línea recta en función de la vida útil remanente estimada de los activos fijos concesionados, que es de 30.3 años para Ferromex, 50 años para Ferrosur y 20 años para TTG.

Descripción de las políticas contables para inversiones en asociadas [bloque de texto]

Inversión en asociada e inversiones permanentes

La inversión en acciones de la entidad asociada e inversiones en negocios conjuntos se valúa por el método de participación. Conforme a este método, el costo de adquisición de las acciones se modifica por la parte proporcional de los cambios en las cuentas del capital contable de la asociada, posteriores a la fecha de la compra. La participación de la Entidad en los resultados de la asociada se presenta por separado en el estado de resultados y otros resultados integrales.

Aquellas inversiones permanentes efectuadas por la Entidad en entidades en las que no tiene el control, control conjunto, ni influencia significativa se registran a costo histórico y los dividendos recibidos se reconocen en los resultados del período salvo que provengan de utilidades de períodos anteriores a la adquisición, en cuyo caso se disminuyen de la inversión permanente.

Descripción de la política contable para arrendamientos [bloque de texto]

Arrendamientos

La Entidad como arrendatario

La Entidad evalúa si un contrato contiene un arrendamiento en su origen. La Entidad reconoce un activo por derechos de uso y un pasivo por arrendamiento correspondiente respecto a todos los contratos de arrendamiento en los que sea arrendatario, exceptuando los arrendamientos de corto plazo (plazo de 12 meses o menos) y los de activos de bajo valor. Para estos arrendamientos, la Entidad reconoce los pagos de renta como un gasto operativo bajo el método de línea recta a través del periodo de vigencia del arrendamiento, a menos que otro método sea más representativo del patrón del tiempo en que los beneficios económicos proveniente del consumo de los activos arrendados.

El pasivo por arrendamiento es medido inicialmente al valor presente de los pagos de renta que no sean pagados en la fecha de inicio, descontado por la tasa implícita en el contrato. Si esta tasa no puede ser fácilmente determinada, la Entidad utiliza tasas de endeudamiento incrementales.

Los pagos de renta incluidos en la medición del pasivo por arrendamiento consisten en:

- Pagos de renta fijos (incluyendo pagos fijos en sustancia), menos cualquier incentivo por arrendamiento recibido;
- El monto esperado a pagarse por el arrendatario bajo garantías de valor residual;
- El precio de ejercicio de opciones de compra, si el arrendatario está razonablemente certero de ejercitar las opciones; y
- Pagos por penalizaciones resultantes de la terminación del arrendamiento, si el periodo del arrendamiento refleja el ejercicio de una opción de terminación del arrendamiento.

El pasivo por arrendamiento se presenta como un concepto separado en el estado consolidado de posición financiera.

El pasivo por arrendamiento es medido subsecuentemente con el aumento del valor en libros para reflejar los intereses devengados por el pasivo por arrendamiento (usando el método de interés efectivo) y reduciendo el valor en libros para reflejar los pagos de renta realizados.

La Entidad revalúa el pasivo por arrendamiento (y realiza el ajuste correspondiente al activo por derechos de uso relacionado) siempre que:

- El plazo del arrendamiento es modificado o hay un evento o cambio significativo en las circunstancias del arrendamiento resultando en un cambio en la evaluación del ejercicio de opción de compra, en cuyo caso el pasivo por arrendamiento es medido descontando los pagos de renta actualizados usando una tasa de descuento actualizada.
- Un contrato de arrendamiento se modifique y la modificación del arrendamiento no se contabilice como un arrendamiento separado, en cuyo caso el pasivo por arrendamiento se revalúa basándose en el plazo del arrendamiento del arrendamiento modificado, descontando los pagos de renta actualizados usando una tasa de descuento actualizada a la fecha de entrada en vigor de la modificación.

Los activos por derechos de uso consisten en la medición inicial del pasivo por arrendamiento correspondiente, los pagos de renta

realizados en o antes de la fecha de inicio, menos cualquier incentivo por arrendamiento recibido y cualquier costo inicial directo. La valuación subsecuente es el costo menos la depreciación acumulada y pérdidas por deterioro.

Si la Entidad incurre en una obligación surgida de costos de desmantelar y remover un activo arrendado, restaurar el lugar en el cual está localizado o restaurar el activo subyacente a la condición requerida por los términos y condiciones del arrendamiento, reconoce una provisión medida conforme a la IAS 37. En la medida en que los costos se relacionen a un activo por derechos de uso, los costos son incluidos en el activo por derechos de uso relacionado, a menos que dichos costos se incurran para generar inventarios.

Los activos por derechos de uso se deprecian sobre el periodo que resulte más corto entre el periodo del arrendamiento y la vida útil del activo subyacente. Si un arrendamiento transfiere la propiedad del activo subyacente o el costo del activo por derechos de uso refleja que la Entidad planea ejercer una opción de compra, el activo por derechos de uso se depreciará sobre la vida útil. La depreciación comienza en la fecha de inicio del arrendamiento.

Los activos por derechos de uso son presentados como un concepto separado en el estado consolidado de posición financiera.

La Entidad aplica IAS 36 para determinar si un activo por derechos de uso está deteriorado y contabiliza cualquier pérdida por deterioro identificada como se describe en la política de 'Inmuebles, maquinaria y equipo - Neto'.

Descripción de las políticas contables para la medición de inventarios [bloque de texto]

Inventarios y costo de ventas

Los inventarios consisten principalmente en rieles, durmientes y otros materiales para mantenimiento de los inmuebles, maquinaria y equipo, así como el diésel que es utilizado como combustible para proveer los servicios ferroviarios. Los inventarios se valúan al menor de su costo o valor de realización, utilizando el método de costo promedio. Así mismo, el costo de ventas se reconoce al costo histórico de las compras e inventarios consumidos. Los valores así determinados no exceden de su valor neto de realización.

La estimación para inventarios obsoletos se considera suficiente para absorber pérdidas por estos conceptos, la cual es determinada conforme a estudios realizados por la administración de la Entidad.

Descripción de la política contable para propiedades, planta y equipo [bloque de texto]

Inmuebles, maquinaria y equipo

Se registran al costo de adquisición. La depreciación se calcula conforme al método de línea recta con base en la vida útil de los activos estimada por la administración de la Entidad.

La capitalización de la rehabilitación y conservación de vías es realizada cuando se cambian componentes en más del 20% de un tramo de vía, depreciándolos a una tasa entre 3.3% y 6.6%. En el caso de mantenimiento o reparaciones que no requieren el cambio de componentes en más del 20% de un tramo de vía, su costo es registrado en resultados.

Los gastos de mantenimiento regular y reparaciones se cargan a resultados cuando se incurren. El costo de reparaciones mayores en locomotoras es capitalizado como un componente del activo y amortizado hasta que otro mantenimiento mayor que afecte los mismos componentes es realizado conforme al plan de mantenimientos mayores.

La depreciación se reconoce para dar de baja el costo (distintos a las propiedades en construcción) menos su valor residual, sobre sus vidas útiles utilizando el método de línea recta. La vida útil estimada, el valor residual y el método de depreciación se revisan al final de cada año, y el efecto de cualquier cambio en la estimación registrada se reconoce sobre una base prospectiva. La depreciación se calcula conforme al método de línea recta con base en la vida útil remanente de los activos.

Descripción de la política contable para provisiones [bloque de texto]

Provisiones

Se reconocen cuando se tiene una obligación presente (ya sea legal o implícita) como resultado de un evento pasado, que probablemente resulte en la salida de recursos económicos y que pueda ser estimada razonablemente.

El importe reconocido como provisión es la mejor estimación del desembolso necesario para liquidar la obligación presente, al final del periodo sobre el que se informa, teniendo en cuenta los riesgos y las incertidumbres que rodean a la obligación. Cuando se valúa una provisión usando los flujos de efectivo estimados para liquidar la obligación presente, su valor en libros representa el valor presente de dichos flujos de efectivo.

Cuando se espera la recuperación de algunos o todos los beneficios económicos requeridos para cancelar una provisión, se reconoce una cuenta por cobrar como un activo si es virtualmente seguro que se recibirá el desembolso y el monto de la cuenta por cobrar puede ser medido razonablemente.

Descripción de las políticas contables para el reconocimiento de ingresos de actividades ordinarias [bloque de texto]

Reconocimiento de ingresos y costos

La Entidad reconoce ingresos por servicios de flete y determina sus tarifas con base en las condiciones competitivas de mercado de transporte y a sus gastos de operación que garanticen un margen de utilidad razonable.

Los ingresos por flete se reconocen a medida que se presta el servicio desde el origen hasta el destino. La asignación de ingresos entre períodos de informe se basa en el tiempo de tránsito relativo en cada período en relación con los gastos incurridos. Otros ingresos operativos derivados de los servicios de flete se reconocen a medida que se realiza el servicio o se cumplen las obligaciones contractuales. Los incentivos para clientes, que se proporcionan principalmente por enviar un volumen acumulado específico o para envíos desde y hacia ubicaciones específicas, se registran como una reducción de los ingresos operativos en función de los envíos de clientes.

Descripción de las políticas contables para los beneficios por terminación [bloque de texto]

Costos de beneficios al retiro y beneficios por terminación

Las aportaciones a los planes de beneficios al retiro de contribuciones definidas se reconocen como gastos al momento en que los empleados han prestado los servicios que les otorgan el derecho a las contribuciones.

En el caso de los planes de beneficios definidos, que incluyen prima de antigüedad y pensiones, su costo se determina utilizando el método de crédito unitario proyectado, con valuaciones actuariales que se realizan al final de cada periodo sobre el que se informa. Las remediciones, que incluyen las ganancias y pérdidas actuariales, el efecto de los cambios en el piso del activo (en su caso) y el retorno del plan de activos (excluidos los intereses), se refleja de inmediato en el estado de posición financiera con cargo o crédito que se reconoce en otros resultados integrales en el período en que se incurren. Las remediciones que reconocen en otros resultados integrales se reconocen de inmediato en las utilidades acumuladas y no se reclasifica a resultados. Costo por servicios pasados se reconoce en resultados en el período de la modificación al plan. Los intereses netos se calculan aplicando la tasa de descuento al inicio del período de la obligación el activo por beneficios definidos. Los costos por beneficios definidos se clasifican de la siguiente manera:

- Costo por servicio (incluido el costo del servicio actual, costo de los servicios pasados, así como las ganancias y pérdidas por reducciones o liquidaciones).
- Los gastos o ingresos por interés - netos.
- Remediciones

La Entidad presenta los dos primeros componentes de los costos por beneficios definidos en una línea como costos directos del servicio en el estado de resultados y otros resultados integrales. Las ganancias y pérdidas por reducción del servicio se reconocen como costos por servicios pasados.

Las obligaciones por beneficios al retiro reconocidas en el estado consolidado de posición financiera representan las pérdidas y ganancias actuales en los planes por beneficios definidos de la Entidad. Cualquier ganancia que surja de este cálculo se limita al valor presente de cualquier beneficio económico disponible de los reembolsos y reducciones de contribuciones futuras al plan.

Cualquier obligación por indemnización se reconoce al momento que la Entidad ya no puede retirar la oferta de indemnización y/o cuando la Entidad reconoce los costos de reestructuración relacionados.

Beneficios a los empleados a corto plazo y otros beneficios a largo plazo

Se reconoce un pasivo por beneficios que correspondan a los empleados con respecto a sueldos y salarios, vacaciones anuales y licencia por enfermedad en el periodo de servicio en que es prestado por el importe no descontado por los beneficios que se espera pagar por ese servicio.

Los pasivos reconocidos por los beneficios a los empleados a corto plazo se valúan al importe no descontado por los beneficios que se espera pagar por ese servicio.

Los pasivos reconocidos por otros beneficios a largo plazo se valúan al valor presente de las salidas de efectivo futuras estimadas que la Entidad espera hacer relacionadas con los servicios proveídos por los empleados a la fecha de reporte.

Descripción de la política contable para clientes y otras cuentas por cobrar [bloque de texto]

Cuentas por cobrar

Las cuentas por cobrar a clientes y otras cuentas por cobrar con pagos fijos o determinables que no se negocian en un mercado activo, se valúan al costo amortizado usando el método de interés efectivo, menos cualquier deterioro.

[813000] Notas - Información financiera intermedia de conformidad con la NIC 34

Información a revelar sobre información financiera intermedia [bloque de texto]

La entidad decide reportar la información financiera al 30 de junio de 2023 tal y como se reporta en el cuarto trimestre dictaminado.

Dividendos pagados, acciones ordinarias:	4,354,079,000
Dividendos pagados, otras acciones:	0
Dividendos pagados, acciones ordinarias por acción:	0
Dividendos pagados, otras acciones por acción:	0

EXHIBIT 57

OSHA News Release – Dallas Region

U.S. Department of Labor

August 6, 2025

US Department of Labor orders railroad company to reinstate worker, pay over $300K in back wages, damages, attorney's fees

Union Pacific Railroad Co. violated federal whistleblower protections

DALLAS – A federal whistleblower investigation found that Union Pacific Railroad Co. violated the Federal Railroad Safety Act by terminating a railroad engineer after the employee reported and sought medical care for a work-related injury.

The department's Occupational Safety and Health Administration has ordered Union Pacific to reinstate the employee, and pay back wages, interest, compensatory and punitive damages, and attorney's fees, totaling over $300,000.

OSHA's Whistleblower Protection Program enforces 25 whistleblower statutes that protect employees from retaliation for reporting violations of workplace airline, anti-money laundering, commercial motor carrier, consumer product, criminal antitrust, environmental, financial reform, food safety, health insurance reform, maritime, motor vehicle safety, nuclear, pipeline, public transportation agency, railroad, safety and health, securities, and tax laws.

For information on whistleblower protections, visit OSHA's Whistleblower Protection Programs webpage.

# # #

Editor's note: *The U.S. Department of Labor does not release the names of employees involved in whistleblower complaints.*

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EXHIBIT 58

PUBLIC VERSION - REDACTED

Texas rail worker gets $300k in wrongful termination payout

Amber Gaudet

Union Pacific trackmen work at the Union Pacific Railroad rail yard on Thursday, March 28, 2024, in Palestine, Texas.

Union Pacific trackmen work at the Union Pacific Railroad rail yard on Thursday, March 28, 2024, in Palestine, Texas.

Juan Figueroa/Staff Photographer

A Texas railroad engineer was awarded more than $300,000 in back wages, damages and attorney's fees after a federal investigation found Union Pacific unlawfully fired him.

In an Aug. 6 finding, the Dallas division of the Occupational Safety and Health Administration found that the railroad violated a federal whistleblower law when it fired the Houston-area engineer in March 2024 after he reported a workplace injury.

Get alerts on traffic, road closures and construction impacting your commute.

The agency called Union Pacific a "serial violator" of the Federal Railroad Safety Act, citing 20 past violations. In 13, OSHA found the railroad had retaliated against employees for reporting work-related injuries.

Article continues below this ad

OSHA ordered Union Pacific to pay the engineer more than $195,000 in back wages and interest, $150,000 in punitive damages, $10,000 in pain and suffering, and attorney fees. He was reinstated in June after a separate arbitration process, OSHA records show.

The railroad disagrees with the findings and plans to appeal. Either party has 30 days to appeal the OSHA decision to an administrative law judge.

"Union Pacific recognizes the right of all our employees to claim injury and seek medical attention without fear of retaliation," the company said in a statement.

Union Pacific, the largest freight railroad in the U.S., has a significant presence in the Lone Star State. The company had more than 6,400 miles of track and 5,700 employees as of 2023.

The facts of the case

After an Uber that was transporting the workers to the railroad's Englewood Yard facility in Houston was struck by a Toyota Tundra pickup on Feb. 1, 2024, the engineer and another Union

PUBLIC VERSION - REDACTED

Pacific employee reported back pain to their supervisor.

Article continues below this ad

The engineer sought medical care, which escalated the injury to a federally reportable incident. Meanwhile, the engineer's fellow employee did not seek medical care or fill out a formal injury report, and was not disciplined.

The day after filling out an injury report, a manager accused the engineer of falsely reporting a work injury, according to OSHA. Union Pacific said there was no visible damage to the rideshare vehicle and "no indication of physical injuries" observed by his manager immediately following the accident.

He was fired March 15 following an investigative hearing earlier that month.

OSHA found the company did not have sufficient evidence to justify the firing, which violated provisions of the FRSA that preclude railroads from retaliating against employees who report work-related injuries.

Punitive damages of up to $250,000 for past violations have "had no deterrent effect" on Union Pacific's "illegal conduct," according to OSHA.

A past ruling cited by OSHA referenced "a culture of hostility and animus towards injury reporting at Union Pacific" and said the company's policies incentivize management to discourage injury reporting.

"For too long, railroads have tried to create a culture of silence around injuries. This ruling pushes back against that culture," said Scott Alexander, general chairman at the Brotherhood of Locomotive Engineers and Trainmen, which represents the rail worker.

"It shows that when a railroad employee reports an injury and follows medical advice, he cannot be punished for it," he said.

It's unclear if the case will have any impact on Union Pacific's plans to acquire Norfolk Southern, forming what would become the first transcontinental railroad in the United States.

The acquisition is subject to approval by the Surface Transportation Board, which considers "fair working conditions for employees" as part of its review process, the Wall Street Journal reported.

EXHIBIT 59 (REDACTED)

EXHIBIT 60 (REDACTED)

EXHIBIT 61 (REDACTED)

EXHIBIT 62 (REDACTED)

EXHIBIT 63 (REDACTED)

EXHIBIT 64 (REDACTED)

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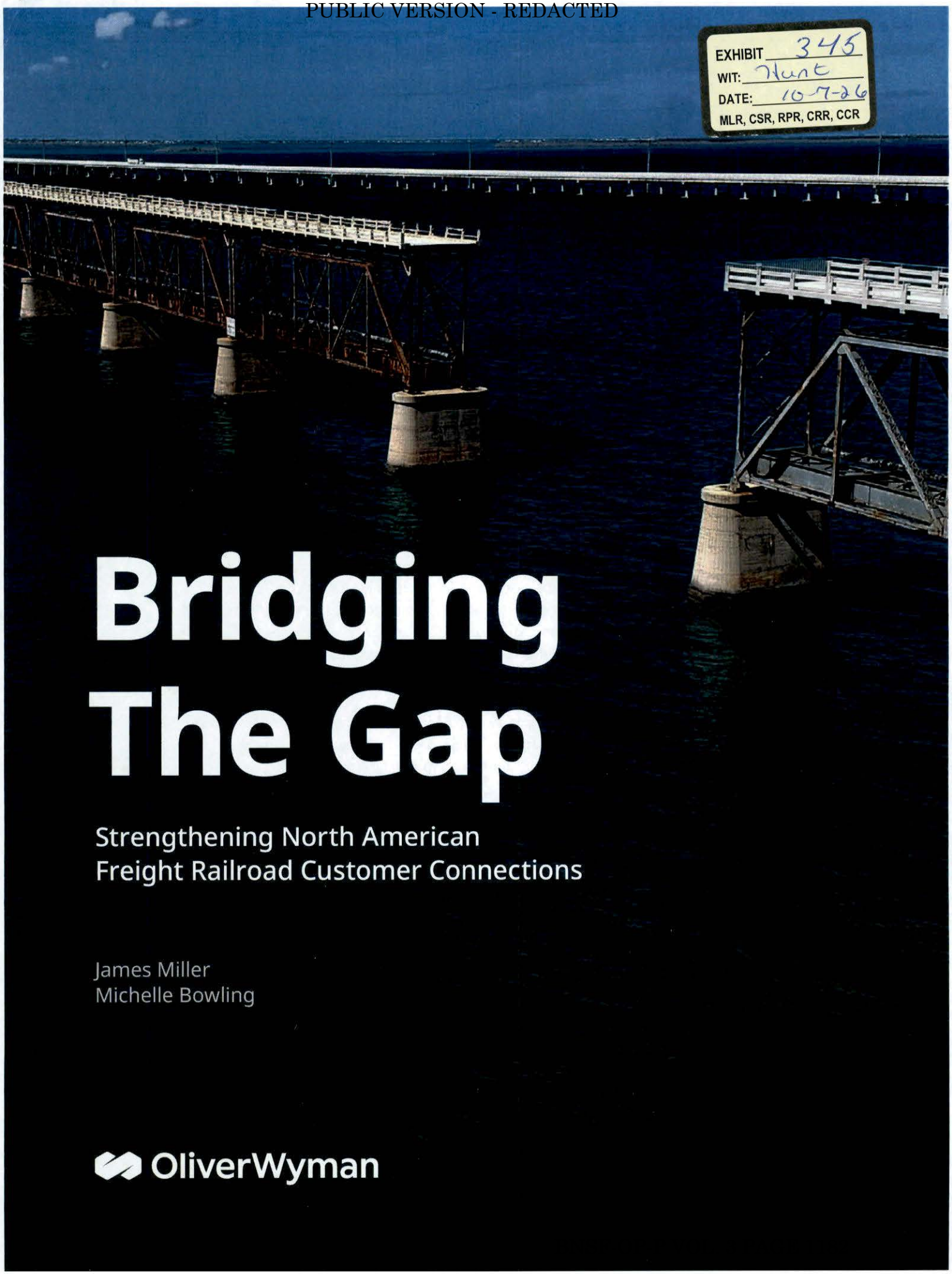

Bridging The Gap

Strengthening North American Freight Railroad Customer Connections

James Miller
Michelle Bowling

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Introduction

Oliver Wyman connected with 30+ senior transportation decision makers at North American retailers, manufacturers, and third-party logistics providers (3PLs) this year, to determine what is influencing their surface transportation mode choices. As an update to our 2020 Shipper Survey, we asked decision makers at these companies to tell us about their pain points, what railroads are doing well, and what it would take for shippers to increase their use of rail.

While every company is different and faces different requirements for its own supply chain, four key themes appear to be resonating across this group, offering important insights into shippers' transportation decision making and what might encourage a more rail-forward outlook in the future.

Shippers told us that railroads must demonstrate **greater responsiveness**, spanning multiple transaction interactions. Customers want faster, more efficient, more proactive communication and action from railroads across pricing, invoicing, claims, local service changes, and decision-making on customer requests. Shippers must move lightning fast to keep today's supply chains fluid, efficient, and reliable. They want carrier-partners that have the same sense of urgency and commitment to respond to and solve customer needs. This is as much about attitude as speed: shippers seek a real sense of dedication from their transport providers to help them resolve their supply chain challenges.

On the good news front, half of shippers we surveyed said that railroads have become more customer-centric since 2019. Shippers want to do more with railroads and expressed a desire for **closer customer relationships** or even true partnerships, including open-minded consideration of more creative or different commercial structures, more willingness to consider multi-year deals, faster and more consideration of market changes, and greater flexibility on rules and policies, with incentives that reward optimal partner behavior. There is opportunity for railroads and shippers to find the right balance in building deeper, trusted commercial relationships.

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A demand for **greater service reliability** reflects shippers' desire for a dependable and consistent transportation experience — backed up by transparent performance data. Shippers all know the transit performance of their own shipments but see little from railroads "owning" that performance and systematically reporting on what rail is doing to improve. Equipment quality and availability are critical factors as well, as shippers expect railroads to deliver on their commitments and uphold agreed standards.

Finally, **pricing** has been and always will be a high priority. What's new this year is that we heard many more examples of trucking priced lower in certain lanes than comparable rail intermodal services. Since consistent, stable volumes in predictable lanes are of immense value to rail, shippers would like to see more mutually beneficial pricing structures that reward shippers who consistently deliver such "good freight" to the network — as well as pricing that reacts more quickly to trucking cycles.

Understanding these core shipper preferences is crucial to moving the needle for rail. While shippers don't need rail to be as fast as trucking, they do want better service reliability and performance overall. And they do need to see the customer-centricity (responsive, efficient, proactive) that they are used to getting from trucking providers. With these factors in mind, this report is designed to help identify where there are actionable opportunities for railroads to grow volumes and gain market share once more.

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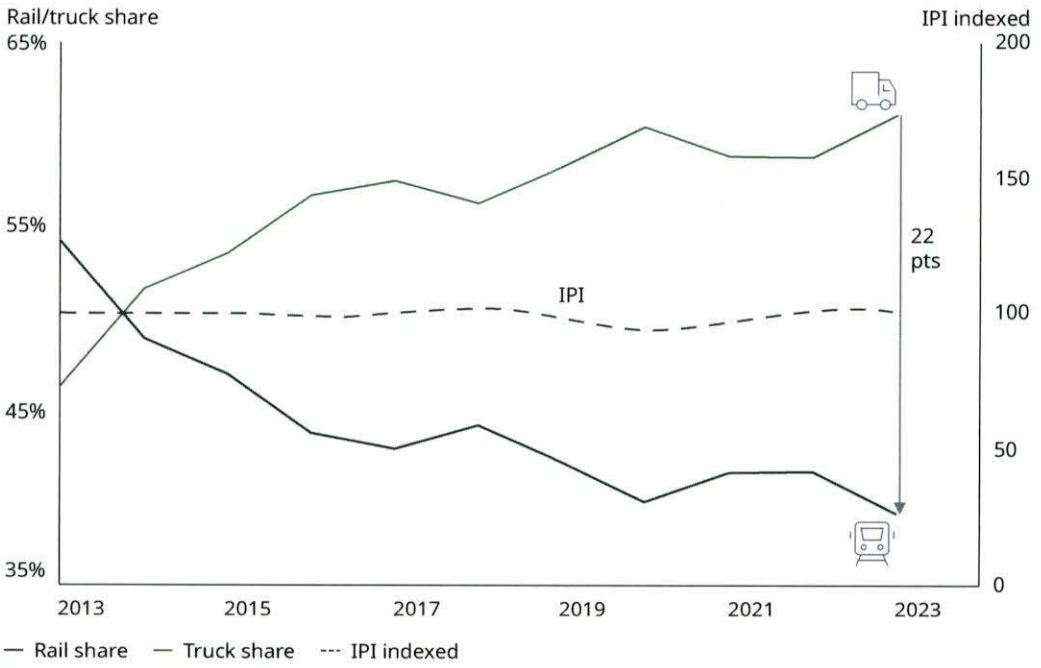
Market Trends

There is no doubt that the railroads have been ceding market share to trucking for the past decade, and that the market share gap is widening — to 22 percentage points in 2024 (Exhibit 1). Respondents to our 2025 Shipper Survey reported improvements in rail service compared to five years ago, but railroads have not yet sufficiently addressed customer issues to see market share gains.

Exhibit 1: US rail/truck market share and US Industrial Production Index, 2013-2023
Rail/truck combined ton-miles, IPI 2013 = 100



Source: US Bureau of Transportation Statistics Table 1-50 (US Ton-Miles of Freight), Board of Governors of the US Federal Reserve System via FRED, Oliver Wyman analysis

Freight Segmentation And Mode Share

To determine where rail has the most opportunity to gain market share by meeting shipper requirements, Oliver Wyman segmented North American freight into four categories (Exhibit 2). Each segment has shown different growth and rail market share patterns over the past decade, and each has a different trajectory for future growth.

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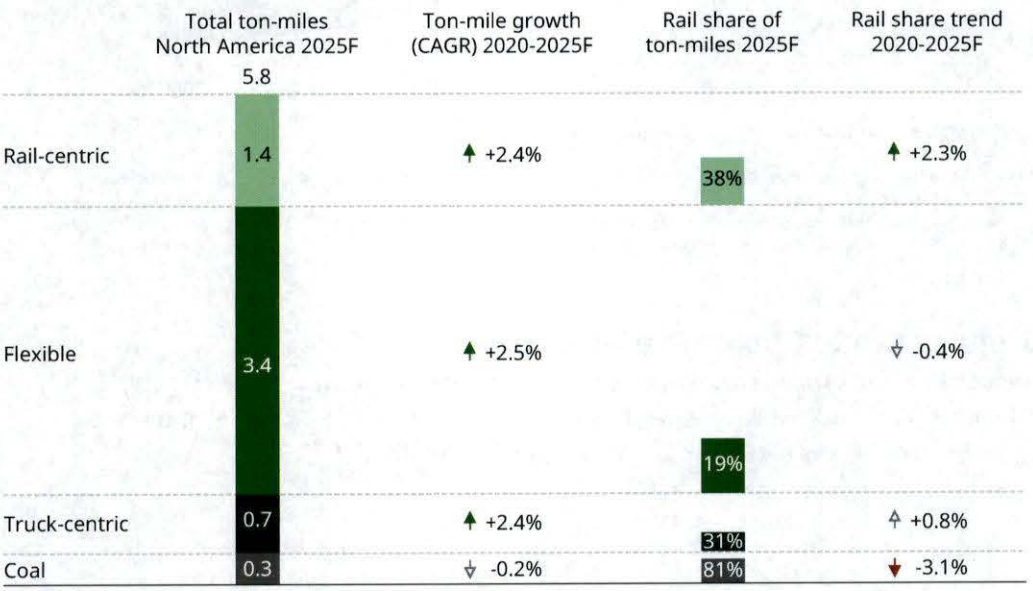
Exhibit 2: North American freight segments

Segment	Description	Examples
Rail-centric	• Bulk: heavy, low-value commodities • Less sensitive to transit time	Agricultural products, chemicals, metals, and ores
Truck-centric	• High-value commodities • Highly transit-time sensitive or perishable • Mainly use truck (or air) as mode of choice	Food and machinery
Flexible	• Freight with a choice — primarily between rail and truck • Moderate shipment sizes, value, and transit time sensitivity	Automotive, construction, retail/ consumer packaged goods (CPG), waste
Coal	• Mainly moved by rail to power plants • Recent short-term increase due to higher natural gas prices • Long-term use for electricity generation in decline	

By far, flexible freight accounts for the largest potential market for rail in terms of ton-miles and is the fastest growing freight segment (Exhibit 3). Railroads have only a 19% share of flexible freight and have been slowly losing share in this segment as more shippers opt for trucking instead.

Exhibit 3: Rail share of North American freight market, 2020–2025

Ton-miles in trillions



Note: Rail share defined as FAF modes 2 (rail) and 5 (multiple modes and mail). Rail-centric and flexible commodities are Oliver Wyman classifications based on freight that is suitable for carload of intermodal service. Rail-centric commodities include agriculture, chemicals, and metals. Flexible commodities include automotive, construction, energy non-coal, paper, retail/CPG, and waste. Truck-centric commodities include food and machinery.

Source: USDOT Freight Analysis Framework 5.7.1, Oliver Wyman analysis

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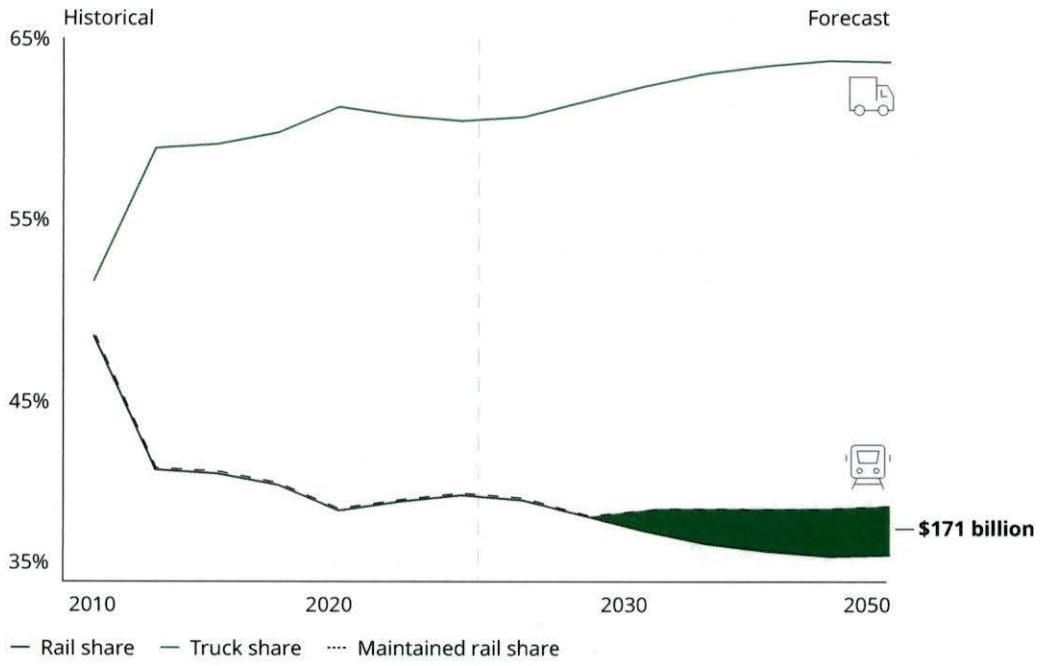
If railroads were able to simply able to stop the slide and hold their market share steady for the next decade, they could recover as much as $171 billion in incremental revenue by 2050, according to our analysis (Exhibit 4). This gain would inevitably come from the flexible freight segment. To earn this "freight with a choice," however, railroads would need to provide shippers with better transit reliability performance and more customer-centric service than they offer today.

Exhibit 4: Value of maintaining 2020 rail market share through 2050
Percentage of ton-miles



Note: Maintained rail share revenue opportunity in 2024 dollars, based on winning additional share of flexible commodity freight.
Source: US Bureau of Transportation Statistics Table 1-50 (US Ton-Miles of Freight), US DOT Freight Analysis Framework 5.7.1, US Class I annual earnings, US Class I R-1s, Oliver Wyman analysis

Shipper Mode Choice Preferences

About half of the carload shippers we surveyed stated that they would *prefer* to ship by rail rather than truck, while another 30% indicated no preference (Exhibit 5). Intermodal shippers' preferences between modes are nearly evenly divided.

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Exhibit 5: Shipper preferences for rail versus truck

Percentage of survey respondents



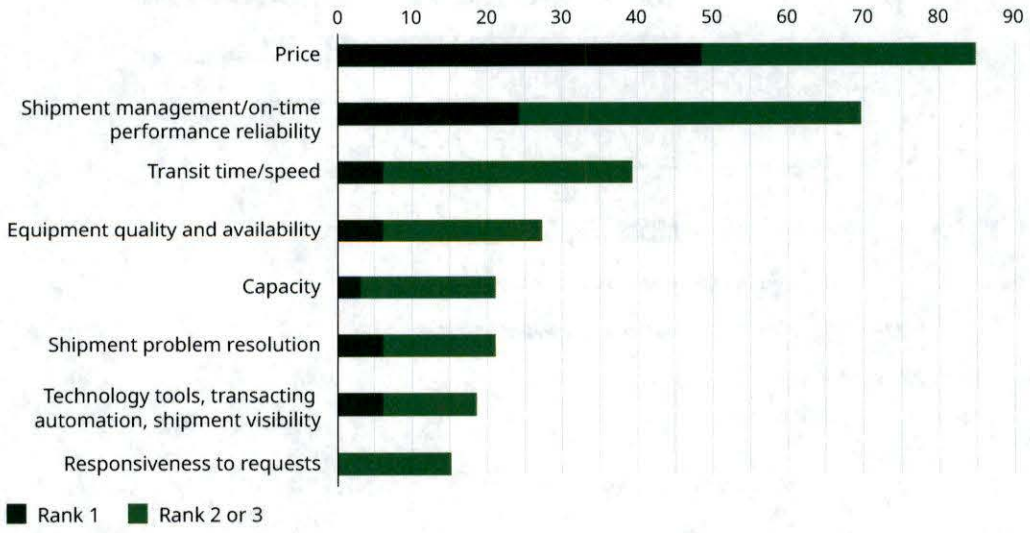
Source: Oliver Wyman 2025 North American Shipper Survey

These figures suggest a neutral to somewhat favorable view of rail — one that railroads should be able to capitalize on if they could deliver a more "truck-like" experience. We heard similar sentiments in 2020 — that shippers would like to be doing more with rail but are not able to justify greater rail share given their supply chain needs. Regardless of preference, shippers typically choose the transportation mode that is not only more economical but easier to use, more responsive, and supported by stronger relationships, which could explain why a favorable view of rail has yet to translate into more freight on rail.

Among factors that shippers ranked as influencing their actual mode choice, three stand out: Price was ranked as #1 by nearly half and as a top-three influencer by 85% of respondents (Exhibit 6). Shipment management/on-time reliability was ranked as the #1 factor by about a quarter of respondents and a top-three influencer by 70%. Transit time/speed also ranked in the top three for 39% of survey respondents.

Exhibit 6: Factors influencing shipper mode choice

Percentage of survey respondents, selecting top three



Source: Oliver Wyman 2025 North American Shipper Survey

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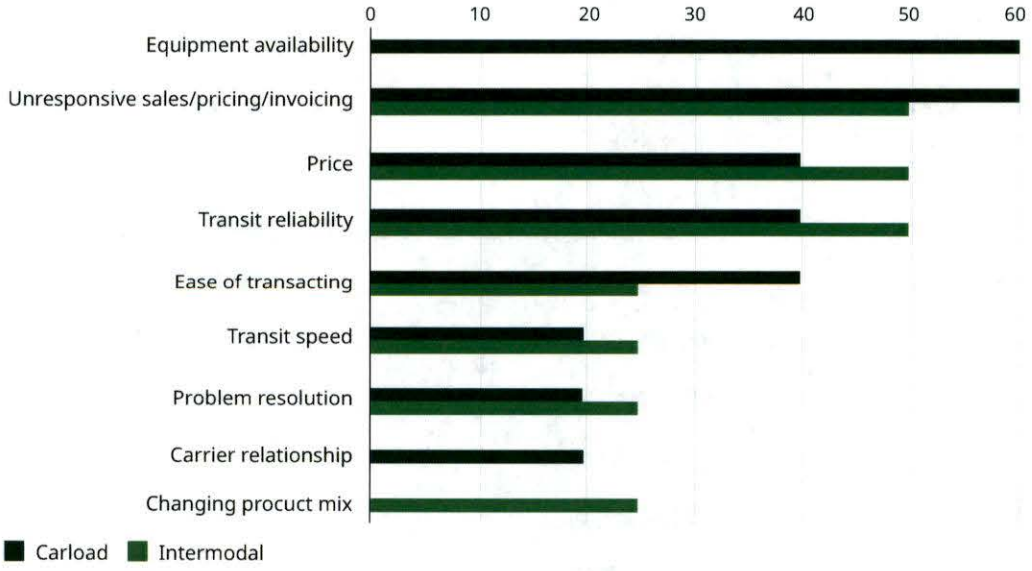
For shippers that reported actively shifting away from rail and to trucking, we asked their key reasons for doing so. Half or more cited a lack of responsiveness from rail as a main reason — which tied with equipment availability for carload shippers (Exhibit 7). These frustrations around customer experience rank on par with price for intermodal shippers and even more highly for carload shippers. Ease of transacting and transit reliability also were cited as reasons for shifting more freight to trucking.

The number of intermodal shippers indicating price as a factor highlights an unusual current market situation, where truck prices are lower than intermodal prices in certain lanes. As detailed in a recent Oliver Wyman analysis, reasons for this include a surplus of owner-operators post-COVID who can sustain their business on lower rates.

Nearly two-thirds of intermodal shippers surveyed intend to either maintain their current mode balance or switch to more trucking from rail intermodal in the near future, while over half of carload shippers plan to either maintain their mode balance or switch more from carload to trucking. Thus, while railroads are showing signs of service improvement, they have yet to fully stem the outflow of shippers taking their supply chain volumes elsewhere.

Exhibit 7: Shipper reasons for shifting to truck from rail carload and intermodal
Percentage of survey respondents, selecting top three



Source: Oliver Wyman 2025 North American Shipper Survey

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Ramping Up Responsiveness

The majority of shippers we surveyed indicated that they want greater responsiveness from railroads, meaning communication that is timely, efficient, and proactive across all customer touchpoints — from a new business opportunity decision or a claim resolution to an update on equipment availability.

Shippers indicated that more aggressively embracing advanced visibility tools and enhancing customer-facing capabilities could empower railroads to respond more efficiently to market changes and customer needs. Equally, quick decision-making is crucial for maintaining competitiveness. As one shipper said, "Speed to market is critical for us. We need railroads to be able to make decisions on service and commercial terms quickly. If it takes six months for a go/no go decision, the business has already moved to truck."

By proactively addressing customer inquiries and price requests, railroads could position themselves as agile service providers in a rapidly evolving market. Time-to-market should be a key metric for all railroad executive teams — how long is it taking to respond to customers on critical requests? How long should it take? How long would you expect it to take if you were the customer?

Speed Up Decision-Making

There are several key areas where shippers are looking for railroads to ramp up their speed. One is new-business decisions. Shippers report waiting for extended periods for rate quotes from railroads, while trucking companies provide quotes in minutes. An oil and gas shipper noted that, "The onus is always on you as the shipper," to get pricing from a railroad for new business.

To be fair, railroads face challenges in quoting prices that truckers do not. About a third of originated carloads and one in every five containers involve multiple railroads, requiring coordination across carriers to establish an end-to-end price. Even when each railroad on a route provides a separate price (Rule 11 pricing), shippers might get a quick response from one carrier but then wait on another to respond.

"I just can't get rates from the railroad. If I could, I would ship a train every other day."

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Enhance Claims Resolution

This is another area where railroads aren't winning races. Only a small percentage of total moves involve claims, but current railroad practices are causing an outsized level of frustration. We heard from shippers who have experienced long, drawn out claims processes even in cases where the damage was clearly done by the railroad.

When a claim arises, customers want prompt acknowledgment and resolution, regardless of who is at fault. Here is a solid opportunity to apply artificial intelligence (AI) to help quickly and objectively resolve claims based on a set of decision criteria, images, and text-based input from involved parties. With "agentic" AI solutions (which are capable of autonomous decision making), a 24-hour turnaround for claims after evidence is submitted should be achievable. Resolution in the customer's favor could align claim payout with customer payment terms (that is, if the customer pays the railroad in 15 days, the railroad would pay a claim within 15 days).

Building an objective, transparent, and reciprocal claims process would not only signal a railroad's shift to a more responsive, customer-centric mindset but would likely save costs over the long term, by eliminating an unnecessary administrative burden on both sides.

Increase Shipment Visibility

When it comes to shipment visibility, customers expect more than radio frequency identification (RFID) tag reads or yard arrival or departure events. They want faster and more proactive communication around shipment problems; for example, if a railcar is stuck or off-route, they want to know immediately when the issue began, when the car will start moving again, what is the new estimated time of arrival (ETA), and whether there is anything they need to do to help.

These updates should be automatic, delivered in near real-time, and not require the customer to actively seek out information when shipments fail to arrive on time or show protracted time with no movement. To meet these expectations, railroads could better leverage a range of technology solutions (Exhibit 8).

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Exhibit 8: Available technology solutions to increase shipment visibility

Technology solutions	Impacts
Automated exception alerts	Trigger immediate notifications when delays or off-route movements are detected
Real-time tracking dashboards	Integrate multiple data sources, including GPS, automatic equipment identification (AEI), and sensor information to give customers a continuous, live view of their shipments
Predictive analytics and AI	Analyze data to forecast potential delays and recommend corrective actions, enabling more proactive communication
Interactive customer portals and mobile apps	Provide push notifications and enable customers to quickly get questions answered or take necessary actions

It is equally important that these kinds of exceptions are identified and proactively managed inside of the railroad, and that they are communicated more proactively to management to track and resolve root causes of failures. Automated workflows can then promptly alert both internal railroad teams and customers about next steps when issues arise, such as necessary documentation or coordination, helping speed up issue resolution. Integrations via application programming interfaces (APIs) can flow shipment data and alerts directly into customers' own supply chain management systems, eliminating the need for manual follow-ups.

By adopting such technologies, railroads could enhance the customer experience through actionable, timely updates and reduce the burden on customers to hunt for shipment information, ultimately improving competitiveness in a market where truckload carriers already offer real-time tracking and visibility.

"Airlines send near real-time flight delay and gate change messages — why can't railroads do something similar for railcars?"

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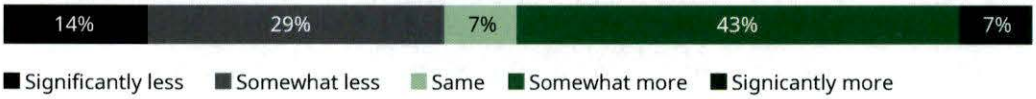
Building Customer Ties

Railroads have made some gains in terms of being perceived as customer-centric — with half of survey respondents seeing a positive change since our 2020 survey (Exhibit 9). Nearly half, however, still believe that railroads could do more. At the extreme ends, twice as many see railroads doing significantly less versus significantly more.

One thing we heard clearly from shippers this year is that they want to build individualized, long-term relationships with their transportation providers. Shippers want to know their carriers hear their frustrations and are willing to field creative solutions to meet specific supply chain needs.

Exhibit 9: Rail customer-centricity perceptions, change since 2020
Percentage of survey respondents



Source: Oliver Wyman 2025 North American Shipper Survey

Based on our survey and interviews, Oliver Wyman believes there are several important areas of focus that could help railroads bridge the gap versus trucking to build stronger customer ties.

Lengthen Timeframes

Railroads should consider how they can engage better with customers over multi-year timeframes. To make the infrastructure investments required for rail service, shippers need confidence in future rail service availability and customer support. And railroads can only benefit from contracts that offer stable, predictable demand over a longer horizon. Longer-term contracts help ensure asset availability matches utilization and makes it easier for railroads to offer reliable, efficient train service — benefiting both parties.

Both sides must do things somewhat differently as partners for this to work, however. Railroads must reduce or eliminate short-notice decisions on charging accessorials (that is, additional fees), local service schedules, or cancelling lanes served. Shippers must agree to volume commitments that have substance and promote load leveling: 5,200 loads per year means different things in terms of railroad economics and serviceability if those loads are delivered at a steady pace of 100 loads per week every month of the year versus all shipping in November and December. If shippers want longer-term rate stability and capacity commitments, they must be willing to offer railroads meaningful volume commitments in return.

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Simplify Digital Integration And Data Sharing

Part of the complexity and cost of doing business with railroads is that each railroad has unique ways of doing business, requiring a customer to learn, know, and execute in a different way with every railroad to do essentially the same thing. Many tell us they prefer a single-line rail route for their shipments simply because it is easier to transact. Railroads must create a simpler and more seamless experience for shippers. This will require a commitment from top railroad management to evaluate options and support investments into initiatives that deliver the value that shippers are telling railroads they want.

"It shouldn't be a requirement to know how to navigate six different rail carriers' systems to be able to successfully ship by rail."

Lean In To Logistics Providers

A thriving 3PL industry makes healthy returns helping shippers overcome railroads' complex web of processes: 70% of the shippers we spoke with use 3PLs to manage some aspect of their supply chain.

These companies can provide shippers with seamless door-to-door solutions, and where rail is involved, insulate them from some of the frustrations of today's rail shipping process. These firms are able to provide tracking updates using railroad-agnostic technology, identify service issues more proactively, and assist shippers in getting resolution from the railroads.

One question, however, is whether the increasing use of 3PLs is helping strengthen rail market share. Our survey suggests the answer may be no: Shippers report only 14% of their logistics providers offer rail as an option, while a quarter do not (Exhibit 10). Could some level of rail market share erosion even be attributable to shippers' increasing use of logistics intermediaries — given that these companies have demonstrated generally low levels of effort or expertise in helping shippers convert more freight to rail?

There is an opportunity here for railroads to engage with the logistics community to turn rail into a more top-of-mind option, by a first step would be simplifying and offering process integration so that logistics providers could more easily provide rail freight management services. Alternatively, addressing the challenges that make rail shipments so difficult to manage could reduce shippers' reliance on intermediaries and create an opportunity for railroads to take back some of the economic value that 3PLs are now capturing.

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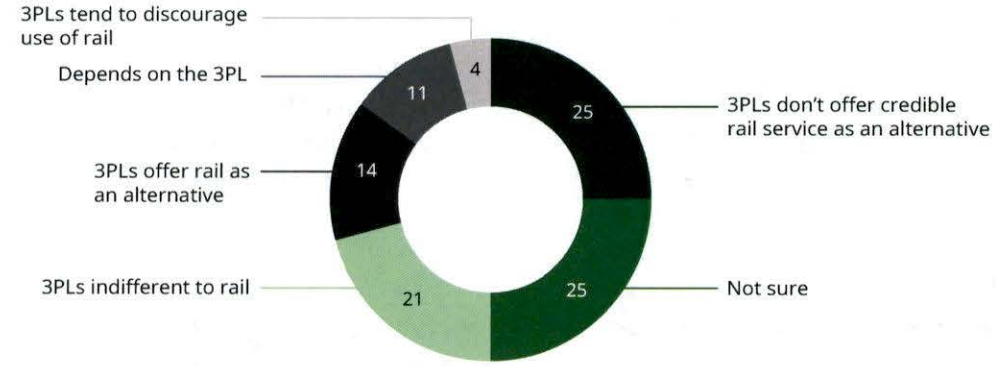
Exhibit 10: Shippers' view of the third-party logistics rail offering

Percentage of survey respondents



Source: Oliver Wyman 2025 North American Shipper Survey

Ruling Service Reliability

Predictability and consistency are what rail shippers crave. The experience of the past few years has left shippers reeling from rail service variability. The long hangover of the COVID-19 pandemic, chronic crew shortages, and major weather and operating disruptions have made shippers skeptical of railroads' ability to maintain a high level of operating performance over a long period. As one large retailer remarked: "It's hard to put your finger on what the railroads need to do in a specific lane or market, because it's so erratic."

In part, this is a question of railroads' smoothing the performance curve — but they also must strengthen customer confidence that they can be reliable shipping partners. Some opportunities covered earlier include better data integration and increased shipment visibility. There also is room to improve the perception of reliability in other ways, as described below.

Be More Transparent

An issue that multiple shippers raised is that there is little public data to go on in terms of how railroads are actually performing. Yes, velocity and dwell metrics are published, enabling comparisons between railroads at a macro level on some dimensions. But shippers believe they could make more informed mode choices if, as one shipper noted, "Class I's published on-time reliability performance statistics in comparison to truckload for the same lanes." They also want railroads to "own" their performance and systematically report on what they are doing to improve.

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Although railroads hold quarterly business reviews covering volumes, key lanes, and some on-time metrics, these sessions could be enhanced to better serve shippers' needs through greater use of technology. By leveraging advanced analytics platforms and real-time data integration, railroads could provide detailed, lane-specific performance insights that include root causes of delays, reliability trends, and predictive indicators. Interactive dashboards and automated reporting tools could deliver these insights in easily accessible, visually intuitive formats customized for each individual shipper's use of rail. Furthermore, railroads that take the lead on helping shippers identify where changing behaviors could actually lower their rail costs would demonstrate a longed-for commitment to their customers' success.

Railroads could similarly transform service reviews into collaborative, technology-enabled workshops — where shippers could explore data interactively, provide real-time feedback, and co-develop improvement plans. This would increase transparency and strengthen partnerships. Such an approach would enable railroads to demonstrate accountability and genuine dedication to continuously improving service outcomes.

Solve for Local Service

A consistent bone of contention for customers that cuts across several of our themes, but that could particularly improve perceptions of service reliability, centers on local service. Rail shippers are frustrated by the difficulties of requesting local service changes, such as additional service days or a permanent schedule change, which often require multiple meetings with sales, operations, or both. How could such change requests be streamlined?

Another opportunity would be for railroads to enhance their predictive capabilities to identify potential bottlenecks or surges at the local level (inbound pipeline, standing inventories) — and proactively identify customers that might need extra switches to work off a backlog of cars.

Finally, railroads need to do a better job of involving customers when it comes to planned changes to local services (such as timing or frequency). Customers need to be able to weigh in on how such a potential change could affect their operations. An AI-based process, for example, could be used to automate notification and response collation. Operations and commercial departments could then review impacts and work with affected customers if the change goes through.

"Until railroads can prove their reliability can be trusted, shippers will default to truck."

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Split The Load With Short Lines

To improve service reliability (not to mention customer responsiveness), Class I's might consider how they can work more seamlessly with short line partners. As one shipper stated, "We need Class I's to focus on the long haul move and give the customer service portion of the move (first and last mile) to the short lines."

Short line railroads have developed a strong customer-first culture, which has led to an impressive expansion of volumes, as described in our prior report, "Unleash The Short Lines For North American Rail Growth." Short line leaders are convinced there is more growth to be had, if service reliability can be improved.

Key to this is enhancing Class I-short line interchange operations, and some Class I's have publicly touted new programs that are generating positive results: Last year, Norfolk Southern saw a 9% increase in volume with short line partners (outpacing overall volume trends), and BNSF saw a 40% decrease in dwell times for traffic interchanging with participating short lines.

Ease Equipment Availability

Rail equipment availability has long been a critical challenge for shippers, impacting supply chain reliability and operational performance. At its core, inconsistent rail service reliability drives much of this issue. Wide variability in transit times makes it nearly impossible for railroads to consistently meet equipment order fulfillment deadlines without costly intervention measures, such as establishing safety stock locations — an imperfect but often necessary buffer.

Shipper behaviors also play a role in the problem, however. For example, track congestion at both origin and destination and shipper limits on hours of operations can severely limit railroads' ability to efficiently move traffic and accurately predict, manage, and allocate equipment for subsequent loads.

To increase equipment availability, both sides have roles to play: Railroads must make progress in improving network capacity, service reliability, and operational efficiency. Shippers, with substantial control over freight flows, need diligent pipeline management — including proactively coordinating with receivers to verify available capacity (especially when multiple shippers or origins converge on a single destination). By working together to identify and optimize areas within their control, railroads and shippers can proactively reduce congestion and minimize delays that impact equipment availability.

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Pricing Alignment

Last but not least, pricing is a critical driver for rail volumes. All survey respondents that reported shifting freight from truck to rail cited price as a key reason. But shippers expressed frustration around structural pricing issues, including market responsiveness, the complexity and variability of pricing processes among railroads, and accessorial charging practices (especially demurrage).

A number of shippers said that they found railroads to be too inflexible and unresponsive to market dynamics in their pricing and contract terms — making it tough for shippers to keep freight on rail even when motivated by other concerns, such as freight capacity, greenhouse gas emissions, and maintaining stable operations.

Railroads would clearly be better off keeping freight rolling on rail through an economic "up-down" cycle, rather than periodically losing it when market shifts allow trucks to underprice rail in certain lanes. Doing so, however, would require railroads to define contract mechanisms that allow for flexibility at speed. Of course, shippers that want such downside protection must expect to give something back when rates swing higher again: Market-responsive pricing is only feasible if it enables a win-win long-term partnership. Certainly, rational partners with good intentions could figure this out.

"If you want me to commit a bunch of volume to rail, I need your commitment that you're going to watch and follow the market."

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What Comes Next?

It is public knowledge that two of the largest Class I railroads are actively seeking to merge and create the first US transcontinental railroad, while two others are developing a stronger east-west alliance — both efforts have a goal of improving service offerings to rail shippers.

Regardless of the outcomes of these plans, however, there are tangible actions shippers and railroads can take now to make rail a better choice for freight. Several factors will influence whether or how quickly the industry sees progress that translates into market share growth:

- Will railroad boards focus on the strategic imperative of growth and customer-centricity as a priority, and pressure CEOs and management teams to fix the things that customers care about? (For example, speed to market, responsiveness, ease of doing business, service reliability, customer mindset.)
- Will railroads invest in emerging technologies to deliver real solutions to the chronic problems that have plagued them for decades? (For example, claims, pricing responsiveness, proactive problem resolution.)
- Are shippers willing to make changes in their operations and approach to commercial relationships to enable longer-term, win-win partnerships with rail carriers? (For example, more meaningful volume commitments; changes to hours of operation, loading practices, or equipment management.)

Both railroads and shippers have a part to play in motivating and delivering a North American rail system capable of addressing supply chain needs now and in the future. Oliver Wyman is confident that railroads can become more competitive with trucking for flexible freight and that they can work with shippers to build stronger relationships that put freight back on rail. But this will require intentional focus and investment in the things that matter to shippers to get there.

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Quarterly Class I Freight Rail Performance

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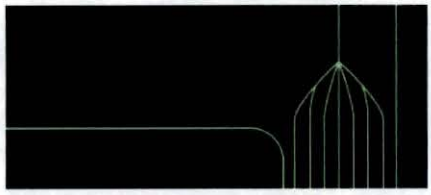

RailTrends 2025

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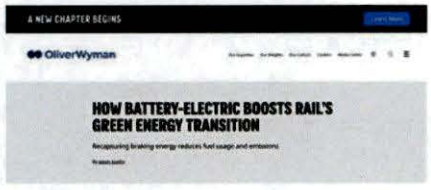
Boosting Rail Operations Through Quantum Computing

Could quantum computing solve the industry's toughest challenges?



Rail's Green Energy Transition Needs Battery-Electric

An opportunity to reignite the locomotive investment cycle



Six Key Trends Shaping the Future of Rail

From cybersecurity and AI to sustainability

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EXHIBIT 67
(REDACTED)

EXHIBIT 68 (REDACTED)

EXHIBIT 69 (REDACTED)

EXHIBIT 70 (REDACTED)

EXHIBIT 71 (REDACTED)

EXHIBIT 72
(REDACTED)

EXHIBIT 73

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Income
(Unaudited)

	Third Quarter		First Nine Months	
	2026	**2025**	**2026**	**2025**
	(in millions, except per share amounts)			
Railway operating revenues				
Merchandise	$ 2,188	$ 1,969	$ 6,206	$ 5,804
Intermodal	919	759	2,576	2,262
Coal	419	375	1,207	1,140
Total railway operating revenues	3,526	3,103	9,989	9,206
Railway operating expenses				
Compensation and benefits	753	738	2,237	2,169
Purchased services and rents	546	519	1,618	1,537
Fuel	420	237	1,081	700
Depreciation	363	348	1,073	1,040
Materials and other	224	147	625	547
Merger-related expenses	42	15	145	15
Restructuring and other charges	—	12	6	22
Eastern Ohio incident	28	(11)	53	(243)
Total railway operating expenses	2,376	2,005	6,838	5,787
Income from railway operations	1,150	1,098	3,151	3,419
Other income – net	30	23	97	78
Interest expense on debt	193	197	587	597
Income before income taxes	987	924	2,661	2,900
Income taxes	228	213	621	671
Net income	$ 759	$ 711	$ 2,040	$ 2,229
Earnings per share – diluted	$ 3.37	$ 3.16	$ 9.06	$ 9.88
Weighted average shares outstanding – diluted	225.2	224.7	225.1	225.5

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Balance Sheets
(Unaudited)

	September 30, 2026	December 31, 2025
	($ in millions)	
Assets		
Current assets:		
Cash and cash equivalents	$ 1,598	$ 1,530
Accounts receivable – net	1,229	988
Materials and supplies	353	271
Other current assets	145	409
Total current assets	3,325	3,198
Investments	4,186	4,089
Properties less accumulated depreciation of $15,259 and $14,617, respectively	36,857	36,479
Other assets	1,581	1,470
Total assets	$ 45,949	$ 45,236
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 2,064	$ 1,863
Income and other taxes	236	340
Other current liabilities	732	965
Current maturities of long-term debt	649	607
Total current liabilities	3,681	3,775
Long-term debt	15,964	16,480
Other liabilities	1,702	1,723
Deferred income taxes	7,872	7,711
Total liabilities	29,219	29,689
Stockholders' equity:		
Common stock $1.00 per share par value, 1,350,000,000 shares authorized; outstanding 224,616,686 and 224,420,699 shares, respectively, net of treasury shares	226	226
Additional paid-in capital	2,356	2,296
Accumulated other comprehensive loss	(213)	(210)
Retained income	14,361	13,235
Total stockholders' equity	16,730	15,547
Total liabilities and stockholders' equity	$ 45,949	$ 45,236

See accompanying notes to consolidated financial statements.

Norfolk Southern Corporation and Subsidiaries
Consolidated Statements of Cash Flows
(Unaudited)

	First Nine Months	
	2026	**2025**
	($ in millions)	
Cash flows from operating activities		
Net income	$ 2,040	$ 2,229
Reconciliation of net income to net cash provided by operating activities:		
Depreciation	1,073	1,040
Deferred income taxes	162	315
Gains and losses on properties	(19)	(142)
Changes in assets and liabilities affecting operations:		
Accounts receivable	(243)	(53)
Materials and supplies	(82)	(20)
Other current assets	79	68
Current liabilities other than debt	(108)	25
Other – net	(182)	(164)
Net cash provided by operating activities	2,720	3,298
Cash flows from investing activities		
Property additions	(1,407)	(1,475)
Property sales and other transactions	273	120
Investment purchases	(6)	(615)
Investment sales and other transactions	32	52
Net cash used in investing activities	(1,108)	(1,918)
Cash flows from financing activities		
Dividends	(910)	(912)
Common stock transactions	(11)	1
Purchase and retirement of common stock	(5)	(534)
Proceeds from borrowings	—	396
Debt repayments	(618)	(554)
Net cash used in financing activities	(1,544)	(1,603)
Net increase (decrease) in cash and cash equivalents	68	(223)
Cash and cash equivalents		
At beginning of year	1,530	1,641
At end of period	$ 1,598	$ 1,418
Supplemental disclosures of cash flow information		
Cash paid during the period for:		
Interest (net of amounts capitalized)	$ 564	$ 570
Income taxes (net of refunds)	556	433

See accompanying notes to consolidated financial statements.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Merger-Related Expenses

During the third quarter and first nine months of 2026, we incurred merger-related expenses of $42 million and $145 million, respectively, primarily related to costs associated with employee retention agreements, third-party advisor fees, and legal fees. During 2025, we incurred merger-related expenses of $15 million for both the third quarter and the first nine months.

2. Restructuring and Other Charges

During the first nine months of 2026, we recorded $6 million in severance costs associated with organizational changes. During 2025, we recorded expenses of $12 million in the third quarter and $22 million in the first nine months associated with the rationalization of certain software development projects that had not been placed into service and the restructuring of certain technology functions, including severance costs for impacted employees.

3. Eastern Ohio Incident

On February 3, 2023, a train operated by us derailed in East Palestine, Ohio (the Incident). During the third quarter of 2026, we incurred expenses of $28 million, as compared to $13 million of net expenses for the same period last year. The total amounts recognized include the impact of $3 million and $16 million in recoveries during the third quarters of 2026 and 2025, respectively. In the first nine months of 2026 and 2025, we recognized $53 million of expenses and $219 million of net benefits, respectively, which include $7 million and $394 million of recoveries during the first nine months of 2026 and 2025, respectively.

4. Stock Repurchase Program

We did not repurchase any shares of common stock in the first nine months of 2026, while we repurchased and retired 2.2 million shares of common stock under our stock repurchase program during the same period last year at a cost of $533 million, inclusive of accrued excise taxes. “Purchase and retirement of common stock” in 2026 as presented on the Consolidated Statements of Cash Flows reflects the payment of excise taxes on shares repurchased in 2025.

EXHIBIT 74

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the fiscal year ended December 31, 2024
OR
☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from _____ to _____

Commission File Number 1-6075

UNION PACIFIC CORPORATION
(Exact name of registrant as specified in its charter)

Utah	**13-2626465**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
1400 Douglas Street, Omaha, Nebraska	**68179**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code: **(402) 544-5000**

Securities registered pursuant to Section 12(b) of the Act:

Title of each Class	Trading Symbol	Name of each exchange on which registered
Common Stock (Par Value $2.50 per share)	**UNP**	**New York Stock Exchange**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.
☑ Yes ☐ No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act.
☐ Yes ☑ No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. ☑ Yes ☐ No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). ☑ Yes ☐ No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large Accelerated Filer	☑	Accelerated Filer	☐	Non-Accelerated Filer	☐
Smaller Reporting Company	☐	Emerging Growth Company	☐		

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report. ☑

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements. ☐

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b). ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). ☐Yes ☑ No

As of June 28, 2024, the aggregate market value of the registrant's Common Stock held by non-affiliates (using the New York Stock Exchange closing price) was $137.8 billion.

The number of shares outstanding of the registrant's Common Stock as of January 31, 2025, was 604,286,378.

Documents Incorporated by Reference – Portions of the registrant's definitive Proxy Statement for the Annual Meeting of Shareholders to be held on May 8, 2025, are incorporated by reference into Part III of this report. The registrant's Proxy Statement will be filed with the Securities and Exchange Commission (SEC) within 120 days after the end of the fiscal year that this report relates pursuant to Regulation 14A.

UNION PACIFIC CORPORATION
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February 7, 2025

Fellow Shareholders:

The Union Pacific team had a very successful 2024, as we executed our strategy of Safety, Service, and Operational Excellence leading to Growth. The commitment to that strategy enabled the team to achieve strong results across the board and set the Company up for future success. Although success can be measured in many ways, it's ultimately about delivering for our owners, putting our company in a great financial position, and being clear about what success is for our employees, our customers, and the communities where we operate.

In 2024, we reported earnings per diluted share of $11.09, a 6% increase versus 2023. Total volumes increased 3% versus 2023, driven by strength in international intermodal and agricultural products, more than offsetting a 20% decline in coal and the overall impact of a muted industrial economy. We achieved an operating ratio of 59.9%, a 240-basis point improvement versus 2023, driven by the day-to-day actions of our team to improve the efficiency of our network.

This success doesn't just happen. It's rooted in that commitment to our strategy. Within **Safety**, we achieved significant reductions in both our personal injury and derailment rates. We are seeing the results from our investments in training, safety programs, infrastructure, and technology. We cannot and will not waiver on our goal to be the best in safety.

Service is what we sold our customers. Committing to what we can do and doing it with excellence. We built on our success in late 2023 to provide our customers with an even stronger service product throughout 2024. Our full year operating metrics demonstrate that success, as freight car velocity improved 2% and intermodal and manifest service performance index (SPI) improved 2 and 4 points, respectively. We also invested $3.4 billion in capital to harden our infrastructure, grow our business, provide better service, and embed new technologies into our processes. The list is long, but we will reap long-term rewards from investments in the Phoenix Intermodal Terminal, hump yard improvements, siding extensions, application programming interfaces (API), and new gate technologies, to name only a few.

Operational Excellence is about operating efficiently and productively, delivering value with speed. Yet understanding we need a resource buffer so we can provide the service we promised and handle the inevitable ups and downs that come with weather, fluctuating volumes, and securing growth. As evident by the improvements to our operating ratio, we made great strides in 2024 to use our assets more efficiently. However, that wasn't done without challenges that tested our resource buffer. During 2024, we saw international intermodal surge on the west coast, growing over 19% versus 2023. Our ability to handle that volume with minimal impact on the rest of our network demonstrates the effectiveness of our buffer strategy. More specifically on resource productivity, in 2024, we achieved 6% and 5% improvements in workforce and locomotive productivity, respectively. In fact, our performance in workforce productivity for the year was a best ever result.

Our ability to excel in those three areas led to **Growth** in 2024. Operating Revenues grew 1% driven by volume gains and strong core pricing, which more than offset lower fuel surcharge revenues and an unfavorable business mix. When you remove the impact of fuel, our freight revenues grew 4%. Key is that in a muted economic environment, and with a significant decline in our coal volume, we still grew. By executing on our strategy, we are outperforming our markets and positioning ourselves to be ready for even stronger growth when the freight economy improves.

As we turn the page to 2025, the team is focused on what's possible and unlocking the value of the Union Pacific franchise. We are ready to build on these accomplishments to achieve a higher level of success. We understand that we're the current stewards of this amazing, historic company. And it's our responsibility to leave it in a better place than we found it, as those before us had done. We are grateful for that opportunity and ready to succeed. Thank you for your ownership of Union Pacific.



Chief Executive Officer

PUBLIC VERSION - REDACTED

DIRECTORS AND SENIOR MANAGEMENT

BOARD OF DIRECTORS

William J. DeLaney
Former Chief Executive Officer - Sysco Corporation
Board Committees: Compensation and Talent (Chair); Safety and Service Quality

David B. Dillon
Former Chairman and CEO - The Kroger Company
Board Committees: Audit (Chair); Corporate Governance, Nominating, and Sustainability

Sheri H. Edison
Former Executive Vice President and General Counsel - Amcor plc
Board Committees: Compensation and Talent; Corporate Governance, Nominating, and Sustainability (Chair)

Teresa M. Finley
Former Chief Marketing and Business Services Officer - United Parcel Service, Inc.
Board Committees: Audit; Finance

Deborah C. Hopkins
Former Chief Executive Officer - Citi Ventures and Former Chief Innovation Officer - Citi
Board Committees: Compensation and Talent; Finance (Chair)

Jane H. Lute
Strategic Advisor - SICPA, North America
Board Committees: Corporate Governance, Nominating, and Sustainability; Safety and Service Quality (Chair)

Michael R. McCarthy
Chairman - Union Pacific Corporation and Union Pacific Railroad Company; Chairman - McCarthy Group, LLC; and Chairman - Bridges Trust Company
Board Committees: Corporate Governance, Nominating, and Sustainability; Finance

Doyle R. Simons
Former President and CEO - Weyerhaeuser Company
Board Committees: Compensation and Talent; Safety and Service Quality

John K. Tien, Jr.
Former Deputy Secretary - U.S. Department of Homeland Security
Board Committees: Audit; Finance

V. James Vena
Chief Executive Officer - Union Pacific Corporation and Union Pacific Railroad Company

John P. Wiehoff
Former Chairman, President, and CEO - C.H. Robinson Worldwide, Inc.
Board Committees: Audit; Safety and Service Quality

Christopher J. Williams
Chairman - Siebert Williams Shank & Co.
Board Committees: Audit; Finance

SENIOR MANAGEMENT

V. James Vena
Chief Executive Officer

Bryan L. Clark
Vice President - Tax

Eric J. Gehringer
Executive Vice President - Operations

Rebecca B. Gregory
Vice President and Chief of Staff

Jennifer L. Hamann
Executive Vice President and Chief Financial Officer

Rahul Jalali
Executive Vice President and Chief Information Officer

Michael V. Miller
Vice President and Treasurer

Joshua K. Perkes
Senior Vice President and Chief Human Resources Officer

Craig V. Richardson
Executive Vice President, Chief Legal Officer, and Corporate Secretary

Kenny G. Rocker
Executive Vice President - Marketing and Sales

Todd M. Rynaski
Senior Vice President and Chief Accounting, Risk, and Compliance Officer

Elizabeth F. Whited
President

PUBLIC VERSION - REDACTED

PART I

Item 1. Business

GENERAL

Union Pacific Railroad Company is the principal operating company of Union Pacific Corporation. One of America's most recognized companies, Union Pacific Railroad Company connects 23 states in the western two-thirds of the country by rail, providing a critical link in the global supply chain. The Railroad's diversified business mix includes Bulk, Industrial, and Premium. Union Pacific serves many of the fastest-growing U.S. population centers, operates from all major West Coast and Gulf Coast ports to Eastern gateways, connects with Canada's rail systems, and is the only railroad serving all six major Mexico gateways. Union Pacific provides value to its roughly 10,000 customers by delivering products in a safe, reliable, fuel-efficient, and environmentally responsible manner.

Union Pacific Corporation was incorporated in Utah in 1969 and maintains its principal executive offices at 1400 Douglas Street, Omaha, NE 68179. The telephone number at that address is (402) 544-5000. The common stock of Union Pacific Corporation is listed on the New York Stock Exchange (NYSE) under the symbol "UNP".

For purposes of this report, unless the context otherwise requires, all references herein to "Union Pacific", "UPC", "Corporation", "Company", "we", "us", and "our" shall mean Union Pacific Corporation and its subsidiaries, including Union Pacific Railroad Company, which we separately refer to as "UPRR" or the "Railroad".

STRATEGY

Safety, Service, and Operational Excellence supports the Company's long-term initiative to Grow its freight volumes. Together as a team, the Company will focus on achieving the best safety record in the industry, being known for superior service, grounded in operational excellence, which, in turn, drives growth.

Safety is paramount and, as our first area of focus, sets the foundation for achieving the Company's objectives. The mindset and culture are built around a personal commitment by all employees to prioritize safety so everyone goes home safely.

Service is all about delivering what we sold our customers. We work with our customers to understand the service they need to win in their markets and then drive how we win together. We commit to these service levels and do it with excellence.

Operational Excellence is about operating efficiently and productively. We will drive value with our available resources but also maintain a buffer so our service is resilient, managing the inevitable ups and downs that come with weather, fluctuating volumes, and securing growth.

Growth is the outcome of executing our strategy to be the industry leader in both safety and service resulting in improved margins and greater cash generation, creating long term enterprise value. The expected outcome of successfully executing our strategy will be an industry leading operating ratio and return on invested capital.

As we work to transform our railroad, our core values continue to guide us. Our passion for performance will help us win; our high ethical standards ensure we win in a way that supports all of our stakeholders; and our teamwork ensures we win together.

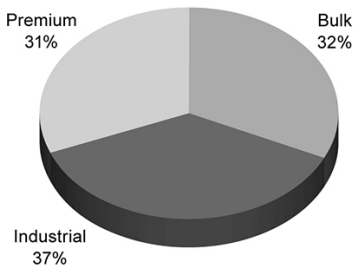
OPERATIONS

The Railroad, along with its subsidiaries and rail affiliates, is our one reportable operating segment. Although we provide and analyze revenues by commodity group, we treat the financial results of the Railroad as one segment due to the integrated nature of our rail network. Additional information regarding our business and operations, including revenues, financial information and data, and other information regarding environmental matters, is presented in Risk Factors, Item 1A; Legal Proceedings, Item 3; Management's Discussion and Analysis of Financial Condition and Results of Operations, Item 7; and the Financial Statements and Supplementary Data, Item 8.

PUBLIC VERSION - REDACTED

Operations – UPRR is a Class I railroad operating in the U.S. We have 32,880 route miles, connecting Pacific Coast and Gulf Coast ports with the Midwest and Eastern U.S. gateways and providing several corridors to key Mexican and Canadian gateways. We serve the western two-thirds of the country and maintain coordinated schedules with other rail carriers to move freight to and from the Atlantic Coast, the Pacific Coast, the Southeast, the Southwest, Canada, and Mexico. Export and import traffic moves through Gulf Coast, Pacific Coast, and East Coast ports and across the Mexican and Canadian borders. In 2024, we generated freight revenues totaling $22.8 billion from the following three commodity groups:

2024 Freight Revenues



Bulk – The Company's Bulk shipments consist of grain and grain products, fertilizer, food and refrigerated, and coal and renewables. In 2024, this group generated 32% of our freight revenues. We access most major grain markets, connecting the Midwest and Western U.S. producing areas to export terminals in the Pacific Northwest and Gulf Coast ports as well as Mexico. We also serve significant domestic markets, including grain processors, animal feeders, ethanol, and renewable biofuel producers in the Midwest and West. Fertilizer movements originate in the Gulf Coast region, Midwest, Western U.S., and Canada (through interline access) for delivery to major agricultural users in those areas as well as abroad. The Railroad's network supports the transportation of coal shipments to independent and regulated power companies and industrial facilities throughout the U.S. Through interchange gateways and ports, UPRR's reach extends to Eastern U.S. utilities as well as to Mexico and other international destinations. Coal traffic originating in the Powder River Basin (PRB) area of Wyoming is the largest portion of the Railroad's coal business.

Industrial – Our extensive network facilitates the movement of numerous commodities between thousands of origin and destination points throughout North America. The Industrial group consists of several categories, including construction, industrial chemicals, plastics, forest products, specialized products (primarily waste, salt, and roofing), metals and ores, petroleum, liquid petroleum gases (LPG), soda ash, and sand. Transportation of these products accounted for 37% of our freight revenues in 2024. Commercial, residential, and governmental infrastructure investments drive shipments of steel, aggregates, cement, and wood products. Industrial and light manufacturing plants receive steel, nonferrous materials, minerals, and other raw materials.

The industrial chemicals market consists of a vast number of chemical compounds that support the manufacturing of more complex chemicals. Plastics shipments support automotive, housing, and the durable and disposable consumer goods markets. Forest product shipments include lumber and paper commodities. Lumber shipments originate primarily in the Pacific Northwest or Western Canada and move throughout the U.S. for use in new home construction and repairs and remodeling. Paper shipments primarily support packaging needs. Oil and gas drilling generates demand for raw steel, finished pipe, stone, and drilling fluid commodities. The Company's petroleum and LPG shipments are primarily impacted by refinery utilization rates, regional crude pricing differentials, pipeline capacity, and the use of asphalt for road programs. Soda ash originates in southwestern Wyoming and California, destined for chemical and glass producing markets in North America and abroad.

Premium – In 2024, Premium shipments generated 31% of Union Pacific's total freight revenues. Premium includes finished automobiles, automotive parts, and merchandise in intermodal containers, both domestic and international. International business consists of import and export traffic moving in 20 or 40-foot shipping containers, that mainly pass through West Coast ports, destined for one of the Company's many inland intermodal terminals. Domestic business includes container and trailer traffic picked up and delivered within North America for intermodal marketing companies (primarily shipper agents and logistics companies) as well as truckload carriers.

We are the largest automotive carrier west of the Mississippi River and operate or access 39 vehicle distribution centers. The Railroad's extensive franchise accesses six vehicle assembly plants and connects to West Coast ports, all six major Mexico gateways, and the Port of Houston to accommodate both import and export shipments. In addition to transporting finished vehicles, the Company provides expedited handling of automotive parts in both boxcars and intermodal containers destined for Mexico, the U.S., and Canada.

Seasonality – Some of the commodities we carry have peak shipping seasons, reflecting either or both the nature of the commodity (such as certain agricultural and food products that have specific growing and harvesting seasons) and the demand cycle for the commodity (such as intermodal traffic that generally peaks during the third quarter to meet back-to-school and holiday-related demand for consumer goods during the fourth quarter). The peak shipping seasons for these commodities can vary considerably each year depending upon various factors, including the strength of domestic and

international economies and currencies; consumer demand; the strength of harvests, which can be adversely affected by severe weather; market prices for agricultural products; and supply chain disruptions.

Proud & Engaged Workforce – Our employees are central to our strategy of Safety, Service, and Operational Excellence leading to Growth, and investing in our workforce is key to our success.

Our People: Our award-winning, multigenerational workforce includes talented people from all walks of life, in many stages of life. Made up of management and craft professionals, we are focused on attracting, retaining, and developing talent across our entire system.

As of December 31, 2024, the Company employed 32,439 employees. Our workforce includes five generations from Traditionalists (born before 1946) to Generation Z (born after 1998). The average age is 46.9 with an average tenure of 16.2 years.

Union Pacific works with 13 major rail unions, representing approximately 84% of our workforce. Pursuant to the Railway Labor Act (RLA), a federal statute enacted in 1926, our collective bargaining agreements are subject to modification every five years. Existing agreements remain in effect until new agreements are ratified or until the RLA procedures are exhausted. The RLA is designed to bring the railroads and unions to agreement without disruptions to rail transportation. Local negotiations began on January 1, 2025, related to years 2025-2029.

Our Culture: At Union Pacific, the How Matters – high ethical standards guide the decisions we make and action we take to protect our employees, communities, and customers. Our passion for performance drives our safety, customer experience, and financial results while we work as a team to create opportunity for all.

Safety is central to everything we do at Union Pacific. Together, we are committed to cultivating a safety-focused culture, so our employees return home safely every day. To achieve this, our employees identify risks, initiate action to mitigate those risks, and have the courage to care to keep each other safe.

Our success is measured by our personal injury rate (the number of reportable injuries for every 200,000 employee-hours worked) and our derailment incident rate (the number of reportable derailment incidents per million train miles). Reportable personal injuries are defined as on duty incidents or occupational illnesses that result in employees losing time away from work, modifying or restricting their normal duties, or receiving any medical treatment above and beyond first aid. Reportable derailment incidents are defined as any occurrence where a wheel of a locomotive or rail car falls off the track and causes damage to track, equipment, or structures above the Federal Railroad Administration (FRA) reporting threshold, regardless of ownership ($12,000 for 2024 and $12,400 for 2025) per million train miles. Personal injuries and derailment incidents that meet reportable criteria are reported to the FRA.

Our 2024 personal injury rate of 0.90 improved 23%, and our derailment incident rate of 2.17 improved 20% versus 2023. (See further discussion in Management’s Discussion and Analysis of Financial Condition and Results of Operations, Item 7, of this report.)

Union Pacific is committed to creating an environment where people can be their best, personally and professionally. We believe that a supportive culture increases employee engagement, improves morale, and allows qualified employees to succeed and contribute to Union Pacific's success. All of this supports our safety strategy and improves the quality of decision-making, problem-solving, and strategic thinking.

Union Pacific’s commitment, today and for the future, is to further improve and strengthen performance through our workforce, where everyone is treated fairly, differences are valued, and talent is recognized and rewarded. Union Pacific intends to maintain its standards of hiring and promoting based on merit, while aspiring to reach 40% people of color and double our female representation to 11% in our workforce by 2030. As of December 31, 2024, workforce representation of people of color and females was 34.3% and 5.2%, respectively.

The Employee Journey: From recruitment to retirement and milestones in between, we are relentlessly focused on supporting and engaging employees throughout their Union Pacific journey. We view it as imperative to invest in our employees with meaningful benefit offerings, developmental experiences, and career opportunities.

The process begins with recruitment, where we strive to attract the most talented employees to join our team. Then, we focus on training and development, which includes courses and programs designed to help our employees grow into new roles and/or learn a new skill in their current role so that we can retain our workforce over time.

Providing competitive compensation and meaningful benefits is key to attracting and retaining talented employees. Union Pacific is committed to continuously reviewing its compensation programs and comprehensive benefits programs to promote programs that are fair and competitive. Both are key to enhancing the value of working for Union Pacific and demonstrating the Company's commitment to the health and wealth of employees during their career. Benefits vary based on the applicable collective bargaining agreement or an employee's management status. The final stage of the employee journey is a fulfilling retirement, which is enabled during their Union Pacific career through our compensation and benefit programs, particularly contributions to 401(k) plans and the employee stock purchase plan (ESPP).

Our Board of Directors evaluates our non-union compensation plans and reviews recommendations from the Compensation and Talent Committee, while collective bargaining agreements govern compensation for our union employees. The median annual compensation for all employees employed as of December 31, 2024, was $103,190 (excluding the CEO).

Talent is critical - our ability to recruit and retain employees is directly tied to our railroad's success, as proven by our strong retention rate, our robust offerings, benefits, and work environment that creates meaningful family-supporting careers. We are focused on effectively managing workforce levels to the demands of the business and improving quality of life for our employees.

Railroad Security – Our security efforts consist of a wide variety of measures, including employee training, engagement with our customers, training of emergency responders, and partnerships with numerous federal, state, and local government agencies. While federal law requires us to protect the confidentiality of our security plans designed to safeguard against terrorism and other security incidents, the following provides a general overview of our security initiatives.

UPRR Security Measures – We maintain a comprehensive security plan designed to both deter and respond to any potential or actual threats as they arise. The plan includes four levels of alert status, each with its own set of countermeasures. We employ our own police force, consisting of commissioned and highly-trained officers. The police are certified state law enforcement officers with investigative and arrest powers. The Union Pacific Police Department has achieved accreditation under the Commission on Accreditation for Law Enforcement Agencies, Inc. (CALEA) for complying with the highest law enforcement standards. Our employees undergo recurrent security and preparedness training as well as federally mandated hazardous materials and security training. We regularly review the sufficiency of our employee training programs. We maintain the capability to move critical operations to back-up facilities in different locations.

We operate an emergency response management center 24 hours a day. The center receives reports of emergencies, dangerous or potentially dangerous conditions, and other safety and security issues from our employees, the public, law enforcement, and other government officials. In cooperation with government officials, we monitor both threats and public events, and, as necessary, we may alter rail traffic flow at times of concern to minimize risk to communities and our operations. We comply with the hazardous materials routing rules and other requirements imposed by federal law. We design our operating plan to expedite the movement of Rail Security Sensitive Materials (RSSM), a subset of particularly hazardous materials, to minimize the time rail cars remain idle at yards and terminals located in or near major population centers. Additionally, in compliance with Transportation Security Administration (TSA) regulations, we deployed information systems and instructed employees in tracking and documenting the handoff of RSSM with customers and interchange partners.

We established a number of our own innovative safety and security-oriented initiatives ranging from various investments in technology to The Officer on Train program, which provides local law enforcement officers with the opportunity to ride with train crews to enhance their understanding of railroad operations and risks. Our staff of information security professionals continually assess cybersecurity risks and implement mitigation programs that evolve with the changing technology threat environment. To date, we have not experienced any material disruption of our operations due to a cyber threat or incident directed at us.

Cooperation with Federal, State, and Local Government Agencies – We work closely on physical and cybersecurity initiatives with government agencies, including the U.S. Department of Transportation (DOT); the Federal Bureau of Investigation (FBI); the Department of Homeland Security (DHS), along with its Cybersecurity and Infrastructure Security Agency (CISA), and the TSA; as well as local police departments, fire departments, and other first responders.

In compliance with TSA regulations established in 2022, we designated a Cybersecurity Coordinator to oversee our cybersecurity initiatives and report required incidents to the CISA. We communicated our Cybersecurity Incident Response Plan and conducted a Cybersecurity Vulnerability Assessment to identify potential risks. Our Cybersecurity Implementation Plan outlines the specific actions taken to meet the TSA prevention, detection, and response requirements. Additionally, an ongoing assessment program has been implemented to proactively and regularly evaluate the effectiveness of our cybersecurity program to identify and mitigate emerging risks. These efforts have been validated by the TSA, confirming our adherence to their standards.

In conjunction with the Association of American Railroads (AAR), we sponsor Ask Rail, a mobile application that provides first responders with secure links to electronic information, including commodity and emergency response information required by emergency personnel to respond to accidents and other situations. We also participate in the National Joint Terrorism Task Force, a multi-agency effort established by the U.S. Department of Justice and the FBI to combat and prevent terrorism.

We work with the Coast Guard, U.S. Customs and Border Protection (CBP), and the Military Transport Management Command, which monitor shipments entering the UPRR rail network at U.S. border crossings and ports. We were the first railroad in the U.S. to be named a partner in CBP's Customs-Trade Partnership Against Terrorism, a partnership designed to develop, enhance, and maintain effective security processes throughout the global supply chain.

Cooperation with Customers and Trade Associations – Through TransCAER (Transportation Community Awareness and Emergency Response), we work with the AAR, the American Chemistry Council, the American Petroleum Institute, and other chemical trade groups to provide communities with preparedness tools, including the training of emergency responders. In cooperation with the FRA and other interested groups, we are also working to develop additional improvements to tank car design that will further limit the risk of releases of hazardous materials.

Sustainable Future – Union Pacific believes it is important that we act as environmental stewards, reducing greenhouse gas (GHG) emissions and supporting the transition to a more sustainable future. While we work to further reduce our environmental footprint, it is important to note that railroads already are one of the most fuel-efficient means of transportation. Freight rail leads other forms of surface transportation when it comes to minimizing GHG emissions, and we expect rail will continue to play a critical role in mitigating and abating the impacts of climate change. According to the AAR, moving freight by rail instead of truck reduces GHG emissions by up to 75%. Therefore, converting freight transportation from truck to rail typically results in an immediate reduction in our customers' scope 3 GHG emissions.

Competition – see "*We Face Competition from Other Railroads and Other Transportation Providers*" in the Risk Factors in Item 1A of this report.

Key Suppliers – see "*We Are Dependent on Certain Key Suppliers of Locomotives and Rail*" in the Risk Factors in Item 1A of this report.

Available Information – Our Internet website is www.up.com. We make available free of charge on our website (under the "Investors" caption link) our Annual Reports on Form 10-K; our Quarterly Reports on Form 10-Q; our current reports on Form 8-K; our proxy statements; Forms 3, 4, and 5, filed on behalf of our directors and certain executive officers; and amendments to such reports filed or furnished pursuant to the Securities Exchange Act of 1934, as amended (the Exchange Act). We provide these reports and statements as soon as reasonably practicable after such material is electronically filed with, or furnished to, the SEC. We also make available on our website previously filed SEC reports and exhibits via a link to EDGAR on the SEC's Internet site at www.sec.gov. Additionally, our corporate governance materials, including By-Laws, Board Committee charters, governance guidelines and policies, and codes of conduct and ethics for directors, officers, and employees are available on our website. From time to time, the corporate governance materials on our website may be updated as necessary to comply with rules issued by the SEC and the NYSE or as desirable to promote the effective and efficient governance of our Company. Any security holder wishing to receive, without charge, a copy of any of our SEC filings or corporate governance materials should send a written request to: Secretary, Union Pacific Corporation, 1400 Douglas Street, Omaha, NE 68179.

References to our website address, in this report, including references in Management's Discussion and Analysis of Financial Condition and Results of Operations, Item 7, are provided as a convenience and do not constitute, and should not be deemed, an incorporation by reference of the information contained on, or available through, the website. Therefore, such information should not be considered part of this report.

GOVERNMENTAL AND ENVIRONMENTAL REGULATION

Governmental Regulation – Our operations are subject to a variety of federal, state, and local regulations, generally applicable to all businesses. (See also the discussion of certain regulatory proceedings in Legal Proceedings, Item 3.)

The operations of the Railroad are subject to the regulations of the FRA and other federal and state agencies as well as the regulatory jurisdiction of the Surface Transportation Board (STB). The STB has jurisdiction over rates charged on certain regulated rail traffic; common carrier service of regulated traffic; freight car compensation; transfer, extension, or abandonment of rail lines; and acquisition of control of rail common carriers. The STB is reviewing proposed rulemaking in various areas, including reciprocal switching and commodity exemptions, and has finalized rules creating new procedures for smaller rate complaints that are being reviewed in appellate courts. The STB also continues to explore changes to the methodology for determining railroad revenue adequacy, the possible uses of revenue adequacy in regulating railroad rates,

and ways to regulate service, including by use of emergency service orders. The STB posts quarterly reports on rate reasonableness cases, maintains a database on service complaints, and has the authority to initiate investigations, among other things.

The DOT, the Occupational Safety and Health Administration, the Pipeline and Hazardous Materials Safety Administration, and the DHS, along with other federal agencies, have jurisdiction over certain aspects of safety, movement of hazardous materials and hazardous waste, emissions requirements, and equipment standards. Additionally, various state and local agencies have jurisdiction over disposal of hazardous waste and seek to regulate movement of hazardous materials in ways not preempted by federal law.

Environmental Regulation – We are subject to extensive federal and state environmental statutes and regulations pertaining to public health and the environment. The statutes and regulations are administered and monitored by the Environmental Protection Agency (EPA) and by various state environmental agencies, such as the California Air Resources Board (CARB) and the Texas Commission on Environmental Quality (TCEQ), among others. The primary laws affecting our operations are the Resource Conservation and Recovery Act, regulating the management and disposal of solid and hazardous wastes; the Comprehensive Environmental Response, Compensation, and Liability Act, regulating the cleanup of contaminated properties; the Clean Air Act, regulating air emissions; and the Clean Water Act, regulating wastewater discharges.

Information concerning environmental claims and contingencies and estimated remediation costs is set forth in Management's Discussion and Analysis of Financial Condition and Results of Operations - Critical Accounting Estimates - Environmental, Item 7, and Note 17 to the Financial Statements and Supplementary Data, Item 8.

Item 1A. Risk Factors

The following discussion addresses significant factors, events, and uncertainties that make an investment in our securities risky and provides important information for the understanding of our "forward-looking statements," which are discussed immediately preceding Item 7A of this Form 10-K and elsewhere. The risk factors set forth in this Item 1A should be read in conjunction with the rest of the information included in this report, including Management's Discussion and Analysis of Financial Condition and Results of Operations, Item 7, and Financial Statements and Supplementary Data, Item 8.

We urge you to consider carefully the factors described below and the risks that they present for our operations as well as the risks addressed in other reports and materials that we file with the SEC and the other information included or incorporated by reference in this Form 10-K. When the factors, events, and contingencies described below or elsewhere in this Form 10-K materialize, our business, reputation, financial condition, results of operations, cash flows, or prospects can be materially adversely affected. In such case, the trading price of our common stock could decline, and you could lose part or all of your investment. Some of the factors, events, and contingencies discussed below may have occurred in the past, and the disclosures below are not representations as to whether or not the factors, events, or contingencies have occurred in the past, but are provided because future occurrences of such factors, events, or contingencies could have a material adverse effect. Additional risks and uncertainties not currently known to us or that we currently deem immaterial may also materially adversely affect our business, reputation, financial condition, results of operations, cash flows, and prospects.

Strategic and Operational Risks

We Must Manage Fluctuating Demand for Our Services and Network Capacity – Significant reductions in demand for rail services with respect to one or more commodities or changes in consumer preferences that affect the businesses of our customers can lead to increased costs associated with resizing our operations, including higher unit operating costs and costs for the storage of locomotives, rail cars, and other equipment; workforce adjustments; and other related activities, which could have a material adverse effect on our results of operations, financial condition, and liquidity. If there is significant demand for our services that exceeds the designed capacity of our network or shifts in traffic flow that are contrary to the designed capacity of our network, we can experience challenges, including congestion and reduced velocity, that could compromise the level of service we provide to our customers. This level of demand also can compound the impact of weather and weather-related events on our operations and velocity. We cannot be sure that our efforts to improve our transportation plan, add capacity, improve operations at our yards and other facilities, and improve our ability to address surges in demand for any reason by carrying a resource buffer will fully or adequately address any service shortcomings resulting from demand exceeding our planned capacity. From time to time we also experience other operational or service challenges related to network capacity, dramatic and unplanned fluctuations in our customers' demand for rail service with respect to one or more commodities or operating regions, or other events that could negatively impact our operational efficiency, any or all of which could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Transport Hazardous Materials – We transport certain hazardous materials and other materials, including crude oil, ethanol, and toxic inhalation hazard (TIH) materials, such as chlorine, that pose certain risks in the event of a release or combustion. Additionally, U.S. laws impose common carrier obligations on railroads that require us to transport certain hazardous materials regardless of risk or potential exposure to loss. An accident or other incident on our network, at our facilities, or at the facilities of our customers involving the release or combustion of hazardous materials can involve significant costs and claims for personal injury, property damage, and environmental penalties and remediation in excess of our insurance coverage for these risks, which could harm our reputation or have a material adverse effect on our results of operations, financial condition, and liquidity.

We Rely on Technology and Technology Improvements in Our Business Operations – We rely on information technology in all aspects of our business, including technology systems operated by us (whether created by us or purchased), under control of third parties, and open-source software. If we do not have sufficient capital or do not deploy sufficient capital in a timely manner to acquire, develop, or implement new technology or maintain or upgrade current systems, such as Positive Train Control (PTC) or the latest version of our transportation control systems, we may suffer a rail service outage or competitive disadvantage within the rail industry and with companies providing other modes of transportation service, which could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Are Subject to Cybersecurity Risks – We rely on information technology in all aspects of our business, including technology systems operated by us (whether created by us or purchased), under control of third parties, and open-source software. We have experienced and will likely continue to experience varying degrees of cyber incidents in the normal course of business. There can be no assurance that the resources we devote to protect our technology systems and proprietary data or the systems we have designed to identify, prevent, or limit the effects of cyber incidents will be sufficient to prevent or detect such incidents, or to avoid a material adverse impact on our systems after such incidents do occur. Furthermore, due to the rising numbers and increasing sophistication of cyber-attacks, an increasingly complex information technology supply chain, and the nature of zero-day exploits, we may be unable to anticipate or implement adequate measures to prevent a security breach, including by ransomware or as a result of human error or other cyber-attack methods, from materially affecting our systems or the systems of third-parties upon which we rely. The rapid evolution and increased availability of artificial intelligence may intensify cybersecurity risks by making cyber-attacks more sophisticated and cybersecurity incidents more difficult to detect, contain, and mitigate. A cyber incident that results in significant service interruption; safety failure; other operational difficulties; unauthorized access to (or the loss of access to) competitively sensitive, confidential, or other critical data or systems; loss of customers; financial losses; regulatory fines; reputational harm; or misuse or corruption of critical data and proprietary information, could have a material adverse impact on our results of operations, financial condition, and liquidity. We may experience security breaches that could remain undetected for an extended period and, therefore, have a greater impact on us. Additionally, we may be exposed to increased cybersecurity risk because we are a component of the critical U.S. infrastructure.

Severe Weather and Natural Events Could Result in Significant Business Interruptions and Expenditures – As a railroad with a vast network, we are exposed to severe weather conditions and other natural phenomena, including earthquakes, hurricanes, fires, floods, mudslides or landslides, extreme temperatures, avalanches, and significant precipitation, and climate change may cause or contribute to the severity or frequency of such weather conditions. Line outages and other interruptions caused by these conditions have in the past and could in the future adversely affect parts or all of our rail network, potentially negatively affecting revenues, costs, and liabilities, despite efforts we undertake to plan for these events. Our revenues can also be adversely affected by severe weather that causes damage and disruptions to our customers. These impacts caused by severe weather or other natural phenomena could have a material adverse effect on our results of operations, financial condition, and liquidity.

A Significant Portion of Our Revenues Involves Transportation of Commodities to and from International Markets – Although revenues from our operations are attributable to transportation services provided in the U.S., a significant portion of our revenues involves the transportation of commodities to and from international markets, including Mexico, Canada, and Southeast Asia, by various carriers and, at times, various modes of transportation. Significant and sustained interruptions of trade with Mexico, Canada, or countries in Southeast Asia, including China, could adversely affect customers and other entities that, directly or indirectly, purchase or rely on rail transportation services in the U.S. as part of their operations, and any such interruptions, including international armed conflicts such as the Russia-Ukraine and Israel-Hamas wars, could have a material adverse effect on our results of operations, financial condition, and liquidity. Any one or more of the following could cause a significant and sustained interruption of trade with Mexico, Canada, or countries in Southeast Asia: (a) a deterioration of security for international trade and businesses; (b) the adverse impact of new laws, rules, and regulations or the interpretation or enforcement of laws, rules, and regulations by government entities, courts, or regulatory bodies, including the United States-Mexico-Canada Agreement (USMCA) or other international trade agreements; (c) actions of taxing authorities that affect our customers doing business in or with foreign countries; (d) any significant adverse economic developments, such as extended periods of high inflation, material disruptions in the banking sector or in the capital markets of these foreign countries, and significant changes in the valuation of the currencies of these foreign countries that could

materially affect the cost or value of imports or exports; (e) shifts in patterns of international trade, including as a result of changes to international trade agreements or policies, that adversely affect import and export markets; (f) a material reduction in foreign direct investment in these countries; and (g) public health crises, including the outbreak of pandemic or contagious disease, such as the coronavirus and its variant strains (COVID). An imposition of tariffs on imports or other changes to U.S. trade policy could cause demand for shipping from international markets to decrease, and if the declines are significant enough, it could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Are Dependent on Certain Key Suppliers of Locomotives and Rail – Due to the capital-intensive nature and sophistication of locomotive equipment, parts, and maintenance, potential new suppliers face high barriers to entry. Therefore, if one of the domestic suppliers of locomotives discontinues manufacturing locomotives, supplying parts, or providing maintenance for any reason, including bankruptcy or insolvency or the inability to manufacture locomotives that meet efficiency or regulatory emissions standards, we could experience significant cost increases and reduced availability of the locomotives that are necessary for our operations. Additionally, we utilize a limited number of steel producers that meet our specifications. Rail is critical to our operations for rail replacement programs, maintenance, and for adding additional network capacity, new rail and storage yards, and expansions of existing facilities. This industry similarly has high barriers to entry, and if there is any significant consolidations or mergers in this industry, or one of these suppliers discontinues operations for any reason, including bankruptcy or insolvency, we could experience both significant cost increases for rail purchases and difficulty obtaining sufficient rail for maintenance and other projects. Changes to trade agreements or policies that result in increased tariffs on goods imported into the United States could also result in significant cost increases for rail purchases and difficulty obtaining sufficient rail.

Workforce Risks

Strikes or Work Stoppages Could Adversely Affect Our Operations – The U.S. Class I railroads are party to collective bargaining agreements with various labor unions. The majority of our employees belong to labor unions and are subject to these agreements. Disputes over the terms of these or future agreements or the terms of such agreements, or our potential inability to negotiate acceptable contracts with these unions or the renegotiation of them or their term can lead to, among other things, strikes, work stoppages, slowdowns, or lockouts, any or all of which could compromise our service reliability or cause a significant disruption of our operations, and could increase our costs for wages, health care, and other benefits, which could have a material adverse effect on our results of operations, financial condition, and liquidity. Labor disputes, work stoppages, slowdowns, or lockouts at loading/unloading facilities, ports, or other transport access points, or by employees of our customers or our suppliers, could compromise our service reliability and have a material adverse impact on our results of operations, financial condition, and liquidity.

The Availability of Qualified Personnel Could Adversely Affect Our Operations – Changes in demographics, training requirements, and pandemic illnesses or restrictions could negatively affect the availability of qualified personnel for us, our customers, and throughout the supply chain. Our ability to quickly react to other factors that affect our ability to attract and retain employees may be restricted due to limited flexibility to make unilateral changes to collective bargaining agreements, which cover the majority of our workforce. Unpredictable increases in demand for rail services and a lack of network fluidity may exacerbate our risks related to having insufficient qualified personnel, which could have a negative impact on our operational efficiency and otherwise have a material adverse effect on our results of operations, financial condition, and liquidity.

Legal and Regulatory Risks

We Are Subject to Significant Governmental Regulation – We are subject to governmental regulation by a significant number of federal, state, and local authorities covering a variety of health, safety, labor, employment, environmental, economic (as discussed below), tax, social, and other matters. Many laws and regulations require us to obtain and maintain various licenses, permits, and other authorizations, and we cannot guarantee that we will continue to be able to do so. Our failure to comply with applicable laws and regulations could have a material adverse effect on us as a result of litigation or proceedings by private parties, governments, or regulators, including and in addition to those described in Note 17 to the Consolidated Financial Statements entitled "Commitments and Contingencies." Governments or regulators may change the legislative or regulatory frameworks that we operate in without providing us any recourse to address any adverse effects on our business, including, without limitation, regulatory determinations or rules regarding dispute resolution, increasing the amount of our traffic subject to common carrier regulation, business relationships with other railroads, use of embargoes, calculation of our cost of capital or other inputs relevant to computing our revenue adequacy, the prices we charge, changes in tax rates, enactment of new tax laws or tariffs, and revision in tax regulations. Significant legislative activity in Congress or regulatory activity by other government branches or agencies, such as the STB, could expand regulation of railroad operations and pricing for rail services, which could reduce the viability of capital spending on our rail network, facilities, and equipment, and have a material adverse effect on our results of operations, financial condition, and liquidity.

We May Be Subject to Various Claims and Lawsuits That Could Result in Significant Expenditures – As a railroad with operations in densely populated urban areas and a vast rail network, we are exposed to the potential for various claims and litigation related to labor and employment, personal injury, property damage, environmental liability, and other matters. Any material changes to litigation trends or a catastrophic rail accident or series of accidents involving any or all of property damage, personal injury, and environmental liability that exceed our insurance coverage for such risks could have a material adverse effect on our results of operations, financial condition, and liquidity. In addition, some of these matters could impact the cost of obtaining, or availability in general, of insurance coverage meant to cover these types of risks.

We Are Subject to Significant Environmental Laws and Regulations – Due to the nature of the railroad business, our operations are subject to extensive federal, state, and local environmental laws and regulations concerning, among other things, emissions to the air; discharges to waters; handling, storage, transportation, and disposal of waste and other materials; and hazardous material or petroleum releases. We generate and transport hazardous and non-hazardous waste in our operations. Environmental liability can extend to previously owned or operated properties, leased properties, properties owned by third parties, as well as properties we currently own. Environmental liabilities also have arisen and may arise from claims asserted by adjacent landowners or other third parties in toxic tort litigation. We have been and may be subject to allegations or findings that we have violated, or are strictly liable under, these laws or regulations. We currently have certain obligations at existing sites for investigation, remediation, and monitoring, and we likely will have obligations at other sites in the future. We believe we maintain adequate estimated liabilities for these obligations, but fluctuations of potential costs affect our estimates based on our experience and, as necessary, the advice and assistance of our consultants. However, actual costs may vary from our estimates due to a variety of factors, including changes to environmental laws or interpretations of such laws, technological changes affecting investigations and remediation, the participation and financial viability of other parties responsible for any such liability, and the corrective action or change to corrective actions required to remediate any existing or future sites. We could incur significant costs as a result of any of the foregoing, and we may be required to incur significant expenses to investigate and remediate known, unknown, or future environmental contamination, which could have a material adverse effect on our results of operations, financial condition, and liquidity.

Macroeconomic and Industry Risks

We Face Competition from Other Railroads and Other Transportation Providers – We face competition from other railroads, motor carriers, ships, barges, and pipelines. Our main railroad competitor is Burlington Northern Santa Fe LLC. Its primary subsidiary, BNSF Railway Company (BNSF), operates parallel routes in many of our main traffic corridors. In addition, we operate in corridors served by other railroads and motor carriers. Motor carrier competition exists in all three of our commodity groups. Because of the proximity of our routes to major inland and Gulf Coast waterways, barges can be particularly competitive, especially for grain and bulk commodities in certain areas where we operate. In addition to price competition, we face competition with respect to transit times, quality, and reliability of service from motor carriers and other railroads. Motor carriers in particular can have an advantage over railroads with respect to transit times and timeliness of service. Additionally, we must build or acquire and maintain our rail system, while trucks, barges, and maritime operators are able to use public rights-of-way maintained by public entities. Any of the following could also affect the competitiveness of our transportation services for some or all of our commodities, which could have a material adverse effect on our results of operations, financial condition, and liquidity: (a) improvements or expenditures materially increasing the quality or reducing the costs of these alternative modes of transportation, such as autonomous or more fuel efficient trucks, (b) legislation that eliminates or significantly increases the existing size or weight limitations applied to motor carriers, or (c) legislation or regulatory changes that impose operating restrictions or requirements on railroads or that adversely affect the profitability of some or all railroad traffic. Many movements face product or geographic competition where our customers can use different products (e.g., natural gas instead of coal, sorghum instead of corn) or commodities from different locations (e.g., grain from states or countries that we do not serve, crude oil from different regions). Sourcing different commodities or different locations allows shippers to substitute different carriers, and such competition may reduce our volumes or constrain prices. Additionally, any future consolidation of the rail industry could materially affect our competitive environment.

We May Be Affected by Climate Change and Market or Regulatory Responses to Climate Change – Climate change, including the impact of global warming and transition risks involving policy, legal risks, and market risks, could have a material adverse effect on our results of operations, financial condition, and liquidity on both a long-term and near-term basis. Restrictions, caps, taxes, or other controls on emissions of GHGs, including diesel exhaust, could significantly increase our operating costs. Restrictions on emissions could also affect our customers that (a) use commodities that we carry to produce energy, (b) use significant amounts of energy in producing or delivering the commodities we carry, or (c) manufacture or produce goods that consume significant amounts of energy or burn fossil fuels, including chemical producers, farmers and food producers, and automakers and other manufacturers. Significant cost increases, government regulation, or changes of consumer preferences for goods or services relating to alternative sources of energy, emissions reductions, and GHG emissions can materially affect the markets for the commodities we carry and demand for our services, which in turn could have a material adverse effect on our results of operations, financial condition, and liquidity. Government incentives

encouraging the use of alternative sources of energy also can affect certain of our customers and the markets for certain of the commodities we carry in a manner that could unpredictably alter our traffic patterns or reduce demand.

Compliance with laws or regulations related to climate change, along with defending and resolving legal claims and other litigation, could have a material adverse effect on our results of operations, financial condition, and liquidity. Climate change may cause severe weather conditions and other natural phenomena, including earthquakes, hurricanes, fires, floods, mudslides or landslides, extreme temperatures, avalanches, and significant precipitation. Severe weather conditions and other natural phenomena has in the past and could in the future cause line outages and other interruptions to our infrastructure. Any of these factors, individually or in operation with one or more of the other factors, or other unpredictable impacts of climate change could reduce the amount of traffic we handle and have a material adverse effect on our results of operations, financial condition, and liquidity.

Our efforts to achieve emission reduction targets or aspirations could significantly increase our operational costs and capital expenditures. In addition, stakeholder expectations regarding some of these matters may be evolving and there may be differing views among stakeholders, which could harm our reputation or increase our costs. Our ability to meet such targets or aspirations can depend on significant technological advancements, including, for example, suitable alternative fuels and zero-emissions locomotives, and when such technological advancements will take place, if at all, and whether they will be readily available on commercially reasonable terms is currently unknown. There can be no assurances we will achieve our emission reduction targets or aspirations, or that the associated costs will not be higher than expected, or that the regulatory landscape will not have a negative impact on our results of operations, financial condition, and liquidity. Government mandates may lead to the premature adoption of unproven and unreliable technology, which could negatively affect operational reliability, customer service and supply chain continuity.

Our Business, Financial Condition, and Results of Operations Have Been Adversely Affected, and in The Future, Could Be Materially Adversely Affected by Pandemics or Other Public Health Crises – Pandemics, epidemics, and other outbreaks of disease can have significant and widespread impacts. As we saw during the peaks of the COVID pandemic, outbreaks of disease can cause a global slowdown of economic activity (including the decrease in demand for a broad variety of goods), disruptions in global supply chains, and significant volatility and disruption of financial markets, resulting further in adverse effects on workforces, customers, and regional and local economies. The impact of pandemics or public health crises on our results of operations and financial condition will depend on numerous evolving factors, including, but not limited to: governmental, business, and individuals' actions taken in response to a global pandemic or other public health crises (including restrictions on travel and transport, workforce pressures, social distancing, and shelter-in-place orders); the effect of a pandemic or other public health crises on economic activity and actions taken in response; the effect on our customers and their demand for our services; the effect of a pandemic or other public health crises on the credit-worthiness of our customers; national or global supply chain challenges or disruptions; facility closures; commodity cost volatility; general macroeconomic uncertainty in key global markets and financial market volatility; global economic conditions and levels of economic growth; and the pace of recovery as the pandemic subsides as well as response to a potential reoccurrence. Further, a pandemic or other public health crises, and the volatile regional and global economic conditions stemming from such an event, could also precipitate and aggravate the other risk factors that we identify, which could materially adversely affect our business, financial condition, results of operations (including revenues and profitability), and/or stock price. Additionally, a pandemic or other public health crises also may affect our operating and financial results in a manner that is not presently known to us or that we currently do not consider to present significant risks to our operations.

Financial Risks

We Are Affected by Fluctuating Fuel Prices – Fuel costs constitute a significant portion of our transportation expenses. Diesel fuel prices can be subject to dramatic fluctuations, and significant price increases could have a material adverse effect on our operating results. Although we currently are able to recover a significant amount of our fuel expenses from our customers through revenues from fuel surcharges, we cannot be certain that we will always be able to mitigate rising or elevated fuel costs through our fuel surcharges. Additionally, future market conditions or legislative or regulatory activities could adversely affect our ability to apply fuel surcharges or adequately recover increased fuel costs through fuel surcharges. As fuel prices fluctuate, our fuel surcharge programs trail such fluctuations in fuel prices by approximately two months and are from time-to-time a significant source of quarter-over-quarter and year-over-year volatility, particularly in periods of rapidly changing prices. International, political, and economic factors, events and conditions, including international armed conflicts such as the Russia-Ukraine and Israel-Hamas wars, and other geopolitical tensions in the Middle East, affect the volatility of fuel prices and supplies. Weather can also affect fuel supplies and limit domestic refining capacity. A severe shortage of, or disruption to, domestic fuel supplies could have a material adverse effect on our results of operations, financial condition, and liquidity. Alternatively, lower fuel prices could have a negative impact on certain commodities we transport, such as coal and domestic drilling-related shipments, which could have a material adverse effect on our results of operations, financial condition, and liquidity.

We Rely on Capital Markets – Due to the significant capital expenditures required to operate and maintain a safe and efficient railroad, we rely on the capital markets to provide some of our capital requirements. We utilize long-term debt instruments, bank financing, and commercial paper, and we pledge certain amount of our receivables as collateral for credit. Significant instability or disruptions of the capital markets, including, among other things, elevated interest rates in the credit markets and/or changes in interest rates, or deterioration of our financial condition due to internal or external factors could restrict or prohibit our access to, and significantly increase the cost of, commercial paper and other financing sources, including bank credit facilities and the issuance of long-term debt, including corporate bonds, and could also have a material adverse effect on our results of operations, financial condition, and liquidity. A significant deterioration of our financial condition could result in a reduction of our credit rating to below investment grade, which could restrict us from utilizing our current receivables securitization facility (Receivables Facility). These developments also could limit our access to external sources of capital and significantly increase the costs of short and long-term debt financing, which could have a material adverse effect on our results of operations, financial condition, and liquidity.

General Risk Factors

We Are Affected by General Economic Conditions – Prolonged, severe adverse domestic and global macroeconomic conditions or disruptions of financial and credit markets, including, for example, the cycles of recessionary fears, inflationary pressures, changes in interest rates, and/or related monetary policy actions by governments in response to inflation, may affect the producers and consumers of the commodities we carry and may have a material adverse effect on our access to liquidity, results of operations, and financial condition.

We May Be Affected by Acts of Terrorism, War, or Risk of War – Our rail lines, facilities, and equipment, including rail cars carrying hazardous materials, could be direct targets or indirect casualties of terrorist attacks. Terrorist attacks, or other similar events, any government response thereto, and war or risk of war may adversely affect our results of operations, financial condition, and liquidity. In addition, insurance premiums for some or all of our current coverages could increase dramatically, or certain coverages may not be available to us in the future. Also, in the event of a national crisis or emergency, one or more government entities could take actions (such as via the U.S. Defense Production Act or the International Emergency Economic Powers Act) that could diminish our rights or economic opportunities with respect to the transportation services we offer.

Item 1B. Unresolved Staff Comments

None.

Item 1C. Cybersecurity

Risk Management and Strategy

The Company is subject to cybersecurity threats that could have a material adverse impact on our results of operations, financial condition, and liquidity. See also our discussion in the Risk Factors in Item 1A of this report. As a component of our Company-wide enterprise risk management framework, we implemented a cybersecurity program whose objective is to assess, identify, and manage risks from cybersecurity threats that may result in adverse effects on the confidentiality, integrity, and availability of the electronic information systems that we own. We regularly perform internal security assessments, engage third-party consultants to conduct external security assessments, and participate in, conduct, and/or administer exercises, drills, and recovery tests as part of this program. We also maintain training programs and policies and procedures designed to safeguard employee handling and use of data, internet usage, controlled access measures, and physical protections. We consult with industry groups, monitor threat intelligence reports, and communicate with various government agencies in an effort to stay up-to-date on changes in the cybersecurity threat landscape. This program, in addition to addressing our own information systems, is also designed to oversee, identify, and reduce the potential impact of a security incident at a third-party service provider or that otherwise impacts third-party technology and systems we use.

Internal Cybersecurity Team

The Company's internal information security organization (Internal Cybersecurity Team), led by our Executive Vice President and Chief Information Officer (CIO) as well as the Assistant Vice President and Chief Information Security Officer (CISO), is responsible for coordinating all aspects of the Company's electronic information security systems, including prevention, detection, mitigation, and remediation of cybersecurity incidents, as well as implementing, monitoring, and maintaining our enterprise-wide security strategy, standards, architecture, policies, and processes. Our CIO reports directly to our Chief Executive Officer, our CISO reports to our CIO, and reporting to our CISO are our Deputy Chief Information Security Officer (Deputy CISO) and other experienced information security personnel responsible for various parts of our business. In addition to our internal cybersecurity capabilities, we also periodically engage assessors, consultants, auditors, and other third parties

to assist with assessing, identifying, and managing cybersecurity risks. When the Company learns of a cybersecurity incident at a third-party service provider, the Company's respective department contacts maintain communication with the third-party service provider and communicate any cybersecurity incidents to the CISO.

Security Policy and Requirements

As part of the Company's Crisis Management Plan, the Company's cybersecurity Incident Response Plan (the IRP) provides a framework for responding to cybersecurity incidents. The IRP sets out a coordinated approach to discovering, investigating, containing, tracking, mitigating, and remediating cybersecurity incidents, including a framework for elevating and reporting findings and keeping senior management and other key stakeholders informed and involved, based on assessments regarding the scope or significance of incidents. The IRP applies to the Company's extended computing environment, including electronic information resources that are owned or used by the Company and are routinely relied on to support our operations.

The Internal Cybersecurity Team has robust processes and redundancies in place designed with the objective of deterring, detecting, mitigating, and responding to potential cybersecurity threats, which includes a vulnerability assessment, prioritization, and remediation program. The Internal Cybersecurity Team also performs regular system penetration testing to validate our security controls and assess our infrastructure and applications. All management employees take mandatory security awareness training on the Company's data security policies and procedures, which is supplemented by Company-wide testing initiatives, including periodic phishing tests.

Our information security program is designed to align our defenses and resources to identify, assess, and address more likely and more damaging cyber events, to provide support for our organizational mission and operational objectives, and to position us to deter, detect, mitigate, and respond to a wide variety of potential attacks in a timely fashion. Our information security program employs quantitative and qualitative approaches to evaluate the effectiveness of controls and assess the resiliency of critical computing resources. This data is combined with knowledge of common attack techniques to assess the likelihood of components being compromised and assess potential financial implications under different scenarios. The results are used to help identify potentially material risks and provide insights which are taken into account when prioritizing our security initiatives.

Material Cybersecurity Risks, Threats, and Incidents

Due to the evolving nature of cybersecurity threats, it has and will continue to be difficult to prevent, detect, mitigate, and remediate cybersecurity incidents. While we are not aware of having experienced any material effects or reasonably likely material effects on our Company, its business strategy, results of operations, or financial condition resulting from cybersecurity threats or incidents to date, as a critical infrastructure provider, we may be a target of well-funded and sophisticated adverse actors. There can be no guarantee that we will not be the subject of future risks or incidents that have such an effect, or that we are not currently the subject of an undetected risk or incident that may have such an effect.

We also rely on information technology and third-party vendors to support our operations, including our secure processing of personal, confidential, sensitive, proprietary, and other types of information. Despite ongoing efforts to continue improvement of our and our vendors' ability to protect against cyber incidents, we may not be able to protect all of the information systems we use. Incidents may lead to reputational harm, revenue and client loss, legal actions, or statutory penalties, among other consequences. For a more detailed discussion of these risks, see our discussion in the Risk Factors in Item 1A of this report.

Governance

The Board of Directors has delegated primary oversight of the Company's cybersecurity risk to the Audit Committee, which receives updates on cybersecurity risks, risk mitigation initiatives, and incidents at each regularly scheduled Audit Committee meeting from the CIO, CISO, and other members of management, as needed. When making decisions regarding director appointments and committee assignments, the Board of Directors takes into consideration the cybersecurity experience of directors and director candidates and strives to maintain cybersecurity expertise on the Board of Directors and Audit Committee. We have protocols by which certain cybersecurity incidents are reported to the Audit Committee and Board of Directors.

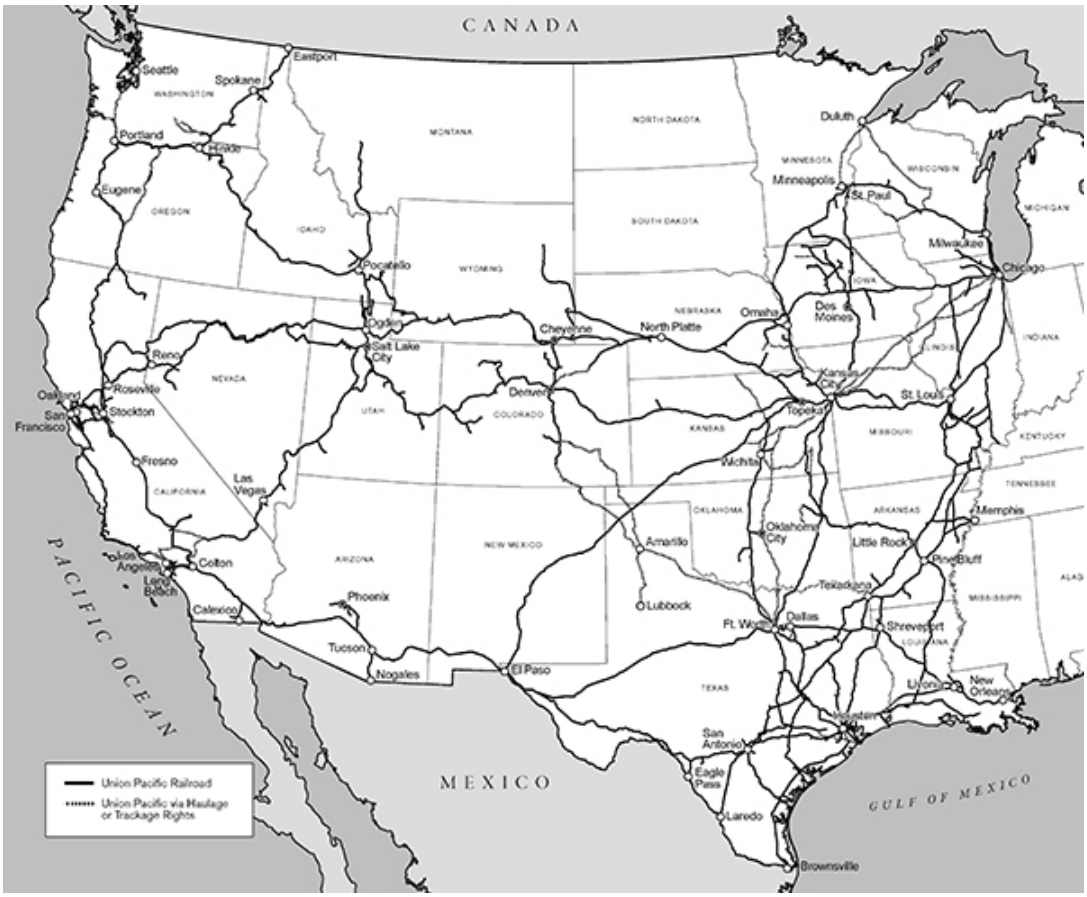
At the management level, our CIO, CISO, and Deputy CISO, each of whom has extensive cybersecurity knowledge and skills gained from over 28 years, 29 years, and 20 years of relevant work experience, respectively, head the Internal Cybersecurity Team that is responsible for implementing and maintaining cybersecurity and data protection practices across our business, with our CIO reporting directly to our Chief Executive Officer. Our CISO and Deputy CISO receive reports on cybersecurity threats from a number of experienced information security professionals for various parts of our business on an ongoing

basis and, in conjunction with other management personnel, regularly consult on risk management measures implemented by the Company to identify and mitigate data protection and cybersecurity risks.

In addition, our Risk and Compliance Committee (RCC) is responsible for oversight and support of the Company's Enterprise Risk Management and Compliance and Ethics programs and is comprised of the Executive Leadership Team and the Senior Vice President and Chief Accounting, Risk, and Compliance Officer (Compliance Officer). The RCC also created a subcommittee, the Enterprise Risk Management Committee (ERMC), who is charged with continually monitoring, evaluating, and managing enterprise risks. The ERMC includes the Compliance Officer, General Auditor, Vice President Law - Finance, Compliance and Commercial Litigation, Vice President and Chief Safety Officer, CISO, Vice President - Strategy and Corporate Development, and Assistant Vice President - Executive Services. The RCC and ERMC both meet throughout the year and receive periodic updates on cybersecurity from the CISO.

Item 2. Properties

We employ a variety of assets in the management and operation of our rail business. Our rail network covers 23 states in the western two-thirds of the U.S.



TRACK

Our rail network includes 32,880 route miles. We own 26,291 miles and operate on the remainder pursuant to trackage rights or leases. The following table describes track miles:

As of December 31,	***2024***	*2023*
Route	**32,880**	32,693
Other main line	**7,116**	7,117
Passing lines and turnouts	**3,526**	3,466
Switching and classification yard lines	**8,850**	8,852
Total miles	**52,372**	52,128

HEADQUARTERS BUILDING

We own our headquarters building in Omaha, Nebraska. The facility has 1.2 million square feet of space that can accommodate approximately 4,000 employees.

HARRIMAN DISPATCHING CENTER

The Harriman Dispatching Center (HDC), located in Omaha, Nebraska, is our primary dispatching facility. It is linked to regional dispatching and locomotive management facilities at various locations along our network. HDC employees coordinate moves of locomotives and trains, manage traffic and train crews on our network, and coordinate interchanges with other railroads. Generally, around 600 employees work on-site in the facility. In the event of a disruption of operations at HDC due to a cyber-attack, flooding or severe weather, pandemic outbreak, or other event, we maintain the capability to conduct critical operations at back-up facilities in different locations.

RAIL FACILITIES

In addition to our track structure, we operate numerous facilities, including terminals for intermodal and other freight; rail yards for building trains (classification yards), switching, storage-in-transit (the temporary storage of customer goods in rail cars prior to shipment), and other activities; offices to administer and manage our operations; dispatching centers to direct traffic on our rail network; crew on duty locations for train crews along our network; and shops and other facilities for fueling, maintenance, and repair of locomotives and repair and maintenance of rail cars and other equipment. The following table includes the major yards and terminals on our system:

Major Classification Yards	*Major Intermodal Terminals*
Houston, Texas	Joliet (Global 4), Illinois
North Platte, Nebraska	Global II (Chicago), Illinois
North Little Rock, Arkansas	East Los Angeles, California
Livonia, Louisiana	ICTF (Long Beach), California
Fort Worth, Texas	Mesquite, Texas
West Colton, California	Marion, Arkansas
Roseville, California	Lathrop, California

RAIL EQUIPMENT

Our equipment includes owned and leased locomotives and rail cars; heavy maintenance equipment and machinery; other equipment and tools in our shops, offices, and facilities; and vehicles for maintenance, transportation of crews, and other activities. As of December 31, 2024, we owned or leased the following units of equipment:

Locomotives	*Owned*	*Leased*	*Total*	*Average Age (yrs.)*
Multiple purpose	5,973	920	6,893	25.2
Switching	122	-	122	44.6
Other	11	-	11	54
Total locomotives	6,106	920	7,026	N/A

Freight cars	*Owned*	*Leased*	*Total*	*Average Age (yrs.)*
Covered hoppers	14,642	8,897	23,539	21.1
Open hoppers	4,658	579	5,237	37.8
Gondolas	6,293	4,251	10,544	23.4
Boxcars	3,741	5,526	9,267	27.2
Refrigerated cars	2,404	945	3,349	20.1
Flat cars	1,966	1,952	3,918	33.4
Other	-	322	322	36.1
Total freight cars	33,704	22,472	56,176	N/A

Highway revenue equipment	*Owned*	*Leased*	*Total*	*Average Age (yrs.)*
Containers	46,375	288	46,663	13.1
Chassis	4,356	1,197	5,553	11.6
Total highway revenue equipment	50,731	1,485	52,216	N/A

We continuously assess our need for equipment to run an efficient and reliable network. Many factors cause us to adjust the size of our active fleets, including changes in carload volumes, weather events, seasonality, customer preferences, and operational efficiency initiatives. As some of these factors are difficult to assess or can change rapidly, we maintain a buffer to remain agile. Without the buffer, our ability to react quickly is hindered as equipment suppliers are limited and lead times to acquire equipment are long and may be in excess of a year. We believe our locomotive and freight car fleets are appropriately sized to meet our current and future business requirements. These fleets serve as the most reliable and efficient equipment to facilitate growth without additional acquisitions. Locomotive and freight car in service utilization percentages for the year ended December 31, 2024, were 65% and 75%, respectively.

CAPITAL EXPENDITURES

Our rail network requires significant annual capital investments for replacement, improvement, and expansion. These investments enhance safety, support the transportation needs of our customers, improve our operational efficiency, and support emission reduction initiatives. Additionally, we add new equipment to our fleet to replace older equipment and to support growth and customer demand.

2024 Capital Program – During 2024, our capital program totaled approximately $3.4 billion. (See the cash capital investments table in Management's Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources, Item 7, of this report.)

2025 Capital Plan – In 2025, we expect our capital plan to be approximately $3.4 billion, consistent with 2024. (See further discussion of our 2025 capital plan in Management's Discussion and Analysis of Financial Condition and Results of Operations - Liquidity and Capital Resources, Item 7, of this report.)

OTHER

Equipment Encumbrances – See Note 14 and 16 to the Financial Statements and Supplementary Data, Item 8.

Environmental Matters – Certain of our properties are subject to federal, state, and local laws and regulations governing the protection of the environment. (See discussion within this report of environmental issues in Business - Governmental and Environmental Regulation, Item 1; Management's Discussion and Analysis of Financial Condition and Results of Operations - Critical Accounting Estimates - Environmental, Item 7; and Note 17 to the Financial Statements and Supplementary Data, Item 8.)

Item 3. Legal Proceedings

From time to time, we are involved in legal proceedings, claims, and litigation that occur in connection with our business. We routinely assess our liabilities and contingencies in connection with these matters based upon the latest available information and, when necessary, we seek input from our third-party advisors when making these assessments. Consistent with SEC rules and requirements, we describe below material pending legal proceedings (other than ordinary routine litigation incidental to our business), material proceedings known to be contemplated by governmental authorities, other proceedings arising under federal, state, or local environmental laws and regulations (including governmental proceedings involving potential fines, penalties, or other monetary sanctions in excess of $1,000,000), and such other pending matters that we may determine to be appropriate. See also Note 17 to the Financial Statements and Supplementary Date, Item 8.

ENVIRONMENTAL MATTERS

We receive notices from the EPA and state environmental agencies alleging that we are or may be liable under federal or state environmental laws for remediation costs at various sites throughout the U.S., including sites on the Superfund National Priorities List or state superfund lists. We cannot predict the ultimate impact of these proceedings and suits because of the number of potentially responsible parties involved, the degree of contamination by various wastes, the scarcity and quality of volumetric data related to many of the sites, and the speculative nature of remediation costs.

Information concerning environmental claims and contingencies and estimated remediation costs is set forth in this report in Management's Discussion and Analysis of Financial Condition and Results of Operations - Critical Accounting Estimates - Environmental, Item 7, and Note 17 to the Financial Statements and Supplementary Data, Item 8.

OTHER MATTERS

Antitrust Litigation – As we reported in our Quarterly Report on Form 10-Q for the quarter ended June 30, 2007, 20 rail shippers (many of whom were represented by the same law firms) filed virtually identical antitrust lawsuits in various federal district courts against us and four other Class I railroads in the U.S. Currently, UPRR and three other Class I railroads are the named defendants in the lawsuits. The original plaintiff filed the first of these claims in the U.S. District Court in New Jersey on May 14, 2007. These suits alleged that the named railroads engaged in price-fixing by establishing common fuel surcharges for certain rail traffic.

On August 16, 2019, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) affirmed the decision of U.S. District Court for the District of Columbia (U.S. District Court) denying class certification (the Certification Denial). Only five plaintiffs remain in this multidistrict litigation (MDL I) originally filed in 2007. The MDL I claims previously were proceeding on a consolidated basis in the U.S. District of Columbia District Court before the Honorable Paul L. Friedman. In 2024, they were transferred to the Honorable Beryl A. Howell.

Since the Certification Denial, approximately 106 lawsuits by individual shippers are pending in federal court based on claims essentially identical to those alleged in MDL I. The Judicial Panel on Multidistrict Litigation consolidated these suits for pretrial proceedings in the U.S. District Court before the Honorable Beryl A. Howell (MDL II).

As we reported in our Current Report on Form 8-K, filed on June 10, 2011, Oxbow Carbon & Minerals LLC and related entities (Oxbow) filed a complaint against UPRR in the U.S. District Court on June 7, 2011. In 2019, Oxbow dismissed certain claims and the claims that remain are the same as the Plaintiffs' claims in MDL I. Oxbow's claims previously were proceeding in the U.S. District of Columbia District Court before the Honorable Pail L. Friedman. In 2024, Oxbow's case was transferred to the Honorable Beryl A. Howell.

We continue to deny the allegations that our fuel surcharge programs violate the antitrust laws or any other laws. We believe that these lawsuits are without merit, and we will vigorously defend our actions. Therefore, we currently believe that these matters will not have a material adverse effect on any of our results of operations, financial condition, and liquidity.

Item 4. Mine Safety Disclosures

Not applicable.

Information About Our Executive Officers and Principal Executive Officers of Our Subsidiaries

The Board of Directors typically elects and designates our executive officers on an annual basis at the board meeting held in conjunction with the Annual Meeting of Shareholders, and they hold office until their successors are elected. Executive officers also may be elected and designated throughout the year, as the Board of Directors considers appropriate. There are no family relationships among the officers, nor is there any arrangement or understanding between any officer and any other person pursuant to officer selection. The following table sets forth certain information current as of February 7, 2025, relating to the executive officers of UPC and the Railroad.

Name	*Position*	*Age*	*Business Experience During Past Five Years*
V. James Vena	Chief Executive Officer	66	[1]
Elizabeth F. Whited	President	59	[2]
Jennifer L. Hamann	Executive Vice President and Chief Financial Officer	57	Current Position
Eric J. Gehringer	Executive Vice President - Operations	45	[3]
Rahul Jalali	Executive Vice President and Chief Information Officer	51	[4]
Craig V. Richardson	Executive Vice President, Chief Legal Officer, and Corporate Secretary	63	[5]
Kenny G. Rocker	Executive Vice President - Marketing and Sales	53	Current Position
Todd M. Rynaski	Senior Vice President and Chief Accounting, Risk, and Compliance Officer	54	[6]

[1] Mr. Vena was elected Chief Executive Officer effective August 14, 2023. He previously served as a Senior Advisor to the Chairman (January 2021 - June 2021) and Chief Operating Officer (January 2019 - December 2020).

[2] Ms. Whited was elected President effective August 14, 2023. Ms. Whited most recently served as Executive Vice President - Sustainability and Strategy (February 2022 - August 2023). She previously served as Executive Vice President and Chief Human Resources Officer (August 2018 - February 2022).

[3] Mr. Gehringer was elected Executive Vice President - Operations effective January 1, 2021. Mr. Gehringer previously served as Senior Vice President - Transportation (July 2020 - December 2020) and Vice President - Mechanical and Engineering (January 2020 - July 2020).

[4] Mr. Jalali was elected Executive Vice President and Chief Information Officer effective June 1, 2023. Mr. Jalali most recently served as Senior Vice President and Chief Information Officer (November 2020 - May 2023).

[5] Mr. Richardson was elected Executive Vice President, Chief Legal Officer, and Corporate Secretary effective December 8, 2020. He most recently served as Interim Executive Vice President, Chief Legal Officer, and Corporate Secretary (September 2020 - November 2020) and Vice President - Commercial and Regulatory Law (July 2018 - August 2020).

[6] Mr. Rynaski was elected Senior Vice President and Chief Accounting, Risk, and Compliance Officer effective July 1, 2022. Mr. Rynaski previously served as Vice President and Controller (September 2015 - June 2022).

PART II

Item 5. Market for the Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities

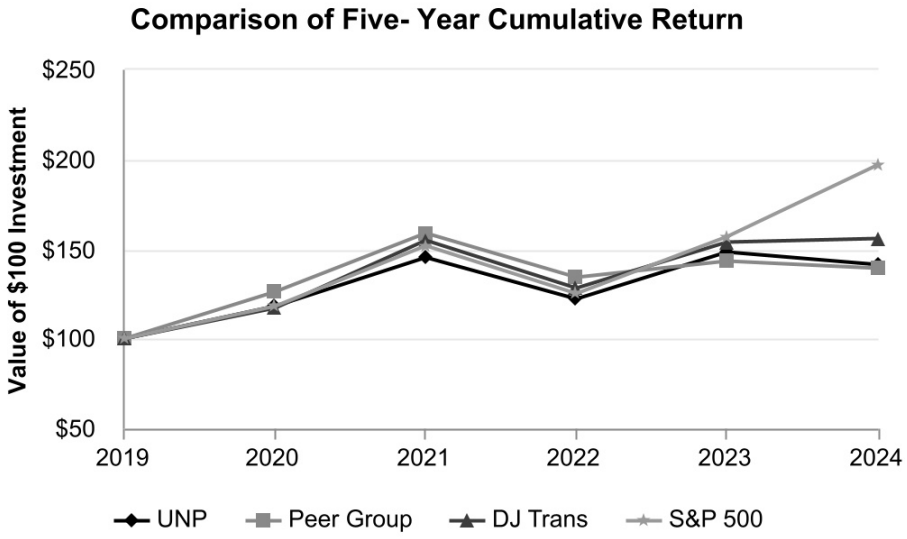
Our common stock is traded on the NYSE under the symbol "UNP".

At January 31, 2025, there were 604,286,378 shares of common stock outstanding and 26,755 common shareholders of record. On that date, the closing price of the common stock on the NYSE was $247.79. We paid dividends to our common shareholders during each of the past 125 years.

Comparison Over One- and Three-Year Periods – The following table presents the cumulative total shareholder returns, assuming reinvestment of dividends, over one- and three-year periods for the Corporation (UNP), a peer group index (comprised of CSX Corporation and Norfolk Southern Corporation), the Dow Jones Transportation Index (DJ Trans), and the Standard & Poor's 500 Stock Index (S&P 500).

Period	*UNP*	*Peer Group*	*DJ Trans*	*S&P 500*
1 Year (2024)	(5.1 %)	(2.4 %)	1.5 %	25.0 %
3 Year (2022 - 2024)	(3.1 %)	(13.0 %)	0.6 %	29.2 %

Five-Year Performance Comparison – The following graph provides an indicator of cumulative total shareholder returns for the Corporation as compared to the peer group index (described above), the DJ Trans, and the S&P 500. The graph assumes that $100 was invested in the common stock of Union Pacific Corporation and each index on December 31, 2019, and that all dividends were reinvested. The information below is historical in nature and is not necessarily indicative of future performance.



PUBLIC VERSION - REDACTED

Purchases of Equity Securities – During 2024, we repurchased 6,467,619 shares of our common stock at an average price of $240.51. The following table presents common stock repurchases during each month for the fourth quarter of 2024:

Period	*Total Number of Shares Purchased [a]*	*Average Price Paid Per Share*	*Total Number of Shares Purchased as Part of a Publicly Announced Plan or Program*	*Maximum Number of Shares Remaining Under the Plan or Program [b]*
Oct. 1 through Oct. 31	2,503,616	$ 237.58	2,503,002	74,390,644
Nov. 1 through Nov. 30	303,827	235.43	301,783	74,088,861
Dec. 1 through Dec. 31	274	244.72	-	74,088,861
Total	2,807,717	$ 237.35	2,804,785	N/A

[a] Total number of shares purchased during the quarter includes approximately 2,932 shares delivered or attested to UPC by employees to pay stock option exercise prices, satisfy excess tax withholding obligations for stock option exercises or vesting of retention units, and pay withholding obligations for vesting of retention shares.

[b] Effective April 1, 2022, our Board of Directors authorized the repurchase of up to 100 million shares of our common stock by March 31, 2025. These repurchases may be made on the open market or through other transactions. Our management has sole discretion with respect to determining the timing and amount of these transactions.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion should be read in conjunction with the Consolidated Financial Statements and applicable notes to the Financial Statements and Supplementary Data, Item 8, and other information in this report, including Risk Factors set forth in Item 1A and Critical Accounting Estimates and Cautionary Information at the end of this Item 7. The following section generally discusses 2024 and 2023 items and year-to-year comparisons between 2024 and 2023. Discussions of 2022 items and year-to-year comparisons between 2023 and 2022 that are not included in this Form 10-K can be found in "Management's Discussion and Analysis of Financial Condition and Results of Operations" in Part II, Item 7, of the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2023.

The Railroad, along with its subsidiaries and rail affiliates, is our one reportable operating segment. Although we provide and analyze revenues by commodity group, we treat the financial results of the Railroad as one segment due to the integrated nature of our rail network.

EXECUTIVE SUMMARY

2024 Results

- **Safety** – 2024 was a transformational year on our journey to becoming the safest railroad. Our strategy is broken into four pillars – Injury Prevention, Leverage Technology, Situational Awareness Testing, and Peer-to-Peer Engagement.

  Injury Prevention efforts focus on specific, critical tasks to reduce the risk of injury or derailment. These critical tasks are those where any form of non-compliance can result in a serious injury. Training is key to helping our employees understand how to execute those tasks safely.

  We are Leveraging Technology to eliminate or automate activities with the most risk. We have more than 7,000 wayside detectors that monitor freight cars and locomotives in real time, generating 16 million data points daily to proactively identify and mitigate risks. We are building safer trains with our proprietary Physics Train Builder technology, which allows us to evaluate train and route characteristics to enable proactive intervention by our Operating Practices Command Center to prevent derailments. We utilize our autonomous geometry car fleet to inspect 500,000 miles of track annually. This technology and the data it provides enable us to direct investments and resources in the right place, helping to significantly reduce track-caused derailments over the last 10 years.

  Situational Awareness Testing (a program we call COMMIT) is our program that observes, tests, and coaches our employees to promote understanding and compliance with our work rules. This goes beyond the classroom, with an emphasis on being in the field with the employees as they are performing the activities that run the railroad.

  Peer-to-Peer Engagement is driving employee ownership through engagement with our safety programs. This is our culture, a personal commitment to do our jobs with a passion for safety so everyone goes home safely. Employees are encouraged to speak up if they see unsafe behaviors.

The focus on these four pillars is driving results. Our personal injury rate (the number of reportable injuries for every 200,000 employee-hours worked) is down 23% and our derailment incident rate (the number of reportable derailment incidents per million train miles) down 20% compared to 2023 results.

- **Service** – Service performance index for both intermodal and manifest products improved 2 and 4 points, respectively, compared to 2023. Throughout the year we improved network fluidity as reflected in 2% faster freight car velocity and record terminal dwell, improved 3% from 2023.

- **Operational Excellence** – Network performance throughout 2024 was strong. While we experienced some powerful weather events in the second quarter and a second half surge in international intermodal shipments, most of our operating metrics improved year-over year. We maintained a resource buffer that allowed us to strategically integrate crews, locomotives, and freight cars into the network to efficiently handle the growth and recover from the weather events.

- **Financial Results** – Core pricing gains, strong productivity, and 3% volume growth positively impacted our financial results. Operating income of $9.7 billion increased 7% from 2023, and our operating ratio was 59.9%, improving 2.4 points from 2023. Net income of $6.7 billion translated into earnings of $11.09 per diluted share, up 6% from 2023.

  We generated $9.3 billion of cash provided by operating activities, yielded free cash flow of $2.8 billion after reductions of $3.3 billion for cash used in investing activities and $3.2 billion in dividends paid. Both cash provided by operating activities and free cash flow were higher by $384 million due to payments in 2023 related to back wages for agreements reached with our labor unions.

Free cash flow is defined as cash provided by operating activities less cash used in investing activities and dividends paid. Free cash flow is not considered a financial measure under GAAP by SEC Regulation G and Item 10 of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe free cash flow is important to management and investors in evaluating our financial performance and measures our ability to generate cash without additional external financing. Free cash flow should be considered in addition to, rather than as a substitute for, cash provided by operating activities. The following table reconciles cash provided by operating activities (GAAP measure) to free cash flow (non-GAAP measure):

Millions		***2024***	***2023***	***2022***
Cash provided by operating activities	**$**	**9,346**	$ 8,379	$ 9,362
Cash used in investing activities		**(3,325)**	(3,667)	(3,471)
Dividends paid		**(3,213)**	(3,173)	(3,159)
Free cash flow	**$**	**2,808**	$ 1,539	$ 2,732

2025 Outlook

- **Safety** – Our goal is to be an industry leader in safety, and we are committed to continuously finding new ways to enhance safety. In 2025, we will continue to focus on our four pillars of safety. Training that engages both new and experienced employees is fundamental to our success. Critical safety tasks will be reinforced and enhanced by adding critical-thinking scenarios to the classroom curriculum. We will continue using a comprehensive safety management approach utilizing technology, hazard identification and risk assessments, employee engagement, training, quality control, and targeted capital investments. In addition, we will continue to collect and utilize data with the goal of identifying and mitigating exposure to risk, detect rail defects, improve or close grade crossings, and educate the public and law enforcement agencies about crossing safety through a combination of our own programs (including risk assessment strategies), industry programs, and local community activities across the network. Safety is paramount to the success of the railroad and deeply ingrained in our culture, and this will not change in 2025.

- **Service** – We are committed to delivering the service we sold to our customers. As we meet with customers to agree on their specific needs and outcomes, we will continue to measure ourselves against the best service we provided them over the last three years and use that as a guide for meeting their expectations. We will engage with customers by being the first to act on new opportunities, investing to grow, and finding innovative solutions to win together.

- **Operational Excellence** – To provide our customers with the service we sold, we must run a fluid network. Network fluidity enables us to effectively utilize all our resources and provides the capacity to respond in an ever-changing environment. Terminal dwell and freight car velocity are key indicators of that fluidity. We will continue to transform our railroad using technology and automation to further improve our service product, improve resource utilization, and lower our overall cost structure.

- **Business Volumes** – Macroeconomic uncertainties remain in 2025 that could have a material impact on our 2025 financial and operating results. Current forecasts for 2025 industrial production show a slight increase versus 2024. In addition, other factors, such as imposition of higher tariffs and changes in domestic and foreign monetary policy may affect economic activity and demand for rail transportation; natural gas prices, weather conditions, and demand for other energy sources may impact the coal market; crude oil prices and spreads may drive demand for petroleum products and drilling materials; available truck capacity could impact our intermodal business; and international trade agreements could promote or hinder trade. Lower coal demand, resulting from ongoing competitive energy dynamics and reduced coal-fired electricity production, and lower international intermodal business, due to the west coast volume surge in 2024, are expected to negatively impact volumes. Additionally, the way our customers are affected by and respond to the implementation of new tariffs may influence our volume levels and traffic flows. Fuel prices may continue to fluctuate in the current economic environment. As prices fluctuate, there will be a timing impact on earnings, as our fuel surcharge programs trail increases or decreases in fuel prices by approximately two months. Regardless of external factors, we will focus on operating a safe railroad and delivering the service we sold to our customers as well as effective asset utilization, cost control, and seeking new business opportunities.

RESULTS OF OPERATIONS

Operating Revenues

Millions		***2024***	*2023*	*2022*	***% Change 2024 v 2023***	*% Change 2023 v 2022*
Freight revenues	**$**	**22,811**	$ 22,571	$ 23,159	**1 %**	(3)%
Other subsidiary revenues		**788**	872	884	**(10)**	(1)
Accessorial revenues		**554**	584	779	**(5)**	(25)
Other		**97**	92	53	**5**	74
Total	**$**	**24,250**	$ 24,119	$ 24,875	**1 %**	(3)%

We generate freight revenues by transporting products from our three commodity groups. Freight revenues vary with volumes (carloads) and average revenue per car (ARC). Changes in price, traffic mix, and fuel surcharges drive ARC. Customer incentives, which are primarily provided for shipping to/from specific locations or based on cumulative volumes, are recorded as a reduction to operating revenues. Customer incentives that include variable consideration based on cumulative volumes are estimated using the expected value method, which is based on available historical, current, and forecasted volumes, and recognized as the related performance obligation is satisfied. We recognize freight revenues over time as shipments move from origin to destination. The allocation of revenues between reporting periods is based on the relative transit time in each reporting period with expenses recognized as incurred.

Other subsidiary revenues (primarily logistics and commuter rail operations) are generally recognized over time as shipments move from origin to destination. The allocation of revenues between reporting periods is based on the relative transit time in each reporting period with expenses recognized as incurred. Accessorial revenues are recognized at a point in time as performance obligations are satisfied.

Freight revenues increased 1% year-over-year to $22.8 billion driven by a 3% increase in volumes and core pricing gains, partially offset by lower fuel surcharge revenues and negative mix of traffic (for example, a relative increase in international intermodal shipments, which have a lower ARC). Volume increases were primarily driven by international intermodal and grain and grain product shipments, partially offset by weaker demand for coal and rock shipments.

Our fuel surcharge programs generated freight revenues of $2.6 billion and $3.0 billion in 2024 and 2023, respectively. Fuel surcharge revenues in 2024 decreased $0.4 billion due to a 15% decrease in fuel prices and the lag impact of fluctuating fuel prices (it can generally take up to two months for changing fuel prices to affect fuel surcharge recoveries), partially offset by higher volumes.

In 2024, other subsidiary revenues decreased compared to 2023 primarily driven by a weaker demand for intermodal shipments at our subsidiary that brokers intermodal and transload logistics services and the partial transfer of our commuter operations to Metra. Accessorial revenues decreased in 2024 compared to 2023 driven by lower intermodal accessorial revenues because of our intermodal equipment sale, partially offset by a one-time contract settlement.

The following tables summarize the year-over-year changes in freight revenues, revenue carloads, and ARC by commodity type:

Freight Revenues *Millions*		***2024***	*2023*	*2022*	***% Change 2024 v 2023***	*% Change 2023 v 2022*
Grain & grain products	**$**	**3,828**	$ 3,644	$ 3,598	**5 %**	1 %
Fertilizer		**811**	757	712	**7**	6
Food & refrigerated		**1,085**	1,041	1,093	**4**	(5)
Coal & renewables		**1,483**	1,916	2,134	**(23)**	(10)
Bulk		**7,207**	7,358	7,537	**(2)**	(2)
Industrial chemicals & plastics		**2,345**	2,176	2,158	**8**	1
Metals & minerals		**2,081**	2,194	2,196	**(5)**	-
Forest products		**1,326**	1,347	1,465	**(2)**	(8)
Energy & specialized markets		**2,688**	2,521	2,386	**7**	6
Industrial		**8,440**	8,238	8,205	**2**	-
Automotive		**2,452**	2,421	2,257	**1**	7
Intermodal		**4,712**	4,554	5,160	**3**	(12)
Premium		**7,164**	6,975	7,417	**3**	(6)
Total	**$**	**22,811**	$ 22,571	$ 23,159	**1 %**	(3)%

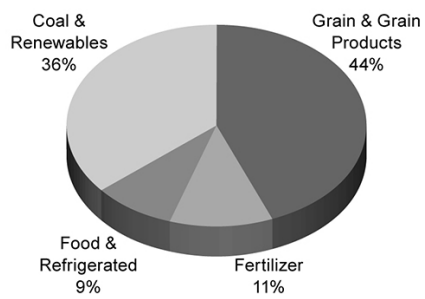
Revenue Carloads *Thousands*	***2024***	*2023*	*2022*	***% Change 2024 v 2023***	*% Change 2023 v 2022*
Grain & grain products	**850**	798	798	**7 %**	- %
Fertilizer	**213**	191	190	**12**	1
Food & refrigerated	**177**	175	187	**1**	(6)
Coal & renewables	**702**	867	885	**(19)**	(2)
Bulk	**1,942**	2,031	2,060	**(4)**	(1)
Industrial chemicals & plastics	**672**	645	637	**4**	1
Metals & minerals	**719**	793	785	**(9)**	1
Forest products	**213**	213	241	**-**	(12)
Energy & specialized markets	**607**	582	552	**4**	5
Industrial	**2,211**	2,233	2,215	**(1)**	1
Automotive	**824**	820	778	**-**	5
Intermodal [a]	**3,357**	3,028	3,116	**11**	(3)
Premium	**4,181**	3,848	3,894	**9**	(1)
Total	**8,334**	8,112	8,169	**3 %**	(1)%

Average Revenue per Car		***2024***	*2023*	*2022*	***% Change 2024 v 2023***	*% Change 2023 v 2022*
Grain & grain products	**$**	**4,505**	$ 4,567	$ 4,509	**(1)%**	1 %
Fertilizer		**3,809**	3,962	3,749	**(4)**	6
Food & refrigerated		**6,104**	5,929	5,844	**3**	1
Coal & renewables		**2,113**	2,211	2,410	**(4)**	(8)
Bulk		**3,710**	3,623	3,658	**2**	(1)
Industrial chemicals & plastics		**3,493**	3,374	3,388	**4**	-
Metals & minerals		**2,893**	2,765	2,797	**5**	(1)
Forest products		**6,229**	6,310	6,092	**(1)**	4
Energy & specialized markets		**4,426**	4,335	4,320	**2**	-
Industrial		**3,818**	3,689	3,704	**3**	-
Automotive		**2,976**	2,955	2,902	**1**	2
Intermodal [a]		**1,404**	1,504	1,656	**(7)**	(9)
Premium		**1,714**	1,813	1,905	**(5)**	(5)
Average	**$**	**2,737**	$ 2,782	$ 2,835	**(2)%**	(2)%

[a] For intermodal shipments, each container or trailer equals one carload.

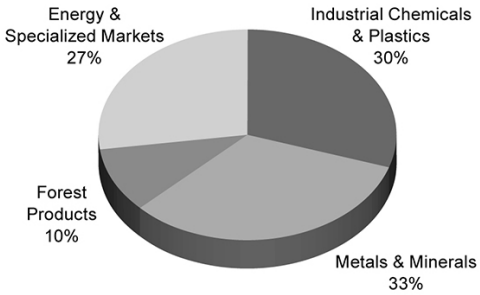
Bulk – Bulk includes shipments of grain and grain products, fertilizer, food and refrigerated, and coal and renewables. Freight revenues from bulk shipments decreased in 2024 compared to 2023 due to lower volumes and lower fuel surcharge revenues, partially offset by positive mix, from decreased coal shipments, and core pricing gains. Volumes declined 4% compared to 2023 driven by reduced use of coal in electricity generation because of low natural gas prices, coal fired plant capacity, and mild winter weather, partially offset by strength in export grain to Mexico and several other grain products. Additionally, the volume declines were partially offset by increased fertilizer shipments due to strong demand and a 2023 customer outage. Volumes for coal and renewables and food and refrigerated shipments were negatively impacted by outages and service challenges due to repeated snow events in Wyoming and flooding in California in the first quarter of 2023 positively impacting the year-over-year comparisons.

2024 Bulk Carloads



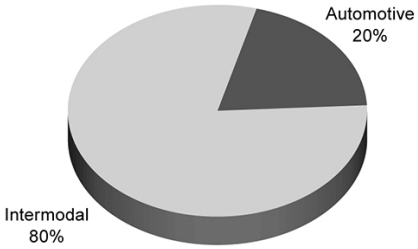
Industrial – Industrial includes shipments of industrial chemicals and plastics, metals and minerals, forest products, and energy and specialized markets. Freight revenues from industrial shipments increased in 2024 versus 2023 due to core pricing gains and positive mix of traffic from decreased short haul rock shipments and increased petroleum shipments, partially offset by lower fuel surcharge revenues and lower volumes. Volumes decreased 1% compared to 2023 driven by lower demand for rock, due to weather, high inventories, and softness in Southern markets, and decreased sand shipments due to the use of local sources, partially offset by strength in petroleum, industrial chemicals, and plastics.

2024 Industrial Carloads



Premium – Premium includes shipments of finished automobiles, automotive parts, and merchandise in intermodal containers, both domestic and international. Freight revenues from premium shipments increased driven by higher volumes and core pricing gains, partially offset by lower fuel surcharge revenues and negative mix. Starting in the third quarter of 2024, international intermodal experienced heavy demand due to increased U.S. West Coast imports, a result of freight shifting from the East Coast and Canadian ports due to uncertainty related to labor negotiations, driving volumes up over 30% in the second half of the year compared to the second half of 2023. In addition, business development efforts in domestic intermodal drove volume growth in 2024 compared to 2023. Automotive shipments were flat year-over-year as business development wins were offset by market weakness and unplanned production decreases.

2024 Premium Carloads



Mexico Business – Freight revenues from each of our commodity groups includes revenues from shipments to and from Mexico, which amounted to $3.0 billion in 2024, up 8% compared to 2023, driven by a 3% volumes increase and a 4% increase in ARC. The volume increases were driven by higher grain and grain product shipments and finished vehicle shipments, partially offset by lower automotive parts shipments.

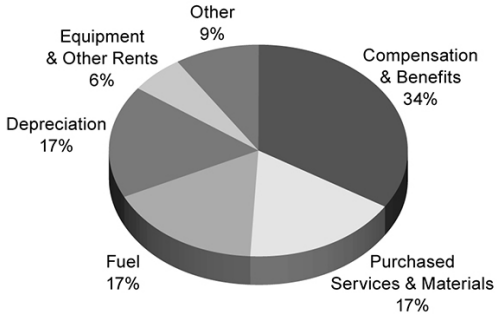
Operating Expenses

Millions		***2024***	*2023*	*2022*	***% Change 2024 v 2023***	*% Change 2023 v 2022*
Compensation and benefits	**$**	**4,899**	$ 4,818	$ 4,645	**2 %**	4 %
Purchased services and materials		**2,520**	2,616	2,442	**(4)**	7
Fuel		**2,474**	2,891	3,439	**(14)**	(16)
Depreciation		**2,398**	2,318	2,246	**3**	3
Equipment and other rents		**920**	947	898	**(3)**	5
Other		**1,326**	1,447	1,288	**(8)**	12
Total	**$**	**14,537**	$ 15,037	$ 14,958	**(3)%**	1 %

PUBLIC VERSION - REDACTED

Operating expenses decreased $500 million, or 3%, in 2024 compared to 2023 driven by lower fuel prices, productivity, a gain on the sale of intermodal equipment in 2024, partially offset by inflation, volume-related costs, and higher depreciation. In addition, positively impacting the year-over-year comparison are lower labor agreement ratification charges as we reached agreements impacting crew staffing in both years, and lower weather-related costs from less impactful winter weather in the first quarter of 2024 compared to 2023.

2024 Operating Expenses



Compensation and Benefits – Compensation and benefits include wages, payroll taxes, health and welfare costs, pension costs, and incentive costs. In 2024, expenses increased 2% compared to 2023 due to wage inflation, which includes the impact of labor agreements to modernize work rules and improve availability, higher incentive compensation, and increased crew needs associated with labor agreements and increased volumes, partially offset by 4% lower employee levels. Train, engine, and yard (TE&Y) force levels were flat compared to 2023 as improved network fluidity allowed us to handle a 3% increase in volumes and the increased needs associated with labor agreements without increasing the size of that workforce.

Purchased Services and Materials – Expense for purchased services and materials includes the costs of services purchased from outside contractors and other service providers (including equipment maintenance and contract expenses incurred by our subsidiaries for external transportation services); materials used to maintain the Railroad's lines, structures, and equipment; costs of operating facilities jointly used by UPRR and other railroads; transportation and lodging for train crew employees; trucking and contracting costs for intermodal containers; leased automobile maintenance expenses; and tools and supplies. Purchased services and materials decreased 4% in 2024 compared to 2023 driven by declines in locomotive maintenance expense due to a smaller active fleet as productivity improved year-over-year, decreased volume-related drayage cost incurred at one of our subsidiaries, and a favorable contract settlement, partially offset by inflation and volume-related costs.

Fuel – Fuel includes locomotive fuel and gasoline for highway and non-highway vehicles and heavy equipment. Fuel expense decreased compared to 2023 due to a decrease in locomotive diesel fuel prices, which averaged $2.64 per gallon (including taxes and transportation costs) in 2024 compared to $3.09 per gallon in 2023, resulting in a $0.4 billion decrease in expense (excluding any impact from decreased volumes year-over-year), and a 1% improvement to the fuel consumption rate in 2024 (computed as gallons of fuel consumed divided by gross ton-miles), partially offset by a 1% increase in gross ton-miles.

Depreciation – The majority of depreciation relates to road property, including rail, ties, ballast, and other track material. Depreciation expense was up 3% in 2024 compared to 2023 due to a higher depreciable asset base.

Equipment and Other Rents – Equipment and other rents expense primarily includes rental expense that the Railroad pays for freight cars owned by other railroads or private companies; freight car, intermodal, and locomotive leases; and office and other rent expenses, offset by equity income from certain equity method investments. Equipment and other rents expense decreased 3% compared to 2023 due to lower lease expense and improved cycle times, partially offset by increased demand in commodities utilizing freight cars owned by others and inflation.

Other – Other expenses include state and local taxes; freight, equipment, and property damage; utilities; insurance; personal injury; environmental; employee travel; telephone and cellular; computer software; bad debt; and other general expenses. Other expenses decreased 8% in 2024 compared to 2023 driven by lower personal injury costs, a 2024 gain on the sale of intermodal equipment, and a 2023 write-off, partially offset by higher freight loss and damage and other casualty cost.

Non-Operating Items

Millions		***2024***	*2023*	*2022*	***% Change 2024 v 2023***	*% Change 2023 v 2022*
Other income, net	**$**	**350**	$ 491	$ 426	**(29)%**	15 %
Interest expense		**(1,269)**	(1,340)	(1,271)	**(5)**	5
Income tax expense	**$**	**(2,047)**	$ (1,854)	$ (2,074)	**10 %**	(11)%

Other Income, net – Other income decreased in 2024 compared to 2023 driven by a $107 million real estate transaction in 2023 and lower income from other real estate transactions, partially offset by interest received in 2024 from the IRS on refund claims. See Note 6 to the Financial Statements and Supplementary Data, Item 8, for additional detail.

Interest Expense – Interest expense decreased in 2024 compared to 2023 due to a decreased weighted-average debt level of $31.6 billion in 2024 from $33.2 billion in 2023. The effective interest rate was 4.0% in both periods.

Income Tax Expense – Income tax expense increased in 2024 compared to 2023 driven by higher pre-tax income in 2024 and higher deferred tax expense reductions in 2023, partially offset by the benefit of purchased federal tax credits in 2024. In 2024, the states of Louisiana and Arkansas enacted legislation to reduce their corporate income tax rates for future years resulting in a $34 million reduction of our deferred tax expense. In 2023, the states of Nebraska, Iowa, Kansas, and Arkansas enacted legislation to reduce their corporate income tax rates for future years resulting in a $114 million reduction of our deferred tax expense. Our effective tax rates for 2024 and 2023 were 23.3% and 22.5%, respectively.

OTHER OPERATING/PERFORMANCE AND FINANCIAL STATISTICS

We report a number of key performance measures weekly to the STB. We provide these on our website at https://investor.unionpacific.com/key-performance-metrics.

Operating/Performance Statistics

Management continuously monitors these key operating metrics to evaluate our operational efficiency in striving to deliver the service product we sold to our customers.

Railroad performance measures are included in the table below:

	2024	*2023*	*2022*	***% Change 2024 v 2023***	*% Change 2023 v 2022*
Gross ton-miles (GTMs) (billions)	**847.4**	837.5	843.4	**1 %**	(1) %
Revenue ton-miles (billions)	**409.7**	413.3	420.8	**(1)**	(2)
Freight car velocity (daily miles per car) [a]	**208**	204	191	**2**	7
Average train speed (miles per hour) [a]	**23.6**	24.2	23.8	**(2)**	2
Average terminal dwell time (hours) [a]	**22.6**	23.4	24.4	**(3)**	(4)
Locomotive productivity (GTMs per horsepower day)	**135**	129	125	**5**	3
Train length (feet)	**9,469**	9,356	9,329	**1**	-
Intermodal service performance index (%)	**90**	88	76	**2 pts**	12 pts
Manifest service performance index (%)	**89**	85	77	**4 pts**	8 pts
Workforce productivity (car miles per employee)	**1,062**	1,000	1,036	**6**	(3)
Total employees (average)	**30,336**	31,490	30,717	**(4)**	3
Operating ratio (%)	**59.9**	62.3	60.1	(2.4) pts	2.2 pts

[a] As reported to the STB.

Gross and Revenue Ton-Miles – Gross ton-miles are calculated by multiplying the weight of loaded and empty freight cars by the number of miles hauled. Revenue ton-miles are calculated by multiplying the weight of freight by the number of tariff miles. In 2024, gross ton-miles increased 1% and revenue ton-miles decreased 1%, while carloadings were up 3% year-over-year. Changes in commodity mix drove the year-over-year variances between gross ton-miles, revenue ton-miles, and carloads due to lower coal shipments, which are heavier, and increased international intermodal shipments that are lighter.

Freight Car Velocity – Freight car velocity measures the average daily miles per car on our network. The two key drivers of this metric are the speed of the train between terminals (average train speed) and the time a rail car spends at the terminals (average terminal dwell time). Freight car velocity increased 2% driven by record terminal dwell levels. The 2023 metrics were negatively impacted by operational challenges caused by weather in the first quarter and train crew shortages in some locations in the first half of 2023, positively impacting the year-over-year comparison.

Locomotive Productivity – Locomotive productivity is gross ton-miles per average daily locomotive horsepower. Locomotive productivity improved 5% in 2024 compared to 2023 driven by improved network fluidity and asset utilization despite maintaining a buffer in 2024 to flex the fleet size as we experienced and subsequently recovered from certain weather events and reacted to higher volume levels.

Train Length – Train length is the average maximum train length on a route measured in feet. Our train length increased 1% compared to 2023 due to train length improvement initiatives and increases in international intermodal shipments, which generally move on longer trains, partially offset by declines in coal train length.

Service Performance Index (SPI) – SPI is a ratio of the service customers are currently receiving relative to the best monthly performance over the last three years. Measuring our performance relative to a historical benchmark demonstrates our focus on continuously improving service for our customers, and we believe it is a better indicator of service performance than the previously disclosed trip plan compliance. SPI does not replace the service commitments we have contractually agreed to with a small number of customers. SPI is calculated for intermodal and manifest products. Intermodal SPI improved 2 points, at the same time international volume surged. Manifest SPI improved 4 points in 2024 compared to 2023.

Workforce Productivity – Workforce productivity is average daily car miles per employee. Workforce productivity improved 6% in 2024 as average daily car miles increased 2% and employees decreased 4% compared to 2023. Our active TE&Y workforce increased to support carload demand and increased crew needs associated with labor agreements that went into effect in the third quarter of 2023. In addition, we are maintaining an adequate training pipeline to provide a capacity buffer to enable responsiveness in an ever-changing demand and operating environment.

Operating Ratio – Operating ratio is our operating expenses reflected as a percentage of operating revenues. Our operating ratio of 59.9% improved 2.4 points compared to 2023 driven by productivity initiatives, core pricing gains, and the year-over-year impact from lower fuel prices, partially offset by inflation and other costs. In addition, operating ratio year-over-year comparison was positively impacted by 2024 contract settlements, a 2024 gain on the sale of intermodal equipment, and lower labor agreement ratification charges than in 2023.

Return on Average Common Shareholders' Equity

Millions, Except Percentages		***2024***		*2023*		*2022*
Net income	**$**	**6,747**	$	6,379	$	6,998
Average equity	**$**	**15,839**	$	13,476	$	13,162
Return on average common shareholders' equity		**42.6 %**		47.3 %		53.2 %

Return on Invested Capital as Adjusted (ROIC)

Millions, Except Percentages		***2024***		*2023*		*2022*
Net income	**$**	**6,747**	$	6,379	$	6,998
Interest expense		**1,269**		1,340		1,271
Interest on average operating lease liabilities		**55**		58		56
Taxes on interest		**(308)**		(315)		(304)
Net operating profit after taxes as adjusted	**$**	**7,763**	$	7,462	$	8,021
Average equity	**$**	**15,839**	$	13,476	$	13,162
Average debt		**31,886**		32,953		31,528
Average operating lease liabilities		**1,436**		1,616		1,695
Average invested capital as adjusted	**$**	**49,161**	$	48,045	$	46,385
Return on invested capital as adjusted		**15.8 %**		15.5 %		17.3 %

ROIC is considered a non-GAAP financial measure by SEC Regulation G and Item 10 of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe this measure is important to management and investors in evaluating the efficiency and effectiveness of our long-term capital investments. In addition, we currently use ROIC as a performance criterion in determining certain elements of equity compensation for our executives. ROIC should be considered in addition to, rather than as a substitute for, other information provided in accordance with GAAP. The most comparable GAAP measure is return on average common shareholders' equity. The tables above provide a reconciliation from return on average common shareholders' equity to ROIC. At December 31, 2024, 2023, and 2022, the incremental borrowing rate on operating leases was 3.8%, 3.6%, and 3.3%, respectively.

Debt / Net Income

Millions, Except Ratios		***2024***	*2023*	*2022*
Debt	**$**	**31,192**	$ 32,579	$ 33,326
Net income	**$**	**6,747**	$ 6,379	$ 6,998
Debt / net income		**4.6**	5.1	4.8

Adjusted Debt / Adjusted EBITDA

Millions, Except Ratios		***2024***	*2023*	*2022*
Net income	**$**	**6,747**	$ 6,379	$ 6,998
Add:				
Income tax expense		**2,047**	1,854	2,074
Depreciation		**2,398**	2,318	2,246
Interest expense		**1,269**	1,340	1,271
EBITDA	**$**	**12,461**	$ 11,891	$ 12,589
Adjustments:				
Other income, net		**(350)**	(491)	(426)
Interest on operating lease liabilities		**48**	58	54
Adjusted EBITDA (a)	**$**	**12,159**	$ 11,458	$ 12,217
Debt	**$**	**31,192**	$ 32,579	$ 33,326
Operating lease liabilities		**1,271**	1,600	1,631
Adjusted debt (b)	**$**	**32,463**	$ 34,179	$ 34,957
Adjusted debt / adjusted EBITDA (b/a)		**2.7**	3.0	2.9

Adjusted debt (total debt plus operating lease liabilities plus after-tax unfunded pension and OPEB (other post-retirement benefit) obligations) to adjusted EBITDA (earnings before interest, taxes, depreciation, amortization, and adjustments for other income and interest on present value of operating leases) is considered a non-GAAP financial measure by SEC Regulation G and Item 10 of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe this measure is important to management and investors in evaluating the Company's ability to sustain given debt levels (including leases) with the cash generated from operations. In addition, a comparable measure is used by rating agencies when reviewing the Company's credit rating. Adjusted debt to adjusted EBITDA should be considered in addition to, rather than as a substitute for, other information provided in accordance with GAAP. The most comparable GAAP measure is debt to net income ratio. The tables above provide reconciliations from net income to adjusted EBITDA, debt to adjusted debt, and debt to net income to adjusted debt to adjusted EBITDA. At December 31, 2024, 2023, and 2022, the incremental borrowing rate on operating leases was 3.8%, 3.6%, and 3.3%, respectively. Pension and OPEB were funded at December 31, 2024, 2023, and 2022.

LIQUIDITY AND CAPITAL RESOURCES

We are continually evaluating our financial condition and liquidity. We analyze a wide range of economic scenarios and the impact on our ability to generate cash. These analyses inform our liquidity plans and activities outlined below and indicate we have sufficient borrowing capacity to sustain an extended period of lower volumes.

At both December 31, 2024 and 2023, we had a working capital deficit due to upcoming debt maturities. It is not unusual for us to have a working capital deficit, and we believe it is not an indication of a lack of liquidity. We generate strong cash from operations and also maintain adequate resources, including our credit facility and, when necessary, access the capital markets to meet foreseeable cash requirements.

During 2024, we generated $9.3 billion of cash provided by operating activities, paid down $1.3 billion of long-term debt, paid $3.2 billion in dividends, and repurchased shares totaling $1.5 billion. We have been, and we expect to continue to be, in compliance with our debt covenants.

Our principal sources of liquidity include cash and cash equivalents, our Receivables Facility, our revolving credit facility, as well as the availability of commercial paper and other sources of financing through the capital markets. On December 31, 2024, we had $1.0 billion of cash and cash equivalents, $2.0 billion of committed credit available under our revolving credit facility, and up to $800 million undrawn on the Receivables Facility. As of December 31, 2024, none of the revolving credit

facility was drawn, and we did not draw on our revolving credit facility at any time during 2024. Our access to the Receivables Facility may be reduced or restricted if our bond ratings fall to certain levels below investment grade. If our bond rating were to deteriorate, it could have an adverse impact on our liquidity. Access to commercial paper as well as other capital market financing is dependent on market conditions. Deterioration of our operating results or financial condition due to internal or external factors could negatively impact our ability to access capital markets as a source of liquidity. Access to liquidity through the capital markets is also dependent on our financial stability. We expect that we will continue to have access to liquidity through any or all the following sources or activities: (a) increasing the utilization of our Receivables Facility, (b) issuing commercial paper, (c) entering into bank loans, outside of our revolving credit facility, or (iv) issuing bonds or other debt securities to public or private investors based on our assessment of the current condition of the credit markets. The Company's $2.0 billion revolving credit facility is intended to support the issuance of commercial paper by UPC and also serves as an additional source of liquidity to fund short-term needs. The Company currently does not intend to make any borrowings under this facility.

As described in the notes to the Consolidated Financial Statements and as referenced in the table below, we have contractual obligations that may affect our financial condition. Based on our assessment of the underlying provisions and circumstances of our contractual obligations, other than the risks that we and other similarly situated companies face with respect to the condition of the capital markets (as described in Item 1A of Part II of this report), as of the date of this filing, there is no known trend, demand, commitment, event, or uncertainty that is reasonably likely to occur that would have a material adverse effect on our consolidated results of operations, financial condition, or liquidity. In addition, our commercial obligations, financings, and commitments are customary transactions that are like those of other comparable corporations, particularly within the transportation industry.

The following table identifies material contractual obligations as of December 31, 2024:

		Payments Due by December 31,					
Millions	*Total*	*2025*	*2026*	*2027*	*2028*	*2029*	*After 2029*
Debt [a]	$ 57,906	$ 2,591	$ 2,617	$ 2,348	$ 2,294	$ 2,253	$ 45,803
Purchase obligations [b]	2,110	999	590	240	160	121	-
Operating leases [c]	1,401	352	281	227	200	128	213
Other post-retirement benefits [d]	378	39	39	38	38	38	186
Finance lease obligations [e]	118	42	35	30	11	-	-
Total contractual obligations	$ 61,913	$ 4,023	$ 3,562	$ 2,883	$ 2,703	$ 2,540	$ 46,202

[a] Excludes finance lease obligations of $109 million as well as unamortized discount and deferred issuance costs of ($1,693) million. Includes an interest component of $25,130 million.

[b] Purchase obligations include locomotive maintenance contracts; purchase commitments for ties, ballast, and rail; and agreements to purchase other goods and services.

[c] Includes leases for locomotives, freight cars, other equipment, and real estate. Includes an interest component of $130 million.

[d] Includes estimated other post-retirement, medical, and life insurance payments, and payments made under the unfunded pension plan for the next ten years.

[e] Represents total obligations, including interest component of $9 million.

Cash Flows

Millions	***2024***	*2023*	*2022*
Cash provided by operating activities	**$ 9,346**	$ 8,379	$ 9,362
Cash used in investing activities	**(3,325)**	(3,667)	(3,471)
Cash used in financing activities	**(6,067)**	(4,625)	(5,887)
Net change in cash, cash equivalents, and restricted cash	**$ (46)**	$ 87	$ 4

Operating Activities

Cash provided by operating activities increased in 2024 compared to 2023 due primarily to $384 million of payments in 2023 related to back wages for agreements reached with our labor unions and increased net income.

Cash flow conversion is defined as cash provided by operating activities less cash used in capital investments as a ratio of net income. Cash flow conversion rate is not considered a financial measure under GAAP by SEC Regulation G and Item 10 of SEC Regulation S-K and may not be defined and calculated by other companies in the same manner. We believe cash

flow conversion rate is important to management and investors in evaluating our financial performance and measures our ability to generate cash without additional external financing. Cash flow conversion rate should be considered in addition to, rather than as a substitute for, cash provided by operating activities. The following table reconciles cash provided by operating activities (GAAP measure) to cash flow conversion rate (non-GAAP measure):

Millions, Except Percentages	***2024***	*2023*	*2022*
Cash provided by operating activities	**$ 9,346**	$ 8,379	$ 9,362
Cash used in capital investments	**(3,452)**	(3,606)	(3,620)
Total (a)	**5,894**	4,773	5,742
Net income (b)	**$ 6,747**	$ 6,379	$ 6,998
Cash flow conversion rate (a/b)	**87 %**	75 %	82 %

Investing Activities

Cash used in investing activities in 2024 decreased compared to 2023 primarily driven by less capital investments and higher proceeds from asset sales, including a sale of intermodal equipment. Roughly half of the year-over-year decrease in capital investments is attributable to the 2023 purchase of a small trucking and transload operator and related real estate assets.

The following table detail cash capital investments for the years ended December 31:

Millions	***2024***	*2023*	*2022*
Ties	**$ 503**	$ 565	$ 544
Rail and other track material	**493**	454	437
Ballast	**197**	194	216
Other [a]	**740**	691	693
Total road infrastructure replacements	**1,933**	1,904	1,890
Line expansion and other capacity projects	**183**	239	276
Commercial facilities	**317**	425	308
Total capacity and commercial facilities	**500**	664	584
Locomotives and freight cars [b]	**788**	728	800
Technology and other	**231**	310	346
Total cash capital investments [c]	**$ 3,452**	$ 3,606	$ 3,620

[a] Other includes bridges and tunnels, signals, other road assets, and road work equipment.
[b] Locomotives and freight cars include lease buyouts of $143 million, $57 million, and $70 million in 2024, 2023, and 2022, respectively.
[c] Weather-related damages for 2024, 2023, and 2022 are immaterial.

Capital Plan – In 2025, we expect our capital plan to be approximately $3.4 billion, consistent with 2024. We plan to continue to make investments to support our growth strategy, improve the safety, resiliency, and operational efficiency of the network, harden our infrastructure, and replace older assets, including modernization of our locomotive fleet and acquiring freight cars to support replacement and growth opportunities. In addition, the plan includes investments in growth-related projects to drive more carloads to the network and enhance productivity. This includes siding construction and extension projects, terminal investments supporting our manifest network, and invest in certain ramps to efficiently handle volumes from new and existing intermodal customers. The capital plan may be revised if business conditions warrant or if laws or regulations affect our ability to generate sufficient returns on these investments.

Financing Activities

Cash used in financing activities increased in 2024 compared to 2023 driven by an increase in share repurchases and a decrease in debt issued, partially offset by a decrease in the repayment of commercial paper.

See Note 14 to the Financial Statements and Supplementary Data, Item 8, for a description of all our outstanding financing arrangements and significant new borrowings, and Note 18 to the Financial Statements and Supplementary Data, Item 8, for a description of our share repurchase programs.

OTHER MATTERS

Inflation – For capital-intensive companies, inflation significantly increases asset replacement costs for long-lived assets. As a result, assuming that we replace all operating assets at current price levels, depreciation charges (on an inflation-adjusted basis) would be substantially greater than historically reported amounts.

Sensitivity Analyses – The sensitivity analyses that follow illustrate the economic effect that hypothetical changes in interest and tax rates could have on our results of operations and financial condition. These hypothetical changes do not consider other factors that could impact actual results.

Interest Rates – At December 31, 2024, we did not have variable-rate debt.

Market risk for fixed-rate debt is estimated as the potential increase in fair value resulting from a hypothetical 1% decrease in interest rates as of December 31, 2024, and totals an increase of approximately $3.0 billion to the fair value of our debt at December 31, 2024. We estimated the fair values of our fixed-rate debt by considering the impact of the hypothetical interest rates on quoted market prices and current borrowing rates.

Tax Rates – Our deferred tax assets and liabilities are measured based on current tax law. Future tax legislation, such as a change in the federal corporate tax rate, could have a material impact on our financial condition, results of operations, or liquidity. For example, a future, permanent 1% increase in our federal income tax rate would increase our deferred tax liability by approximately $525 million. Similarly, a future, permanent 1% decrease in our federal income tax rate would decrease our deferred tax liability by approximately $525 million.

Accounting Pronouncements – See Note 3 to the Financial Statements and Supplementary Data, Item 8.

Asserted and Unasserted Claims – See Note 17 to the Financial Statements and Supplementary Data, Item 8.

Indemnities – See Note 17 to the Financial Statements and Supplementary Data, Item 8.

Climate Change – Climate change could have an adverse impact on our operations and financial performance (see Risk Factors under Item 1A of this report). We utilize climate scenario analyses to better understand climate-related risks and opportunities the Company may face in the future under a range of potential scenarios. We continue to refine our approach to understand climate-related risks and are taking an iterative approach in our business planning processes as risk factors, solutions, and technology develop. However, we are unable to predict the likelihood, manner, severity, or ultimate financial impact of actual future incidents as climate scenario analysis considers a range of potential outcomes.

We continue to take steps and explore opportunities to reduce our operational impact on the environment, including improving our operational fluidity to increase fuel efficiency, modernizing locomotives for improved reliability and fuel consumption, using renewable fuels, and exploring and testing low- and zero-emissions propulsion technologies. These initiatives are aligned with our strategy of Safety, Service, and Operational Excellence leading to Growth. (See further discussion in "Sustainable Future" in the Operations section in Item 1 of this report.)

CRITICAL ACCOUNTING ESTIMATES

Our Consolidated Financial Statements have been prepared in accordance with GAAP. The preparation of these financial statements requires estimation and judgment that affect the reported amounts of revenues, expenses, assets, and liabilities. We base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances. The results form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. The following critical accounting estimates are a subset of our significant accounting policies described in Note 2 to the Financial Statements and Supplementary Data, Item 8. These critical accounting estimates affect significant areas of our financial statements and involve judgment and estimates. If these estimates differ significantly from actual results, the impact on our Consolidated Financial Statements may be material.

Personal Injury – See Note 17 to the Financial Statements and Supplementary Data, Item 8, and "*We May Be Subject to Various Claims and Lawsuits That Could Result in Significant Expenditures*" in the Risk Factors, Item 1A.

Our personal injury liability is subject to uncertainty due to unasserted claims, timing and outcome of claims, and evolving trends in litigation. There were no material changes to the assumptions used in the latest actuarial analysis.

Our personal injury liability balance and claims activity was as follows:

		2024	2023	2022
Ending liability balance at December 31 (millions)	$	379	$ 383	$ 361
Open claims, beginning balance		1,871	2,036	2,027
New claims		2,842	3,008	2,747
Settled or dismissed claims		(3,146)	(3,173)	(2,738)
Open claims, ending balance at December 31		1,567	1,871	2,036

Environmental Costs – See Note 17 to the Financial Statements and Supplementary Data, Item 8; "*We Are Subject to Significant Environmental Laws and Regulations*" in the Risk Factors, Item 1A; and Environmental Matters in the Legal Proceedings, Item 3.

Our environmental liability is subject to several factors such as type of remediation, nature and volume of contaminate, number and financial viability of other potentially responsible parties, as well as uncertainty due to unknown alleged contamination, evolving trends in remediation techniques and final remedies, and changes in laws and regulations.

Our environmental liability balance and site activity was as follows:

		2024	2023	2022
Ending liability balance at December 31 (millions)	$	268	$ 245	$ 253
Open sites, beginning balance		333	353	376
New sites		84	74	69
Closed sites		(65)	(94)	(92)
Open sites, ending balance at December 31		352	333	353

Property and Depreciation – See Note 11 to the Financial Statements and Supplementary Data, Item 8.

Assets purchased or constructed throughout the year are capitalized if they meet applicable minimum units of property.

Estimated service lives of depreciable railroad property may vary over time due to changes in physical use, technology, asset strategies, and other factors that will have an impact on the retirement profiles of our assets. We are not aware of any specific factors that are reasonably likely to significantly change the estimated service lives of our assets. Actual use and retirement of our assets may vary from our current estimates, which would impact the amount of depreciation expense recognized in future periods.

Changes in estimated useful lives of our assets due to the results of our depreciation studies could significantly impact future periods' depreciation expense and have a material impact on our Consolidated Financial Statements. If the estimated useful lives of all depreciable assets were increased by one year, annual depreciation expense would decrease by approximately $73 million. If the estimated useful lives of all depreciable assets were decreased by one year, annual depreciation expense would increase by approximately $78 million. We are projecting an increase in our depreciation expense of approximately 3% to 4% in 2025 versus 2024. This is driven by an increase in our projected depreciable asset base.

Pension Plans – See Note 5 to the Financial Statements and Supplementary Data, Item 8.

The critical assumptions used to measure pension obligations and expenses are the discount rates and expected rate of return on pension assets.

We evaluate our critical assumptions at least annually, and selected assumptions are based on the following factors:

- We measure the service cost and interest cost components of our net periodic pension benefit/cost by using individual spot rates matched with separate cash flows for each future year. Discount rates are based on a Mercer yield curve of high-quality corporate bonds (rated AA by a recognized rating agency).
- Expected return on plan assets is based on our asset allocation mix and our historical return, taking into consideration current and expected market conditions.

The following tables present the key assumptions used to measure net periodic pension benefit/cost for 2025 and the estimated impact on 2025 net periodic pension benefit/cost relative to a change in those assumptions:

Assumptions	
Discount rate for benefit obligations	5.61 %
Discount rate for interest on benefit obligations	5.32 %
Discount rate for service cost	5.75 %
Discount rate for interest on service cost	5.68 %
Expected return on plan assets	5.25 %

Sensitivities *Millions*		*Increase in Expense Pension*
0.25% decrease in discount rates	$	-
0.25% decrease in expected return on plan assets	$	12

The following table presents the net periodic pension benefit/cost for the years ended December 31:

Millions		*Est. 2025*	*2024*	*2023*	*2022*
Net periodic pension (benefit)/cost	$	(10)	$ (3)	$ -	$ 9

CAUTIONARY INFORMATION

Certain statements in this report, and statements in other reports or information filed or to be filed with the SEC (as well as information included in oral statements or other written statements made or to be made by us), are, or will be, forward-looking statements as defined by the Securities Act of 1933 and the Securities Exchange Act of 1934. These forward-looking statements and information include, without limitation, statements in the CEO's letter preceding Part I; statements regarding planned capital expenditures under the caption "2025 Capital Plan" in Item 2 of Part I; and statements and information set forth under the captions "2025 Outlook"; "Liquidity and Capital Resources" in Item 7 of Part II regarding our capital plan, share repurchase programs, contractual obligations, "Pension Benefits", and "Other Matters" in this Item 7 of Part II. Forward-looking statements and information also include any other statements or information in this report (including information incorporated herein by reference) regarding: potential impacts of public health crises, including pandemics, epidemics, and the outbreak of other contagious disease, such as COVID; the Russia-Ukraine and Israel-Hamas wars and other geopolitical tensions in the Middle East, and any impacts on our business operations, financial results, liquidity, and financial position, and on the world economy (including customers, employees, and supply chains), including as a result of fluctuations in volumes and carloadings; closing of customer manufacturing, distribution or production facilities; expectations as to operational or service improvements; expectations as to hiring challenges; availability of employees; expectations regarding the effectiveness of steps taken or to be taken to improve operations, service, infrastructure improvements, and transportation plan modifications (including those discussed in response to increased traffic); expectations as to cost savings, revenue growth, and earnings; the time by which goals, targets, aspirations, or objectives will be achieved; projections, predictions, expectations, estimates, or forecasts as to our business, financial, and operational results, future economic performance, and general economic conditions; proposed new products and services; estimates of costs relating to environmental remediation and restoration; estimates and expectations regarding tax matters; estimates and expectations regarding potential tariffs; expectations that claims, litigation, environmental costs, commitments, contingent liabilities, labor negotiations or agreements, cyber-attacks, or other matters will not have a material adverse effect on our consolidated results of operations, financial condition, or liquidity and any other similar expressions concerning matters that are not historical facts. Forward-looking statements may be identified by their use of forward-looking terminology, such as "believes," "expects," "may," "should," "would," "will," "intends," "plans," "estimates," "anticipates," "projects" and similar words, phrases, or expressions.

Forward-looking statements should not be read as a guarantee of future performance, results, or outcomes, and will not necessarily be accurate indications of the times that, or by which, such performance, results or outcomes will be achieved, if ever. Forward-looking statements and information are subject to risks and uncertainties that could cause actual performance or results to differ materially from those expressed in the statements and information. Forward-looking statements and information reflect the good faith consideration by management of currently available information, and may be based on underlying assumptions believed to be reasonable under the circumstances. However, such information and assumptions (and, therefore, such forward-looking statements and information) are or may be subject to variables or unknown or

unforeseeable events or circumstances over which management has little or no influence or control, and many of these risks and uncertainties are currently amplified by and may continue to be amplified by, or in the future may be amplified by, among other things, macroeconomic and geopolitical conditions.

The Risk Factors in Item 1A of this report could affect our future results and could cause those results or other outcomes to differ materially from those expressed or implied in any forward-looking statements or information. To the extent circumstances require or we deem it otherwise necessary, we will update or amend these risk factors in a Form 10-Q, Form 8-K, or subsequent Form 10-K. All forward-looking statements are qualified by, and should be read in conjunction with, these Risk Factors.

Forward-looking statements speak only as of the date the statement was made. We assume no obligation to update forward-looking information to reflect actual results, changes in assumptions, or changes in other factors affecting forward-looking information. If we do update one or more forward-looking statements, no inference should be drawn that we will make additional updates with respect thereto or with respect to other forward-looking statements.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Information concerning market risk sensitive instruments is set forth under Management's Discussion and Analysis of Financial Condition and Results of Operations - Other Matters, Item 7.

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Item 8. Financial Statements and Supplementary Data

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and the Board of Directors of Union Pacific Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated statements of financial position of Union Pacific Corporation and Subsidiary Companies (the "Corporation") as of December 31, 2024 and 2023, the related consolidated statements of income, comprehensive income, changes in common stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2024, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Corporation as of December 31, 2024 and 2023, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2024, in conformity with accounting principles generally accepted in the United States of America.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Corporation's internal control over financial reporting as of December 31, 2024, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 7, 2025, expressed an unqualified opinion on the Corporation's internal control over financial reporting.

Basis for Opinion

These financial statements are the responsibility of the Corporation's management. Our responsibility is to express an opinion on the Corporation's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Corporation in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current-period audit of the financial statements that was communicated or required to be communicated to the audit committee and that (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Capitalization of Properties — Refer to Notes 2 and 11 to the financial statements

Critical Audit Matter Description

The Corporation's operations are highly capital intensive and their large network of assets turns over on a continuous basis. Each year, the Corporation develops a capital program for both the replacement of assets and for the acquisition or construction of new assets. In determining whether costs should be capitalized, the Corporation exercises significant judgment in determining whether expenditures meet the applicable minimum units of property criteria and extend the useful life, improve the safety of operations, or improve the operating efficiency of existing assets. The Corporation capitalizes all costs of capital projects necessary to make assets ready for their intended use and because a portion of the Corporation's assets are self-constructed, management also exercises significant judgment in determining the amount of material, labor, work equipment, and indirect costs that qualify for capitalization. Capitalized costs to Properties, net during 2024 were $3.7 billion.

We identified the capitalization of property during 2024 as a critical audit matter because of the significant judgment exercised by management in determining whether costs meet the criteria for capitalization. This, in turn, required a high degree of auditor judgment when performing audit procedures to evaluate whether the criteria to capitalize costs were met and to evaluate sufficiency of audit evidence to support management's conclusions.

How the Critical Audit Matter Was Addressed in the Audit

Our procedures related to capitalization of property included the following, among others:

- We tested the effectiveness of controls over the Corporation's determination of whether costs related to the Corporation's capital investments should be capitalized or expensed.
- We evaluated the Corporation's capitalization policy in accordance with accounting principles generally accepted in the United States of America.
- For a selection of capital projects, we performed the following:
  - Obtained the Corporation's evaluation of each project and determined whether the amount of costs to be capitalized met the criteria for capitalization as outlined within the Corporation's policy by unit of property.
  - Obtained supporting documentation that the project met the applicable minimum units of property criteria and was approved, and evaluated whether the project extended the useful life of an existing asset, improved the safety of operations, or improved the operating efficiency of existing assets.
- For a selection of capitalized costs during the year, we performed the following:
  - Evaluated whether the individual cost selected met the criteria for capitalization.
  - Evaluated whether the selection was accurately recorded at the appropriate amount based on the evidence obtained.

/s/ Deloitte & Touche LLP

Omaha, Nebraska
February 7, 2025

We have served as the Corporation's auditor since 1967.

CONSOLIDATED STATEMENTS OF INCOME
Union Pacific Corporation and Subsidiary Companies

Millions, Except Per Share Amounts, for the Years Ended December 31,		***2024***	*2023*	*2022*
Operating revenues:				
Freight revenues	**$**	**22,811**	$ 22,571	$ 23,159
Other revenues		**1,439**	1,548	1,716
Total operating revenues		**24,250**	24,119	24,875
Operating expenses:				
Compensation and benefits		**4,899**	4,818	4,645
Purchased services and materials		**2,520**	2,616	2,442
Fuel		**2,474**	2,891	3,439
Depreciation		**2,398**	2,318	2,246
Equipment and other rents		**920**	947	898
Other		**1,326**	1,447	1,288
Total operating expenses		**14,537**	15,037	14,958
Operating income		**9,713**	9,082	9,917
Other income, net (Note 6)		**350**	491	426
Interest expense		**(1,269)**	(1,340)	(1,271)
Income before income taxes		**8,794**	8,233	9,072
Income tax expense (Note 7)		**(2,047)**	(1,854)	(2,074)
Net income	**$**	**6,747**	$ 6,379	$ 6,998
Share and Per Share (Note 8):				
Earnings per share - basic	**$**	**11.10**	$ 10.47	$ 11.24
Earnings per share - diluted	**$**	**11.09**	$ 10.45	$ 11.21
Weighted average number of shares - basic		**607.6**	609.2	622.7
Weighted average number of shares - diluted		**608.6**	610.2	624.0

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME
Union Pacific Corporation and Subsidiary Companies

Millions, for the Years Ended December 31,		***2024***	*2023*	*2022*
Net income	**$**	**6,747**	$ 6,379	$ 6,998
Other comprehensive income/(loss):				
Defined benefit plans		**(14)**	(106)	280
Foreign currency translation		**(95)**	58	52
Unrealized gain on derivative instruments		**-**	16	-
Total other comprehensive income/(loss) [a]		**(109)**	(32)	332
Comprehensive income	**$**	**6,638**	$ 6,347	$ 7,330

[a] Net of deferred taxes of $6 million, $31 million, and ($92) million during 2024, 2023, and 2022, respectively.

The accompanying notes are an integral part of these Consolidated Financial Statements.

PUBLIC VERSION - REDACTED

CONSOLIDATED STATEMENTS OF FINANCIAL POSITION

Union Pacific Corporation and Subsidiary Companies

Millions, Except Share and Per Share Amounts as of December 31,		***2024***		*2023*
Assets				
Current assets:				
Cash and cash equivalents	**$**	**1,016**	$	1,055
Short-term investments (Note 13)		**20**		16
Accounts receivable, net (Note 10)		**1,894**		2,073
Materials and supplies		**769**		743
Other current assets		**322**		261
Total current assets		**4,021**		4,148
Investments		**2,664**		2,605
Properties, net (Note 11)		**58,343**		57,398
Operating lease assets (Note 16)		**1,297**		1,643
Other assets		**1,390**		1,338
Total assets	**$**	**67,715**	$	67,132
Liabilities and Common Shareholders' Equity				
Current liabilities:				
Accounts payable and other current liabilities (Note 12)	**$**	**3,829**	$	3,683
Debt due within one year (Note 14)		**1,425**		1,423
Total current liabilities		**5,254**		5,106
Debt due after one year (Note 14)		**29,767**		31,156
Operating lease liabilities (Note 16)		**925**		1,245
Deferred income taxes (Note 7)		**13,151**		13,123
Other long-term liabilities		**1,728**		1,714
Commitments and contingencies (Note 17)				
Total liabilities		**50,825**		52,344
Common shareholders' equity:				
Common shares, $2.50 par value, 1,400,000,000 authorized; 1,113,018,733 and 1,112,854,806 issued; 604,241,260 and 609,703,814 outstanding, respectively		**2,783**		2,782
Paid-in-surplus		**5,334**		5,193
Retained earnings		**65,628**		62,093
Treasury stock		**(56,132)**		(54,666)
Accumulated other comprehensive loss (Note 9)		**(723)**		(614)
Total common shareholders' equity		**16,890**		14,788
Total liabilities and common shareholders' equity	**$**	**67,715**	$	67,132

The accompanying notes are an integral part of these Consolidated Financial Statements.

PUBLIC VERSION - REDACTED

CONSOLIDATED STATEMENTS OF CASH FLOWS
Union Pacific Corporation and Subsidiary Companies

Millions, for the Years Ended December 31,		***2024***	*2023*	2022
Operating Activities				
Net income	**$**	**6,747**	$ 6,379	$ 6,998
Adjustments to reconcile net income to cash provided by operating activities:				
Depreciation		**2,398**	2,318	2,246
Deferred and other income taxes		**28**	117	262
Other operating activities, net		**(13)**	(132)	(152)
Changes in current assets and liabilities:				
Accounts receivable, net		**179**	(177)	(169)
Materials and supplies		**(26)**	(2)	(120)
Other current assets		**(69)**	(38)	5
Accounts payable and other current liabilities		**189**	(215)	565
Income and other taxes		**(87)**	129	(273)
Cash provided by operating activities		**9,346**	8,379	9,362
Investing Activities				
Capital investments		**(3,452)**	(3,606)	(3,620)
Other investing activities, net		**127**	(61)	149
Cash used in investing activities		**(3,325)**	(3,667)	(3,471)
Financing Activities				
Dividends paid		**(3,213)**	(3,173)	(3,159)
Debt repaid		**(2,226)**	(2,190)	(2,291)
Share repurchase programs (Note 18)		**(1,505)**	(705)	(6,282)
Debt issued (Note 14)		**800**	1,599	6,080
Other financing activities, net		**77**	(156)	(235)
Cash used in financing activities		**(6,067)**	(4,625)	(5,887)
Net change in cash, cash equivalents, and restricted cash		**(46)**	87	4
Cash, cash equivalents, and restricted cash at beginning of year		**1,074**	987	983
Cash, cash equivalents, and restricted cash at end of year	**$**	**1,028**	$ 1,074	$ 987
Supplemental Cash Flow Information				
Non-cash investing and financing activities:				
Capital investments accrued but not yet paid	**$**	**165**	$ 137	$ 152
Cash paid during the year for:				
Income taxes, net of refunds	**$**	**(1,340)**	$ (1,486)	$ (2,060)
Interest, net of amounts capitalized		**(1,260)**	(1,268)	(1,156)

The accompanying notes are an integral part of these Consolidated Financial Statements.

PUBLIC VERSION - REDACTED

CONSOLIDATED STATEMENTS OF CHANGES IN COMMON SHAREHOLDERS' EQUITY

Union Pacific Corporation and Subsidiary Companies

Millions	*Common Shares*	*Treasury Shares*	*Common Shares*	*Paid-in-Surplus*	*Retained Earnings*	*Treasury Stock*	*AOCI [a]*	*Total*
Balance at January 1, 2022	1,112.4	(473.6)	$ 2,781	$ 4,979	$ 55,049	$ (47,734)	$ (914)	$ 14,161
Net income			-	-	6,998	-	-	6,998
Other comprehensive income/(loss)			-	-	-	-	332	332
Conversion, stock option exercises, forfeitures, ESPP, and other	0.2	0.5	1	113	-	-	-	114
Share repurchase programs (Note 18)	-	(27.1)	-	(12)	-	(6,270)	-	(6,282)
Cash dividends declared ($5.08 per share)	-	-	-	-	(3,160)	-	-	(3,160)
Balance at December 31, 2022	1,112.6	(500.2)	$ 2,782	$ 5,080	$ 58,887	$ (54,004)	$ (582)	$ 12,163
Net income			-	-	6,379	-	-	6,379
Other comprehensive income/(loss)			-	-	-	-	(32)	(32)
Conversion, stock option exercises, forfeitures, ESPP, and other	0.3	0.5	-	113	-	50	-	163
Share repurchase programs (Note 18)	-	(3.5)	-	-	-	(712)	-	(712)
Cash dividends declared ($5.20 per share)	-	-	-	-	(3,173)	-	-	(3,173)
Balance at December 31, 2023	1,112.9	(503.2)	$ 2,782	$ 5,193	$ 62,093	$ (54,666)	$ (614)	$ 14,788
Net income			-	-	6,747	-	-	6,747
Other comprehensive income/(loss)			-	-	-	-	(109)	(109)
Conversion, stock option exercises, forfeitures, ESPP, and other	0.1	0.7	1	141	-	49	-	191
Share repurchase programs (Note 18)	-	(6.3)	-	-	-	(1,515)	-	(1,515)
Cash dividends declared ($5.28 per share)	-	-	-	-	(3,212)	-	-	(3,212)
Balance at December 31, 2024	**1,113.0**	**(508.8)**	**$ 2,783**	**$ 5,334**	**$ 65,628**	**$ (56,132)**	**$ (723)**	**$ 16,890**

[a] AOCI = Accumulated Other Comprehensive Income/Loss (Note 9)

The accompanying notes are an integral part of these Consolidated Financial Statements.

NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS
Union Pacific Corporation and Subsidiary Companies

For purposes of this report, unless the context otherwise requires, all references herein to "Union Pacific", “Corporation”, “Company”, “UPC”, “we”, “us”, and “our” mean Union Pacific Corporation and its subsidiaries, including Union Pacific Railroad Company, which will be separately referred to herein as “UPRR” or the “Railroad”.

1. Nature of Operations

Operations and Segmentation – We are a Class I railroad operating in the U.S. Our network includes 32,880 route miles, connecting Pacific Coast and Gulf Coast ports with the Midwest and Eastern U.S. gateways and providing several corridors to key Mexican and Canadian gateways. We own 26,291 miles and operate on the remainder pursuant to trackage rights or leases. We serve the western two-thirds of the country and maintain coordinated schedules with other rail carriers for the handling of freight to and from the Atlantic Coast, the Pacific Coast, the Southeast, the Southwest, Canada, and Mexico. Export and import traffic is moved through Gulf Coast, Pacific Coast, and East Coast ports and across the Mexican and Canadian borders.

The Railroad, along with its subsidiaries and rail affiliates, is our one reportable operating segment. Although we provide and analyze revenues by commodity group, we treat the financial results of the Railroad as one segment due to the integrated nature of our rail network. The accounting policies of the Railroad segment are the same as those described in Note 2 Significant Accounting Policies.

The Company’s Chief Operating Decision Maker (CODM) is our Chief Executive Officer. The CODM assesses performance for our rail network and decides how to allocate resources based on net income as reported on our Consolidated Statements of Income. The measure of segment assets is reported on our Consolidated Statements of Financial Position as total assets.

Our operating revenues are primarily derived from contracts with customers for the transportation of freight from origin to destination.

Although our revenues are principally derived from customers domiciled in the U.S., the ultimate points of origination or destination for some products we transport are outside the U.S. Freight revenues from each of our commodity groups, as described in the table below, includes revenues from shipments to and from Mexico, which amounted to $3.0 billion in 2024, $2.8 billion in 2023, and $2.7 billion in 2022.

Our significant segment expenses as monitored by the CODM are shown in the table below. This breakout of revenues and expenses is used by the CODM to monitor and assess the financial performance of our rail network by comparing actual results to prior years and plans.

Millions		***2024***	*2023*	*2022*
Bulk	**$**	**7,207**	$ 7,358	$ 7,537
Industrial		**8,440**	8,238	8,205
Premium		**7,164**	6,975	7,417
Total freight revenues	**$**	**22,811**	$ 22,571	$ 23,159
Other subsidiary revenues		**788**	872	884
Accessorial revenues		**554**	584	779
Other		**97**	92	53
Total operating revenues	**$**	**24,250**	$ 24,119	$ 24,875
Operating [a]		**6,795**	6,729	6,212
Administrative [a]		**757**	761	700
Locomotive fuel		**2,418**	2,815	3,321
Other segment items [b]		**2,169**	2,414	2,479
Depreciation		**2,398**	2,318	2,246
Other income, net		**(350)**	(491)	(426)
Interest expense		**1,269**	1,340	1,271
Income tax expense		**2,047**	1,854	2,074
Net income	**$**	**6,747**	$ 6,379	$ 6,998

[a] Operating and Administrative includes compensation and benefits, purchased services and materials, equipment and other rents, non-locomotive fuel, and other expenses.

[b] Other segment items includes car hire and leases, casualty costs, state and local taxes, subsidiary expense, and other overhead expense.

Basis of Presentation – The Consolidated Financial Statements are presented in accordance with accounting principles generally accepted in the U.S. (GAAP) as codified in the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC). Certain prior period amounts have been reclassified to conform to the current period financial statement presentation.

2. Significant Accounting Policies

Principles of Consolidation – The Consolidated Financial Statements include the accounts of Union Pacific Corporation and all of its subsidiaries. Investments in affiliated companies (20% to 50% owned) are accounted for using the equity method of accounting. All intercompany transactions are eliminated. We currently have no less than majority-owned investments that require consolidation under variable interest entity requirements.

Cash, Cash Equivalents, and Restricted Cash – Cash equivalents consist of investments with original maturities of three months or less. Amounts included in restricted cash represent those required to be set aside by contractual agreement.

The following table provides a reconciliation of cash, cash equivalents, and restricted cash reported within the Consolidated Statements of Financial Position that sum to the total of the same such amounts shown on the Consolidated Statements of Cash Flows:

Millions		***2024***	*2023*	*2022*
Cash and cash equivalents	**$**	**1,016**	$ 1,055	$ 973
Restricted cash equivalents in other current assets		**4**	10	10
Restricted cash equivalents in other assets		**8**	9	4
Total cash, cash equivalents, and restricted cash equivalents	**$**	**1,028**	$ 1,074	$ 987

Accounts Receivable – Accounts receivable includes receivables reduced by an allowance for doubtful accounts. The allowance is based upon historical losses, credit worthiness of customers, and current economic conditions. Receivables not

expected to be collected in one year and the associated allowances are classified as other assets in our Consolidated Statements of Financial Position.

Investments – Investments represent our investments in affiliated companies (20% to 50% owned) that are accounted for under the equity method of accounting, and investments in companies (less than 20% owned) accounted for at fair value when there is a readily determined fair value or at cost minus impairment when there are not readily determinable fair values. Our portion of income/loss on equity method investments that are integral to our operations are recorded in operating expenses. Realized and unrealized gains and losses on investments that are not integral to our operations are recorded in other income.

Materials and Supplies – Materials and supplies are carried at the lower of average cost or net realizable value.

Property and Depreciation – Properties and equipment are carried at cost and are depreciated on a straight-line basis over their estimated service lives, which are measured in years, except for rail in high-density traffic corridors (i.e., all rail lines except for those lines subject to abandonment, yard tracks, and switching tracks), where lives are measured in millions of gross tons per mile of track. We use the group method of depreciation where all items with similar characteristics, use, and expected lives are grouped together in asset classes and are depreciated using composite depreciation rates. The group method of depreciation treats each asset class as a pool of resources, not as singular items. We determine the estimated service lives of depreciable railroad assets by means of depreciation studies. Under the group method of depreciation, no gain or loss is recognized when depreciable property is retired or replaced in the ordinary course of business.

Impairment of Long-Lived Assets – We review long-lived assets, including identifiable intangibles, for impairment when events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If impairment indicators are present and the estimated future undiscounted cash flows are less than the carrying value of the long-lived assets, the carrying value is reduced to the estimated fair value.

Revenue Recognition – Freight revenues are derived from contracts with customers. We account for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance, and collectability of consideration is probable. Our contracts include private agreements, private rate/letter quotes, public circulars/tariffs, and interline/foreign agreements. The performance obligation in our contracts is typically delivering a specific commodity from a place of origin to a place of destination and our commitment begins with the tendering and acceptance of a freight bill of lading and is satisfied upon delivery at destination. We consider each freight shipment to be a distinct performance obligation.

We recognize freight revenues over time as freight moves from origin to destination. The allocation of revenues between reporting periods is based on the relative transit time in each reporting period with expenses recognized as incurred. Outstanding performance obligations related to freight moves in transit totaled $159 million at December 31, 2024, and $149 million at December 31, 2023, and are expected to be recognized in the following quarter as we satisfy our remaining performance obligations and deliver freight to destination. The transaction price is generally specified in a contract and may be dependent on the commodity, origin/destination, and route. Customer incentives, which are primarily provided for shipping to/from specific locations or based on cumulative volumes, are recorded as a reduction to operating revenues. Customer incentives that include variable consideration based on cumulative volumes are estimated using the expected value method, which is based on available historical, current, and forecasted volumes, and recognized as the related performance obligation is satisfied.

Under typical payment terms, our customers pay us after each performance obligation is satisfied and there are no material contract assets or liabilities associated with our freight revenues. Outstanding freight receivables are presented in our Consolidated Statements of Financial Position as accounts receivable, net.

Freight revenues related to interline transportation services that involve other railroads are reported on a net basis. The portion of the gross amount billed to customers that is remitted by the Company to another party is not reflected as freight revenues.

Other revenues consist primarily of revenues earned by our other subsidiaries (primarily logistics and commuter rail operations) and accessorial revenues. Other subsidiary revenues are generally recognized over time as shipments move from origin to destination. The allocation of revenues between reporting periods is based on the relative transit time in each reporting period with expenses recognized as incurred. Accessorial revenues are recognized at a point in time as performance obligations are satisfied.

Translation of Foreign Currency – Our portion of the assets and liabilities related to foreign investments are translated into U.S. dollars at the exchange rates in effect at the balance sheet date. Revenues and expenses are translated at the average

rates of exchange prevailing during the year. Unrealized gains or losses are reflected within common shareholders' equity as accumulated other comprehensive income or loss.

Fair Value Measurements – We use a fair value hierarchy that prioritizes the inputs to valuation techniques used to measure fair value into three broad levels. The level in the fair value hierarchy within which the fair value measurement in its entirety falls is determined based on the lowest level input that is significant to the fair value measurement in its entirety. These levels include:

Level 1: Quoted market prices in active markets for identical assets or liabilities.
Level 2: Observable market-based inputs or unobservable inputs that are corroborated by market data.
Level 3: Unobservable inputs that are not corroborated by market data.

We have applied fair value measurements to our short-term investments, certain equity investments, pension plan assets, and short- and long-term debt.

Stock-Based Compensation – We issue treasury shares to cover stock option exercises, stock unit vestings, and ESPP shares, while new shares are issued when retention shares are granted.

We measure and recognize compensation expense for all stock-based awards made to employees, including stock options and ESPP awards. Compensation expense is based on the fair value of the awards as measured at the grant date and is expensed ratably over the service period of the awards (generally the vesting period). The fair value of retention awards is the closing stock price on the date of grant, the fair value of stock options is determined by using the Black-Scholes option pricing model, and the fair value of ESPP awards is based on the Company contribution match.

Earnings Per Share – Basic earnings per share are calculated on the weighted-average number of common shares outstanding during each period. Diluted earnings per share include shares issuable upon exercise of outstanding stock options and stock-based awards where the conversion of such instruments would be dilutive.

Income Taxes – We account for income taxes by recording taxes payable or refundable for the current year and deferred tax assets and liabilities for the expected future tax consequences of events that are reported in different periods for financial reporting and income tax purposes. The majority of our deferred tax assets relate to expenses that already have been recorded for financial reporting purposes but not deducted for tax purposes. The majority of our deferred tax liabilities relate to differences between the tax bases and financial reporting amounts of our land and depreciable property, due to accelerated tax depreciation (including bonus depreciation), revaluation of assets in purchase accounting transactions, and differences in capitalization methods. These expected future tax consequences are measured based on current tax law; the effects of future tax legislation are not anticipated.

When appropriate, we record a valuation allowance against deferred tax assets to reflect that these tax assets may not be realized. In determining whether a valuation allowance is appropriate, we consider whether it is more likely than not that all or some portion of our deferred tax assets will not be realized, based on management's judgments using available evidence for purposes of estimating whether future taxable income will be sufficient to realize a deferred tax asset.

We recognize tax benefits that are more likely than not to be sustained upon examination by tax authorities. The amount recognized is measured as the largest amount of benefit that is greater than 50 percent likely to be realized upon settlement. A liability for "unrecognized tax benefits" is recorded for any tax benefits claimed in our tax returns that do not meet these recognition and measurement standards.

Leases – We determine if an arrangement is or contains a lease at inception. Operating lease assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at commencement date. When an implicit rate is not available, we use a collateralized incremental borrowing rate for operating leases based on the information available at commencement date, including lease term, in determining the present value of future payments. The operating lease asset also includes any lease payments made and excludes lease incentives and initial direct costs incurred. Our lease terms may include options to extend or terminate the lease when it is reasonably certain that the option will be exercised. Operating leases are included in operating lease assets, accounts payable and other current liabilities, and operating lease liabilities on our Consolidated Statements of Financial Position. Finance leases are included in properties, net, debt due within one year, and debt due after one year on our Consolidated Statements of Financial Position. Operating lease expense is recognized on a straight-line basis over the lease term and primarily reported in equipment and other rents and financing lease expense is recorded as depreciation and interest expense in our Consolidated Statements of Income.

We have lease agreements with lease and non-lease components, and we have elected to not separate lease and non-lease components for all classes of underlying assets. Leases with an initial term of 12 months or less are not recorded on our Consolidated Statements of Financial Position. Leases with initial terms in excess of 12 months are recorded as operating or financing leases in our Consolidated Statements of Financial Position.

Pension Benefits – In order to measure the expense associated with pension benefits, we must make various assumptions including discount rates used to value certain liabilities, expected return on plan assets used to fund these expenses, compensation increases, employee turnover rates, and anticipated mortality rates. The assumptions used by us are based on our historical experience as well as current facts and circumstances. We use an actuarial analysis to measure the expense and liability associated with these benefits.

Personal Injury – The cost of injuries to employees and others on our property is charged to expense based on estimates of the ultimate cost and number of incidents each year. We use an actuarial analysis to measure the expense and liability, including unasserted claims. Our personal injury liability is not discounted to present value due to the uncertainty surrounding the timing of future payments. Legal fees and incidental costs are expensed as incurred.

Environmental – When environmental issues have been identified with respect to property currently or formerly owned, leased, or otherwise used in the conduct of our business, we perform, with the assistance of our consultants, environmental assessments on such property. We expense the cost of the assessments as incurred. We accrue the cost of remediation where our obligation is probable and such costs can be reasonably estimated. We do not discount our environmental liabilities when the timing of the anticipated cash payments is not fixed or readily determinable. Legal fees and incidental costs are expensed as incurred.

Use of Estimates – The preparation of our Consolidated Financial Statements in conformity with GAAP requires management to make estimates and assumptions that affect certain reported assets and liabilities, the disclosure of certain contingent assets and liabilities as of the date of the Consolidated Financial Statements, as well as the reported amounts of revenues and expenses during the reporting period. Actual future results may differ from such estimates.

3. Accounting Pronouncements

In November 2023, the FASB issued Accounting Standards Update No. (ASU) 2023-07, *Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures*, which requires business entities to enhance disclosures about significant segment expenses. We adopted the ASU effective for fiscal year ended December 31, 2024. The adoption of this ASU only impacted our disclosures. See Note 1 Nature of Operations.

In December 2023, the FASB issued ASU 2023-09, *Income Taxes (Topic 740): Improvements to Income Tax Disclosures*, which requires business entities to expand their annual disclosures of the effective rate reconciliation and income taxes paid. The ASU is effective for fiscal years beginning after December 15, 2024, may be adopted on a prospective or retrospective basis, and early adoption is permitted. The Company is currently evaluating the effect that the new guidance will have on our related disclosures.

In November 2024, the FASB issued ASU 2024-03, *Income Statement - Reporting Comprehensive Income - Expense Disaggregation Disclosures (Subtopic 220-40): Disaggregation of Income Statement Expenses*, which requires disclosure of additional information about specific expense categories in the notes to the financial statements. The ASU is effective for fiscal years beginning after December 15, 2026, and interim periods within fiscal years beginning after December 15, 2027, may be adopted on a prospective or retrospective basis, with early adoption permitted. The Company is currently evaluating the effect that the new guidance will have on our related disclosures.

4. Stock Options and Other Stock Plans

In April 2000, the shareholders approved the Union Pacific Corporation 2000 Directors Plan (Directors Plan) whereby 2,200,000 shares of our common stock were reserved for issuance to our non-employee directors. Under the Directors Plan, each non-employee director, upon his or her initial election to the Board of Directors, received a grant of 4,000 retention shares or retention stock units. In July 2018, the Board of Directors eliminated the retention grant for directors newly elected in 2018 and all future years. As of December 31, 2024, 16,000 restricted shares were outstanding under the Directors Plan.

The Union Pacific Corporation 2013 Stock Incentive Plan (2013 Plan) was approved by shareholders in May 2013. The 2013 Plan reserved 78,000,000 shares of our common stock for issuance, plus any shares subject to awards made under previous plans as of February 28, 2013, that are subsequently cancelled, expired, forfeited, or otherwise not issued under previous plans. Under the 2013 Plan, non-qualified stock options, incentive stock options, retention shares, stock units, and incentive bonus awards may be granted to eligible employees of the Corporation and its subsidiaries. Non-employee directors are not

eligible for awards under the 2013 Plan. As of December 31, 2024, 777,939 stock options and no retention shares and stock units were outstanding under the 2013 Plan. We no longer grant any stock options or other stock or unit awards under this plan.

The Union Pacific Corporation 2021 Stock Incentive Plan (2021 Plan) was approved by shareholders in May 2021. The 2021 Plan reserved 23,000,000 shares of our common stock for issuance, plus any shares subject to awards made under previous plans as of December 31, 2021, that are subsequently cancelled, expired, forfeited, or otherwise not issued under previous plans. Under the 2021 Plan, non-qualified stock options, incentive stock options, retention shares, stock units, and incentive bonus awards may be granted to eligible employees of the Corporation and its subsidiaries. Non-employee directors are not eligible for awards under the 2021 Plan. As of December 31, 2024, 1,203,484 stock options and 1,218,529 retention shares were outstanding under the 2021 Plan.

The Union Pacific Corporation 2021 Employee Stock Purchase Plan (2021 ESPP) was approved by shareholders in May 2021. The 2021 ESPP reserved 10,000,000 shares of our common stock for issuance. Under the 2021 ESPP, eligible employees of the Corporation and its subsidiaries may elect to purchase shares with a Company match award. Non-employee directors are not eligible for awards under the 2021 ESPP. As of December 31, 2024, 1,121,859 shares were issued under the 2021 ESPP.

Pursuant to the above plans 31,063,392; 31,979,909; and 33,185,971 shares of our common stock were authorized and available for grant at December 31, 2024, 2023, and 2022, respectively.

Stock-Based Compensation – We have several stock-based compensation plans where employees receive nonvested stock options, nonvested retention shares, and nonvested stock units. We refer to the nonvested shares and stock units collectively as “retention awards”. Employees may also participate in our ESPP.

Information regarding stock-based compensation expense appears in the table below:

Millions		***2024***		*2023*		*2022*
Stock-based compensation, before tax:						
Stock options	**$**	**18**	$	16	$	14
Retention awards		**77**		71		68
ESPP		**23**		20		17
Total stock-based compensation, before tax	**$**	**118**	$	107	$	99
Excess income tax benefits from equity compensation plans	**$**	**15**	$	11	$	21

Stock Options – Stock options are granted at the closing price on the date of grant, have 10-year contractual terms, and vest no later than 3 years from the date of grant. None of the stock options outstanding at December 31, 2024, is subject to performance or market-based vesting conditions.

The table below shows the annual weighted-average assumptions used for Black-Scholes valuation purposes:

Weighted-Average Assumptions		***2024***		*2023*		*2022*
Risk-free interest rate		**4.2 %**		3.9 %		1.6 %
Dividend yield		**2.1 %**		2.6 %		1.9 %
Expected life (years)		**4.4**		4.5		4.4
Volatility		**28.7 %**		29.3 %		28.7 %
Weighted-average grant-date fair value of options granted	**$**	**61.75**	$	48.31	$	51.92

The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of grant; the expected dividend yield is calculated as the ratio of dividends paid per share of common stock to the stock price on the date of grant; the expected life is based on historical and expected exercise behavior; and expected volatility is based on the historical volatility of our stock price over the expected life of the stock option.

A summary of stock option activity during 2024 is presented below:

	Options (thous.)	*Weighted-Average Exercise Price*	*Weighted-Average Remaining Contractual Term (yrs.)*	*Aggregate Intrinsic Value (millions)*
Outstanding at January 1, 2024	2,072	$ 180.56	5.9	$ 135
Granted	305	248.82	N/A	N/A
Exercised	(347)	146.25	N/A	N/A
Forfeited or expired	(49)	231.93	N/A	N/A
Outstanding at December 31, 2024	1,981	$ 195.81	5.8	$ 74
Vested or expected to vest at December 31, 2024	1,964	$ 195.51	5.8	$ 74
Options exercisable at December 31, 2024	1,392	$ 180.71	4.7	$ 69

At December 31, 2024, there was $15 million of unrecognized compensation expense related to nonvested stock options, which is expected to be recognized over a weighted-average period of 0.8 years. Additional information regarding stock option exercises appears in the following table:

Millions		***2024***	*2023*	*2022*
Intrinsic value of stock options exercised	**$**	**35**	$ 23	$ 53
Cash received from option exercises		**46**	27	27
Treasury shares repurchased for employee payroll taxes		**(8)**	(5)	(8)
Income tax benefit realized from option exercises		**7**	5	8
Aggregate grant-date fair value of stock options vested	**$**	**15**	$ 14	$ 13

Retention Awards – Retention awards are granted at no cost to the employee, vest over periods lasting up to 4 years, and have dividends and dividend equivalents paid to participants during the vesting periods.

Changes in our retention awards during 2024 were as follows:

	Shares (thous.)	*Weighted-Average Grant-Date Fair Value*
Nonvested at January 1, 2024	996	$ 207.76
Granted	213	248.66
Vested	(252)	186.86
Forfeited	(42)	219.41
Nonvested at December 31, 2024	915	$ 222.50

At December 31, 2024, there was $70 million of total unrecognized compensation expense related to nonvested retention awards, which is expected to be recognized over a weighted-average period of 1.1 years.

Performance Stock Unit Awards – In February 2024, our Board of Directors approved performance stock unit grants. This plan is based on performance targets for annual return on invested capital (ROIC) and operating income growth (OIG) compared to companies in the S&P 100 Industrials Index plus the Class I railroads. We define ROIC as net operating profit adjusted for interest expense (including interest on average operating lease liabilities) and taxes on interest divided by average invested capital adjusted for average operating lease liabilities.

The February 2024 stock units awarded to executives are subject to continued employment for 37 months, the attainment of certain levels of ROIC, and the relative three-year OIG. We expense two-thirds of the fair value of the units that are probable of being earned based on our forecasted ROIC over the three-year performance period, and with respect to the third year of the plan, we expense the remaining one-third of the fair value subject to the relative three-year OIG. We measure the fair value of performance stock units based upon the closing price of the underlying common stock as of the date of grant. Dividend equivalents are accumulated during the service period and paid to participants only after the units are earned.

Changes in our performance stock unit awards during 2024 were as follows:

	Shares (thous.)	*Weighted-Average Grant-Date Fair Value*
Nonvested at January 1, 2024	617	$ 204.50
Granted	227	248.82
Vested	(119)	204.67
Unearned	(70)	204.45
Forfeited	(48)	229.39
Nonvested at December 31, 2024	607	$ 219.08

At December 31, 2024, there was $15 million of total unrecognized compensation expense related to nonvested performance stock unit awards, which is expected to be recognized over a weighted-average period of 1.1 years. This expense is subject to achievement of the performance measures established for the performance stock unit grants.

Employee Stock Purchase Plan – Employee and Company contributions are used to issue treasury shares the month after employee contributions are withheld based on the settlement date closing price. The Company matches 40% contributed by the employee up to a maximum employee contribution of 5% of monthly salary (limited to $15,000 annually). We expense the Company contributions in the month the employee services were rendered (i.e., the month the employee contributions were withheld).

5. Retirement Plans

Pension Benefits

We provide defined benefit retirement income to eligible non-union employees through qualified and non-qualified (supplemental) pension plans. Qualified and non-qualified pension benefits are based on years of service and the highest compensation during the latest years of employment, with specific reductions made for early retirements. Non-union employees hired on or after January 1, 2018, are no longer eligible for pension benefits, but are eligible for an enhanced 401(k) benefit as described below in other retirement programs.

Funded Status

We are required by GAAP to separately recognize the overfunded or underfunded status of our pension plans as an asset or liability. The funded status represents the difference between the projected benefit obligation (PBO) and the fair value of the plan assets. Our non-qualified (supplemental) pension plan is unfunded by design. The PBO of the pension plans is the present value of benefits earned to date by plan participants, including the effect of assumed future compensation increases. Plan assets are measured at fair value. We use a December 31 measurement date for plan assets and obligations for all our retirement plans.

Changes in our PBO and plan assets were as follows for the years ended December 31:

Funded Status			
Millions		***2024***	*2023*
Projected Benefit Obligation			
Projected benefit obligation at beginning of year	**$**	**3,880**	$ 3,725
Service cost		**52**	52
Interest cost		**186**	187
Actuarial loss/(gain)		**(269)**	146
Gross benefits paid		**(336)**	(230)
Projected benefit obligation at end of year	**$**	**3,513**	$ 3,880
Plan Assets			
Fair value of plan assets at beginning of year	**$**	**4,400**	$ 4,363
Actual return/(loss) on plan assets		**(28)**	235
Non-qualified plan benefit contributions		**32**	32
Gross benefits paid		**(336)**	(230)
Fair value of plan assets at end of year	**$**	**4,068**	$ 4,400
Funded status at end of year	**$**	**555**	$ 520

Actuarial gains that decrease the PBO were driven by an increase in 2024 discount rates from 5.00% to 5.61%. Actuarial losses that increase the PBO were driven by a decrease in 2023 discount rates from 5.21% to 5.00%.

Amounts recognized in the statement of financial position as of December 31, 2024 and 2023, consist of:

Millions		***2024***	*2023*
Noncurrent assets	**$**	**950**	$ 924
Current liabilities		**(32)**	(31)
Noncurrent liabilities		**(363)**	(373)
Net amounts recognized at end of year	**$**	**555**	$ 520

Pre-tax amounts recognized in accumulated other comprehensive income/loss consist of $644 million and $643 million net actuarial loss as of December 31, 2024 and 2023, respectively.

Pre-tax changes recognized in other comprehensive income/loss as of December 31, 2024, 2023, and 2022, were as follows:

Millions		***2024***	*2023*	*2022*
Net actuarial (loss)/gain	**$**	**(11)**	$ (159)	$ 272
Amortization of:				
Actuarial loss		**11**	9	86
Total	**$**	**-**	$ (150)	$ 358

Underfunded Accumulated Benefit Obligation – The accumulated benefit obligation (ABO) is the present value of benefits earned to date, assuming no future compensation growth. The underfunded accumulated benefit obligation represents the difference between the ABO and the fair value of plan assets.

The following table discloses only the PBO, ABO, and fair value of plan assets for pension plans where the accumulated benefit obligation is in excess of the fair value of the plan assets as of December 31:

Underfunded Accumulated Benefit Obligation				
Millions			***2024***	*2023*
Projected benefit obligation	**$**	**395**	$	404
Accumulated benefit obligation	**$**	**389**	$	399
Fair value of plan assets		**-**		-
Underfunded accumulated benefit obligation	**$**	**(389)**	$	(399)

The ABO for all defined benefit pension plans was $3.3 billion and $3.6 billion at December 31, 2024 and 2023, respectively.

Assumptions – The weighted-average actuarial assumptions used to determine benefit obligations at December 31:

Percentages	**2024**	*2023*
Discount rate	**5.61 %**	5.00 %
Compensation increase	**4.00 %**	4.00 %

Expense

Pension expense is determined based upon the annual service cost of benefits (the actuarial cost of benefits earned during a period) and the interest cost on those liabilities, less the expected return on plan assets. The expected long-term rate of return on plan assets is applied to a calculated value of plan assets that recognizes changes in fair value over a 5-year period. This practice is intended to reduce year-to-year volatility in pension expense, but it can have the effect of delaying the recognition of differences between actual returns on assets and expected returns based on long-term rate of return assumptions. Differences in actual experience in relation to assumptions are not recognized in net income immediately but are deferred in accumulated other comprehensive income/loss and, if necessary, amortized as pension expense.

The components of our net periodic pension benefit/cost were as follows for the years ended December 31:

Millions		**2024**	*2023*	2022
Service cost	**$**	**52**	$ 52	$ 93
Interest cost		**186**	187	123
Expected return on plan assets		**(252)**	(248)	(293)
Amortization of actuarial loss		**11**	9	86
Net periodic pension (benefit)/cost	**$**	**(3)**	$ -	$ 9

Assumptions – The weighted-average actuarial assumptions used to determine expense were as follows:

Percentages	***2024***	*2023*	*2022*
Discount rate for benefit obligations	**5.00 %**	5.21 %	2.80 %
Discount rate for interest on benefit obligations	**4.91 %**	5.14 %	2.40 %
Discount rate for service cost	**5.05 %**	5.19 %	2.91 %
Discount rate for interest on service cost	**5.02 %**	5.21 %	2.86 %
Expected return on plan assets	**5.25 %**	5.25 %	6.25 %
Compensation increase	**4.00 %**	4.10 %	4.10 %

We measure the service cost and interest cost components of our net periodic pension benefit/cost by using individual spot discount rates matched with separate cash flows for each future year. The discount rates were based on a yield curve of high-quality corporate bonds. The expected return on plan assets is based on our asset allocation mix and our historical return, taking into account current and expected market conditions.

Cash Contributions

The following table details cash contributions, if any, for the qualified and non-qualified (supplemental) pension plans:

Millions	*Qualified*	*Non-qualified*
2024	$ -	$ 32
2023	$ -	$ 32

Our policy with respect to funding the qualified pension plans is to fund at least the minimum required by law and not more than the maximum amount deductible for tax purposes.

The non-qualified pension plan is not funded and is not subject to any minimum regulatory funding requirements. Benefit payments for each year represent supplemental pension payments. We anticipate our 2025 supplemental pension payments will be made from cash generated from operations.

Benefit Payments

The following table details expected benefit payments for the years 2025 through 2034:

Millions	
2025	$ 231
2026	230
2027	230
2028	230
2029	231
Years 2030 - 2034	$ 1,177

Asset Allocation Strategy

Our pension plan asset allocation at December 31, 2024 and 2023, and target allocation for 2025, are as follows:

	Target Allocation 2025	*Percentage of Plan Assets December 31,*	
		2024	*2023*
Equity securities	20% to 30%	**24 %**	24 %
Debt securities	70% to 80%	**75**	75
Real estate	0% to 2%	**1**	1
Total		**100 %**	100 %

The pension plan investments are held in a master trust. The investment strategy for pension plan assets is to maintain a broadly diversified portfolio designed to achieve our target average long-term rate of return of 5.25%. While we believe we can achieve a long-term average rate of return of 5.25%, we cannot be certain that the portfolio will perform to our expectations. Assets are strategically allocated among equity, debt, and other investments in order to achieve a diversification level that reduces fluctuations in investment returns. Asset allocation target ranges for equity, debt, and other portfolios are evaluated at least every three years with the assistance of an independent consulting firm. Actual asset allocations are monitored monthly, and rebalancing actions are executed at least quarterly, as needed.

The average credit rating of the debt portfolio was AA- at both December 31, 2024 and 2023. The debt portfolio is also broadly diversified and invested primarily in U.S. Treasury, mortgage, and corporate securities. The weighted-average maturity of the debt portfolio was 22 years at both December 31, 2024 and 2023.

The investment of pension plan assets in securities issued by UPC is explicitly prohibited by the plan for both the equity and debt portfolios, other than through index fund holdings.

Fair Value Measurements

The pension plan assets are valued at fair value. The following is a description of the valuation methodologies used for the investments measured at fair value, including the general classification of such instruments pursuant to the valuation hierarchy.

Federal Government Securities – Federal Government Securities consist of bills, notes, bonds, and other fixed income securities issued directly by the U.S. Treasury or by government-sponsored enterprises. These assets are valued using a bid evaluation process with bid data provided by independent pricing sources. Federal Government Securities are classified as Level 2 investments.

Bonds and Debentures – Bonds and debentures consist of debt securities issued by U.S. and non-U.S. corporations as well as state and local governments. These assets are valued using a bid evaluation process with bid data provided by independent pricing sources. Corporate, state, and municipal bonds and debentures are classified as Level 2 investments.

Corporate Stock – This investment category consists of common and preferred stock issued by U.S. and non-U.S. corporations. Most common shares are traded actively on exchanges and price quotes for these shares are readily available. Common stock is classified as a Level 1 investment. Preferred shares included in this category are valued using a bid evaluation process with bid data provided by independent pricing sources. Preferred stock is classified as a Level 2 investment.

Venture Capital and Buyout Partnerships – This investment category is comprised of interests in limited partnerships that invest primarily in privately-held companies. Due to the private nature of the partnership investments, pricing inputs are not readily observable. Asset valuations are developed by the general partners that manage the partnerships. These valuations are based on the application of public market multiples to private company cash flows, market transactions that provide valuation information for comparable companies, and other methods. The fair value recorded by the plan is calculated using each partnership's net asset value (NAV).

Real Estate Funds – The plan's real estate investments are primarily interests in private real estate investment trusts, partnerships, limited liability companies, and similar structures. Valuations for the holdings in this category are not based on readily observable inputs and are primarily derived from property appraisals. The fair value recorded by the plan is calculated using the NAV for each investment.

Collective Trust and Other Funds – Collective trust and other funds are comprised of shares or units in commingled funds and limited liability companies that are not publicly traded. The underlying assets in these entities (global stock funds and short-term investment funds) are publicly traded on exchanges and price quotes for the assets held by these funds are readily available. The fair value recorded by the plan is calculated using NAV for each investment.

As of December 31, 2024, the pension plan assets measured at fair value on a recurring basis were as follows:

Millions	*Quoted Prices in Active Markets for Identical Inputs (Level 1)*	*Significant Other Observable Inputs (Level 2)*	*Significant Unobservable Inputs (Level 3)*	*Total*
Plan assets at fair value:				
Federal government securities	$ -	$ 1,448	$ -	$ 1,448
Bonds and debentures	-	1,512	-	1,512
Corporate stock	220	6	-	226
Total plan assets at fair value	$ 220	$ 2,966	$ -	$ 3,186
Plan assets at NAV:				
Venture capital and buyout partnerships				446
Real estate funds				26
Collective trust and other funds				370
Total plan assets at NAV				$ 842
Other assets/(liabilities) [a]				40
Total plan assets				$ 4,068

As of December 31, 2023, the pension plan assets measured at fair value on a recurring basis were as follows:

Millions	*Quoted Prices in Active Markets for Identical Inputs (Level 1)*	*Significant Other Inputs (Level 2)*	*Significant Unobservable Inputs (Level 3)*	*Total*
Plan assets at fair value:				
Federal government securities	$ -	$ 1,508	$ -	$ 1,508
Bonds and debentures	-	1,696	-	1,696
Corporate stock	176	5	-	181
Total plan assets at fair value	$ 176	$ 3,209	$ -	$ 3,385
Plan assets at NAV:				
Venture capital and buyout partnerships				554
Real estate funds				30
Collective trust and other funds				382
Total plan assets at NAV				$ 966
Other assets/(liabilities) [a]				49
Total plan assets				$ 4,400

[a] Includes accrued receivables, net payables, and pending broker settlements.

The master trust's investments in limited partnerships and similar structures (used to invest in private equity and real estate) are valued at fair value based on their proportionate share of the partnerships' fair value as recorded in the limited partnerships' audited financial statements. The limited partnerships allocate gains, losses, and expenses to the partners based on the ownership percentage as described in the partnership agreements.

Other Retirement Programs

Other Post-Retirement Benefits – We provide medical and life insurance benefits for eligible retirees hired before January 1, 2004. These benefits are funded as medical claims and life insurance premiums are paid. OPEB expense is determined based upon the annual service cost of benefits and the interest cost on those liabilities plus amortization of net (gain)/loss amounts offset by amortization of prior service credits recorded in AOCI. Our OPEB liability was $104 million at both December 31, 2024 and 2023. The liability is based on discount rate assumptions of 5.53% and 4.97% at December 31,

2024 and 2023, respectively. OPEB net periodic (benefit)/cost was ($5) million in 2024, ($7) million in 2023, and ($2) million in 2022.

401(k)/Thrift Plan – For non-union employees hired prior to January 1, 2018, and eligible union employees for whom we make matching contributions, we provide a defined contribution plan (401(k)/thrift plan). We match 50% for each dollar contributed by employees up to the first 6% of compensation contributed. For non-union employees hired on or after January 1, 2018, we match 100% for each dollar, up to the first 6% of compensation contributed, in addition to contributing an annual amount of 3% of the employee's annual base salary. Our plan contributions were $28 million in 2024, $27 million in 2023, and $24 million in 2022.

Railroad Retirement System – All Railroad employees are covered by the Railroad Retirement System (the System). Contributions made to the System are expensed as incurred and amounted to approximately $671 million in 2024, $711 million in 2023, and $586 million in 2022.

Collective Bargaining Agreements – Under collective bargaining agreements, we participate in multi-employer benefit plans that provide certain post retirement health care and life insurance benefits for eligible union employees. Premiums paid under these plans are expensed as incurred and amounted to $12 million in 2024, $16 million in 2023, and $20 million in 2022.

6. Other Income

Other income included the following for the years ended December 31:

Millions		***2024***	*2023*	*2022*
Real estate income [a]	**$**	**263**	$ 414	$ 381
Net periodic pension benefit/(costs)		**55**	52	84
Interest income [b]		**52**	52	23
Non-operating property environmental remediation and restoration		**(37)**	(37)	(47)
Interest from IRS refund claims		**24**	-	-
Other [b]		**(7)**	10	(15)
Total	**$**	**350**	$ 491	$ 426

[a] 2023 includes a one-time $107 million transaction. 2022 includes a $79 million gain from a land sale to the Illinois State Toll Highway Authority and a $35 million gain from a sale to the Colorado Department of Transportation.

[b] Prior periods have been reclassified to conform to the current period disclosure.

7. Income Taxes

Components of income tax expense were as follows for the years ended December 31:

Millions		***2024***	*2023*	*2022*
Current tax expense:				
Federal	**$**	**1,649**	$ 1,417	$ 1,465
State		**359**	314	340
Foreign		**11**	6	7
Total current tax expense		**2,019**	1,737	1,812
Deferred and other tax expense/(benefit):				
Federal		**47**	219	320
State [a]		**(24)**	(104)	(59)
Foreign		**5**	2	1
Total deferred and other tax expense		**28**	117	262
Total income tax expense	**$**	**2,047**	$ 1,854	$ 2,074

[a] In 2024, Louisiana and Arkansas enacted corporate income tax legislation that resulted in a $34 million reduction of our deferred tax expense. In 2023, Nebraska, Iowa, Kansas, and Arkansas enacted corporate income tax legislation that resulted in a $114 million reduction of our deferred tax expense. In 2022, Nebraska, Iowa, Arkansas, and Idaho enacted corporate income tax legislation that resulted in a $95 million reduction of our deferred tax expense.

For the years ended December 31, reconciliations between statutory and effective tax rates are as follows:

Tax Rate Percentages	***2024***	*2023*	*2022*
Federal statutory tax rate	**21.0 %**	21.0 %	21.0 %
State statutory rates, net of federal benefits	**3.2**	3.4	3.6
Dividends received deduction	**(0.5)**	(0.6)	(0.5)
Excess tax benefits from equity compensation plans	**(0.2)**	(0.1)	(0.2)
Deferred tax adjustments	**-**	(1.2)	(1.0)
Other [a]	**(0.2)**	-	-
Effective tax rate	**23.3 %**	22.5 %	22.9 %

[a] The effective income tax rate for 2024 includes tax benefits from purchases of federal tax credits.

Deferred income tax assets/(liabilities) were comprised of the following at December 31:

Millions		***2024***	*2023*
Deferred income tax liabilities:			
Property	**$**	**(13,020)**	$ (12,987)
Operating lease assets		**(314)**	(404)
Other		**(581)**	(556)
Total deferred income tax liabilities		**(13,915)**	(13,947)
Deferred income tax assets:			
Operating lease liabilities		**308**	394
Accrued casualty costs		**172**	168
Accrued wages		**51**	50
Stock compensation		**28**	26
Other		**205**	186
Total deferred income tax assets		**764**	824
Net deferred income tax liability	**$**	**(13,151)**	$ (13,123)

In 2024 and 2023, there were no valuation allowances against deferred tax assets.

A reconciliation of changes in unrecognized tax benefits liabilities/(assets) from the beginning to the end of the reporting period is as follows:

Millions		***2024***	*2023*	*2022*
Unrecognized tax benefits at January 1	**$**	**30**	$ 34	$ 38
Refunds from/(payments to) and settlements with taxing authorities		**7**	-	-
Decreases for positions taken in prior years		**(6)**	(1)	(4)
Increases/(decreases) for interest and penalties		**1**	-	-
Lapse of statutes of limitations		**-**	(4)	(3)
Increases for positions taken in current year		**-**	1	3
Unrecognized tax benefits at December 31	**$**	**32**	$ 30	$ 34

We recognize interest and penalties as part of income tax expense. Total accrued liabilities/(receivables) for interest and penalties were $4 million and ($4) million at December 31, 2024 and 2023, respectively. Total interest and penalties recognized as part of income tax expense/(benefit) were $1 million for 2024, ($1) million for 2023, and ($2) million for 2022.

Several state tax authorities are examining our state income tax returns for years 2018 through 2023.

We do not expect our unrecognized tax benefits to change significantly in the next 12 months. The portion of our unrecognized tax benefits that relates to permanent changes in tax and interest would reduce our effective tax rate, if recognized. The remaining unrecognized tax benefits relate to tax positions for which only the timing of the benefit is

uncertain. The unrecognized tax benefits that would reduce our effective tax rate are $32 million for 2024, $30 million for 2023, and $31 million for 2022.

8. Earnings Per Share

The following table provides a reconciliation between basic and diluted earnings per share for the years ended December 31:

Millions, Except Per Share Amounts		***2024***	*2023*	*2022*
Net income	**$**	**6,747**	$ 6,379	$ 6,998
Weighted-average number of shares outstanding:				
Basic		**607.6**	609.2	622.7
Dilutive effect of stock options		**0.4**	0.4	0.6
Dilutive effect of retention shares and units		**0.6**	0.6	0.7
Diluted		**608.6**	610.2	624.0
Earnings per share - basic	**$**	**11.10**	$ 10.47	$ 11.24
Earnings per share - diluted	**$**	**11.09**	$ 10.45	$ 11.21

Common stock options totaling 0.6 million, 0.9 million, and 0.3 million for 2024, 2023, and 2022, respectively, were excluded from the computation of diluted earnings per share because the exercise prices of these stock options exceeded the average market price of our common stock for the respective periods, and the effect of their inclusion would be anti-dilutive.

9. Accumulated Other Comprehensive Income/Loss

Reclassifications out of accumulated other comprehensive income/loss were as follows (net of tax):

Millions	*Defined benefit plans*	*Foreign currency translation*	*Unrealized gain on derivative instruments [a]*	*Total*
Balance at January 1, 2024	$ (484)	$ (146)	$ 16	$ (614)
Other comprehensive income/(loss) before reclassifications	2	(95)	-	(93)
Amounts reclassified from accumulated other comprehensive income/(loss) [b]	(16)	-	-	(16)
Net year-to-date other comprehensive income/(loss), net of taxes of $6 million	(14)	(95)	-	(109)
Balance at December 31, 2024	$ (498)	$ (241)	$ 16	$ (723)
Balance at January 1, 2023	$ (378)	$ (204)	$ -	$ (582)
Other comprehensive income/(loss) before reclassifications	5	58	16	79
Amounts reclassified from accumulated other comprehensive income/(loss) [b]	(111)	-	-	(111)
Net year-to-date other comprehensive income/(loss), net of taxes of $31 million	(106)	58	16	(32)
Balance at December 31, 2023	$ (484)	$ (146)	$ 16	$ (614)

[a] Related to interest rate swaps from equity method investments.

[b] The accumulated other comprehensive income/loss reclassification components are 1) prior service cost/credit and 2) net actuarial loss, which are both included in the computation of net periodic pension benefit/cost. See Note 5 Retirement Plans for additional details.

10. Accounts Receivable

Accounts receivable include freight and other receivables reduced by an allowance for doubtful accounts. At December 31, 2024 and 2023, our accounts receivable were reduced by $6 million and $9 million, respectively. Receivables not expected to be collected in one year and the associated allowances are classified as other assets in our Consolidated Statements of Financial Position. At December 31, 2024 and 2023, receivables classified as other assets were reduced by allowances of $69 million and $71 million, respectively.

Receivables Securitization Facility – The Railroad maintains an $800 million, 3-year receivables securitization facility (the Receivables Facility) maturing in July 2025. Under the Receivables Facility, the Railroad sells most of its eligible third-party receivables to Union Pacific Receivables, Inc. (UPRI), a consolidated, wholly-owned, bankruptcy-remote subsidiary that may subsequently transfer, without recourse, an undivided interest in accounts receivable to investors. The investors have no recourse to the Railroad's other assets except for customary warranty and indemnity claims. Creditors of the Railroad do not have recourse to the assets of UPRI.

The amount recorded under the Receivables Facility was $0 at both December 31, 2024 and 2023. During the year ended December 31, 2024, we issued $800 million and repaid $800 million under the Receivables Facility. The Receivables Facility was supported by $1.6 billion and $1.7 billion of accounts receivable as collateral at December 31, 2024 and 2023, respectively, which, as a retained interest, is included in accounts receivable, net in our Consolidated Statements of Financial Position.

The outstanding amount the Railroad maintains under the Receivables Facility may fluctuate based on current cash needs. The maximum allowed under the Receivables Facility is $800 million with availability directly impacted by eligible receivables, business volumes, and credit risks, including receivables payment quality measures such as default and dilution ratios. If default or dilution ratios increase one percent, the allowable outstanding amount under the Receivables Facility would not materially change.

The costs of the Receivables Facility include interest, which will vary based on prevailing benchmark and commercial paper rates, program fees paid to participating banks, commercial paper issuance costs, and fees of participating banks for unused commitment availability. The costs of the Receivables Facility are included in interest expense and were $8 million, $9 million, and $10 million for 2024, 2023, and 2022, respectively.

11. Properties

The following tables list the major categories of property and equipment as well as the weighted-average estimated useful life for each category (in years):

Millions, Except Estimated Useful Life *As of December 31, 2024*	*Cost*	*Accumulated Depreciation*	*Net Book Value*	*Estimated Useful Life*
Land	$ 5,441	N/A	$ 5,441	N/A
Road:				
Rail and other track material	19,283	$ 7,642	11,641	46
Ties	12,358	4,109	8,249	34
Ballast	6,495	2,182	4,313	34
Other roadway [a]	23,913	5,681	18,232	47
Total road	62,049	19,614	42,435	N/A
Equipment:				
Locomotives	9,517	3,724	5,793	18
Freight cars	3,011	1,037	1,974	22
Work equipment and other [b]	1,222	482	740	17
Total equipment	13,750	5,243	8,507	N/A
Technology and other	1,431	640	791	12
Construction in progress	1,169	-	1,169	N/A
Total	$ 83,840	$ 25,497	$ 58,343	N/A

[a] Other roadway includes grading, bridges and tunnels, signals, buildings, and other road assets.

[b] For retirements of depreciable railroad properties that do not occur in the normal course of business, a gain or loss may be recognized if the retirement meets each of the following three conditions: (a) is unusual, (b) is material in amount, and (c) varies significantly from the retirement profile identified through our depreciation studies. In the second quarter of 2024, we sold a large portion of an intermodal equipment asset class resulting in a $46 million gain recognized in other expense in our Consolidated Statements of Income.

Millions, Except Estimated Useful Life *As of December 31, 2023*	*Cost*	*Accumulated Depreciation*	*Net Book Value*	*Estimated Useful Life*
Land	$ 5,426	N/A	$ 5,426	N/A
Road:				
Rail and other track material	18,837	$ 7,344	11,493	42
Ties	11,985	3,895	8,090	34
Ballast	6,345	2,061	4,284	34
Other roadway [a]	23,175	5,368	17,807	47
Total road	60,342	18,668	41,674	N/A
Equipment:				
Locomotives	9,295	3,591	5,704	18
Freight cars	2,765	956	1,809	23
Work equipment and other	1,344	546	798	17
Total equipment	13,404	5,093	8,311	N/A
Technology and other	1,388	574	814	12
Construction in progress	1,173	-	1,173	N/A
Total	$ 81,733	$ 24,335	$ 57,398	N/A

[a] Other roadway includes grading, bridges and tunnels, signals, buildings, and other road assets.

Property and Depreciation – Our railroad operations are highly capital-intensive, and our large base of homogeneous, network-type assets turns over on a continuous basis. Each year we develop a capital program for the replacement of assets and for the acquisition or construction of assets that enable us to enhance our operations or provide new service offerings to customers. We currently have more than 60 depreciable asset classes, and we may increase or decrease the number of asset classes due to changes in technology, asset strategies, or other factors.

We determine the estimated service lives of depreciable railroad assets by means of depreciation studies. We perform depreciation studies at least every 3 years for equipment and every 6 years for track assets (i.e., rail and other track material, ties, and ballast) and other road property. Our depreciation studies take into account the following factors:

- Statistical analysis of historical patterns of use and retirements of each of our asset classes,
- Evaluation of any expected changes in current operations and the outlook for continued use of the assets,
- Evaluation of technological advances and changes to maintenance practices, and
- Expected salvage to be received upon retirement.

For rail in high-density traffic corridors, we measure estimated service lives in millions of gross tons per mile of track. It has been our experience that the lives of rail in high-density traffic corridors are closely correlated to usage (i.e., the amount of weight carried over the rail). The service lives also vary based on rail weight, rail condition (e.g., new or secondhand), and rail type (e.g., straight or curve). Our depreciation studies for rail in high-density traffic corridors consider each of these factors in determining the estimated service lives. For rail in high-density traffic corridors, we calculate depreciation rates annually by dividing the number of gross ton-miles carried over the rail (i.e., the weight of loaded and empty freight cars, locomotives, and maintenance of way equipment transported over the rail) by the estimated service lives of the rail measured in millions of gross tons per mile. For all other depreciable assets, we compute depreciation based on the estimated service lives of our assets as determined from the analysis of our depreciation studies. Changes in the estimated service lives of our assets and their related depreciation rates are implemented prospectively.

Under the group method of depreciation, the historical cost (net of salvage) of depreciable property that is retired or replaced in the ordinary course of business is charged to accumulated depreciation and no gain or loss is recognized. The historical cost of certain track assets is estimated by multiplying the current replacement cost of track assets by a historical index factor derived from (a) inflation indices published by the Bureau of Labor Statistics and (b) the estimated useful lives of the assets as determined by our depreciation studies. The indices were selected because they closely correlate with the major costs of the properties comprising the applicable track asset classes. Because of the number of estimates inherent in the depreciation and retirement processes and because it is impossible to precisely estimate each of these variables until a group of property is completely retired, we continually monitor the estimated service lives of our assets and the accumulated depreciation associated with each asset class to ensure our depreciation rates are appropriate. In addition, we determine if the recorded amount of accumulated depreciation is deficient (or in excess) of the amount indicated by our depreciation studies. Any

deficiency (or excess) is amortized as a component of depreciation expense over the remaining service lives of the applicable classes of assets.

For retirements of depreciable railroad properties that do not occur in the normal course of business, a gain or loss may be recognized if the retirement meets each of the following three conditions: (a) is unusual, (b) is material in amount, and (c) varies significantly from the retirement profile identified through our depreciation studies. A gain or loss is recognized in other income when we sell land or dispose of assets that are not part of our railroad operations.

In 2024, we sold a large portion of an intermodal equipment asset class resulting in a gain recognized in other expense in our Consolidated Statements of Income. No gains or losses were recognized due to the retirement of depreciable railroad properties in 2023 or 2022.

We review construction in progress assets that have not yet been placed into service, for impairment when events or changes in circumstances indicate that the carrying amount of a long-lived asset or assets may not be recoverable. If impairment indicators are present and the estimated future undiscounted cash flows are less than the carrying value of construction in progress assets when grouped with other assets and liabilities at the lowest level where identifiable cash flows are largely independent, the carrying value is reduced to the estimated fair value.

When we purchase an asset, we capitalize all costs necessary to make the asset ready for its intended use. However, many of our assets are self-constructed. A large portion of our capital expenditures is for replacement of existing track assets and other road properties, which is typically performed by our employees, and for track line expansion and other capacity projects. Costs that are directly attributable to capital projects (including overhead costs) are capitalized. Direct costs that are capitalized as part of self-constructed assets include material, labor, and work equipment. Indirect costs are capitalized if they clearly relate to the construction of the asset.

Costs incurred that extend the useful life of an asset, improve the safety of our operations, or improve operating efficiency are capitalized, while normal repairs and maintenance are expensed as incurred. Total expense for repairs and maintenance incurred was approximately $2.3 billion for 2024, $2.5 billion for 2023, and $2.4 billion for 2022.

Assets held under finance leases are recorded at the lower of the net present value of the minimum lease payments or the fair value of the leased asset at the inception of the lease. Amortization expense is computed using the straight-line method over the shorter of the estimated useful lives of the assets or the period of the related lease.

12. Accounts Payable and Other Current Liabilities

Millions		***Dec.31, 2024***		*Dec.31, 2023*
Accounts payable	**$**	**847**	$	856
Compensation-related accruals		**618**		533
Income and other taxes payable		**605**		685
Interest payable		**372**		389
Current operating lease liabilities (Note 16)		**346**		355
Accrued casualty costs		**319**		307
Equipment rents payable		**109**		98
Other		**613**		460
Total accounts payable and other current liabilities	**$**	**3,829**	$	3,683

13. Financial Instruments

Short-Term Investments – All of the Company's short-term investments consist of time deposits and government agency securities. These investments are considered Level 2 investments and are valued at amortized cost, which approximates fair value. As of December 31, 2024 and 2023, the Company had $20 million and $16 million of short-term investments, respectively. All short-term investments have a maturity of less than one year and are classified as held-to-maturity.

Fair Value of Financial Instruments – The fair value of our short- and long-term debt was estimated using a market value price model, which utilizes applicable U.S. Treasury rates along with current market quotes on comparable debt securities. All of the inputs used to determine the fair market value of the Corporation's long-term debt are Level 2 inputs and obtained from an independent source. At December 31, 2024, the fair value of total debt was $25.3 billion, approximately $5.9 billion less

than the carrying value. At December 31, 2023, the fair value of total debt was $28.5 billion, approximately $4.1 billion less than the carrying value. The fair value of the Corporation's debt is a measure of its current value under present market conditions. The fair value of our cash equivalents approximates their carrying value due to the short-term maturities of these instruments.

14. Debt

Total debt as of December 31, 2024 and 2023, is summarized below:

Millions		***2024***		*2023*
Notes and debentures, 2.2% to 7.1% due through February 14, 2072	**$**	**32,044**	$	33,383
Equipment obligations, 2.6% to 6.2% due through January 2, 2031 [a]		**732**		770
Finance leases, 3.1% to 6.8% due through December 10, 2028		**109**		158
Unamortized discount and deferred issuance costs		**(1,693)**		(1,732)
Total debt		**31,192**		32,579
Less: current portion		**(1,425)**		(1,423)
Total long-term debt	**$**	**29,767**	$	31,156

[a] Equipment obligations are secured by an interest in certain railroad equipment with a carrying value of approximately $0.8 billion and $0.9 billion at December 31, 2024 and 2023, respectively.

Debt Maturities – The following table presents aggregate debt maturities as of December 31, 2024, excluding market value adjustments:

Millions		
2025	$	1,426
2026		1,516
2027		1,285
2028		1,235
2029		1,258
Thereafter		26,165
Total principal		32,885
Unamortized discount and deferred issuance costs		(1,693)
Total debt	$	31,192

Credit Facilities – At December 31, 2024, we had $2.0 billion of credit available under our revolving credit facility (the Facility), which is designated for general corporate purposes and supports the issuance of commercial paper. Credit facility withdrawals totaled $0 during 2024. Commitment fees and interest rates payable under the Facility are similar to fees and rates available to comparably rated, investment-grade borrowers. The Facility allows for borrowings at floating rates based on Term Secured Overnight Financing Rate (SOFR), plus a spread, depending upon credit ratings for our senior unsecured debt. The Facility, set to expire May 20, 2027, requires UPC to maintain an adjusted debt-to-EBITDA (earnings before interest, taxes, depreciation, and amortization) coverage ratio.

The definition of debt used for purposes of calculating the adjusted debt-to-EBITDA coverage ratio includes, among other things, certain credit arrangements, finance leases, guarantees, unfunded and vested pension benefits under Title IV of Employee Retirement Income Security Act of 1974 (ERISA), and unamortized debt discount and deferred debt issuance costs. At December 31, 2024, the Company was in compliance with the adjusted debt-to-EBITDA coverage ratio, which allows us to carry up to $46.7 billion of debt (as defined in the Facility), and we had $32.9 billion of debt (as defined in the Facility) outstanding at that date. The Facility does not include any other financial restrictions, credit rating triggers (other than rating-dependent pricing), or any other provision that could require us to post collateral. The Facility also includes a $150 million cross-default provision and a change-of-control provision.

During 2024, we issued $823 million and repaid $823 million of commercial paper with maturities ranging from 13 to 57 days. As of both December 31, 2024 and 2023, we had $0 of commercial paper outstanding. Our revolving credit facility supports our outstanding commercial paper balances, and, unless we change the terms of our commercial paper program, our aggregate issuance of commercial paper will not exceed the amount of borrowings available under the Facility.

Shelf Registration Statement and Significant New Borrowings – We filed an automatic shelf registration statement with the SEC that became effective on February 13, 2024. Under our shelf registration, we may issue, from time to time, any combination of debt securities, preferred stock, common stock, or warrants for debt securities or preferred stock in one or more offerings. The Board of Directors authorized the issuance of up to $9.0 billion of debt securities, replacing the prior Board authorization in February 2022, which had $5.6 billion of authority remaining.

During the year ended December 31, 2024, we did not issue any debt securities under this registration statement. At December 31, 2024, we had remaining authority from the Board of Directors to issue up to $9.0 billion of debt securities under our shelf registration.

Receivables Securitization Facility – As of both December 31, 2024 and 2023, we recorded $0 of borrowings under our Receivables Facility, as secured debt. (See further discussion in the "Receivables Securitization Facility" section of Note 10.)

15. Variable Interest Entities

We have entered into various lease transactions in which the structure of the leases contain variable interest entities (VIEs). These VIEs were created solely for the purpose of doing lease transactions (principally involving railroad equipment and facilities) and have no other activities, assets, or liabilities outside of the lease transactions. Within these lease arrangements, we have the right to purchase some or all of the assets at fixed prices. Depending on market conditions, fixed-price purchase options available in the leases could potentially provide benefits to us; however, these benefits are not expected to be significant.

We maintain and operate the assets based on contractual obligations within the lease arrangements, which set specific guidelines consistent within the railroad industry. As such, we have no control over activities that could materially impact the fair value of the leased assets. We do not hold the power to direct the activities of the VIEs and, therefore, do not control the ongoing activities that have a significant impact on the economic performance of the VIEs. Additionally, we do not have the obligation to absorb losses of the VIEs or the right to receive benefits of the VIEs that could potentially be significant to the VIEs.

We are not considered to be the primary beneficiary and do not consolidate these VIEs because our actions and decisions do not have the most significant effect on the VIE's performance and our fixed-price purchase options are not considered to be potentially significant to the VIEs. The future minimum lease payments associated with the VIE leases totaled $609 million as of December 31, 2024, and are recorded as operating lease liabilities at present value in our Consolidated Statements of Financial Position.

16. Leases

We lease certain locomotives, freight cars, and other property for use in our rail operations.

The following are additional details related to our lease portfolio:

Millions	*Classification*		***Dec 31, 2024***		*Dec 31, 2023*
Assets					
Operating leases	Operating lease assets	**$**	**1,297**	$	1,643
Finance leases	Properties, net [a]		**172**		244
Total leased assets		**$**	**1,469**	$	1,887
Liabilities					
Current					
Operating	Accounts payable and other current liabilities	**$**	**346**	$	355
Finance	Debt due within one year		**37**		49
Noncurrent					
Operating	Operating lease liabilities		**925**		1,245
Finance	Debt due after one year		**72**		109
Total lease liabilities		**$**	**1,380**	$	1,758

[a] Finance lease assets are recorded net of accumulated amortization of $472 million and $497 million as of December 31, 2024 and 2023, respectively.

The lease cost components are classified as follows:

Millions		***Dec 31, 2024***		*Dec 31, 2023*
Operating lease cost [a]	**$**	**340**	$	369
Short-term lease cost		**24**		24
Variable lease cost		**37**		41
Finance lease cost				
Amortization of leased assets [b]		**31**		38
Interest on lease liabilities [c]		**5**		8
Net lease cost	**$**	**437**	$	480

[a] Operating lease cost is primarily reported in equipment and other rents in our Consolidated Statements of Income.
[b] Amortization of leased assets is reported in depreciation in our Consolidated Statements of Income.
[c] Interest on lease liabilities is reported in interest expense in our Consolidated Statements of Income.

The following table presents aggregate lease maturities as of December 31, 2024:

Millions		*Operating Leases*		*Finance Leases*		*Total*
2025	$	352	$	42	$	394
2026		281		35		316
2027		227		30		257
2028		200		11		211
2029		128		-		128
After 2029		213		-		213
Total lease payments	$	1,401	$	118	$	1,519
Less: Interest		130		9		139
Present value of lease liabilities	$	1,271	$	109	$	1,380

The following table presents the weighted average remaining lease term and discount rate:

	Dec 31, 2024
Weighted-average remaining lease term (years)	
Operating leases	5.4
Finance leases	2.8
Weighted-average discount rate (%)	
Operating leases	3.8
Finance leases	4.4

The following table presents other information related to our operating and finance leases for the years ended December 31:

Millions		***2024***		*2023*
Cash paid for amounts included in the measurement of lease liabilities				
Operating cash flows from operating leases	**$**	**319**	$	323
Investing cash flows from operating leases		**32**		33
Operating cash flows from finance leases		**6**		9
Financing cash flows from finance leases		**47**		65
Leased assets obtained in exchange for operating lease liabilities	**$**	**119**	$	241

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17. Commitments and Contingencies

Asserted and Unasserted Claims – Various claims and lawsuits are pending against us and certain of our subsidiaries. We cannot fully determine the effect of all asserted and unasserted claims on our consolidated results of operations, financial condition, or liquidity. We have recorded a liability where asserted and unasserted claims are considered probable and where such claims can be reasonably estimated. We currently do not expect that any known lawsuits, claims, environmental costs, commitments, contingent liabilities, or guarantees will have a material adverse effect on our consolidated results of operations, financial condition, or liquidity after taking into account liabilities and insurance recoveries previously recorded for these matters.

In December 2019, we received a putative class action complaint under the Illinois Biometric Information Privacy Act, alleging violation due to the use of a finger scan system developed and managed by third parties. While we believe that we have strong defenses to the claims made in the complaint and will vigorously defend ourselves, there is no assurance regarding the ultimate outcome. The outcome of this litigation is inherently uncertain, and we cannot reasonably estimate any loss or range of loss that may arise from this matter.

Personal Injury – The Federal Employers' Liability Act (FELA) governs compensation for work-related accidents. Under FELA, damages are assessed based on a finding of fault through litigation or out-of-court settlements. We offer a comprehensive variety of services and rehabilitation programs for employees who are injured at work.

Because of the uncertainty surrounding the ultimate outcome of personal injury claims, it is reasonably possible that future costs to settle these claims may range from approximately $379 million to $495 million. We record an accrual at the low end of the range as no amount of loss within the range is more probable than any other. Estimates can vary over time due to evolving trends in litigation.

Our personal injury liability activity was as follows:

Millions		***2024***	*2023*	*2022*
Beginning balance	**$**	**383**	$ 361	$ 325
Current year accruals		**121**	112	107
Changes in estimates for prior years		**(14)**	89	55
Payments		**(111)**	(179)	(126)
Ending balance at December 31	**$**	**379**	$ 383	$ 361
Current portion, ending balance at December 31	**$**	**106**	$ 113	$ 84

Environmental Costs – We are subject to federal, state, and local environmental laws and regulations. We have identified 352 sites where we are or may be liable for remediation costs associated with alleged contamination or for violations of environmental requirements. This includes 31 sites that are the subject of actions taken by the U.S. government, including 19 that are currently on the Superfund National Priorities List. Certain federal legislation imposes joint and several liability for the remediation of identified sites; consequently, our ultimate environmental liability may include costs relating to activities of other parties, in addition to costs relating to our own activities at each site.

Our environmental liability activity was as follows:

Millions		***2024***	*2023*	2022
Beginning balance	**$**	**245**	$ 253	$ 243
Accruals		**129**	99	84
Payments		**(106)**	(107)	(74)
Ending balance at December 31	**$**	**268**	$ 245	$ 253
Current portion, ending balance at December 31	**$**	**83**	$ 91	$ 67

The environmental liability includes future costs for remediation and restoration of sites, as well as ongoing monitoring costs, but excludes any anticipated recoveries from third parties. Cost estimates are based on information available for each site, financial viability of other potentially responsible parties, and existing technology, laws, and regulations. The ultimate liability for remediation is difficult to determine because of the number of potentially responsible parties, site-specific cost sharing arrangements with other potentially responsible parties, the degree of contamination by various wastes, the scarcity and quality of volumetric data related to many of the sites, and the speculative nature of remediation costs. Estimates of liability

may vary over time due to changes in federal, state, and local laws governing environmental remediation. Current obligations are not expected to have a material adverse effect on our consolidated results of operations, financial condition, or liquidity.

Indemnities – Our maximum potential exposure under indemnification arrangements, including certain tax indemnifications, can range from a specified dollar amount to an unlimited amount, depending on the nature of the transactions and the agreements. Due to uncertainty as to whether claims will be made or how they will be resolved, we cannot reasonably determine the probability of an adverse claim or reasonably estimate any adverse liability or the total maximum exposure under these indemnification arrangements. We do not have any reason to believe that we will be required to make any material payments under these indemnity provisions.

18. Share Repurchase Programs

Effective April 1, 2022, our Board of Directors authorized the repurchase of up to 100 million shares of our common stock by March 31, 2025. As of December 31, 2024, we repurchased a total of 25.9 million shares of our common stock under the 2022 authorization. These repurchases may be made on the open market or through other transactions. Our management has sole discretion with respect to determining the timing and amount of these transactions.

The table below represents shares repurchased under repurchase programs during 2024 and 2023:

	Number of Shares Purchased		*Average Price Paid*	
	2024	*2023*	***2024***	*2023*
First quarter	**-**	2,908,703	**$ -**	$ 203.19
Second quarter	**492,320**	606,581	**225.96**	199.81
Third quarter	**3,006,061**	-	**245.44**	-
Fourth quarter	**2,804,785**	-	**237.43**	-
Total	**6,303,166**	3,515,284	**$ 240.35**	$ 202.61
Remaining number of shares that may be repurchased under current authority				74,088,861

Management's assessments of market conditions and other pertinent factors guide the timing, manner, and volume of all repurchases. We expect to fund any share repurchases under this program through cash generated from operations, the sale or lease of various operating and non-operating properties, debt issuances, and cash on hand. Open market repurchases are recorded in treasury stock at cost, which includes any applicable commissions, fees, and excise taxes.

On February 6, 2025, the Board of Directors approved a new share repurchase authorization, enabling the Company to buy up to 100 million shares of its common stock by March 31, 2028. The new authorization is effective April 1, 2025, and replaces the current authorization, which will expire on March 31, 2025.

19. Related Parties

UPRR and other North American railroad companies jointly own TTX Company (TTX). UPRR has a 37.03% economic interest in TTX while the other North American railroads own the remaining interest. In accordance with ASC 323 *Investments - Equity Method and Joint Venture*, UPRR applies the equity method of accounting to our investment in TTX.

TTX is a rail car pooling company that owns rail cars and intermodal wells to serve North America's railroads. TTX assists railroads in meeting the needs of their customers by providing rail cars in an efficient, pooled environment. All railroads may utilize TTX rail cars through car hire by renting rail cars at stated rates.

UPRR had $1.9 billion and $1.8 billion recognized as investments related to TTX in our Consolidated Statements of Financial Position as of December 31, 2024 and 2023, respectively. TTX car hire expense of $432 million in 2024, $399 million in 2023, and $402 million in 2022 are included in equipment and other rents in our Consolidated Statements of Income. In addition, UPRR had accounts payable to TTX of $70 million and $60 million at December 31, 2024 and 2023, respectively.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9A. Controls and Procedures

As of the end of the period covered by this report, the Corporation carried out an evaluation, under the supervision and with the participation of the Corporation's management, including the Corporation's Chief Executive Officer (CEO) and Executive Vice President and Chief Financial Officer (CFO), of the effectiveness of the design and operation of the Corporation's disclosure controls and procedures pursuant to Exchange Act Rules 13a-15 and 15d-15. In designing and evaluating the disclosure controls and procedures, management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. Based upon that evaluation, the CEO and the CFO concluded that, as of the end of the period covered by this report, the Corporation's disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed in our Exchange Act reports is recorded, processed, summarized, and reported within the time periods specified by the SEC, and that such information is accumulated and communicated to management, including the CEO and CFO, as appropriate, to allow timely decisions regarding required disclosure.

Additionally, the CEO and CFO determined that there were no changes to the Corporation's internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) during the last fiscal quarter that materially affected, or are reasonably likely to materially affect, the Corporation's internal control over financial reporting.

MANAGEMENT'S ANNUAL REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING

The management of Union Pacific Corporation and Subsidiary Companies (the Corporation) is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)). The Corporation's internal control system was designed to provide reasonable assurance to the Corporation's management and Board of Directors regarding the preparation and fair presentation of published financial statements.

All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

The Corporation's management assessed the effectiveness of the Corporation's internal control over financial reporting as of December 31, 2024. In making this assessment, it used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control - Integrated Framework (2013)*. Based on our assessment, management believes that, as of December 31, 2024, the Corporation's internal control over financial reporting is effective based on those criteria.

The Corporation's independent registered public accounting firm has issued an attestation report on the effectiveness of the Corporation's internal control over financial reporting. This report appears on the next page.

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Shareholders and Board of Directors of Union Pacific Corporation

Opinion on Internal Control over Financial Reporting

We have audited the internal control over financial reporting of Union Pacific Corporation and Subsidiary Companies (the "Corporation") as of December 31, 2024, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). In our opinion, the Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2024, based on criteria established in *Internal Control — Integrated Framework (2013)* issued by COSO.

We have also audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the consolidated financial statements as of and for the year ended December 31, 2024, of the Corporation and our report dated February 7, 2025, expressed an unqualified opinion on those financial statements.

Basis for Opinion

The Corporation's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying *Management's Annual Report on Internal Control over Financial Reporting*. Our responsibility is to express an opinion on the Corporation's internal control over financial reporting based on our audit. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Corporation in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ Deloitte & Touche LLP

Omaha, Nebraska
February 7, 2025

Item 9B. Other Information

None.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections

Not applicable.

PART III

Item 10. Directors, Executive Officers, and Corporate Governance

(a) Directors of Registrant.

Information as to the names, ages, positions, and offices with UPC, terms of office, periods of service, business experience during the past five years, and certain other directorships held by each director or person nominated to become a director of UPC is set forth in the Election of Directors segment of the Proxy Statement and is incorporated herein by reference.

Information concerning our Audit Committee and the independence of its members, along with information about the audit committee financial expert(s) serving on the Audit Committee, is set forth in the Audit Committee segment of the Proxy Statement and is incorporated herein by reference.

(b) Executive Officers of Registrant.

Information concerning the executive officers of UPC and its subsidiaries is presented in Part I of this report under Information About Our Executive Officers and Principal Executive Officers of Our Subsidiaries.

(c) Delinquent Section 16(a) Reports.

Information concerning compliance with Section 16(a) of the Securities Exchange Act of 1934 is set forth in the Delinquent Section 16(a) Reports segment of the Proxy Statement and is incorporated herein by reference.

(d) Code of Ethics for Chief Executive Officer and Senior Financial Officers of Registrant.

The Board of Directors of UPC has adopted the UPC Code of Ethics for the Chief Executive Officer and Senior Financial Officers (the Code). A copy of the Code may be found on the Internet at our website https://investor.unionpacific.com/governance/governance-overview. We intend to disclose any amendments to the Code or any waiver from a provision of the Code on our website.

(e) Insider Trading Arrangements and Policies.

Information concerning UPC's Confidentiality and Insider Trading Policy is set forth in the Insider Trading Arrangements and Policies segment of the Proxy Statement and is incorporated herein by reference. UPC's Confidentiality and Insider Trading Policy is included as an exhibit to this report.

Item 11. Executive Compensation

Information concerning compensation received by our directors and our named executive officers is presented in the Compensation Discussion and Analysis, Summary Compensation Table, Grants of Plan-Based Awards in Fiscal Year 2024, Outstanding Equity Awards at 2024 Fiscal Year-End, Option Exercises and Stock Vested in Fiscal Year 2024, Pension Benefits at 2024 Fiscal Year-End, Nonqualified Deferred Compensation at 2024 Fiscal Year-End, Potential Payments Upon Termination or Change in Control and Director Compensation in Fiscal Year 2024 segments of the Proxy Statement and is incorporated herein by reference. Additional information regarding compensation of directors, including Board committee members, is set forth in the By-Laws of UPC and the Stock Unit Grant and Deferred Compensation Plan for the Board of Directors, both of which are included as exhibits to this report. Information regarding the Compensation and Talent Committee is set forth in the Compensation Committee segment of the Proxy Statement and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information as to the number of shares of our equity securities beneficially owned by each of our directors and nominees for director, our named executive officers, our directors and executive officers as a group, and certain beneficial owners is set forth in the Security Ownership of Certain Beneficial Owners and Management segment of the Proxy Statement and is incorporated herein by reference.

The following table summarizes the equity compensation plans under which UPC common stock may be issued as of December 31, 2024:

	(a)	*(b)*	*(c)*
Plan Category	*Number of securities to be issued upon exercise of outstanding options, warrants and rights*	*Weighted-average exercise price of outstanding options, warrants and rights*	*Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))*
Equity compensation plans approved by security holders	2,330,352 [1]	$ 195.83 [1]	31,063,392 [2]
Total	2,330,352	$ 195.83	31,063,392

[1] Includes 348,929 retention units that do not have an exercise price. Does not include 885,600 retention shares that have been issued and are outstanding.

[2] Does not include the retention units or retention shares described above in footnote [1].

Item 13. Certain Relationships and Related Transactions, and Director Independence

Information on related transactions is set forth in the Related Party Policy and Procedures segment of the Proxy Statement and is incorporated herein by reference. We do not have any relationship with any outside third-party that would enable such a party to negotiate terms of a material transaction that may not be available to, or available from, other parties on an arm's-length basis.

Information regarding the independence of our directors is set forth in the Director Independence segment of the Proxy Statement and is incorporated herein by reference.

Item 14. Principal Accountant Fees and Services

Information concerning the fees billed by our independent registered public accounting firm and the nature of services comprising the fees for each of the two most recent fiscal years in each of the following categories: (a) audit fees, (b) audit-related fees, (c) tax fees, and (d) all other fees, is set forth in the Independent Registered Public Accounting Firm's Fees and Services segment of the Proxy Statement and is incorporated herein by reference.

Information concerning our Audit Committee's policies and procedures pertaining to pre-approval of audit and non-audit services rendered by our independent registered public accounting firm is set forth in the Pre-approval of Audit and Non-Audit Services Policy segment of the Proxy Statement and is incorporated herein by reference.

PART IV

Item 15. Exhibit and Financial Statement Schedules

(a) Financial Statements, Financial Statement Schedules, and Exhibits:

(1) Financial Statements

The financial statements filed as part of this filing are listed on the index to the Financial Statements and Supplementary Data, Item 8, on page 38.

(2) Financial Statement Schedules

Schedules have been omitted because they are not applicable or not required or the information required to be set forth therein is included in the Financial Statements and Supplementary Data, Item 8, or notes thereto.

(3) Exhibits

Exhibits are listed in the exhibit index beginning on page 73. The exhibits include management contracts, compensatory plans and arrangements required to be filed as exhibits to the Form 10-K by Item 601 (10) (iii) of Regulation S-K.

UNION PACIFIC CORPORATION
Exhibit Index

Exhibit No.	Description
Filed with this Statement	
10(a)†	Form of Performance Stock Unit Agreement dated February 6, 2025.
10(b)†	Form of Non-Qualified Stock Option Agreement for Executives dated February 6, 2025.
19	Union Pacific Corporation Confidentiality and Insider Trading Policy dated October 1, 2024.
21	List of the Corporation's significant subsidiaries and their respective states of incorporation.
23	Independent Registered Public Accounting Firm's Consent.
24	Powers of attorney executed by the directors of UPC.
31(a)	Certifications Pursuant to Rule 13a-14(a), of the Exchange Act, as Adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 - V. James Vena.
31(b)	Certifications Pursuant to Rule 13a-14(a), of the Exchange Act, as Adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 - Jennifer L. Hamann.
32	Certifications Pursuant to 18 U.S.C. Section 1350, as Adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 - V. James Vena and Jennifer L. Hamann.
101	The following financial and related information from Union Pacific Corporation's Annual Report on Form 10-K for the year ended December 31, 2024 (filed with the SEC on February 7, 2025), formatted in Inline Extensible Business Reporting Language (iXBRL) includes (a) Consolidated Statements of Income for the years ended December 31, 2024, 2023, and 2022, (b) Consolidated Statements of Comprehensive Income for the years ended December 31, 2024, 2023, and 2022, (c) Consolidated Statements of Financial Position at December 31, 2024 and 2023, (d) Consolidated Statements of Cash Flows for the years ended December 31, 2024, 2023, and 2022, (e) Consolidated Statements of Changes in Common Shareholders' Equity for the years ended December 31, 2024, 2023, and 2022, and (f) the Notes to the Consolidated Financial Statements.
104	Cover Page Interactive Data File, formatted in Inline XBRL (contained in Exhibit 101).
Incorporated by Reference	
3(a)	Restated Articles of Incorporation of UPC, as amended and restated through June 27, 2011, and as further amended May 15, 2014, are incorporated herein by reference to Exhibit 3(a) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2014.
3(b)	By-Laws of UPC, as amended, effective November 19, 2015, are incorporated herein by reference to Exhibit 3.2 to the Corporation's Current Report on Form 8-K dated November 19, 2015.
4(a)	Description of securities registered under Section 12 of the Exchange Act is incorporated herein by reference to Exhibit 4(a) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2019.

4(b)	Indenture, dated as of December 20, 1996, between UPC and Wells Fargo Bank, National Association, as successor to Citibank, N.A., as Trustee, is incorporated herein by reference to Exhibit 4.1 to UPC's Registration Statement on Form S-3 (No. 333-18345).
4(c)	Indenture, dated as of April 1, 1999, between UPC and The Bank of New York, as successor to JP Morgan Chase Bank, formerly The Chase Manhattan Bank, as Trustee, is incorporated herein by reference to Exhibit 4.2 to UPC's Registration Statement on Form S-3 (No. 333-75989).
	Certain instruments evidencing long-term indebtedness of UPC are not filed as exhibits because the total amount of securities authorized under any single such instrument does not exceed 10% of the Corporation's total consolidated assets. UPC agrees to furnish the Commission with a copy of any such instrument upon request by the Commission.
10(c)†	Transition and Separation Agreement between the Corporation, the Railroad and Lance M. Fritz dated August 11, 2023, is incorporated by reference to Exhibit 10.1 to the Corporation's Current Report on Form 8-K dated August 11, 2023.
10(d)†	Union Pacific Corporation Key Employee Continuity Plan, as amended December 10, 2021, is incorporated herein by reference to Exhibit 10(c) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2021.
10(e)†	Supplemental Thrift Plan (409A Grandfathered Component) of Union Pacific Corporation, effective as of January 1, 2009, including all amendments adopted through August 1, 2024, is incorporated herein by reference to Exhibit 10(a) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2024.
10(f)†	Supplemental Thrift Plan (409A Non-Grandfathered Component) of Union Pacific Corporation, effective as of January 1, 2009, including all amendments adopted through August 1, 2024, is incorporated herein by reference to Exhibit 10(b) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2024.
10(g)†	Supplemental Pension Plan for Officers and Managers (409A Grandfathered Component) of Union Pacific Corporation and Affiliates, as amended and restated in its entirety effective January 1, 1989, including all amendments adopted through August 1, 2024, is incorporated herein by reference to Exhibit 10(c) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2024.
10(h)†	Supplemental Pension Plan or Officers and Managers (409A Non-Grandfathered Component) of Union Pacific Corporation and Affiliates, as amended and restated in its entirety effective January 1, 1989, including all amendments adopted through August 1, 2024, is incorporated by reference to Exhibit 10(d) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2024.
10(i)†	Deferred Compensation Plan (409A Grandfathered Component) of Union Pacific Corporation, originally effective as of January 1, 2009, as amended and restated including amendments adopted through August 1, 2024, is incorporated herein by reference to Exhibit 10(e) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2024.
10(j)†	Deferred Compensation Plan (409A Non-Grandfathered Component) of Union Pacific Corporation, originally effective as of January 1, 2009, as amended and restated including amendments adopted through August 1, 2024, is incorporated herein by reference to Exhibit 10(f) to the Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2024.
10(k)†	Union Pacific Corporation 2000 Directors Plan, effective as of April 21, 2000, as amended November 16, 2006, January 30, 2007 and January 1, 2009 is incorporated herein by reference to Exhibit 10(j) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.
10(l)†	Union Pacific Corporation Stock Unit Grant and Deferred Compensation Plan for the Board of Directors (409A Non-Grandfathered Component), effective as of January 1, 2009 is incorporated herein by reference to Exhibit 10(k) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.

10(m)†	Union Pacific Corporation Stock Unit Grant and Deferred Compensation Plan for the Board of Directors (409A Grandfathered Component), as amended and restated in its entirety, effective as of January 1, 2009 is incorporated herein by reference to Exhibit 10(l) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.
10(n)†	Union Pacific Corporation 2013 Stock Incentive Plan, effective May 16, 2013, as amended effective as of January 1, 2020 is incorporated herein by reference to Exhibit 10(d) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2019.
10(o)†	Union Pacific Corporation Executive Incentive Plan, effective May 5, 2005, amended and restated effective January 1, 2020 is incorporated herein by reference to Exhibit 10(e) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2019.
10(p)†	Union Pacific Corporation 2021 Stock Incentive Plan, effective as of May 13, 2021 is incorporated by reference to Exhibit 99.1 to the Corporation's Form S-8 dated May 25, 2021.
10(q)	Amended and Restated Registration Rights Agreement, dated as of July 12, 1996, among UPC, UP Holding Company, Inc., Union Pacific Merger Co. and Southern Pacific Rail Corporation (SP) is incorporated herein by reference to Annex J to the Joint Proxy Statement/Prospectus included in Post-Effective Amendment No. 2 to UPC's Registration Statement on Form S-4 (No. 33-64707).
10(r)	Agreement, dated September 25, 1995, among UPC, UPRR, Missouri Pacific Railroad Company (MPRR), SP, Southern Pacific Transportation Company (SPT), The Denver & Rio Grande Western Railroad Company (D&RGW), St. Louis Southwestern Railway Company (SLSRC) and SPCSL Corp. (SPCSL), on the one hand, and Burlington Northern Railroad Company (BN) and The Atchison, Topeka and Santa Fe Railway Company (Santa Fe), on the other hand, is incorporated by reference to Exhibit 10.11 to UPC's Registration Statement on Form S-4 (No. 33-64707).
10(s)	Supplemental Agreement, dated November 18, 1995, between UPC, UPRR, MPRR, SP, SPT, D&RGW, SLSRC and SPCSL, on the one hand, and BN and Santa Fe, on the other hand, is incorporated herein by reference to Exhibit 10.12 to UPC's Registration Statement on Form S-4 (No. 33-64707).
10(t)†	Form of Non-Qualified Stock Option Agreement for Executives is incorporated herein by reference to Exhibit 10(c) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2013.
10(u)†	Form of 2022 Long Term Plan Performance Stock Unit Agreement is incorporated herein by reference to Exhibit 10(a) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2021.
10(v)†	Form of 2023 Long Term Plan Performance Stock Unit Agreement is incorporated herein by reference to Exhibit 10(a) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2022.
10(w)†	Form of 2024 Long Term Plan Performance Stock Unit Agreement is incorporated herein by reference to Exhibit 10(a) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2023.
10(x)†	Executive Incentive Plan (2005) - Deferred Compensation Program, dated December 21, 2005 is incorporated herein by reference to Exhibit 10(g) to the Corporation's Annual Report on Form 10-K for the year ended December 31, 2005.
97	Union Pacific Corporation Policy for Recoupment of Certain Compensation, amended and restated effective October 2, 2023, is incorporated by reference to Exhibit 10(a) to the Corporation Quarterly Report on Form 10-Q for the quarter ended September 30, 2023.

† Indicates a management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on this 7th day of February, 2025.

UNION PACIFIC CORPORATION

By /s/ V. James Vena
V. James Vena,
Chief Executive Officer
Union Pacific Corporation

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below, on this 7th day of February, 2025, by the following persons on behalf of the registrant and in the capacities indicated.

PRINCIPAL EXECUTIVE OFFICER
AND DIRECTOR:

By /s/ V. James Vena
V. James Vena,
Chief Executive Officer
Union Pacific Corporation

PRINCIPAL FINANCIAL OFFICER:

By /s/ Jennifer L. Hamann
Jennifer L. Hamann
Executive Vice President and
Chief Financial Officer

PRINCIPAL ACCOUNTING OFFICER:

By /s/ Todd M. Rynaski
Todd M. Rynaski,
Senior Vice President and
Chief Accounting, Risk, and
Compliance Officer

DIRECTORS:

William J. DeLaney*
David B. Dillon*
Sheri H. Edison*
Teresa M. Finley*
Deborah C. Hopkins*
Jane H. Lute*
Michael R. McCarthy*
Doyle R. Simons*
John K. Tien, Jr.*
John P. Wiehoff*
Christopher J. Williams*

* By /s/ Craig V. Richardson
Craig V. Richardson, Attorney-in-fact

Exhibit 10(a)

UNION PACIFIC CORPORATION
GRANT NOTICE FOR 2021 STOCK INCENTIVE PLAN
PERFORMANCE STOCK UNITS

FOR GOOD AND VALUABLE CONSIDERATION, Union Pacific Corporation (the "Company"), hereby grants to Participant named below (for purposes hereof, references herein to "you" or "your" shall refer to such Participant) the number of Stock Units specified below (the "Award"), upon the terms and subject to the conditions set forth in this Grant Notice, the Union Pacific Corporation 2021 Stock Incentive Plan (the "Plan"), the Standard Terms and Conditions (the "Standard Terms and Conditions") adopted under such Plan and described in this Grant Notice, and the Union Pacific Corporation Long Term Plan (the "Long Term Plan") approved and adopted by the Compensation and Benefits Committee of the Company's Board of Directors (the "Committee"), and the Policy for Recoupment of Certain Compensation, each as amended from time to time. In addition, if you become eligible for and entitled to severance benefits under a broad based severance pay policy of the Company that include waiver of the continuous employment requirement applicable to the Stock Units (the "Severance Policy"), the Award also shall be subject to the terms of such Severance Policy.

Each Stock Unit subject to this Award represents the right to receive one share of the Company's common stock, par value $2.50 (the "Common Stock"), subject to the conditions set forth in this Grant Notice, the Plan, the Standard Terms and Conditions, and the Long Term Plan. This Award is granted pursuant to the Plan and the Long Term Plan and is subject to and qualified in its entirety by the Standard Terms and Conditions.

Name of Participant:	
Grant Date:	February 7, 2025
Grant Number:	
Target Number of Stock Units subject to the Award: **The maximum number of stock units subject to the award is two times the amount shown.** The participant is eligible to receive up to the maximum number of stock units in accordance with the program design in the Long Term Plan Summary. The actual number of shares paid, if any, depends on the achievement level of the applicable performance criteria.	
Restriction Period:	3 years
Restriction Period Commencement Date:	February 7, 2025
Restriction Period Termination Date:	February 7, 2028

By electronically accepting this Award, you acknowledge that you have received and read, and agree that this Award shall be subject to, the terms of this Grant Notice, the Plan, the Standard Terms and Conditions, and the Long Term Plan (including, but not limited to, the Committee's discretionary authority under the Long Term Plan to determine the number of Stock Units payable with respect to the Award) and, if applicable, the Severance Policy (including, but not limited to, the Severance Policy's requirement, if any, that you execute a general release of employment-related claims) and the Policy for Recoupment of Certain Compensation. You also hereby consent to the delivery of information (including, without limitation, information required to be delivered to you pursuant to applicable securities laws) regarding the Company and the Subsidiaries, the Plan, and the Stock Units via Company website or other electronic delivery.

YOU HAVE ONE HUNDRED AND EIGHTY (180) DAYS FROM THE GRANT DATE SET FORTH IN THIS GRANT NOTICE TO ELECTRONICALLY ACCEPT THIS AWARD AND THE STANDARD TERMS AND CONDITIONS. IF YOU DO NOT ACCEPT THIS AWARD AND THE STANDARD TERMS AND CONDITIONS IN THE APPLICABLE 180 DAY PERIOD, YOU WILL ***FORFEIT*** THE PERFORMANCE STOCK UNITS THAT ARE THE SUBJECT OF THIS AWARD.

UNION PACIFIC CORPORATION
STANDARD TERMS AND CONDITIONS FOR
PERFORMANCE STOCK UNITS

These Standard Terms and Conditions apply to the Award of performance stock units granted pursuant to the Union Pacific Corporation 2021 Stock Incentive Plan, as amended (the "Plan"), which are evidenced by a Grant Notice that specifically refers to these Standard Terms and Conditions. In addition to these Standard Terms and Conditions, the performance stock units shall be subject to the terms of the Plan and the Long-Term Plan and, if applicable, the Severance Policy and the Policy for Recoupment of Certain Compensation, each as amended from time to time, which are incorporated into these Standard Terms and Conditions by reference. Capitalized terms not otherwise defined herein shall have the meaning set forth in the Plan. For purposes of these Standard Terms and Conditions and the Grant Notice, any reference to the Company (as defined below) shall include a reference to any Subsidiary for which you are or have been employed. Additionally, references in these Standard Terms and Conditions to "you" or "your" shall refer to the Participant named in the Grant Notice provided to the Participant herewith (the "Grant Notice"), and such Participant's heirs and beneficiaries.

By electronically accepting the Award and these Standard Terms and Conditions, you acknowledge and agree to be bound by the following, which will survive your termination from employment and the vesting or forfeiture of the Award:

PERFORMANCE STOCK UNITS

1. TERMS OF PERFORMANCE STOCK UNITS

Union Pacific Corporation, a Utah corporation (the "Company"), has granted to you an award of a target number of performance stock units that may be earned at between 0% and 200% of the specified target level (the "Award" or the "Stock Units") specified in the Grant Notice. Each Stock Unit represents the right to receive (i) one share of the Company's common stock, $2.50 par value per share (the "Common Stock") and (ii) a payment in cash equal to the amount of dividends that would have been payable on one share of Common Stock had you owned such Common Stock from the Grant Date specified in the Grant Notice through the payment date for such Stock Units ("Dividend Equivalent Payments"), in each case to the extent that the applicable Performance Criteria described below have been satisfied. The Award is subject to the terms and conditions set forth in the Grant Notice, these Standard Terms and Conditions, the Plan, the Long Term Plan and, if applicable, the Severance Policy and the Policy for Recoupment of Certain Compensation, each as amended.

2. VESTING OF PERFORMANCE STOCK UNITS

The Award shall not be vested as of the Grant Date set forth in the Grant Notice and shall be forfeitable until the end of the Restriction Period as set forth in the Grant Notice (the "Restriction Period Termination Date"), unless otherwise provided under these Standard Terms and Conditions and, for the avoidance of doubt, specifically subject to Section 3 hereof. After the end of the Restriction Period, subject to your continued employment with the Company through the Restriction Period Termination Date and to termination or acceleration as provided in these Standard Terms and Conditions, the Plan, the Long Term Plan and, if applicable, the Severance Policy, and to the extent certified by the Committee as described below, the Award (including related Dividend Equivalent Payments) shall become vested as of the Restriction Period Termination Date with respect to that number of Stock Units determined by the Committee to be paid pursuant to the Award. Unless the Committee shall determine otherwise, any period of time in which you are on a leave of absence during the Restriction Period in accordance with a leave of absence policy adopted by the Company shall count toward satisfaction of the Restriction Period.

3. PERFORMANCE CRITERIA

The "Performance Criteria" are average annual Return on Invested Capital ("ROIC") and relative Operating Income Growth ("OIG"). The definition and calculation of annual ROIC and relative OIG shall be determined in accordance with the Long-Term Plan.

You may earn Stock Units at the conclusion of the Restriction Period (or such earlier time as may be provided in Section 6) based on the Company's satisfaction of the Performance Criteria in accordance with the ROIC targets and payout schedule and the relative OIG targets and payout schedule approved by the Committee, as determined and certified by the Committee (or the Committee's delegate) in its sole discretion (the "Certification Date"). To the extent certified by the Committee, you may earn up to two times the Stock Unit Target Award as shown on the Grant Notice based on the average of all three fiscal years (2025, 2026 and 2027) of ROIC performance achieved and the Company's relative OIG percentile ranking (which is based on the Company's OIG performance over the three fiscal year period as compared to the OIG performance over that period of the constituent companies of the S&P 100 Industrials Index and Class I Railroads as set forth in the Long Term Plan), as determined and certified by the Committee (or the Committee's delegate) in its sole discretion. Notwithstanding the foregoing, the Committee retains the discretion under the Long-Term Plan to determine the number of Stock Units payable with respect to your Award.

4. DIVIDEND EQUIVALENT PAYMENTS

You are not entitled to receive cash dividends on the Stock Units, but will receive Dividend Equivalent Payments in an amount equal to the value of the cash dividends that would have been paid (based on the record date for such dividends) on the number of shares of Common Stock equal to the number of Stock Units which are earned (as determined by the Committee) based on the achievement of the applicable Performance Criteria as if such shares had been outstanding between the Grant Date and the payment date of such shares of Common Stock. Dividend Equivalent Payments shall not be adjusted for interest, earnings or assumed reinvestment. Except as provided in the immediately following paragraph, Dividend Equivalent Payments shall be paid to you at the time the earned shares of Common Stock to which those Dividend Equivalent Payments relate are delivered (or would be delivered in the absence of a deferral election made by you as described in Section 6(vii)) under Section 6(i) – (vi), as applicable. Distribution of Dividend Equivalent Payments shall be subject to the Company's collection of all tax withholding obligations applicable to such distribution. No Dividend Equivalent Payment shall be paid or distributed on Stock Units (or shares underlying the Stock Units) that are forfeited or that otherwise do not vest and are not issued or issuable under the Award.

If you have elected to defer receipt of earned Stock Units in accordance with the terms of the Deferred Compensation Plan of Union Pacific Corporation (the "Deferred Compensation Plan"), Dividend Equivalent Payments with respect to such earned and deferred Stock Units which relate to dividends paid on and after the date of the deferral of such Stock Units (i.e., the date that the Stock Units would have been payable to you under the Plan had such Stock Units not been deferred under the Company's Deferred Compensation Plan) shall be credited as part of the Award Account (as defined in the Deferred Compensation Plan) under the Company's Deferred Compensation Plan, and shall be deferred for payment at the same time as the Award Account is paid under the terms of the Company's Deferred Compensation Plan.

Notwithstanding the foregoing, the Company may delay payment of a Dividend Equivalent Payment as described in Section 6(viii) hereof.

5. RESTRICTIONS

Unless provided otherwise by the Committee, the following restrictions apply to the Stock Units:

(i) You shall be entitled to delivery of the shares of Common Stock underlying the Stock Units only as specified in Section 6 hereof;

(ii) All of the Stock Units shall be forfeited and all of your rights to such Stock Units and the right to receive Common Stock (and related Dividend Equivalent Payments) shall terminate without further obligation on the part of the Company in the event of your Separation from Service with the Company without having a right to delivery of shares of Common Stock under Section 6 hereof; and

(iii) Any Stock Units not earned as of the Restriction Period Termination Date shall be forfeited and all of your rights to such Stock Units, including any Dividend Equivalent Payments, shall terminate without further obligation on the part of the Company.

6. ACCELERATION/LAPSE OF RESTRICTION PERIOD

Unless determined otherwise by the Committee and subject to Sections 6(vii) and 6(viii) hereof, the Stock Units shall be treated as follows:

(i) Following the end of the Restriction Period and provided you have remained continuously employed by the Company through the Restriction Period Termination Date and absent any Change of Control before the Restriction Period Termination Date in which the acquiring or surviving company in the transaction does not assume or continue the outstanding Stock Units, shares of Common Stock equal to the number of Stock Units which are earned (as determined by the Committee) based on the achievement of the applicable Performance Criteria shall be delivered to you (through your account at the Company's third party stock plan administrator, if applicable) free of all restrictions except subject to the covenants contained in these Standard Terms and Conditions. The payment of the Stock Units under this Section 6(i) shall be made to you within thirty (30) days of the Restriction Period Termination Date, but in no event later than the last day of the calendar year that includes the Restriction Period Termination Date.

(ii) If you: (A) have a Separation from Service with the Company due to (1) death, or (2) Retirement (as such term is defined below in this Section 6(ii)); or (B) are determined to be disabled under the provisions of an applicable long-term disability plan of the Company (“Disability”) (each a “Lapse Event”), prior to the Restriction Period Termination Date and prior to a Change in Control in which the acquiring or surviving company in the transaction does not assume or continue the outstanding Stock Units, you, your estate or your beneficiary, as applicable (each a “Payee”), shall be entitled to receive shares of Common Stock equal to the number of Stock Units which are earned (as determined by the Committee) based on the average of all three fiscal years (2025, 2026 and 2027) of the applicable ROIC and relative OIG performance achieved. The payment of the Stock Units earned under this Section 6(ii) shall be made within thirty (30) days of the Restriction Period Termination Date, but in no event later than the last day of the calendar year that includes the Restriction Period Termination Date. The Stock Units paid in accordance with this Section 6(ii) remain subject to the covenants contained in these Standard Terms and Conditions. If you have a Lapse Event and subsequently return to employment with the Company before the end of the Restriction Period, you will not be eligible to earn additional Stock Units beyond those described in this Section 6(ii). “Retirement” shall mean your Separation from Service occurring on or after both December 31, 2025 and your attainment of one of the following: (i) age 55 with at least 10 years of vesting service; (ii) age 60 with at least 5 years of vesting service; or (iii) age 65. For this purpose, vesting service shall be calculated by applying the rules for determining “Vesting Service” under the Pension Plan for Salaried Employees of Union Pacific Corporation and Affiliates (“UPC Pension Plan”), regardless of whether you were ever a participant in the UPC Pension Plan.

(iii) If there is a Change in Control in which the acquiring or surviving company in the transaction does not assume or continue the outstanding Stock Units and such Change in Control occurs prior to both your Separation from Service for any reason and the Restriction Period Termination Date, shares of Common Stock equal to the number of Stock Units which are earned (as determined by the Committee) based on achievement of the applicable Performance Criteria through the end of each fiscal year ending prior to the occurrence of such Change in Control and through the end of the most recent fiscal quarter ending prior to the date of the Change in Control shall be delivered to you (through

your account at the Company's third party administrator, if applicable) free of all restrictions except subject to the covenants contained in these Standard Terms and Conditions. No additional Stock Units granted as part of the Award may be earned following the Change in Control. Shares of Common Stock to which you are entitled pursuant to this Section 6(iii) shall be delivered as soon as administratively practicable following the date on which the Change in Control occurs, but in no event later than two and one-half (2½) months following the end of the calendar year that includes the date on which the Change in Control occurs.

(iv) Except as provided in Section 6(v) hereof, if you have a Separation from Service with the Company prior to both you having satisfied the age and service criteria for Retirement and the Restriction Period Termination Date and, as a result of such Separation from Service, you are eligible for and entitled to payment of severance benefits under the provisions of a Severance Policy that include waiver of the continuous employment requirement applicable to the Stock Units, shares of Common Stock equal to the number or portion of the Stock Units determined under such Severance Policy, which are earned (as determined by the Committee) based on achievement of the Performance Criteria through the end of the fiscal year 2025, 2026 or 2027 (or portion thereof), as established under the Severance Policy, and for which the continuous employment requirement has been waived under the Severance Policy shall be delivered to you (through your account at the Company's third party stock plan administrator, if applicable) free of all restrictions except subject to the covenants contained in these Standard Terms and Conditions. The payment of the Stock Units under this Section 6(iv) shall be made at the time designated under the Severance Policy, but in no event later than two and one-half (2½) months following the end of the calendar year that includes the date on which the Separation from Service occurs.

(v) If you have not satisfied the age and service criteria for Retirement and have a Separation from Service prior to the Restriction Period Termination Date because your employment is involuntarily terminated by the Company (other than a termination as a result of your Disability, cause or gross misconduct as determined by the Committee), within twenty-four (24) months following a Change in Control, shares of Common Stock equal to the number of Stock Units which are earned (as determined by the Committee) based on achievement of the applicable Performance Criteria through the end of each fiscal year ending prior to the occurrence of such Change in Control and through the end of the most recent fiscal quarter ending prior to the date of the Change in Control shall be delivered to you (through your account at the Company's third party administrator, if applicable) free of all restrictions except subject to the covenants contained in these Standard Terms and Conditions. The payment of the Stock Units under this Section 6(v) shall be made as soon as administratively practicable following your Separation from Service, but in no event later than two and one-half (2½) months following the end of the calendar year that includes the date on which the Separation from Service occurs.

(vi) Except as otherwise provided in this Section 6, all of the Stock Units shall be forfeited and all of your rights to such Stock Units shall terminate without further obligation on the part of the Company unless you remain in the continuous employment of the Company (such continuous employment shall, for this purpose, include a period of time during which you are absent from active employment in accordance with a leave of absence policy adopted by the Company) until the earlier of the Restriction Period Termination Date or a Change in Control in which the acquiring or surviving company in the transaction does not assume or continue the outstanding Stock Units. Notwithstanding the foregoing, the Committee may, if it finds that the circumstances in the particular case so warrant and subject to your satisfaction of any conditions the Company may require, allow you, even if you cease to be so continuously employed and have a Separation from Service prior to the earlier of the Restriction Period Termination Date or such Change in Control, to vest in some or all of the Stock Units which are earned (as determined by the Committee) based on achievement of the applicable Performance Criteria through the end of the fiscal year ending prior to the year in which such Separation from Service occurs. In such event, the payment of the Stock Units under this Section 6(vi) shall be made as soon as administratively practicable following the date on which the Committee authorizes such payment, but in no event later than two and one-half (2½) months following the end of the calendar year that includes the date on which your Separation from Service occurs. The Stock Units paid in accordance with this Section 6(vi) remain subject to the covenants contained in these Standard Terms and Conditions.

(vii) Notwithstanding the foregoing, you may elect to defer receipt of payment of shares underlying the Stock Units to the extent and according to the terms, if any, provided by the Deferred Compensation Plan. If you so elect to defer payment of shares underlying the Stock Units, such payments will be made in accordance with the Deferred Compensation Plan and with any payments of Dividend Equivalent Payments made in accordance with the provisions of Section 4.

(viii) Notwithstanding the foregoing, the Company shall not be obligated to deliver any shares of Common Stock during any period when the Company determines that the delivery of shares hereunder would violate any federal, state or other applicable laws and/or may issue shares subject to any restrictive legend that, as determined by the Company's counsel, is necessary to comply with securities or other regulatory requirements. Furthermore, the date on which shares are delivered to you (and any Dividend Equivalent Payment thereon) may include a delay to provide the Company such time as it determines appropriate to calculate and certify the extent to which the Performance Criteria were satisfied and to calculate and address tax withholding and/or other administrative matters; provided, however, that delivery of shares of Common Stock underlying the Stock Units (including any Dividend Equivalent Payments) for Stock Units that are determined to be exempt from the requirements of Internal Revenue Code § 409A shall in all events be made at a time that satisfies the "short-term deferral" exception described in Treas. Reg. section 1.409A-1(b)(4) and for Stock Units subject to Internal Revenue Code section 409A shall in all events be made at a time that satisfies Treas. Reg. 1.409A-2(b)(7).

7. PROTECTION OF CONFIDENTIAL INFORMATION AND TRADE SECRETS

A. CONFIDENTIAL INFORMATION AND TRADE SECRETS

You acknowledge that the Company regards certain information relating to its business and operations as confidential. This includes all confidential and proprietary information concerning the assets, business or affairs of the Company or any customers thereof ("Confidential Information"). You further acknowledge that the Company has certain information that derives economic value from not being known to the general public or to others who could obtain economic value from its disclosure or use, as to which the Company takes reasonable efforts to protect its secrecy of ("Trade Secrets").

B. TYPES OF CONFIDENTIAL INFORMATION OR TRADE SECRETS

You acknowledge that you did have, currently have, and/or in the future will have developed, obtained, and/or been given access to the Company's Confidential Information or Trade Secrets. By way of example only, the Company's Confidential Information or Trade Secrets may include, but are not limited to: information about rates or costs; customer or supplier agreements and negotiations; business opportunities; scheduling and delivery methods; business and marketing plans; financial information or plans; communications within the attorney-client privilege or other privileges; operating procedures and methods; construction methods and plans; proprietary computer systems design, programming or software; strategic plans; succession plans; proprietary company training programs; employee performance, compensation or benefits; negotiations or strategies relating to collective bargaining agreements and/or labor disputes; and policies and internal or external claims or complaints regarding personal injuries, employment laws or policies, environmental protection, or hazardous materials. You agree that any unauthorized disclosures by you to any third party of such Confidential Information or Trade Secrets would be a material violation of this Agreement, would constitute gross misconduct, and would cause irreparable harm to the Company.

Notwithstanding the foregoing, in accordance with the Defend Trade Secrets Act of 2016, you will not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a Trade Secret that is made (i) in confidence to a federal, state or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

C. AGREEMENT TO MAINTAIN CONFIDENTIAL INFORMATION

You agree to not, unless you received prior written consent from the senior human resources officer or such other person designated in writing by the Company (hereinafter collectively referred to as the "Sr. HR Officer"), or unless ordered by a court or government agency, (i) divulge, use, furnish or disclose to any subsequent employer or, except to the extent necessary to perform your job responsibilities with the Company, any other person, whether or not a competitor of the Company, any Confidential Information or Trade Secrets, or (ii) retain or take with you when you leave the Company any property of the Company or any documents (including any electronic or computer records) relating to any Confidential Information or Trade Secrets.

D. PRIOR NOTICE OF EMPLOYMENT

You acknowledge that if you become an employee, contractor, or consultant for any other person or entity engaged in the Business of the Company, as defined in Section (G), it would create a substantial risk that you would, intentionally or unintentionally, disclose or rely upon the Company’s Confidential Information or Trade Secrets for the benefit of the other person or entity to the detriment of the Company. You further acknowledge that such disclosures would be particularly damaging if made shortly after you leave the Company. You agree that while you are employed by or working for the Company and for a period of two (2) years after you leave the Company, before accepting any employment or affiliation with another person or entity, you will give written notice to the Sr. HR Officer of your intention to accept such employment or affiliation. You also agree to confer in good faith with the Sr. HR Officer concerning whether your proposed employment or affiliation could reasonably be expected to be performed without improper disclosure of Confidential Information or Trade Secrets.

E. NON-SOLICITATION OF CUSTOMERS

In consideration for your employment with the Company, the financial and other benefits you received from that employment, the Award, and/or access to Confidential Information and/or Trade Secrets, as defined in this Agreement, you agree that during employment with the Company, and for a period of two (2) years following your departure from the Company, you will not (directly or indirectly, in association with others or otherwise) call on or solicit any of the Company’s customers with whom you had personal contact or about whom you received Confidential Information during the period from the Grant Date of this Award until the Restriction Period Termination Date (or, if earlier, the date your employment with the Company ceased), for the purpose of providing the customers with goods and/or services similar in nature to those provided by the Company in its Business as defined below in Section (G).

F. NON-SOLICITATION OF EMPLOYEES

In consideration for your employment with the Company, the financial and other benefits you received from that employment, the Award, and/or access to Confidential Information and/or Trade Secrets, as defined in this Agreement, you agree that during employment with the Company, and for a period of two (2) years following your departure from the Company, you will not (directly or indirectly, in association with others or otherwise), participate in hiring or attempting to hire away a Company employee or contractor, or induce or encourage any employees or contractors of the Company to terminate their relationship with the Company, without prior written consent of the Sr. HR Officer.

G. NON-COMPETITION

In consideration for your employment with the Company, the financial and other benefits you received from that employment, the Award, and/or access to Confidential Information and/or Trade Secrets, as defined in this Agreement, you agree that during employment with the Company, and for a period of two (2) years following your departure from the Company, you will not (directly or indirectly, in association with others or otherwise) engage in any activity for a competitive Business (as defined below) in which (i) the use, disclosure, or misappropriation of the Confidential Information and/or Trade Secrets you had access to or obtained during your employment with the Company may provide the competitive Business with a competitive advantage against the Company, and/or otherwise cause harm to the Company; or (ii) you would be in a position to solicit or otherwise contact, on behalf of the competitive Business, any current or prospective Company customers and clients with whom you had personal contact or about whom you learned Confidential Information and/or Trade Secrets. The foregoing includes, without limitation, engagement as an officer, director, proprietor, employee, partner, manager, member, investor (other than as a holder of less than 2% of the outstanding capital stock of a publicly traded corporation), guarantor, consultant, advisor, agent, sales representative or other participant within any State in which the Company does business. For the avoidance of doubt, the term "State" as used in this agreement shall be interpreted to include any legal territory of the United States where the Company does business, including, by way of example, the District of Columbia, except as set forth in Section H.

Further, for purposes of these Standard Terms and Conditions, the term "Business" means the transportation of goods in interstate commerce and related services in or through or for any State in which the Company or any of its affiliates provides such services directly or indirectly and any other activity that supports such operations including by the way of example but not limitation, marketing, information systems, logistics, technology development or implementation, terminal services and any other activity of the Company or any of its affiliates related to providing such services. This Section (G) is not intended to prevent you from engaging in any activity that is not substantially the same as or competitive with the Company's Business.

H. SPECIFIC STATE LAW LIMITATIONS

This Section 7 is subject to the following limitations or agreements for employees based in the specific States listed below. The Company agrees to these limitations solely for the purpose of compliance with each State's laws. If your employment with the Company is not based in the following States, you agree that the paragraphs above apply to you in full.

(i) For employees based in California:

(a) Section (E) does not apply to you, except that you agree that you will be prohibited from solicitation of the Company's clients using the Company's trade secrets, and/or providing services for anyone other than the Company using the Company's trade secrets.

(b) Sections (F) and (G) do not apply to you.

(ii) For employees based in Colorado, Section (G) does not apply to you unless your annualized cash compensation from the Company exceeds the threshold set by the Colorado Department of Labor and Employment, Division of Labor Standards and Statistics. This threshold was $123,750 for 2024. This threshold is scheduled to be $127,091 for 2025. If your annualized cash compensation does exceed these thresholds, Section (G) still only restricts you from engaging in any activity for a competitive Business (as defined above) in which the use, disclosure, or misappropriation of Trade Secrets you had access to or obtained during your employment with the Company may provide the competitive Business with a competitive advantage against the Company, and/or otherwise cause harm to the Company. Section (E) does not apply to you unless your annualized cash compensation from the Company exceeds the threshold set by the Colorado Department of Labor and Employment, Division of Labor Standards and Statistics. As of 2024, this threshold was $74,250. For 2025, this threshold is scheduled to be $76,254.

(iii) For employees based in the District of Columbia, Sections (E) and (G) do not apply to you unless you are reasonably expected to earn in a consecutive 12-month period or have earned in the preceding 12-month period, compensation greater than or equal to the threshold set by the District of Columbia Non-Compete Agreements Amendment Act of 2020, as amended. As of 2024, this threshold was $154,200, and the District of Columbia may announce a higher threshold for 2025. For purposes of this agreement, an employee based in the District of Columbia who meets this compensation threshold shall be deemed a "Highly Compensated Employee." Further, Section (G), if it applies to you, is limited in time to 12 months from the date of your termination of employment.

(iv) For employees based in Illinois, Section (G) does not apply to you (a) unless you earn more than $75,000 per year (or any higher amount set by the Illinois Freedom to Work Act for future years), or (b) if the Company terminates, furloughs, or lays you off as the result of business circumstances or governmental orders related to the COVID-19 pandemic or under circumstances that are similar to the COVID-19 pandemic, unless enforcement of the covenant not to compete includes compensation equivalent to your base salary at the time of termination for the period of enforcement minus compensation earned through subsequent employment during the period of enforcement. Sections (E) and (F) do not apply to you (a) unless you earn more than $45,000 per year (or any higher amount set by the Illinois Freedom to Work Act for future years), or (b) if the Company terminates, furloughs, or lays you off as the result of business circumstances or governmental orders related to the COVID-19 pandemic or under circumstances that are similar to the COVID-19 pandemic, unless enforcement of the covenant not to compete includes compensation equivalent to the your base salary at the time of termination for the period of enforcement minus compensation earned through subsequent employment during the period of enforcement.

(v) For employees based in Louisiana, you agree that the Company operates throughout the State of Louisiana, and that Section 7 therefore applies in every parish and municipality in the State, which include Acadia Parish, Allen Parish, Ascension Parish, Assumption Parish, Avoyelles Parish, Beauregard Parish, Bienville Parish, Bossier Parish, Caddo Parish, Calcasieu Parish, Caldwell Parish, Cameron Parish, Catahoula Parish, Claiborne Parish, Concordia Parish, De Soto Parish, East Baton Rouge Parish, East Carroll Parish, East Feliciana Parish, Evangeline Parish, Franklin Parish, Grant Parish, Iberia Parish, Iberville Parish, Jackson Parish, Jefferson Davis Parish, Jefferson Parish, La Salle Parish, Lafayette Parish, Lafourche Parish, Lincoln Parish, Livingston Parish, Madison Parish, Morehouse Parish, Natchitoches Parish, Orleans Parish, Ouachita Parish, Plaquemines Parish, Pointe Coupee Parish, Rapides Parish, Red River Parish, Richland Parish, Sabine Parish, St. Bernard Parish, St. Charles Parish, St. Helena Parish, St. James Parish, St. John the Baptist Parish, St. Landry Parish, St. Martin Parish, St. Mary Parish, St. Tammany Parish, Tangipahoa Parish, Tensas Parish, Terrebonne Parish, Union Parish, Vermilion Parish, Vernon Parish, Washington Parish, Webster Parish, West Baton Rouge Parish, West Carroll Parish, West Feliciana Parish, and Winn Parish.

(vi) For employees based in Maine, Section G will not apply to you unless your annual compensation exceeds a threshold of 400% percent of the federal poverty level. For 2024, this threshold was $60,240. For 2025, this threshold may be different.

(vii) For employees based in Minnesota, Section (G) does not apply to you.

(viii) For employees based in Nevada, Section (G) does not apply to you if you are paid solely on an hourly wage basis, exclusive of any tips or gratuities. Further, if the termination of your employment is the result of a reduction of force, reorganization, or similar restructuring, Section (G) will only be enforceable during the period in which the Company is paying your salary, benefits, or equivalent compensation, including severance pay.

(ix) For employees based in New York, Section (E) does not apply to any customer that became a customer of the Company only as a result of your independent contact and business development efforts with the customer before and independent from your employment with the Company.

(x) For employees based in North Dakota, Sections (E) and (G) do not apply to you.

(xi) For employees based in Oklahoma:

(a) Section (E) only restricts you from directly (not indirectly) engaging in calling upon or soliciting the Company's customers with whom you had personal contact or about whom you received Confidential or Trade Secret information, for the purpose of providing the customers with goods and/or services similar in nature to those provided by the Company in its Business as defined in Section (G), within any State in which the Company does business.

(b) Sections (F) and (G) do not apply to you.

(xii) For employees based in Oregon, Section (G) does not apply to you unless your annual compensation exceeds the statutory threshold (adjusted annually for inflation pursuant to the Consumer Price Index for All Urban Consumers, West Region (All Items) published by the Bureau of Labor Statistics of the United States Department of Labor). For 2024, this threshold was $113,241. For 2025, this threshold may be higher. Section (G) also does not apply to you unless you (i) perform predominantly intellectual, managerial, or creative tasks; (ii) exercise discretion and independent judgment; and (iii) are paid on a salary basis. Section (G) also does not apply to you unless (1) you personally received notice that you would be subject to a non-compete at least two weeks before you began employment, or (2) you became eligible to enter into these Standard Terms and Conditions by virtue of a promotion or other bona fide advancement. Further, Section (G), if it applies to you, is limited in time to 12 months from the date of your termination of employment.

(xiii) For employees based in Virginia, Section (G) does not apply to you if your average weekly earnings, calculated as provided under Code of Virginia section 40.1-28.7:7 (the "Virginia Act"), are less than the average weekly wage of the Commonwealth as determined pursuant to subsection B of section 65.2-500, or you otherwise qualify as a "low-wage employee" under the Virginia Act. For 2024, this threshold was $73,320. For 2025, this threshold may be different. You will not be considered a "low-wage employee" if your earnings are derived, in whole or in predominant part, from sales commissions, incentives, or bonuses paid by the Company. You also agree that the restrictive covenants in these Standard Terms and Conditions are reasonably limited in nature and do not prohibit your employment with a competing business in a non-competitive position.

(xiv) For employees based in the State of Washington:

(a) Section (G) does not apply to you unless your annual earnings from your employment with the Company exceed the threshold established by the Washington Department of Labor and Industries pursuant to RCW 49.62.040. As of 2024, this threshold was $120,559.99. The Department has announced that this threshold is set to be $123,394.17 for 2025. If your employment with the Company is terminated as the result of a layoff, Section (G) does not apply unless, during the period of enforcement, the Company pays you compensation equivalent to your final base pay at the time of the termination of employment, minus the amount of any compensation you earn through employment after the end of your employment with the Company, which new employment and compensation you agree to promptly and fully disclose. For purposes of this section, "layoff" means termination of your employment by the Company for reasons of the Company's insolvency or other purely economic factors, and specifically excludes termination of your employment for any other reason, either with or without cause. In addition, nothing herein will restrict you from, while working for the Company, having an additional job, supplementing your income by working for another employer, working as an independent contractor, or being self-employed from this additional employment, if you do not earn at least twice the Washington minimum hourly wage, though you will be subject to the terms of the Standard Terms and Conditions, the Company's applicable policies, and the common law duty of loyalty. In addition to the other forms of protected conduct, nothing herein prohibits disclosure or discussion of conduct you reasonably believe to be illegal discrimination, illegal harassment, illegal retaliation, a wage-and-hour violation, or sexual assault,

or that is recognized as against a clear mandate of public policy. Further, Section (G), if it applies to you, is limited in time to 18 months from the date of your termination of employment.

(b) Section (E) does not restrict solicitation of former customers of the Company or the mere acceptance or transaction of business with a customer, unless Section (G) also applies to you pursuant to the terms of Section (H)(xiv)(a). For the avoidance of doubt, even if Section (G) does not apply to you, Section (E) still restricts the solicitation of current customers of the Company.

8. INJUNCTIVE RELIEF

You agree that each of the restraints contained herein is, in consideration for, and necessary for the protection of the goodwill, Confidential Information, Trade Secrets and other legitimate interests of the Company; that each and every one of these restraints is reasonable in respect to subject matter, length of time and geographic area, to the extent they apply in the State in which your employment with the Company is based; and that these restraints, neither individually nor in the aggregate, will not prevent you from obtaining other suitable employment during the period in which you are bound by such restraints. You further acknowledge that, if you breach any one or more of the covenants contained in Section 7, the damage to the Company would be irreparable. You therefore agree that the Company, in addition to any other remedies available to it, including, without limitation, the remedies set forth in Sections 9 and 10, shall be entitled to injunctive relief against your breach or threaten breach of said covenants, to the extent they apply in the State in which your employment with the Company is based.

9. VIOLATION OF PROMISES

You agree that if you violate any one or more of the promises set forth in Section 7 then, in lieu of or in addition to any other remedies available to Company as permitted by applicable law, all unvested Stock Options subject to this Grant shall be immediately forfeited. If at any time the Committee or the Sr. HR Officer notifies (the date such notice is provided, the "Notice Date") the Company that they reasonably believe that you have violated any one or more of the promises set forth in Section 7, the vesting of this Award may be suspended pending a determination of whether you violated any such provision by a tribunal as specified in Section 10 and 12. In addition, in lieu of or in addition to any remedy provided for in Section 8, at any time the Company may seek in any proceeding that you be required to immediately deliver to the Company any shares of Common Stock (or the fair market value thereof) and any related Dividend Equivalent Payments earned by or issued to you pursuant to this Grant at any time during the three (3) full fiscal years preceding your violation of Section 7. You agree that you will deliver such shares of Common Stock (or the fair market value thereof) and any related Dividend Equivalent Payments to the Company on such terms and conditions as may be required by the Company. You further agree that the Company will be entitled to enforce this repayment obligation by all legal means available, including, without limitation, to set off the market value of any such shares of Common Stock and any related Dividend Equivalent Payments against any amount that might be owed to you by the Company. For the avoidance of doubt, this paragraph shall apply only to the extent you violate a promise set forth in Section 7 that is applicable in the State in which your employment with the Company is based, pursuant to Section 7(H).

GENERAL

10. DISPUTE RESOLUTION

(i) You and the Company each agree that any controversy, claim, or dispute arising out of or relating to these Standard Terms and Conditions or arising out of or relating to your employment relationship with the Company or any of its affiliates, the termination of such relationship, your conduct following the termination of such relationship, or any application you submitted for employment with the Company, shall be resolved by binding arbitration before a neutral arbitrator on an individual basis only, and not in any form of class, collective, or private attorney general representative proceeding. By way of example only, claims subject to this agreement to arbitrate include claims litigated under federal, state and local statutory or common law, such as the Family Medical Leave Act, the Age Discrimination in Employment Act of 1967, Older Workers Benefit Protection Act of 1990, Title VII of the Civil Rights Act of 1964, the Civil Rights Act of 1990, the Americans with Disabilities Act, the Federal Employers Liability Act, the Federal Railway Safety Act, the Worker Adjustment and Retraining Notification Act, the Genetic Information Nondiscrimination Act, the law of contract and the law of tort. You and the Company each agree that such claims may be brought in an appropriate administrative forum, but if you or the Company seek a judicial forum to resolve the matter, this agreement for binding arbitration will become immediately effective, and you and the Company each hereby knowingly and voluntarily waive any right to have any such dispute tried and adjudicated by a judge or jury.

(ii) For disputes arising under Sections 7 and 9 of these Terms and Conditions, the parties will submit the dispute, within 30 business days following service of notice of such dispute by one party on the other, to the American Arbitration Association (AAA) for prompt resolution in the State in which your employment with the Company is based, under AAA rules for employment disputes. For all other disputes within the scope of subpart (i), the parties will submit the dispute, within 30 business days following service of notice of such dispute by one party on the other, to AAA for prompt resolution in Salt Lake City, Utah, also under AAA rules for employment disputes. In either case, there shall be a single arbitrator, chosen in accordance with AAA rules, who at such time shall be on AAA's Judicial Panel. If there are no AAA arbitrators in the applicable State, another arbitrator shall be selected from that State or a neighboring State, but the arbitration will still be conducted in the State in which your employment with the Company is based. The decision of the arbitrator will be final and binding upon the parties, and judgment may be entered thereon in accordance with applicable law in any court having jurisdiction. The arbitrator shall have the authority to make an award of monetary damages and interest thereon. The arbitrator shall have no authority to award, and the parties hereby waive any right to seek or receive, specific performance or an injunction, punitive or exemplary damages, except that the arbitrator shall have authority to issue injunctive relief to enforce the covenants in Sections 7 and 9, to the extent those covenants apply in the State in which your employment with the Company is based. The arbitrator will have no authority to order a modification or amendment of these Standard Terms and Conditions, except that if the arbitrator finds any covenant in Sections 7 and 9 of this agreement to be unenforceable as written, the arbitrator shall deem the agreement amended in order to give each such covenant its maximum effect, to the extent permitted by law in the State in which your employment with the Company is based. The arbitrator shall have the authority to award costs of arbitration, including reasonable attorney's fees, to the prevailing party, but in the absence of such award the parties shall bear their own attorney and filing fees unless otherwise agreed upon mutually by the parties or required by law. The Company shall bear the cost of the arbitrator's fees.

(iii) Notwithstanding the foregoing, the Company may seek injunctive relief to enforce any one or more of the covenants set forth in Sections 7 or 9 of these Terms and Conditions, in a court of competent jurisdiction, as set forth in Section 12 below. You specifically agree that a court of competent jurisdiction may enter preliminary injunctive relief to restrain violations of any of the covenants in Sections 7 or 9 of these Terms and Conditions, pending arbitration or other litigation. For the avoidance of doubt, this provision only applies to the promises set forth in Sections 7 or 9 to the extent those Sections are applicable in the State in which your employment with the Company is based.

11. SEVERABILITY

If any provision of these Standard Terms and Conditions is, becomes, or is deemed to be invalid, illegal, or unenforceable in any jurisdiction, such provision shall be construed or deemed amended or limited in scope to conform to applicable laws or, in the discretion of the Company, it shall be stricken and the remainder of these Standard Terms and Conditions shall remain in force and effect.

12. CHOICE OF LAW; JURISDICTION

All questions pertaining to the construction, regulation, validity, and effect of these Standard Terms and Conditions shall be determined in accordance with the laws of the State of Utah, without regard to the conflict of laws doctrine, with the exception of Sections 7 or 9. All questions pertaining to the construction, regulation, validity, and effect of Sections 7 or 9 shall be determined in accordance with the laws of the State in which your employment with the Company is based. With respect to any claim or dispute involving your Grant and/or these Standard Terms and Conditions that is not subject to the arbitration pursuant to Section 12 hereof, other than those arising from Sections 7 or 9, you and the Company each hereby consent and submit to the personal jurisdiction and venue of any state or federal court located in the county of Salt Lake City within the State of Utah and, recognizing the appropriateness of the State of Utah for any such matters due to the Company being incorporated in Utah, you and the Company hereby agree and consent to the state and federal courts located in the county of Salt Lake City within the State of Utah as the sole and exclusive forum for resolution of any and all claims, causes of action or disputes arising out of or related to your Award and these Standard Terms and Conditions (including all terms incorporated by reference into these Standard Terms and Conditions).

You and the Company further agree that, if any one or more of the provisions of Section 7 are determined to be unenforceable by reason of it being overly broad, such provision shall be deemed to be modified to permit its enforcement to the maximum extent permitted by law.

13. AMENDMENTS

The Plan and these Standard Terms and Conditions may be amended or altered by the Committee or the Company's Board of Directors to the extent provided in the Plan.

14. RESTRICTIONS ON RESALES OF SHARES

The Company may impose such restrictions, conditions or limitations as it determines appropriate as to the timing and manner of any resales by you or other subsequent transfers by you of any Common Stock issued in respect of vested Stock Units, including without limitation (a) restrictions under an insider trading policy, (b) restrictions designed to delay and/or coordinate the timing and manner of sales by you and other holders and (c) restrictions as to the use of a specified brokerage firm for such resales or other transfers.

15. INCOME TAXES

The Company shall not deliver shares in respect of any Stock Units unless and until you have made satisfactory arrangements to pay or otherwise satisfy all applicable tax withholding obligations. Unless you pay the tax withholding obligations to the Company by cash or check in connection with the delivery of the Common Stock and any related Dividend Equivalent Payments, withholding may be effected, at the Company's option, by withholding Common Stock issuable in connection with the vesting of the Stock Units (provided that shares of Common Stock may be withheld only to the extent that such tax withholding will not result in adverse accounting treatment for the Company) or withholding any related Dividend Equivalent Payments. You acknowledge that the Company shall have the right to deduct any taxes required to be withheld by law in connection with the Stock Units from any amounts payable by it to you (including, without limitation, future cash wages).

16. NON-TRANSFERABILITY OF AWARD

You understand, acknowledge and agree that, except as otherwise provided in the Plan, the Stock Units may not be sold, assigned, transferred, pledged or otherwise directly or indirectly encumbered or disposed of prior to the payment of the Common Stock to you as provided in Section 16 hereof. Your beneficiaries and anyone claiming an interest in the Stock Units through you are subject to all of the terms and conditions applicable to you, other than the covenants set forth in Section 7.

17. CLAWBACK AND RECOUPMENT

If you are or become a Covered Executive or Other Executive under the Company's Policy for Recoupment of Certain Compensation, you agree that your Award is subject to recoupment, including in connection with a financial restatement or any detrimental conduct, pursuant to and in accordance with the Company's Policy for Recoupment of Certain Compensation, as amended from time to time, and pursuant to any other policy the Company may adopt pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act, other applicable law, or stock exchange listing standard. No recovery of compensation under such a clawback policy shall be treated as an event giving rise to a right to terminate employment for "good reason" or "constructive termination" (or any similar term) under any agreement with the Company. In addition, if you are or become a Covered Executive or Other Executive under the Company's Policy for Recoupment of Certain Compensation, you agree that that the Company shall not indemnify you against any liability or loss (including without limitation the loss of any incentive-based compensation, any payment or reimbursement for the cost of third-party insurance purchased by you to fund potential recovery obligations with respect to the Company's Policy for Recoupment of Certain Compensation, or any judgments, fines, taxes, penalties or amounts paid in settlement by or on behalf of you) incurred by you in connection with or as a result of any action taken by the Company to enforce the terms of the Company's Policy for Recoupment of Certain Compensation (a "Clawback Proceeding"), or provide any indemnification or advancement of expenses (including attorneys' fees) incurred by you in connection with any such Clawback Proceeding.

18. LIMITATION OF INTEREST IN SHARES SUBJECT TO RESTRICTED STOCK UNITS

Neither you (individually or as a member of a group) nor any beneficiary or other person claiming, under or through you shall have any right, title, interest, or privilege in or to any shares of Common Stock allocated or reserved for the purpose of the Plan or the Key Employee Continuity Plan, or subject to the Grant Notice or these Standard Terms and Conditions, except as to such shares of Common Stock, if any, as shall have been issued to such person upon vesting of the Stock Units, which shares shall remain subject to the conditions set forth in these Standard Terms and Conditions. Nothing in the Plan, in the Key Employee Continuity Plan, in the Grant Notice, in these Standard Terms and Conditions, or in any other instrument executed pursuant to the Plan shall confer upon you any right to continue in the Company's employ or service nor limit in any way the Company's right to terminate your employment at any time for any lawful reason.

19. OTHER AGREEMENTS SUPERSEDED

The Grant Notice, these Standard Terms and Conditions, the Plan and the Long-Term Plan constitute the entire understanding between you and the Company regarding the Stock Units. Any prior agreements, commitments or negotiations concerning the Stock Units are superseded.

20. REVIEW PERIOD/NOTICE FOR CERTAIN EMPLOYEES

IF YOU ARE EMPLOYED BY THE COMPANY IN THE STATE OF **COLORADO** AND ARE SUBJECT TO THE RESTRICTIONS IN SECTIONS 7(E), (F) and (G), YOU ACKNOWLEDGE THAT YOU RECEIVED THIS AGREEMENT BEFORE THE EARLIER OF ITS EFFECTIVE DATE OR THE EFFECTIVE DATE OF ANY ADDITIONAL COMPENSATION OR CHANGE IN THE TERMS OR CONDITIONS OF EMPLOYMENT THAT PROVIDES CONSIDERATION FOR THE COVENANTS IN THIS AGREEMENT. YOU ACKNOWLEDGE THAT YOU HAVE 14 CALENDAR DAYS FROM THE DAY YOU RECEIVED THIS AGREEMENT TO REVIEW IT AND THAT YOU ARE ADVISED TO CONSULT LEGAL COUNSEL PRIOR TO SIGNING IT.

IF YOU ARE EMPLOYED BY THE COMPANY IN THE **DISTRICT OF COLUMBIA** AS A "HIGHLY COMPENSATED EMPLOYEE," AS DEFINED IN SECTION 7(H), YOU ACKNOWLEDGE THAT YOU HAVE HAD AT LEAST 14 CALENDAR DAYS BEFORE YOU BEGAN YOUR EMPLOYMENT TO REVIEW THIS AGREEMENT, OR IF YOU ARE A CURRENT EMPLOYEE, 14 DAYS FROM THE DAY YOU RECEIVED THIS AGREEMENT TO REVIEW IT. PLEASE ALSO TAKE NOTICE THAT THE DISTRICT'S BAN ON NON-COMPETE AGREEMENTS AMENDMENT ACT OF 2020, AS AMENDED, LIMITS THE USE OF NON-COMPETE AGREEMENTS. IT ALLOWS EMPLOYERS TO REQUEST NON-COMPETE AGREEMENTS FROM HIGHLY COMPENSATED EMPLOYEES, AS THAT TERM IS DEFINED IN THE BAN ON NON-COMPETE AGREEMENTS AMENDMENT ACT OF 2020, AS AMENDED, UNDER CERTAIN CONDITIONS. IF YOU MEET THE COMPENSATION THRESHOLDS SET FORTH IN SECTIONS 7(E) AND (G), THE COMPANY HAS DETERMINED THAT YOU ARE A HIGHLY COMPENSATED EMPLOYEE. FOR MORE INFORMATION ABOUT THE BAN ON NON-COMPETE AGREEMENTS AMENDMENT ACT OF 2020, AS AMENDED, CONTACT THE DISTRICT OF COLUMBIA DEPARTMENT OF EMPLOYMENT SERVICES (DOES).

IF YOU ARE EMPLOYED BY THE COMPANY IN THE STATE OF **ILLINOIS**, YOU ACKNOWLEDGE THAT YOU HAVE AT LEAST 14 CALENDAR DAYS FROM THE DAY YOU RECEIVED THIS AGREEMENT TO REVIEW IT AND THAT YOU ARE ADVISED TO CONSULT LEGAL COUNSEL PRIOR TO SIGNING IT.

IF YOU ARE EMPLOYED BY THE COMPANY IN THE COMMONWEALTH OF **VIRGINIA**, YOU ACKNOWLEDGE THAT YOU HAVE BEEN PROVIDED A COPY OF THIS AGREEMENT AT LEAST THREE BUSINESS DAYS BEFORE THE DEADLINE TO SIGN THIS AGREEMENT.

IF YOU ARE EMPLOYED BY THE COMPANY IN THE STATE OF **WASHINGTON**, YOU ACKNOWLEDGE THAT IF THIS AGREEMENT IS ENTERED INTO AFTER THE START OF YOUR EMPLOYMENT, YOU RECEIVED INDEPENDENT CONSIDERATION FOR ENTERING INTO THIS AGREEMENT. IF YOU ARE A NEW EMPLOYEE, YOU ACKNOWLEDGE THAT YOU HAVE RECEIVED THIS AGREEMENT OR A WRITTEN DESCRIPTION OF ITS COVENANTS NO LATER THAN THE TIME OF THE INITIAL ORAL OR WRITTEN ACCEPTANCE OF THE OFFER OF EMPLOYMENT.

Exhibit 10(b)

UNION PACIFIC CORPORATION
GRANT NOTICE FOR 2021 STOCK INCENTIVE PLAN
NONQUALIFIED STOCK OPTION

FOR GOOD AND VALUABLE CONSIDERATION, Union Pacific Corporation (the "Company"), hereby grants to Participant named below (for purposes hereof, references herein to "you" or "your" shall refer to such Participant) the nonqualified stock option (the "Option") to purchase any part or all of the number of shares of its common stock, par value $2.50 (the "Common Stock"), that are covered by this Option, as specified below, at the Exercise Price per share specified below and upon the terms and subject to the conditions set forth in this Grant Notice, the Union Pacific Corporation 2021 Stock Incentive Plan (the "Plan") the Standard Terms and Conditions (the "Standard Terms and Conditions") adopted under such Plan and provided to you, and, if applicable, the Union Pacific Corporation Key Employee Continuity Plan (the "Key Employee Continuity Plan") and the Policy for Recoupment of Certain Compensation, each as amended from time to time. In addition, if you become eligible for and entitled to severance benefits under a broad-based severance pay policy of the Company that include waiver of the vesting period and/or extension of the exercise period with respect to the Option (the "Severance Policy"), the Option also shall be subject to the terms of such Severance Policy.

This Option is granted pursuant to the Plan and is subject to and qualified in its entirety by the Standard Terms and Conditions.

Name of Participant:	
Grant Date:	February 7, 2025
Grant Number:	
Number of Shares of Common Stock covered by Option:	
Exercise Price Per Share:	
Expiration Date:	February 7, 2035

Vesting Schedule:

Shares	Vest Date
	February 8, 2026
	February 8, 2027
	February 8, 2028

This Option is not intended to qualify as an incentive stock option under Section 422 of the Internal Revenue Code of 1986, as amended.

By electronically accepting this Option, you acknowledge that you have received and read, and agree that this Option shall be subject to, the terms of this Grant Notice, the Plan, the Standard Terms and Conditions and, if applicable, the Key Employee Continuity Plan and/or the Severance Policy (including, but not limited to, the Key Employee Continuity Plan's or Severance Policy's requirement, if any, that you execute a general release of employment-related claims) and the Policy for Recoupment of Certain Compensation. You also hereby consent to the delivery of information (including, without limitation, information required to be delivered to you pursuant to applicable securities laws) regarding the Company and the Subsidiaries, the Plan, and the Option via Company website or other electronic delivery.

YOU HAVE ONE HUNDRED AND EIGHTY (180) DAYS FROM THE GRANT DATE SET FORTH IN THIS GRANT NOTICE TO ELECTRONICALLY ACCEPT THIS AWARD AND THE STANDARD TERMS AND CONDITIONS. IF YOU DO NOT ACCEPT THIS AWARD AND THE STANDARD TERMS AND CONDITIONS IN THE APPLICABLE 180 DAY PERIOD, YOU WILL ***FORFEIT*** THE NONQUALIFIED STOCK OPTION THAT IS THE SUBJECT OF THIS AWARD.

UNION PACIFIC CORPORATION
STANDARD TERMS AND CONDITIONS FOR
NONQUALIFIED STOCK OPTION

These Standard Terms and Conditions apply to the Option granted pursuant to the Union Pacific Corporation 2021 Stock Incentive Plan, as amended (the "Plan"), which is identified as nonqualified stock option and is evidenced by a Grant Notice that specifically refers to these Standard Terms and Conditions. In addition to these Standard Terms and Conditions, the Option shall be subject to the terms of the Plan and, if applicable, the Key Employee Continuity Plan, the Severance Policy and/or the Policy for Recoupment of Certain Compensation, each as amended from time to time, which are incorporated into these Standard Terms and Conditions by this reference. Capitalized terms not otherwise defined herein shall have the meaning set forth in the Plan. For purposes of these Standard Terms and Conditions and the Grant Notice, any reference to the Company (as defined below) shall include a reference to any Subsidiary for which you are or have been employed. Additionally, references in these Standard Terms and Conditions to "you" or "your" shall refer to the Participant named in the Grant Notice provided to the Participant herewith (the "Grant Notice"), and such Participant's heirs and beneficiaries.

By electronically accepting the grant of the Option and these Standard Terms and Conditions, you acknowledge and agree to be bound by the following, which will survive your termination from employment and the vesting or forfeiture of the Option:

OPTION

1. TERMS OF OPTION

Union Pacific Corporation (the "Company"), has granted to you a nonqualified stock option (the "Option") to purchase up to the number of shares of the Company's common stock (the "Common Stock"), set forth in the Grant Notice. The exercise price per share and the other terms and conditions of the Option are set forth in the Grant Notice, these Standard Terms and Conditions, the Plan and, if applicable, the Key Employee Continuity Plan, the Severance Policy and/or the Policy for Recoupment of Certain Compensation, each as amended.

2. NONQUALIFIED STOCK OPTION

The Option is not intended to be an incentive stock option under Section 422 of the Internal Revenue Code of 1986, as amended (the "Code") and will be interpreted accordingly.

3. EXERCISE OF OPTION

The Option shall not be exercisable as of the Grant Date set forth in the Grant Notice. After the Grant Date, to the extent not previously exercised, and subject to termination or acceleration as provided in these Standard Terms and Conditions, the Plan and, if applicable, the Key Employee Continuity Plan, the Severance Policy and/or the Policy for Recoupment of Certain Compensation, the Option shall be exercisable only to the extent it becomes vested, as described in the Grant Notice, these Standard Terms and Conditions, the terms of the Plan and, if applicable, the Key Employee Continuity Plan, the Severance Policy and/or the Policy for Recoupment of Certain Compensation, to purchase up to that number of shares of Common Stock as set forth in the Grant Notice, provided that (except as may be provided otherwise in Section 4 below) you remain employed with the Company and do not experience a termination of employment.

The exercise price (the "Exercise Price") of the Option is set forth in the Grant Notice. The Company shall not be obligated to issue any shares of Common Stock until you have paid the total Exercise Price for that number of shares of Common Stock. To exercise the Option (or any part thereof), you must deliver to the Company appropriate notice specifying the number of whole shares of Common Stock you wish to purchase accompanied by valid payment in the form of (i) a check, (ii) an attestation form confirming your current ownership of whole shares of Common Stock equal in value to the total Exercise Price for that number of shares of Common Stock, and/or (iii) an authorization to sell shares equal in value to the total Exercise Price for that number of shares of Common Stock. Notices and authorizations shall be delivered and all checks shall be payable to the Company's third party stock plan administrator, or as otherwise directed by the Company.

Fractional shares may not be exercised. Shares of Common Stock will be issued as soon as practicable after exercise. Notwithstanding the above, for administrative or other reasons, including, but not limited to the Company's determination that exercisability of the Option would violate any federal, state or other applicable laws, the Company may from time to time suspend your ability to exercise an Option for limited periods of time, which suspensions shall not change the period in which the Option is exercisable, except as otherwise provided in the Plan.

4. EXPIRATION OF OPTION

Except as otherwise may be provided by the Committee consistent with the terms of the Plan, the Option shall expire and cease to be exercisable as of the earlier of (a) the Expiration Date set forth in the Grant Notice or (b) the date specified below in Sections 4A through 4H, as applicable.

A. If your termination of employment is by reason of death or you are determined to be disabled under the provisions of the Company's long-term disability plan, then any vesting period with respect to the Option shall be deemed to be satisfied and the Option shall become fully vested and exercisable (by you or your estate, beneficiary or legal representative, as the case may be) at the date of such termination of employment or the first day on which you are determined to be disabled under such long-term disability plan, as the case may be, until the date that is five (5) years following the date of such termination of employment or the first day of disability as determined under such long-term disability plan, as the case may be.

B. If you remain continuously employed with the Company until December 31, 2025, (which shall include a period of time during which you are absent from active employment in accordance with a leave of absence policy adopted by the Company), and have a termination of employment at or after attaining Retirement Status as defined below in this Section 4B, then the Option shall be exercisable in accordance with and at the times it becomes vested, as described in the Grant Notice, notwithstanding your termination of employment with the Company, until the date that is five (5) years following the date of such termination of employment. "Retirement Status" means the Participant has attained either: (i) age 55 with at least 10 years of vesting service; (ii) age 60 with at least 5 years of vesting service; or (iii) age 65. For this purpose, vesting service shall be calculated by applying the rules for determining "Vesting Service" under the Pension Plan for Salaried Employees of Union Pacific Corporation and Affiliates ("UPC Pension Plan"), regardless of whether you were ever a participant in the UPC Pension Plan.

C. If there is a Change in Control that occurs prior to your termination of employment in which the acquiring or surviving company in the transaction does not assume or continue the Option upon the Change in Control, any vesting period with respect to the Option shall be deemed to be satisfied and the Option shall become fully vested and exercisable (provided that the Option may be canceled upon the consummation of the Change in Control without payment of any additional consideration if the exercise price of the Option is less than the consideration per Share payable to shareholders of the Company in such Change in Control) and you may exercise the Option not assumed or continued until the date that is five (5) years following the date of such Change in Control. If you terminate employment following such Change in Control for a reason described in 4H, any unexercised portion of the Option shall be immediately forfeited and canceled as of the date of such termination of employment.

D. Except as provided in Section 4E hereof, if you terminate employment with the Company prior to attaining Retirement Status, and as a result of such termination of employment you are eligible for and entitled to payment of severance benefits under the provisions of a Severance Policy that include extension of the exercise period with respect to such Option, and provided you satisfy the conditions of the Severance Policy, you may exercise any portion of the Option that is vested and exercisable at the time of your termination of employment until the date established under the Severance Policy, provided that in no event will such date extend beyond the Expiration Date set forth in the Grant Notice.

E. If your employment is involuntarily terminated by the Company (other than a termination as a result of disability determined under the provisions of the Company's long-term disability plan, or cause or gross misconduct as determined by the Committee) within two (2) years following a Change in Control, any vesting period with respect to the Option shall be deemed to be satisfied and you may exercise the Option upon the date of such termination of employment, and the Option shall remain exercisable until the date that is three (3) years following the date of such termination of employment (or until the date that is five (5) years following the date of such termination of employment in the case of a termination of employment by reason of your death or a termination of employment described in Section 4B hereof). Furthermore, the Option exercise period shall be as described in Section 4A in the event you are determined to be disabled under the provisions of the Company's long-term disability plan prior to your termination of employment described in this Section 4E.

F. Notwithstanding the foregoing Sections 4A through 4E, if you are an Eligible Employee (within the meaning of the Key Employee Continuity Plan) in the Key Employee Continuity Plan and incur a Severance (within the meaning of the Key Employee Continuity Plan), the Option shall vest and be exercisable in accordance with the terms and conditions of the Key Employee Continuity Plan.

G. Except as otherwise provided in the foregoing Sections 4A through 4F: (i) you may exercise any portion of the Option that is vested and exercisable at the time of your termination of employment until the date that is three (3) months following the date of such termination of employment; and (ii) any portion of the Option that is not vested and exercisable at the time of such termination of employment shall be forfeited and canceled as of the date of such termination of employment.

H. Notwithstanding any other provision of this Section 4, if your employment is terminated by the Company for deliberate, willful or gross misconduct (as determined by the Committee), the unexercised portion of the Option, whether or not then vested and exercisable, shall be immediately forfeited and canceled as of the date of such termination of employment.

5. PROTECTION OF CONFIDENTIAL INFORMATION AND TRADE SECRETS

A. CONFIDENTIAL INFORMATION AND TRADE SECRETS

You acknowledge that the Company regards certain information relating to its business and operations as confidential. This includes all confidential and proprietary information concerning the assets, business or affairs of the Company or any customers thereof ("Confidential Information"). You further acknowledge that the Company has certain information that derives economic value from not being known to the general public or to others who could obtain economic value from its disclosure or use, as to which the Company takes reasonable efforts to protect its secrecy ("Trade Secrets").

B. TYPES OF CONFIDENTIAL INFORMATION OR TRADE SECRETS

You acknowledge that you did have, currently have, and/or in the future will have developed, obtained, and/or been given access to the Company's Confidential Information or Trade Secrets. By way of example only, the Company's Confidential Information or Trade Secrets may include, but are not limited to: information about rates or costs; customer or supplier agreements and negotiations; business opportunities; scheduling and delivery methods; business and marketing plans; financial information or plans; communications within the attorney-client privilege or other privileges; operating procedures and methods; construction methods and plans; proprietary computer systems design, programming or software; strategic plans; succession plans; proprietary company training programs; employee performance, compensation or benefits; negotiations or strategies relating to collective bargaining agreements and/or labor disputes; and policies and internal or external claims or complaints regarding personal injuries, employment laws or policies, environmental protection, or hazardous materials. You agree that any unauthorized disclosures by you to any third party of such Confidential Information or Trade Secrets would be a material violation of this Agreement, would constitute gross misconduct, and would cause irreparable harm to the Company.

Notwithstanding the foregoing, in accordance with the Defend Trade Secrets Act of 2016, you will not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a Trade Secret that is made (i) in confidence to a federal, state or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal.

C. AGREEMENT TO MAINTAIN CONFIDENTIAL INFORMATION

You agree to not, unless you received prior written consent from the senior human resources officer or such other person designated in writing by the Company (hereinafter collectively referred to as the Sr. HR Officer), or unless ordered by a court or government agency, (i) divulge, use, furnish or disclose to any subsequent employer or, except to the extent necessary to perform your job responsibilities with the Company, any other person, whether or not a competitor of the Company, any Confidential Information or Trade Secrets, or (ii) retain or take with you when you leave the Company any property of the Company or any documents (including any electronic or computer records) relating to any Confidential Information or Trade Secrets

D. PRIOR NOTICE OF EMPLOYMENT

You acknowledge that if you become an employee, contractor, or consultant for any other person or entity engaged in the Business of the Company, as defined in Section (G), it would create a substantial risk that you would, intentionally or unintentionally, disclose or rely upon the Company’s Confidential Information or Trade Secrets for the benefit of the other person or entity to the detriment of the Company. You further acknowledge that such disclosures would be particularly damaging if made shortly after you leave the Company. You agree that while you are employed by or working for the Company and for a period of two (2) years after you leave the Company, before accepting any employment or affiliation with another person or entity, you will give written notice to the Sr. HR Officer of your intention to accept such employment or affiliation. You also agree to confer in good faith with the Sr. HR Officer concerning whether your proposed employment or affiliation could reasonably be expected to be performed without improper disclosure of Confidential Information or Trade Secrets.

E. NON-SOLICITATION OF CUSTOMERS

In consideration for your employment with the Company, the financial and other benefits you received from that employment, the Award, and/or access to Confidential Information and/or Trade Secrets, as defined in this Agreement, you agree that during employment with the Company, and for a period of two (2) years following your departure from the Company, you will not (directly or indirectly, in association with others or otherwise) call on or solicit any of the Company's customers with whom you had personal contact or about whom you received Confidential Information during the period from the Grant Date of this Award until the Restriction Period Termination Date (or, if earlier, the date your employment with the Company ceased), for the purpose of providing the customers with goods and/or services similar in nature to those provided by the Company in its Business as defined below in Section (G).

F. NON-SOLICITATION OF EMPLOYEES

In consideration for your employment with the Company, the financial and other benefits you received from that employment, the Award, and/or access to Confidential Information and/or Trade Secrets, as defined in this Agreement, you agree that during employment with the Company, and for a period of two (2) years following your departure from the Company, you will not (directly or indirectly, in association with others or otherwise), participate in hiring or attempting to hire away a Company employee or contractor, or induce or encourage any employees or contractors of the Company to terminate their relationship with the Company, without prior written consent of the Sr. HR Officer.

G. NON-COMPETITION

In consideration for your employment with the Company, the financial and other benefits you received from that employment, the Award, and/or access to Confidential Information and/or Trade Secrets, as defined in this Agreement, you agree that during employment with the Company, and for a period of two (2) years following your departure from the Company, you will not (directly or indirectly, in association with others or otherwise) engage in any activity for a competitive Business (as defined below) in which (i) the use, disclosure, or misappropriation of the Confidential Information and/or Trade Secrets you had access to or obtained during your employment with the Company may provide the competitive Business with a competitive advantage against the Company, and/or otherwise cause harm to the Company; or (ii) you would be in a position to solicit or otherwise contact, on behalf of the competitive Business, any current or prospective Company customers and clients with whom you had personal contact or about whom you learned Confidential Information and/or Trade Secrets. The foregoing includes, without limitation, engagement as an officer, director, proprietor, employee, partner, manager, member, investor (other than as a holder of less than 2% of the outstanding capital stock of a publicly traded corporation), guarantor, consultant, advisor, agent, sales representative or other participant within any State in which the Company does business. For the avoidance of doubt, the term "State" as used in this agreement shall be interpreted to include any legal territory of the United States where the Company does business, including, by way of example, the District of Columbia, except as set forth in Section H.

Further, for purposes of these Standard Terms and Conditions, the term "Business" means the transportation of goods in interstate commerce and related services in or through or for any State in which the Company or any of its affiliates provides such services directly or indirectly and any other activity that supports such operations including by the way of example but not limitation, marketing, information systems, logistics, technology development or implementation, terminal services and any other activity of the Company or any of its affiliates related to providing such services. This Section (G) is not intended to prevent you from engaging in any activity that is not substantially the same as or competitive with the Company's Business.

H. SPECIFIC STATE LAW LIMITATIONS

This Section 5 is subject to the following limitations or agreements for employees based in the specific States listed below. The Company agrees to these limitations solely for the purpose of compliance with each State's laws. If your employment with the Company is not based in the following States, you agree that the paragraphs above apply to you in full.

(i) For employees based in California:

(a) Section (E) does not apply to you, except that you agree that you will be prohibited from solicitation of the Company's clients using the Company's trade secrets, and/or providing services for anyone other than the Company using the Company's trade secrets.

(b) Sections (F) and (G) do not apply to you.

(ii) For employees based in Colorado, Section (G) does not apply to you unless your annualized cash compensation from the Company exceeds the threshold set by the Colorado Department of Labor and Employment, Division of Labor Standards and Statistics. This threshold was $123,750 for 2024. This threshold is scheduled to be $127,091 for 2025. If your annualized cash compensation does exceed these thresholds, Section (G) still only restricts you from engaging in any activity for a competitive Business (as defined above) in which the use, disclosure, or misappropriation of Trade Secrets you had access to or obtained during your employment with the Company may provide the competitive Business with a competitive advantage against the Company, and/or otherwise cause harm to the Company. Section (E) does not apply to you unless your annualized cash compensation from the Company exceeds the threshold set by the Colorado Department of Labor and Employment, Division of Labor Standards and Statistics. As of 2024, this threshold was $74,250. For 2025, this threshold is scheduled to be $76,254.

(iii) For employees based in the District of Columbia, Sections (E) and (G) do not apply to you unless you are reasonably expected to earn in a consecutive 12-month period or have earned in the preceding 12-month period, compensation greater than or equal to the threshold set by the District of Columbia Non-Compete Agreements Amendment Act of 2020, as amended. As of 2024, this threshold was $154,200, and the District of Columbia may announce a higher threshold for 2025. For purposes of this agreement, an employee based in the District of Columbia who meets this compensation threshold shall be deemed a "Highly Compensated Employee." Further, Section (G), if it applies to you, is limited in time to 12 months from the date of your termination of employment.

(iv) For employees based in Illinois, Section (G) does not apply to you (a) unless you earn more than $75,000 per year (or any higher amount set by the Illinois Freedom to Work Act for future years), or (b) if the Company terminates, furloughs, or lays you off as the result of business circumstances or governmental orders related to the COVID-19 pandemic or under circumstances that are similar to the COVID-19 pandemic, unless enforcement of the covenant not to compete includes compensation equivalent to your base salary at the time of termination for the period of enforcement minus compensation earned through subsequent employment during the period of enforcement. Sections (E) and (F) do not apply to you (a) unless you earn more than $45,000 per year (or any higher amount set by the Illinois Freedom to Work Act for future years), or (b) if the Company terminates, furloughs, or lays you off as the result of business circumstances or governmental orders related to the COVID-19 pandemic or under circumstances that are similar to the COVID-19 pandemic, unless enforcement of the covenant not to compete includes compensation equivalent to the your base salary at the time of termination for the period of enforcement minus compensation earned through subsequent employment during the period of enforcement.

(v) For employees based in Louisiana, you agree that the Company operates throughout the State of Louisiana, and that Section 6 therefore applies in every parish and municipality in the State, which

include Acadia Parish, Allen Parish, Ascension Parish, Assumption Parish, Avoyelles Parish, Beauregard Parish, Bienville Parish, Bossier Parish, Caddo Parish, Calcasieu Parish, Caldwell Parish, Cameron Parish, Catahoula Parish, Claiborne Parish, Concordia Parish, De Soto Parish, East Baton Rouge Parish, East Carroll Parish, East Feliciana Parish, Evangeline Parish, Franklin Parish, Grant Parish, Iberia Parish, Iberville Parish, Jackson Parish, Jefferson Davis Parish, Jefferson Parish, La Salle Parish, Lafayette Parish, Lafourche Parish, Lincoln Parish, Livingston Parish, Madison Parish, Morehouse Parish, Natchitoches Parish, Orleans Parish, Ouachita Parish, Plaquemines Parish, Pointe Coupee Parish, Rapides Parish, Red River Parish, Richland Parish, Sabine Parish, St. Bernard Parish, St. Charles Parish, St. Helena Parish, St. James Parish, St. John the Baptist Parish, St. Landry Parish, St. Martin Parish, St. Mary Parish, St. Tammany Parish, Tangipahoa Parish, Tensas Parish, Terrebonne Parish, Union Parish, Vermilion Parish, Vernon Parish, Washington Parish, Webster Parish, West Baton Rouge Parish, West Carroll Parish, West Feliciana Parish, and Winn Parish.

(vi) For employees based in Maine, Section G will not apply to you unless your annual compensation exceeds a threshold of 400% percent of the federal poverty level. For 2024, this threshold was $60,240. For 2025, this threshold may be different.

(vii) For employees based in Minnesota, Section (G) does not apply to you.

(viii) For employees based in Nevada, Section (G) does not apply to you if you are paid solely on an hourly wage basis, exclusive of any tips or gratuities. Further, if the termination of your employment is the result of a reduction of force, reorganization, or similar restructuring, Section (G) will only be enforceable during the period in which the Company is paying your salary, benefits, or equivalent compensation, including severance pay.

(ix) For employees based in New York, Section (E) does not apply to any customer that became a customer of the Company only as a result of your independent contact and business development efforts with the customer before and independent from your employment with the Company.

(x) For employees based in North Dakota, Sections (E) and (G) do not apply to you.

(xi) For employees based in Oklahoma:

(a) Section (E) only restricts you from directly (not indirectly) engaging in calling upon or soliciting the Company's customers with whom you had personal contact or about whom you received Confidential or Trade Secret information, for the purpose of providing the customers with goods and/or services similar in nature to those provided by the Company in its Business as defined in Section (G), within any State in which the Company does business.

(b) Sections (F) and (G) do not apply to you.

(xii) For employees based in Oregon, Section (G) does not apply to you unless your annual compensation exceeds the statutory threshold (adjusted annually for inflation pursuant to the Consumer Price Index for All Urban Consumers, West Region (All Items) published by the Bureau of Labor Statistics of the United States Department of Labor). For 2024, this threshold was $113,241. For 2025, this threshold may be higher. Section (G) also does not apply to you unless you (i) perform predominantly intellectual, managerial, or creative tasks; (ii) exercise discretion and independent judgment; and (iii) are paid on a salary basis. Section (G) also does not apply to you unless (1) you personally received notice that you would be subject to a non-compete at least two weeks before you began employment, or (2) you became eligible to enter into these Standard Terms and Conditions by virtue of a promotion or other bona fide advancement. Further, Section (G), if it applies to you, is limited in time to 12 months from the date of your termination of employment.

(xiii) For employees based in Virginia, Section (G) does not apply to you if your average weekly earnings, calculated as provided under Code of Virginia section 40.1-28.7:7 (the "Virginia Act"), are less than the average weekly wage of the Commonwealth as determined pursuant to subsection B of

section 65.2-500, or you otherwise qualify as a "low-wage employee" under the Virginia Act. For 2024, this threshold was $73,320. For 2025, this threshold may be different. You will not be considered a "low-wage employee" if your earnings are derived, in whole or in predominant part, from sales commissions, incentives, or bonuses paid by the Company. You also agree that the restrictive covenants in these Standard Terms and Conditions are reasonably limited in nature and do not prohibit your employment with a competing business in a non-competitive position.

(xiv) For employees based in the State of Washington:

(a) Section (G) does not apply to you unless your annual earnings from your employment with the Company exceed the threshold established by the Washington Department of Labor and Industries pursuant to RCW 49.62.040. As of 2024, this threshold was $120,559.99. The Department has announced that this threshold is set to be $123,394.17 for 2025. If your employment with the Company is terminated as the result of a layoff, Section (G) does not apply unless, during the period of enforcement, the Company pays you compensation equivalent to your final base pay at the time of the termination of employment, minus the amount of any compensation you earn through employment after the end of your employment with the Company, which new employment and compensation you agree to promptly and fully disclose. For purposes of this section, "layoff" means termination of your employment by the Company for reasons of the Company's insolvency or other purely economic factors, and specifically excludes termination of your employment for any other reason, either with or without cause. In addition, nothing herein will restrict you from, while working for the Company, having an additional job, supplementing your income by working for another employer, working as an independent contractor, or being self-employed from this additional employment, if you do not earn at least twice the Washington minimum hourly wage, though you will be subject to the terms of the Standard Terms and Conditions, the Company's applicable policies, and the common law duty of loyalty. In addition to the other forms of protected conduct, nothing herein prohibits disclosure or discussion of conduct you reasonably believe to be illegal discrimination, illegal harassment, illegal retaliation, a wage-and-hour violation, or sexual assault, or that is recognized as against a clear mandate of public policy. Further, Section (G), if it applies to you, is limited in time to 18 months from the date of your termination of employment.

(b) Section (E) does not restrict solicitation of former customers of the Company or the mere acceptance or transaction of business with a customer, unless Section (G) also applies to you pursuant to the terms of Section (H)(xiv)(a). For the avoidance of doubt, even if Section (G) does not apply to you, Section (E) still restricts the solicitation of current customers of the Company.

6. INJUNCTIVE RELIEF

You agree that each of the restraints contained herein is, in consideration for, and necessary for the protection of the goodwill, Confidential Information, Trade Secrets and other legitimate interests of the Company; that each and every one of these restraints is reasonable in respect to subject matter, length of time and geographic area, to the extent they apply in the State in which your employment with the Company is based; and that these restraints, neither individually nor in the aggregate, will not prevent you from obtaining other suitable employment during the period in which you are bound by such restraints. You further acknowledge that, if you breach any one or more of the covenants contained in Section 5, the damage to the Company would be irreparable. You therefore agree that the Company, in addition to any other remedies available to it, including, without limitation, the remedies set forth in Sections 7 and 8, shall be entitled to injunctive relief against your breach or threaten breach of said covenants, to the extent they apply in the State in which your employment with the Company is based.

7. VIOLATION OF PROMISES

You agree that if you violate any one or more of the promises set forth in Section 6 then, in lieu of or in addition to any other remedies available to Company as permitted by applicable law, all unvested Stock Units subject to this Grant shall be immediately forfeited. If at any time the Committee or the Sr. HR Officer notifies (the date such notice is provided, the "Notice Date") the Company that they reasonably believe that you have violated any one or more of the promises set forth in Section 5, the vesting of this Grant may be suspended pending a determination of whether you violated any such provision by a tribunal as specified in Section 8 and 10. In addition, in lieu of or in addition to any remedy provided for in Section 6, at any time the Company may seek in any proceeding that you be required to immediately deliver to the Company any shares of Common Stock (or the fair market value thereof) and any related Dividend Equivalent Payments earned by or issued to you pursuant to this Grant at any time during the three (3) full fiscal years preceding your violation of Section 5. You agree that you will deliver such shares of Common Stock (or the fair market value thereof) and any related Dividend Equivalent Payments to the Company on such terms and conditions as may be required by the Company. You further agree that the Company will be entitled to enforce this repayment obligation by all legal means available, including, without limitation, to set off the market value of any such shares of Common Stock and any related Dividend Equivalent Payments against any amount that might be owed to you by the Company. For the avoidance of doubt, this paragraph shall apply only to the extent you violate a promise set forth in Section 5 that is applicable in the State in which your employment with the Company is based, pursuant to Section 5(H).

GENERAL

8. DISPUTE RESOLUTION

(i) You and the Company each agree that any controversy, claim, or dispute arising out of or relating to these Standard Terms and Conditions or arising out of or relating to your employment relationship with the Company or any of its affiliates, the termination of such relationship, your conduct following the termination of such relationship, or any application you submitted for employment with the Company, shall be resolved by binding arbitration before a neutral arbitrator on an individual basis only, and not in any form of class, collective, or private attorney general representative proceeding. By way of example only, claims subject to this agreement to arbitrate include claims litigated under federal, state and local statutory or common law, such as the Family Medical Leave Act, the Age Discrimination in Employment Act of 1967, Older Workers Benefit Protection Act of 1990, Title VII of the Civil Rights Act of 1964, the Civil Rights Act of 1990, the Americans with Disabilities Act, the Federal Employers Liability Act, the Federal Railway Safety Act, the Worker Adjustment and Retraining Notification Act, the Genetic Information Nondiscrimination Act, the law of contract and the law of tort. You and the Company each agree that such claims may be brought in an appropriate administrative forum, but if you or the Company seek a judicial forum to resolve the matter, this agreement for binding arbitration will become immediately effective, and you and the Company each hereby knowingly and voluntarily waive any right to have any such dispute tried and adjudicated by a judge or jury.

(ii) For disputes arising under Sections 5 and 7 of these Terms and Conditions, the parties will submit the dispute, within 30 business days following service of notice of such dispute by one party on the other, to the American Arbitration Association (AAA) for prompt resolution in the State in which your employment with the Company is based, under AAA rules for employment disputes. For all other disputes within the scope of subpart (i), the parties will submit the dispute, within 30 business days following service of notice of such dispute by one party on the other, to AAA for prompt resolution in Salt Lake City, Utah, also under AAA rules for employment disputes. In either case, there shall be a single arbitrator, chosen in accordance with AAA rules, who at such time shall be on AAA's Judicial Panel. If there are no AAA arbitrators in the applicable State, another arbitrator shall be selected from that State or a neighboring State, but the arbitration will still be conducted in the State in which your employment with the Company is based. The decision of the arbitrator will be final and binding upon the parties, and judgment may be entered thereon in accordance with applicable law in any court having jurisdiction. The arbitrator shall have the authority to make an award of monetary damages and interest thereon. The arbitrator shall have no authority to award, and the parties hereby waive any right to seek or receive, specific performance or an injunction, punitive or exemplary damages, except that the arbitrator shall have authority to issue injunctive relief to enforce the covenants in Sections 6 and 8, to the extent those covenants apply in the State in which your employment with the Company is based. The arbitrator will have no authority to order a modification or amendment of these Standard Terms and Conditions, except that if the arbitrator finds any covenant in Sections 5 and 7 of this agreement to be unenforceable as written, the arbitrator shall deem the agreement amended in order to give each such covenant its maximum effect, to the extent permitted by law in the State in which your employment with the Company is based. The arbitrator shall have the authority to award costs of arbitration, including reasonable attorney's fees, to the prevailing party, but in the absence of such award the parties shall bear their own attorney and filing fees unless otherwise agreed upon mutually by the parties or required by law. The Company shall bear the cost of the arbitrator's fees.

(iii) Notwithstanding the foregoing, the Company may seek injunctive relief to enforce any one or more of the covenants set forth in Sections 5 or 7 of these Terms and Conditions, in a court of competent jurisdiction, as set forth in Section 10 below. You specifically agree that a court of competent jurisdiction may enter preliminary injunctive relief to restrain violations of any of the covenants in Sections 5 or 7 of these Terms and Conditions, pending arbitration or other litigation. For the avoidance of doubt, this provision only applies to the promises set forth in Sections 5 or 7, to the extent those Sections are applicable in the State in which your employment with the Company is based.

9. SEVERABILITY

If any provision of these Standard Terms and Conditions is, becomes, or is deemed to be invalid, illegal, or unenforceable in any jurisdiction, such provision shall be construed or deemed amended or limited in scope to conform to applicable laws or, in the discretion of the Company, it shall be stricken and the remainder of these Standard Terms and Conditions shall remain in force and effect.

10. CHOICE OF LAW; JURISDICTION

All questions pertaining to the construction, regulation, validity, and effect of these Standard Terms and Conditions shall be determined in accordance with the laws of the State of Utah, without regard to the conflict of laws doctrine, with the exception of Sections 5 or 7. All questions pertaining to the construction, regulation, validity, and effect of Sections 5 or 7 shall be determined in accordance with the laws of the State in which your employment with the Company is based. With respect to any claim or dispute involving your Grant and/or these Standard Terms and Conditions that is not subject to the arbitration pursuant to Section 10 hereof, other than those arising from Sections 5 or 7, you and the Company each hereby consent and submit to the personal jurisdiction and venue of any state or federal court located in the county of Salt Lake City within the State of Utah and, recognizing the appropriateness of the State of Utah for any such matters due to the Company being incorporated in Utah, you and the Company hereby agree and consent to the state and federal courts located in the county of Salt Lake City within the State of Utah as the sole and exclusive forum for resolution of any and all claims, causes of action or disputes arising out of or related to your Award and these Standard Terms and Conditions (including all terms incorporated by reference into these Standard Terms and Conditions).

You and the Company further agree that, if any one or more of the provisions of Section 5 are determined to be unenforceable by reason of it being overly broad, such provision shall be deemed to be modified to permit its enforcement to the maximum extent permitted by law.

11. AMENDMENTS

The Plan and these Standard Terms and Conditions may be amended or altered by the Committee or the Company's Board of Directors to the extent provided in the Plan.

12. RESTRICTIONS ON RESALES OF SHARES

The Company may impose such restrictions, conditions or limitations as it determines appropriate as to the timing and manner of any resales by you or other subsequent transfers by you of any Common Stock issued in respect of vested Stock Units, including without limitation (a) restrictions under an insider trading policy, (b) restrictions designed to delay and/or coordinate the timing and manner of sales by you and other holders and (c) restrictions as to the use of a specified brokerage firm for such resales or other transfers.

13. INCOME TAXES

The Company shall not deliver shares in respect of any Stock Units unless and until you have made satisfactory arrangements to pay or otherwise satisfy all applicable tax withholding obligations. Unless you pay the tax withholding obligations to the Company by cash or check in connection with the delivery of the Common Stock, withholding may be effected, at the Company's option, by withholding Common Stock issuable in connection with the vesting of the Stock Units (provided that shares of Common Stock may be withheld only to the extent that such tax withholding will not result in adverse accounting treatment for the Company). You acknowledge that the Company shall have the right to deduct any taxes required to be withheld by law in connection with the delivery of the Stock Units from any amounts payable by it to you (including, without limitation, future cash wages).

14. NON-TRANSFERABILITY OF AWARD

You understand, acknowledge and agree that, except as otherwise provided in the Plan, the Stock Units may not be sold, assigned, transferred, pledged or otherwise directly or indirectly encumbered or disposed of prior to the payment of the Common Stock to you as provided in Section 4 hereof. Your beneficiaries and anyone claiming an interest in the Stock Units through you are subject to all of the terms and conditions applicable to you, other than the covenants set forth in Section 5.

15. CLAWBACK AND RECOUPMENT

If you are or become a Covered Executive or Other Executive under the Company's Policy for Recoupment of Certain Compensation, you agree that your Award is subject to recoupment, including in connection with a financial restatement or any detrimental conduct, pursuant to and in accordance with the Company's Policy for Recoupment of Certain Compensation, as amended from time to time, and pursuant to any other policy the Company may adopt pursuant to the Dodd-Frank Wall Street Reform and Consumer Protection Act, other applicable law, or stock exchange listing standard. No recovery of compensation under such a clawback policy shall be treated as an event giving rise to a right to terminate employment for "good reason" or "constructive termination" (or any similar term) under any agreement with the Company. In addition, if you are or become a Covered Executive or Other Executive under the Company's Policy for Recoupment of Certain Compensation, you agree that that the Company shall not indemnify you against any liability or loss (including without limitation the loss of any incentive-based compensation, any payment or reimbursement for the cost of third-party insurance purchased by you to fund potential recovery obligations with respect to the Company's Policy for Recoupment of Certain Compensation, or any judgments, fines, taxes, penalties or amounts paid in settlement by or on behalf of you) incurred by you in connection with or as a result of any action taken by the Company to enforce the terms of the Company's Policy for Recoupment of Certain Compensation (a "Clawback Proceeding"), or provide any indemnification or advancement of expenses (including attorneys' fees) incurred by you in connection with any such Clawback Proceeding.

16. LIMITATION OF INTEREST IN SHARES SUBJECT TO STOCK UNITS

Neither you (individually or as a member of a group) nor any beneficiary or other person claiming under or through you shall have any right, title, interest, or privilege in or to any shares of Common Stock allocated or reserved for the purpose of the Plan or the Key Employee Continuity Plan, or subject to the Grant Notice or these Standard Terms and Conditions, except as to such shares of Common Stock, if any, as shall have been issued to such person upon vesting of the Stock Units, which shares shall remain subject to the conditions set forth in these Standard Terms and Conditions. Nothing in the Plan, in the Key Employee Continuity Plan, in the Grant Notice, in these Standard Terms and Conditions, or in any other instrument executed pursuant to the Plan shall confer upon you any right to continue in the Company's employ or service nor limit in any way the Company's right to terminate your employment at any time for any lawful reason.

17. OTHER AGREEMENTS SUPERSEDED

The Grant Notice, these Standard Terms and Conditions, the Plan and, as applicable, the Key Employee Continuity Plan constitute the entire understanding between you and the Company regarding the Stock Units. Any prior agreements, commitments or negotiations concerning the Stock Units are superseded.

18. REVIEW PERIOD/NOTICE FOR CERTAIN EMPLOYEES

IF YOU ARE EMPLOYED BY THE COMPANY IN THE STATE OF **COLORADO** AND ARE SUBJECT TO THE RESTRICTIONS IN SECTIONS 5(E), (F) and (G), YOU ACKNOWLEDGE THAT YOU RECEIVED THIS AGREEMENT BEFORE THE EARLIER OF ITS EFFECTIVE DATE OR THE EFFECTIVE DATE OF ANY ADDITIONAL COMPENSATION OR CHANGE IN THE TERMS OR CONDITIONS OF EMPLOYMENT THAT PROVIDES CONSIDERATION FOR THE COVENANTS IN THIS AGREEMENT. YOU ACKNOWLEDGE THAT YOU HAVE 14 CALENDAR DAYS FROM THE DAY YOU RECEIVED THIS AGREEMENT TO REVIEW IT AND THAT YOU ARE ADVISED TO CONSULT LEGAL COUNSEL PRIOR TO SIGNING IT.

IF YOU ARE EMPLOYED BY THE COMPANY IN THE **DISTRICT OF COLUMBIA** AS A "HIGHLY COMPENSATED EMPLOYEE," AS DEFINED IN SECTION 5(H), YOU ACKNOWLEDGE THAT YOU HAVE HAD AT LEAST 14 CALENDAR DAYS BEFORE YOU BEGAN YOUR EMPLOYMENT TO REVIEW THIS AGREEMENT, OR IF YOU ARE A CURRENT EMPLOYEE, 14 DAYS FROM THE DAY YOU RECEIVED THIS AGREEMENT TO REVIEW IT. PLEASE ALSO TAKE NOTICE THAT THE DISTRICT'S BAN ON NON-COMPETE AGREEMENTS AMENDMENT ACT OF 2020, AS AMENDED LIMITS THE USE OF NON-COMPETE AGREEMENTS. IT ALLOWS EMPLOYERS TO REQUEST NON-COMPETE AGREEMENTS FROM HIGHLY COMPENSATED EMPLOYEES, AS THAT TERM IS DEFINED IN THE BAN ON NON-COMPETE AGREEMENTS AMENDMENT ACT OF 2020, AS AMENDED, UNDER CERTAIN CONDITIONS. IF YOU MEET THE COMPENSATION THRESHOLDS SET FORTH IN SECTIONS 5(E) AND (G), THE COMPANY HAS DETERMINED THAT YOU ARE A HIGHLY COMPENSATED EMPLOYEE. FOR MORE INFORMATION ABOUT THE BAN ON NON-COMPETE AGREEMENTS AMENDMENT ACT OF 2020, AS AMENDED, CONTACT THE DISTRICT OF COLUMBIA DEPARTMENT OF EMPLOYMENT SERVICES (DOES).

IF YOU ARE EMPLOYED BY THE COMPANY IN THE STATE OF **ILLINOIS**, YOU ACKNOWLEDGE THAT YOU HAVE AT LEAST 14 CALENDAR DAYS FROM THE DAY YOU RECEIVED THIS AGREEMENT TO REVIEW IT AND THAT YOU ARE ADVISED TO CONSULT LEGAL COUNSEL PRIOR TO SIGNING IT.

IF YOU ARE EMPLOYED BY THE COMPANY IN THE COMMONWEALTH OF **VIRGINIA**, YOU ACKNOWLEDGE THAT YOU HAVE BEEN PROVIDED A COPY OF THIS AGREEMENT AT LEAST THREE BUSINESS DAYS BEFORE THE DEADLINE TO SIGN THIS AGREEMENT.

IF YOU ARE EMPLOYED BY THE COMPANY IN THE STATE OF **WASHINGTON**, YOU ACKNOWLEDGE THAT IF THIS AGREEMENT IS ENTERED INTO AFTER THE START OF YOUR EMPLOYMENT, YOU RECEIVED INDEPENDENT CONSIDERATION FOR ENTERING INTO THIS AGREEMENT. IF YOU ARE A NEW EMPLOYEE, YOU ACKNOWLEDGE THAT YOU HAVE RECEIVED THIS AGREEMENT OR A WRITTEN DESCRIPTION OF ITS COVENANTS NO LATER THAN THE TIME OF THE INITIAL ORAL OR WRITTEN ACCEPTANCE OF THE OFFER OF EMPLOYMENT.

Exhibit 19

Union Pacific Corporation

Confidentiality And Insider Trading Policy

This Policy applies to all employees, executives and directors (all such persons are referred to as "**Company Persons**") of Union Pacific Corporation and its subsidiaries (the "**Company**"), as well as members of their immediate family, and Controlled Entities, all as explained and defined in Part IV of this Policy (all such persons subject to this Policy are referred to as "**Covered Persons**").

I. Confidential Information

A. General Statement

All Company Persons are expected to maintain in strict confidence all information about the Company gained in the course of their duties. Such information may not be used for personal advantage or for the benefit of others. These same restrictions apply to information learned about customers, suppliers, competitors and other companies in the course of work for the Company.

Company Persons with access to "**material nonpublic information**" (as defined in Part IV of this Policy) should distribute such information within the Company only on a strict "need to know basis" and should not provide such information to any person outside of the Company unless expressly authorized to do so by one of the Company's executive officers or legally mandated.

Company Persons, other than specifically designated persons, should not respond to inquiries from the investment community, which includes shareholders, investors, securities analysts, institutional investors, investment advisers, investment companies and related persons. Any such inquiries should be directed to Bradley Stock, Assistant Vice President---Investor Relations, at (402) 544-4227.

II. Insider Trading

A. General Statement

No Company Person may purchase, sell, gift, or otherwise engage in a transaction in the securities of a company at any time when the person has material nonpublic information about that company learned in the course of their work with Union Pacific. No Company Person may communicate material nonpublic information to a third party or suggest that anyone purchase, sell, gift, or otherwise engage in a transaction in any company's securities (i.e., "tipping" information) while aware of material nonpublic information about that company learned in the course of their work with Union Pacific. These restrictions on "insider trading" and "tipping" are not limited to Company securities, but also include trading in the securities of other companies, such as customers, suppliers, and competitors of the Company, when the person is in possession of material nonpublic information relevant to the other company as a result of the Company Person's employment or relationship with the Company. The foregoing restrictions apply to a Company Person's immediate family members and Controlled Entities to the same extent that they apply to the Company Person.

These restrictions apply to stock market as well as off-market transactions, including transactions in securities held in a brokerage account or within the Company's 401(k) or similar thrift plans, as well a gifts or donations of securities. With respect to Company securities, these restrictions on insider trading are applicable to the Company's common stock, options to purchase or sell or other "derivative securities" with a value tied to that of the Company's common stock (regardless of

whether the option was issued by the Company or is a market-traded option), and any other type of securities that the Company may issue, such as preferred stock, convertible debentures and warrants.

B. Additional Guidelines and Restrictions

Additional guidelines and restrictions are discussed in Part V of this Policy. All Covered Persons are subject to the prohibition on hedging transactions and short sales set forth in Part V, Section B. Members of the Union Pacific Board of Directors and certain executives and other employees who are so designated and notified from time to time by electronic communication from the Company's Stock Administration Department and/or the Law Department, as well as their Family Members and Controlled Entities (all such persons and entities, "**Restricted Persons**") are subject to additional restrictions as set forth in Part V, Section C. Members of the Union Pacific Board of Directors and executives who are subject to Section 16 of the Securities Exchange Act of 1934, as amended (the "**Exchange Act**"), as well as their Family Members and Controlled Entities (all such persons and entities, "**Section 16 Persons**") and certain other Restricted Persons are further subject to the restrictions set forth in Part V, Sections D through G.

III. Compliance and Certification

A. Consequences of Violation

Violations of this Policy may subject a Covered Person to disciplinary action including, in appropriate circumstances, termination of employment. In addition, violations of this Policy may result in prosecution by the SEC or criminal prosecution by the Department of Justice. The SEC may seek substantial civil penalties against a person who engages in insider trading or tipping. Any person who violates the federal insider trading laws, including by tipping another person who trades, may have to pay penalties and civil fines of up to three times the profit gained or loss avoided by such trading. The Company may also face civil penalties for employees' insider trading violations. In addition, insider trading can result in criminal fines and imprisonment. The SEC and several U.S. Attorneys' offices in recent years have been vigorously enforcing the insider trading laws against both individuals and institutions, including cases involving a relatively small number of shares where the violation resulted in little or no profits.

B. Certification

Restricted Persons and certain other employees are required annually to certify their understanding of and agreement to comply with this Policy.

IV. Definitions and Scope of This Policy

A. Covered Persons

All persons subject to this Policy are referred to as "Covered Persons". This Policy applies to:

- "Company Persons," defined as all employees, executives and directors of Union Pacific Corporation and its subsidiaries;
- "Family Members," which means any family member of a Company Person who resides with the Company Person (including a spouse, a child, stepchildren, grandchildren, parents, stepparents, grandparents, siblings and in-laws), anyone else who lives in a Company Person's household (other than household employees), and any family members who do not live in their household but whose transactions in Company securities are directed by a Covered Person or are subject to a Covered Person's influence or control, such as parents or children who consult with you before they trade in Company securities (collectively referred to as "Family Members"); and

- "Controlled Entities," which means any corporation, partnership, trust or other entity controlled, influenced or managed by a Company Person or their Family Members.

B. Definition of Material Nonpublic Information

Information about the Company is considered material if there is a substantial likelihood that a reasonable investor would:

consider the information important in making an investment decision; or

view the information as significantly altering the total mix of information about the Company available in the marketplace.

Either positive or negative information **may** be material. Under these standards, Company information that may be material includes, but is not limited to:

information about earnings, revenues or capital expenditures, including any updates or reaffirmations of such information that was previously disseminated to the public and any unexpected financial results or unpublished financial reports or projections;

new and substantial products or contracts, or significant developments regarding significant customers or suppliers;

significant changes in product offerings, or price changes;

interruption of operations or other aspects of the business due to an accident, fire, natural disaster, breakdown of labor negotiations or any major shutdowns;

service metrics and volume data (other than those made available publicly through the American Association of Railroads or the Surface Transportation Board, including any internal alternative calculations of publicly available metrics);

information about new and significant operational initiatives or similar plans, and the proposed implementation schedules for such initiatives and plans;

information regarding investors or potential investors, including nonpublic information regarding meetings with investors and investments in Company securities;

changes in control or in directors or senior management of the Company;

mergers, acquisitions, tender offers, joint ventures or other significant changes to Company assets;

major environmental incidents;

major marketing changes;

a cybersecurity incident, whether or not known to be critical or potentially significant;

changes in the Company's auditors or a notification from its auditors that the Company may no longer rely on the auditors' audit report;

significant labor disputes;

institution of, or developments in, significant litigation, investigation, regulatory actions or governmental proceedings; and

major events regarding the Company's securities, such as dividend policy changes, the declaration of a stock split, or the proposed or contemplated issuance, redemption, or repurchase of securities.

Information about the Company is considered public once it has been distributed in a manner that makes it available to investors generally and enough time has elapsed to permit the investment market to absorb and evaluate the information. Examples of public dissemination include, but are not limited to, press releases, annual reports to shareholders and filings with the Securities and Exchange Commission ("SEC"), such as Forms 10-K, 10-Q and 8-K. You should generally consider

information to be nonpublic until one full trading day has elapsed following public disclosure. A "trading day" is a day on which the New York Stock Exchange is open for business. The fact that rumors, speculation, or statements attributed to unidentified sources are public is insufficient to be considered widely disseminated even when the information is accurate.

V. Additional Guidelines and Restrictions

A. Post-Termination Transactions

Once you are no longer a Company Person, you and your Family Members and Covered Entities will cease to be subject to this Policy. However, the laws that prohibit insider trading will continue to apply, and if you possess material nonpublic information about the Company or another company that you obtained in the course of your work with Union Pacific, you and your Family Members and Covered Entities should not trade that company's securities.

B. Restrictions on Hedging and Short Sales

Covered Persons are prohibited from hedging activities relating to the Company's securities, such as (i) buying, selling or writing puts, calls or options related to the Company's common stock and (ii) executing straddles, equity swaps and similar derivative arrangements that hedge or offset, or are designed to hedge or offset, any decrease in the market value of the Company's common stock. In addition, if you are aware of material nonpublic information about another company that you learned in the course of working for Union Pacific, you are prohibited from engaging in any transaction involving hedging activities, such as (x) buying, selling or writing puts, calls or options involving or related to that other company's securities and (y) executing straddles, equity swaps and similar derivative arrangements involving or related to that other company's securities. Covered Persons are also prohibited from engaging in short sales of Company securities (i.e., sales of securities that are not then owned), including a "sale against the box" (a sale with delayed delivery).

C. Blackout Periods

Restricted Persons are required to comply with additional trading restrictions. Restricted Persons may only trade in Company securities during an "Open Window Period." The Open Window Period will be communicated to Restricted Persons each quarter. However, even if there is an Open Window Period, Restricted Persons may not trade in Company securities if they are aware of material nonpublic information about the Company.

Generally, all pending purchase and sale orders or other transactions involving Company securities that could be, but have not been, executed during the Open Window Period must be cancelled before it closes, unless those transactions are scheduled to occur under an approved Rule 10b5-1 Trading Plan. In addition, unless otherwise approved by the Chief Legal Officer or VP Law – Finance and Compliance, or other comparable executive responsible for securities compliance (the "Designated Officer"), Restricted Persons should not make any election outside of the Open Window Period under any employee benefit plan that will result in a transaction in Company securities, including any election to change the amount that is contributed to or held in Company stock under the Company's 401(k) plan or similar thrift plans.

From time to time the Company may impose a blackout on transactions outside of the Open Window Period due to developments involving material nonpublic information. In such events, the Company will notify particular individuals that they should not engage in any transactions involving the purchase or sale of Company securities and should not disclose to others the fact that the trading blackout has been imposed.

D. Preclearance

The Company requires Section 16 Persons and other executive officers who have been notified that they are subject to this provision to contact the Chief Legal Officer or VP Law – Finance and Compliance, or other comparable executive responsible for securities compliance (the "Designated Officer") in advance of the Restricted Person effecting any purchase, sale, gift, or other transaction involving Company securities, including a stock plan transaction such as an option exercise, transfers to or

from a trust, or any other transfer, and obtain prior approval of the transaction from the Designated Officer. Requests should be submitted to the Designated Officer at least two trading days in advance of the proposed transaction. The Designated Officer will then determine whether the transaction may proceed. This preclearance policy applies even if the Restricted Person is initiating a transaction during an Open Window Period.

If a transaction is approved under the preclearance policy, the transaction should be entered into within five trading days after the approval is obtained, but regardless may not be executed if the Restricted Person acquires material nonpublic information concerning the Company before engaging in the transaction. If a transaction is not effected within the period described above, the transaction must be approved again before it may be executed.

If a proposed transaction is not approved under the preclearance policy, the Restricted Person should refrain from initiating any transaction in Company securities and should not inform anyone within or outside of the Company of the restriction.

E. Sales of Company Common Stock

The Company requires sales or transfers by Section 16 Persons and other executive officers who have been notified that they are subject to this provision to occur pursuant to an Exchange Act Rule 10b5-1 Trading Plan that satisfies the restrictions in Appendix A, "*Guidelines for Rule 10b5-1 Trading Plans,"* unless the Designated Officer grants an exception. Shares of common stock or units representing ownership of the Company's common stock owned by Executives in any Company 401(k) plan (or similar thrift plans) are exempt from the requirements set forth in this Section E and, therefore, such shares or units may be sold or transferred without establishing a Rule 10b5-1 Trading Plan. However, any such sale or transfer must be pursuant to an election or instruction that is (i) made during an Open Window Period *and* when such Executive is not in possession of material nonpublic information regarding the Company, and (ii) pre-cleared by the Designated Officer.

F. Restrictions on Discretionary Trading by Third Party Managers

In order to avoid inadvertent violations of the insider trading laws, Section 16, and Company policies, Section 16 Persons and other executives who are subject to the preclearance requirements set forth in Section D above should deliver written instructions to any third party broker or investment advisor or manager who has authority to execute trades on their behalf (including under any "managed account") expressly prohibiting their broker or advisor from executing transactions involving Company common stock in or for the benefit of any account owned by, or attributable to, them without first obtaining their consent to any such transaction. Section 16 Persons and others subject to the preclearance requirements should satisfy those notice and pre-clearance requirements discussed above prior to consenting to any such transaction.

G. Restrictions on Pledging Company Securities

Section 16 Persons may not pledge, deliver as collateral, or otherwise subject to a security interest any shares (restricted or otherwise) of Company common stock or options or other rights to acquire such stock. The foregoing also expressly prohibits the pledge or delivery of Company common stock or options or other rights to acquire such stock to open or maintain any margin or similar account. All of these arrangements may result in a sale of Company common stock without notice to, or consent of, the Section 16 Person. Such involuntary sales could result in short-swing profit liability under Section 16 of the Securities Exchange Act or violate this Policy, the insider trading provisions of the Exchange Act, or certain provisions of the Exchange Act adopted pursuant to the Sarbanes-Oxley Act of 2002.

Shares of Company common stock owned by executives who are not Section 16 Persons that exceed an executive's stock ownership target may be pledged, although the Company cautions executives from entering into such transactions, and any such pledge should not represent a significant amount of an executive's holdings of Company common stock. Pledged Company common stock is not included in overall stock ownership shares and significant pledging of Company common stock may be considered a governance risk or oversight failure, which could result in negative implications to the Company.

VI. Questions

Any questions about this Policy should be directed to:

VP Law – Finance and Compliance
Union Pacific Corporation
1400 Douglas Street, Stop 1580
Omaha, Nebraska, 68179
or (402) 544-3440

Last Updated: October 1, 2024
Last Reviewed: October 1, 2024

Appendix A

Guidelines for Rule 10b5-1 Trading Plans

As discussed in the Policy, Rule 10b5-1 provides an affirmative defense from insider trading liability. All Section 16 Persons and other executive officers who have been notified that they are subject to the requirements in Part V, Section E of the Policy may sell or otherwise transfer shares of Company common stock in the open market or to another person or entity only pursuant to an Exchange Act Rule 10b5-1 trading plan that satisfies the following restrictions, unless the Chief Legal Officer or VP Law – Finance and Compliance, or other comparable executive responsible for securities compliance (the "Designated Officer") grants an exception. Capitalized terms used in these guidelines without definition have the meaning set forth in the Policy.

These guidelines are in addition to, and not in lieu of, the requirements and conditions of Rule 10b5-1. The Designated Officer will interpret and administer these guidelines for compliance with Rule 10b5-1, the Policy and the requirements below. No personal legal or financial advice is being provided by the Designated Officer regarding any Rule 10b5-1 Trading Plan or proposed trades. Restricted Persons remain ultimately responsible for ensuring that their Rule 10b5-1 Trading Plans and contemplated transactions fully comply with applicable securities laws. It is recommended that Restricted Persons consult with their own attorneys or other advisors about any contemplated Rule 10b5-1 Trading Plan. Note that for any Section 16 Person, the Company is required to disclose the material terms of his or her Rule 10b5-1 Trading Plan (and may be required to disclose the material terms of Rule 10b5-1 Trading Plans of Family Members and Controlled Entities of such persons), other than with respect to price, in its Form 10-K or Form 10-Q for the quarter in which the Rule 10b5-1 Trading Plan is adopted, as well as disclosing any termination or modification of a Rule 10b5-1 Trading Plan.

1. The Rule 10b5-1 Trading Plan must be reviewed and approved in advance by the Designated Officer. It is recommended that you submit Rule 10b5-1 Trading Plans to the Designated Officer several days prior to when you plan to enter into the plan to allow for review and preclearance in accordance with the procedures set forth in the Policy and these guidelines. The Company may require use of a standardized form of Rule 10b5-1 trading plan.

2. All Executive Officers and other Restricted Persons subject to the Company's stock ownership guidelines may sell or otherwise transfer shares of Company common stock in the open market or to another person or entity only if they have satisfied the applicable ownership target set forth in the stock ownership guidelines, and may only sell shares of Company common stock that exceed their ownership target ("Eligible Shares").

3. Eligible Shares may only be sold or transferred pursuant to a written Exchange Act Rule 10b5-1 trading plan that:
   (i) is adopted during an Open Window Period, when a trading blackout is not in effect *and* when such Executive is not in possession of material nonpublic information regarding the Company,
   (ii) has been reviewed and approved by the CLO or VP Law – Finance and Compliance,
   (iii) complies with the requirements of Rule 10b5-1(c) of the Exchange Act,
   (iv) provides that no transaction will occur until the applicable "cooling off" period under Rule 10b5-1(c)(1)(ii)(B) is satisfied (generally, for Section 16 Persons, at least 91 days from the date the trading plan is entered into, and for others, at least 31 days from the date the trading plan is entered into),
   (v) provides that the plan was entered into in good faith and cannot be suspended, modified, or terminated without approval from the Designated Officer, and
   (vi) provides that no more than 50% of the shares to be sold under the trading plan can be sold in any one calendar week.

4. The total sales of Eligible Shares during any calendar year may not exceed 50% of the total shares of Company common stock beneficially owned by the person entering into the trading plan, using the immediately preceding

February 1st as the measurement date. For purposes of these guidelines, the number of shares beneficially owned will be calculated in accordance with the Company's stock ownership guidelines.

5. Modifications, amendments and terminations of an existing Rule 10b5-1 Trading Plan are strongly discouraged due to legal risks, and can affect the validity of trades that have taken place under the plan prior to such modification, amendment or termination. If a Restricted Person is considering any modification or amendment to or termination of a Rule 10b5-1 trading plan, that person should consult with the Designated Officer in advance. Any modification, amendment or termination of an existing Rule 10b5-1 Trading Plan must be reviewed and approved in advance by the Designated Officer in accordance with preclearance procedures set forth in the Policy and these guidelines.

Exhibit 21

SIGNIFICANT SUBSIDIARIES OF UNION PACIFIC CORPORATION

Name of Corporation	State of Incorporation
Union Pacific Railroad Company	Delaware

Exhibit 23

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the Post-Effective Amendment No.1 to Registration Statement No. 33-12513, Registration Statement No. 33-53968, Registration Statement No. 33-49785, Registration Statement No. 33-49849, Registration Statement No. 333-10797, Registration Statement No. 333-88709, Registration Statement No. 333-42768, Registration Statement No. 333-106707, Registration Statement No. 333-106708, Registration Statement No. 333-105714, Registration Statement No. 333-105715, Registration Statement No. 333-116003, Registration Statement No. 333-132324, Registration Statement No. 333-155708, Registration Statement No. 333-170209, Registration Statement No. 333-170208, Registration Statement No. 333-188671, Registration Statement No. 333-260789, Registration Statement No. 333-260788, Registration Statement No. 333-256460, Registration Statement No. 333-276121, and Registration Statement No.333-276122 on Form S-8, Registration Statement No. 333-214407, Registration Statement No. 333-236860, Registration Statement No. 333-258422, and Registration Statement No. 333-252948 on Form S-4, and Registration Statement No. 333-201958, Registration Statement No. 333-222979, Registration Statement No. 333-252947, and Registration Statement No. 333-277044 on Form S-3 of our reports dated February 7, 2025, relating to the consolidated financial statements of Union Pacific Corporation and Subsidiary Companies (the Corporation), and the effectiveness of the Corporation's internal control over financial reporting, appearing in this Annual Report on Form 10-K for the year ended December 31, 2024.

/s/ Deloitte & Touche LLP

Omaha, Nebraska
February 7, 2025

Exhibit 24

UNION PACIFIC CORPORATION
Powers of Attorney

Each of the undersigned directors of Union Pacific Corporation, a Utah corporation (the Company), do hereby appoint each of V. James Vena and Craig V. Richardson his or her true and lawful attorney-in-fact and agent, to sign on his or her behalf the Company's Annual Report on Form 10-K, for the year ended December 31, 2024, and any and all amendments thereto, and to file the same, with all exhibits thereto, with the Securities and Exchange Commission.

IN WITNESS WHEREOF, the undersigned have executed this Power of Attorney as of February 6, 2025.

/s/ William J. DeLaney
William J. DeLaney

/s/ David B. Dillon
David B. Dillon

/s/ Sheri H. Edison
Sheri H. Edison

/s/ Teresa M. Finley
Teresa M. Finley

/s/ Deborah C. Hopkins
Deborah C. Hopkins

/s/ Jane H. Lute
Jane H. Lute

/s/ Michael R. McCarthy
Michael R. McCarthy

/s/ Doyle R. Simons
Doyle R. Simons

/s/ John K. Tien Jr.
John K. Tien, Jr.

/s/ John P. Wiehoff
John P. Wiehoff

/s/ Christopher J. Williams
Christopher J. Williams

Exhibit 31(a)

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER

I, V. James Vena, certify that:

1. I have reviewed this annual report on Form 10-K of Union Pacific Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 7, 2025

/s/ V. James Vena

V. James Vena

Chief Executive Officer

Exhibit 31(b)

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER

I, Jennifer L. Hamann, certify that:

1. I have reviewed this annual report on Form 10-K of Union Pacific Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 7, 2025

/s/ Jennifer L. Hamann

Jennifer L. Hamann
Executive Vice President and
Chief Financial Officer

Exhibit 32

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the accompanying Annual Report of Union Pacific Corporation (the Corporation) on Form 10-K for the period ending December 31, 2024, as filed with the Securities and Exchange Commission on the date hereof (the Report), I, V. James Vena, Chief Executive Officer of the Corporation, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Corporation.

By: /s/ V. James Vena
V. James Vena
Chief Executive Officer
Union Pacific Corporation

February 7, 2025

A signed original of this written statement required by Section 906 has been provided to the Corporation and will be retained by the Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

**CERTIFICATION OF CHIEF FINANCIAL OFFICER PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the accompanying Annual Report of Union Pacific Corporation (the Corporation) on Form 10-K for the period ending December 31, 2024, as filed with the Securities and Exchange Commission on the date hereof (the Report), I, Jennifer L. Hamann, Executive Vice President and Chief Financial Officer of the Corporation, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002 that:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Corporation.

By: /s/ Jennifer L. Hamann
Jennifer L. Hamann
Executive Vice President and
Chief Financial Officer
Union Pacific Corporation

February 7, 2025

A signed original of this written statement required by Section 906 has been provided to the Corporation and will be retained by the Corporation and furnished to the Securities and Exchange Commission or its staff upon request.

EXHIBIT 75
(REDACTED)

EXHIBIT 76

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

--CONTROL--

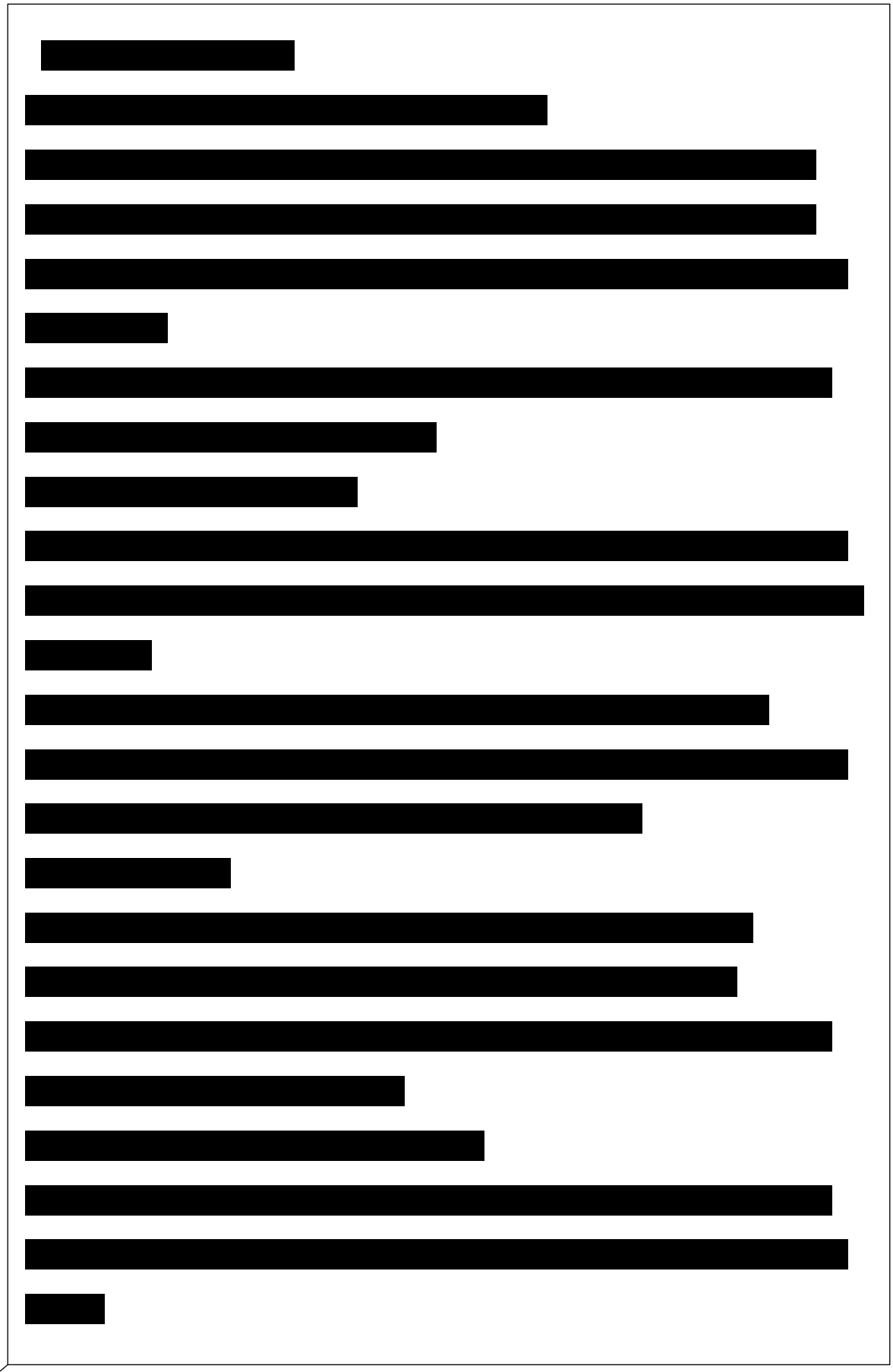
NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

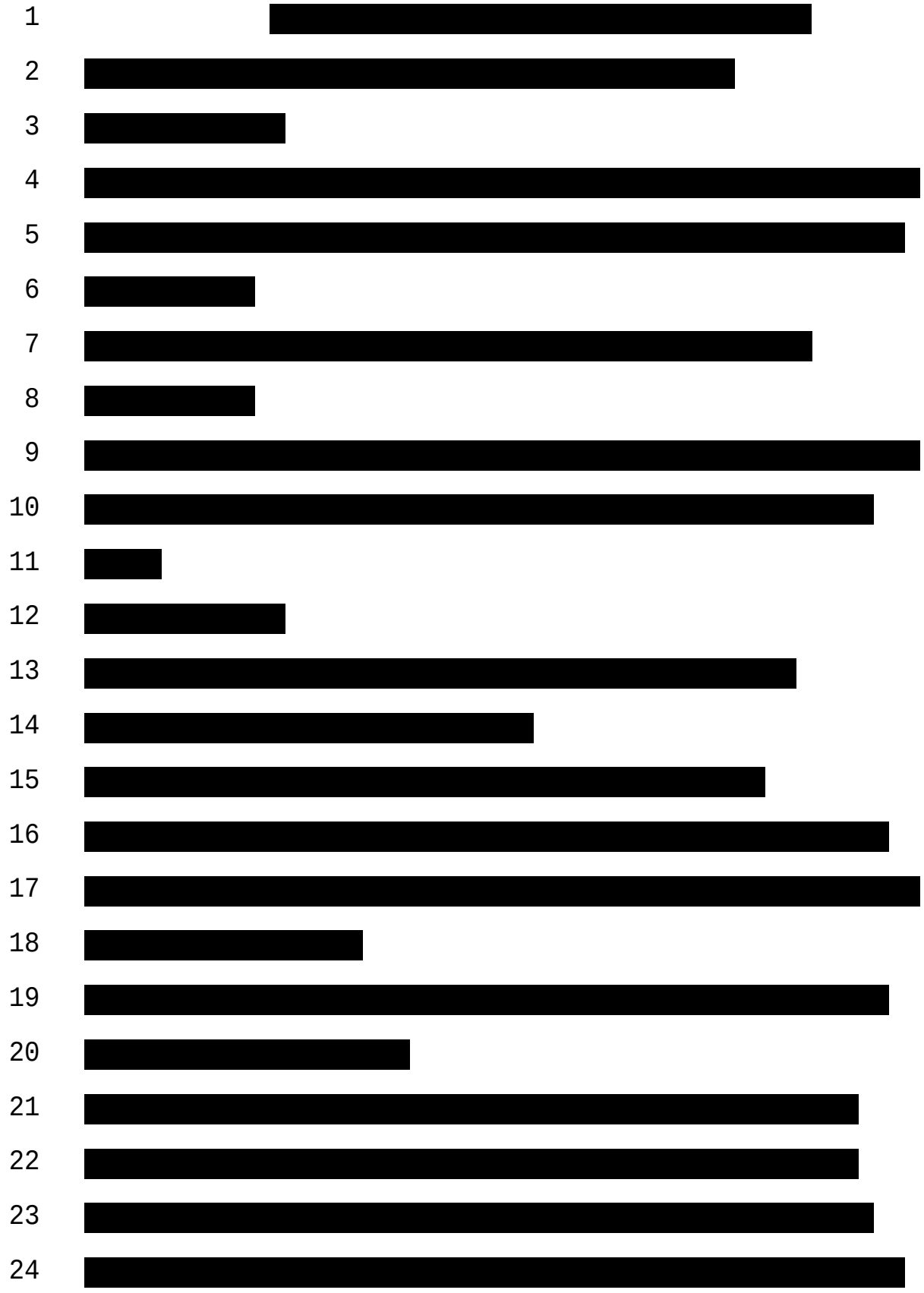
Highly Confidential
Pursuant to the Protective Order

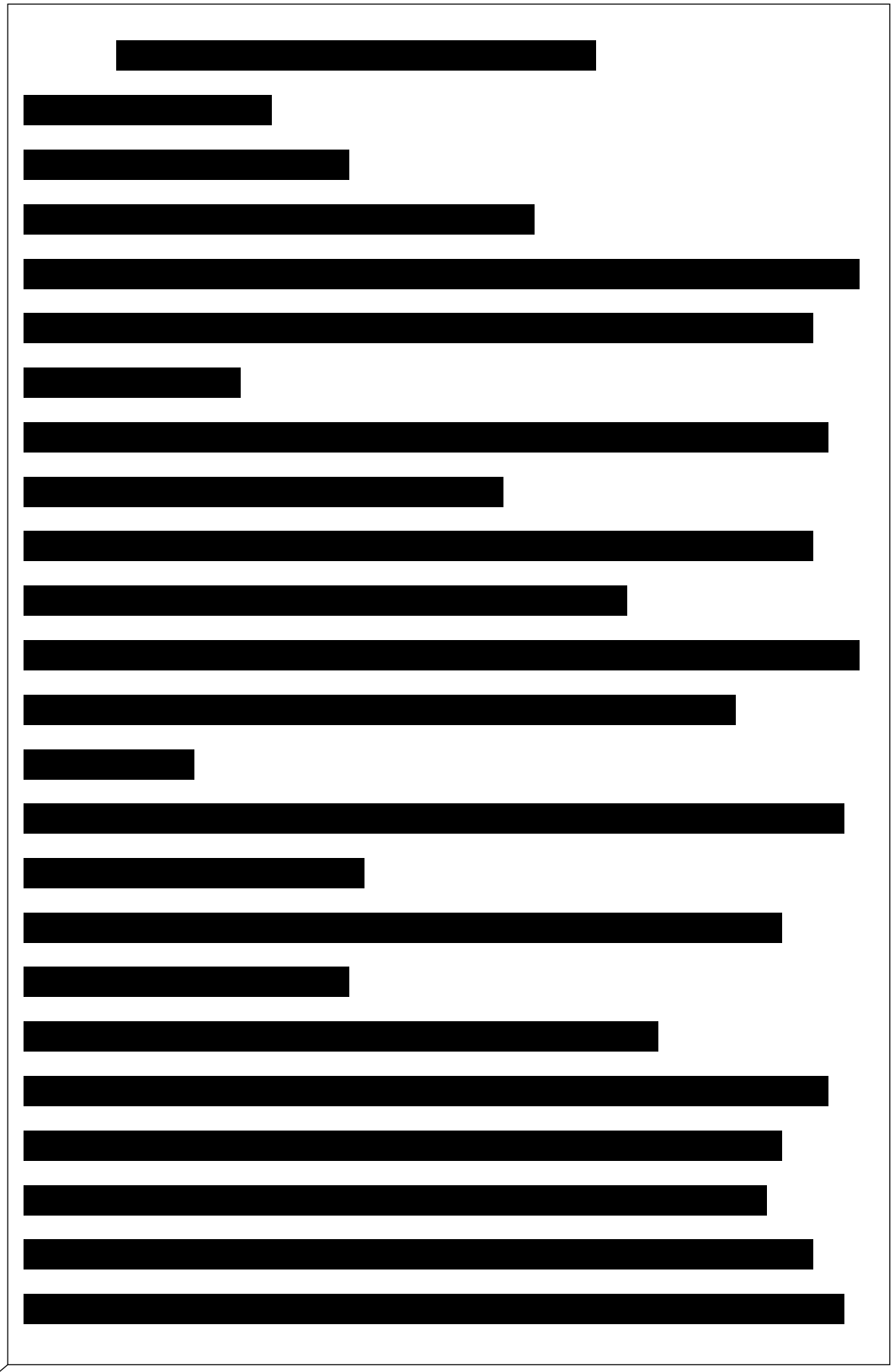
(CONFIDENTIAL PORTION INCLUDED)

VIDEOTAPED DEPOSITION

The DEPOSITION OF JENNIFER HAMANN, taken on behalf of the BURLINGTON NORTHERN, at Kutak Rock, 1650 Farnam Street, Omaha, Nebraska, on the 15th day of October, 2026, at 8:01 a.m., CT.







{{ [redacted]

BY MR. BROWN:

Q. Well, do you recall that price was a factor in driving the company's record operating income for the first quarter of 2026?

A. It, among other things, would have been a factor, yes.

Q. Well, what were the factors that drove the company's record operating income for the first quarter of 2026?

A. Again, I think some of it was our productivity, our efficiency with which we are handling the business. I don't think fuel surcharge

was a factor in the first quarter. So the mix of business and the -- and the efficiency would have been the other two drivers.

Q. So sitting here right now, you think it was efficiency, mix of business, and pricing that drove the record operating income of the first quarter of 2026?

A. From my recollection, that would be the three drivers, or three of the main drivers, yes.

Q. The -- strike that.

What did the company experience for domestic intermodal volume in the first quarter of 2026? Growth? Decline? Tell me about that.

A. In the first quarter of 2026, as I recall, we did grow our domestic intermodal line.

Q. Was it strong growth, record growth, mediocre growth? How would you describe it?

A. As I recall, it was considered one of our best quarters on a first-quarter basis for domestic intermodal.

Q. Meaning the company's domestic intermodal volume in the first quarter of 2026 was considered one of the best amongst its first quarters ever, correct?

A. As I recall, yes.

Q. And when you say "best," was it a record domestic intermodal volume in the first quarter of 2026?

A. I believe that it was.

Q. Meaning more domestic intermodal volume in the first quarter of 2026 than any first quarter in the company's history, correct?

A. I believe so.

Q. What is it that drove the volume growth in domestic intermodal in the first quarter of 2026?

MR. ROSENTHAL: Objection to form, foundation.

THE WITNESS: I don't recall the specific drivers, other than we continued to go and proactively market the service that we provide to our customers. We have been providing a very, very good intermodal service product for the last couple of years, and so we have been winning new business. So I think business development was probably a big factor in that.

Were there other market factors? I don't think in the first quarter we were seeing a lot of market growth but maybe starting to see some. I just don't recall that as well.

BY MR. BROWN:

Q. Let's go back for just a second. There was volume growth and domestic intermodal traffic in the third quarter of 2025, correct?

A. I believe so, yes.

Q. There was volume growth in domestic intermodal traffic in the fourth quarter of 2025, correct?

A. I believe so.

Q. There was volume growth in domestic intermodal traffic in the first quarter of 2026, correct?

A. Yes.

Q. Set a record for the company, correct?

A. Yes.

Q. The company hadn't closed its merger with Norfolk Southern yet, had it?

A. Sitting here today, we have not finalized the merger. It has not been approved yet.

Q. So operating as a single railroad with Norfolk Southern, that wasn't necessary to intermodal growth in the third quarter of 2025, was it?

A. We grew our volumes without the merger in the third quarter of 2025.

Q. Union Pacific grew its volumes --
A. Domestic intermodal volume.
Q. Yes. I was going to clarify that. So let me do that.
Union Pacific grew its volumes in the third quarter of 2025 for domestic intermodal without the Norfolk Southern merger, correct?
A. That is correct.
Q. Union Pacific grew its volumes in the fourth quarter of 2025 for domestic intermodal without the Norfolk Southern merger, correct?
A. That is correct.
Q. Union Pacific grew its volumes in the first quarter of 2026 for domestic intermodal without the Norfolk Southern merger, correct?
A. That is correct.
Q. Union Pacific saw record volumes for domestic intermodal in the first quarter of 2026 without the Norfolk Southern merger, correct?
MR. ROSENTHAL: Objection to form.
THE WITNESS: That is correct.
BY MR. BROWN:
Q. Do you know the percentage of volume growth in domestic intermodal in the first quarter of

year, correct?

A. Revenue carloads, yes.

Q. And revenue carloads of intermodal were down 9 percent on a year-over-year basis, correct?

A. Correct.

Q. That's international and domestic combined, correct?

A. Correct.

Q. Because domestic itself saw a record volume of carloads in the first quarter of 2026, correct?

A. Correct.

Q. If you go -- are you on Page 22?

A. Yes.

Q. And you are reading the premium paragraph, aren't you?

A. I am anticipating it.

Q. I figured you knew what was coming.

The international intermodal was down 28 percent year over year, correct?

A. Correct.

Q. That was offset, reduced, such that the overall intermodal reduction was just 9 percent as a result of the record-setting volume growth in domestic

intermodal, correct?

A. That figure was down 9 percent.

Q. Because the record-setting domestic intermodal offset the decline in international modal, true?

A. Partially offset.

Q. Reduced it from 28 percent down to 9 percent, correct?

A. That is correct.

Q. And so, now let's turn to the company's second quarter 2026 results. You testified a moment ago that the company's financial performance in the second quarter of 2026 was also record setting?

A. Yes.

Q. That's true? It was record-setting financial performance second quarter this year?

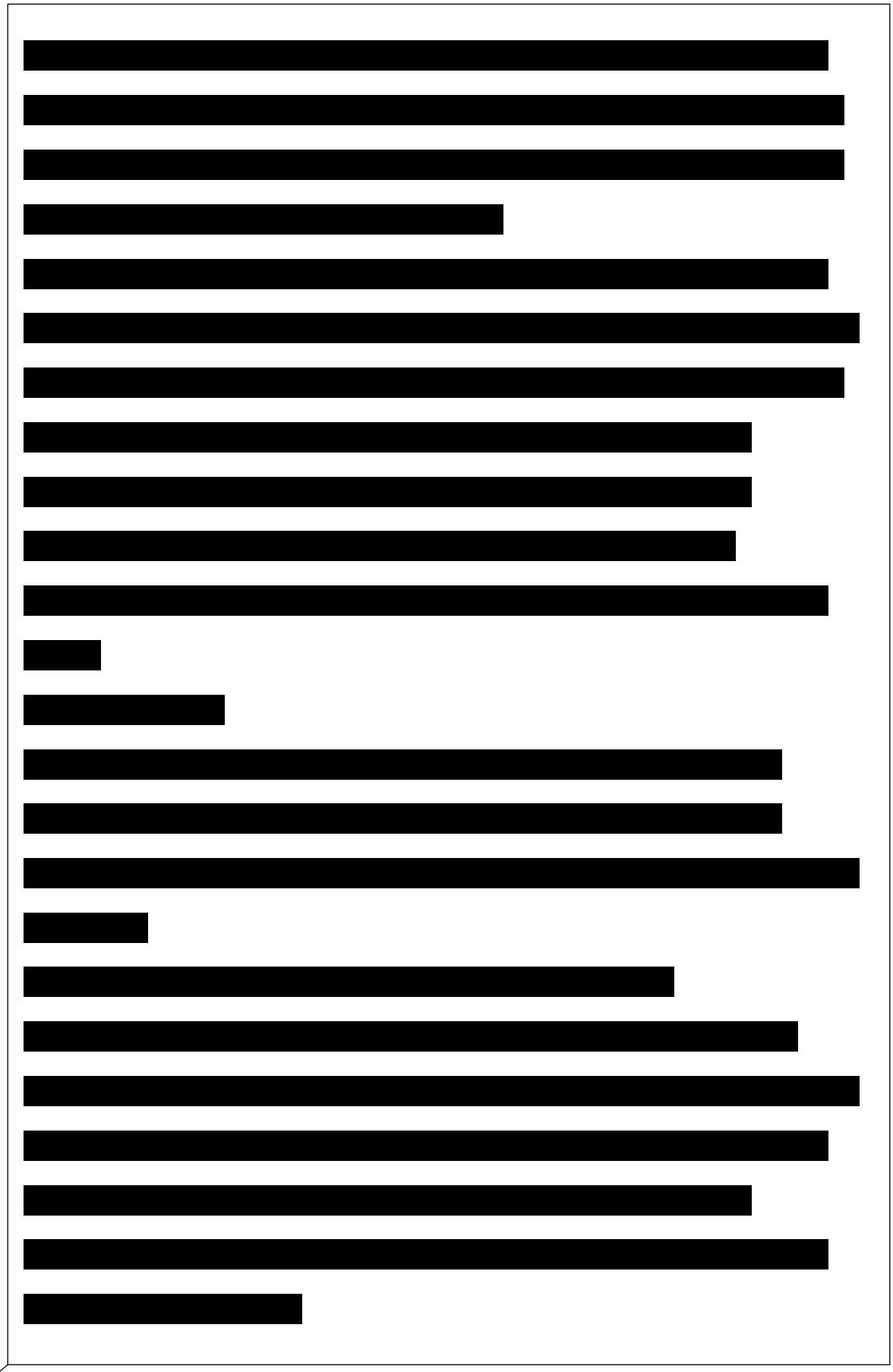
A. Yes.

Q. And by what measures?

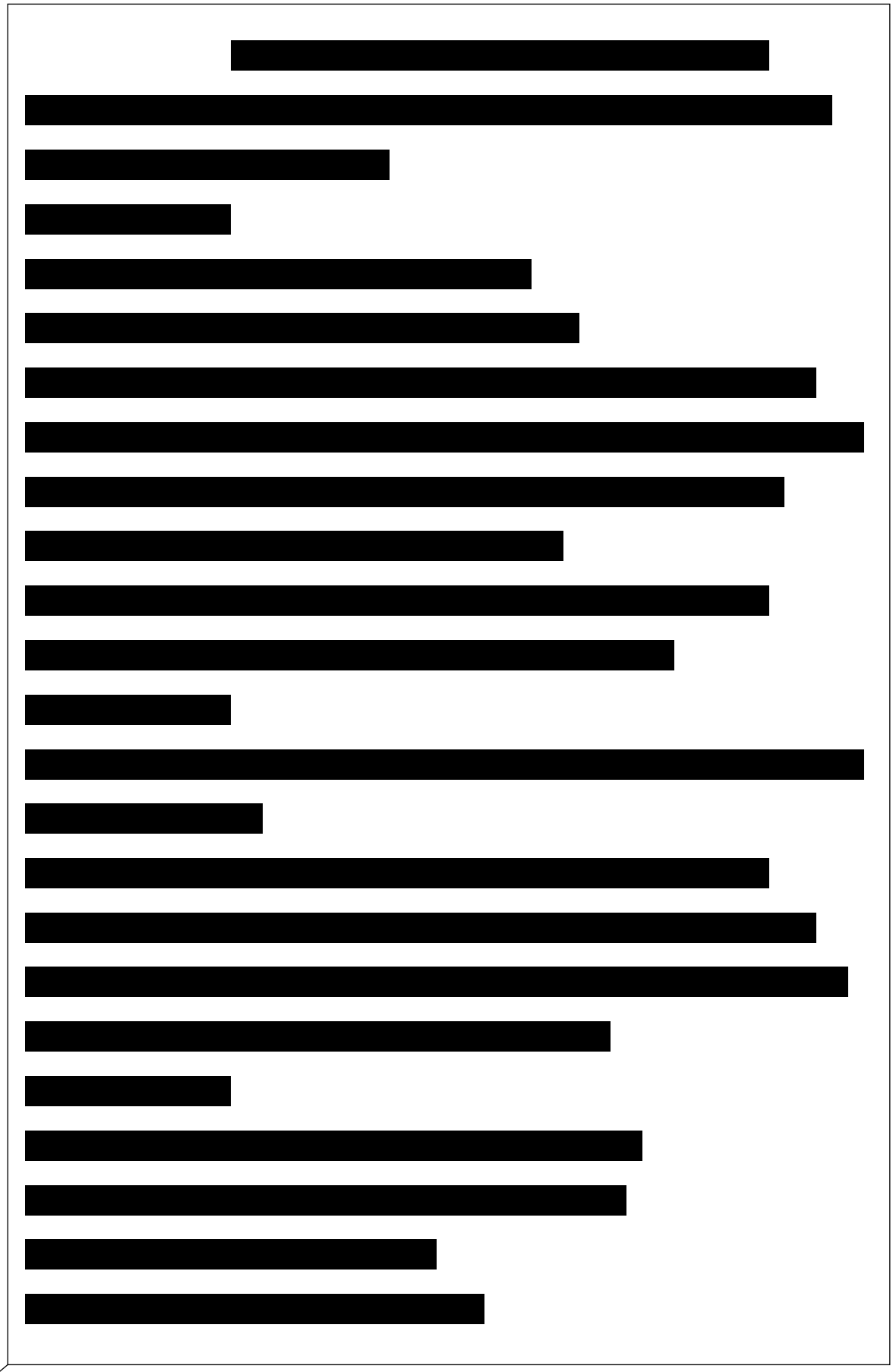
A. Similarly, to first quarter operating income, earnings per share, again, I'm not -- I don't believe operating ratio was. Net income may have been, not 100 percent.

Q. But you know operating income and EPS were records in the second quarter of 2026?

A. Yes.
Q. Better than any second quarter in Union Pacific's history?
A. Yes.
Q. What were the drivers of the record-setting operating income and EPS in the second quarter of 2026?
A. They would have been very similar to the first quarter. Although I believe in the second quarter, we did see volume growth. I don't remember the amount, but we did start to see volume growth overall. And then also fuel surcharge revenue contributed in the second quarter of 2026 as well.
Q. What about domestic intermodal volume, how was that in the second quarter of 2026?
A. It grew in the second quarter of 2026. And I believe it was another strong quarter, another record quarter for domestic intermodal.
Q. Meaning the second quarter of 2026, Union Pacific experienced record volume for domestic intermodal?
A. Yes.
Q. In the second quarter of 2026, Union Pacific experienced more domestic intermodal volume







STATE OF ILLINOIS)
) SS.
COUNTY OF DUPAGE)

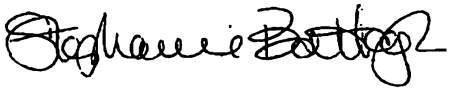
I, STEPHANIE A. BATTAGLIA, CSR and Notary Public in and for the County of DuPage and State of Illinois, do hereby certify that on October 15, 2026, at 8:01 a.m., at Kutak Rock, 1650 Farnam Street, Omaha, Nebraska, the deponent JENNIFER HAMANN personally appeared before me.

I further certify that the said JENNIFER HAMANN was by me first duly sworn to testify and that the foregoing is a true record of the testimony given by the witness.

I further certify that the deposition was terminated at 4:18 p.m.

I further certify that I am not counsel for nor related to any of the parties herein, nor am I interested in the outcome hereof.

In witness whereof, I have hereunto set my hand and seal of office this 20th of October, 2026.



Notary Public

CSR No. 084-003337 - Expiration Date: May 31, 2027

EXHIBIT 77

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

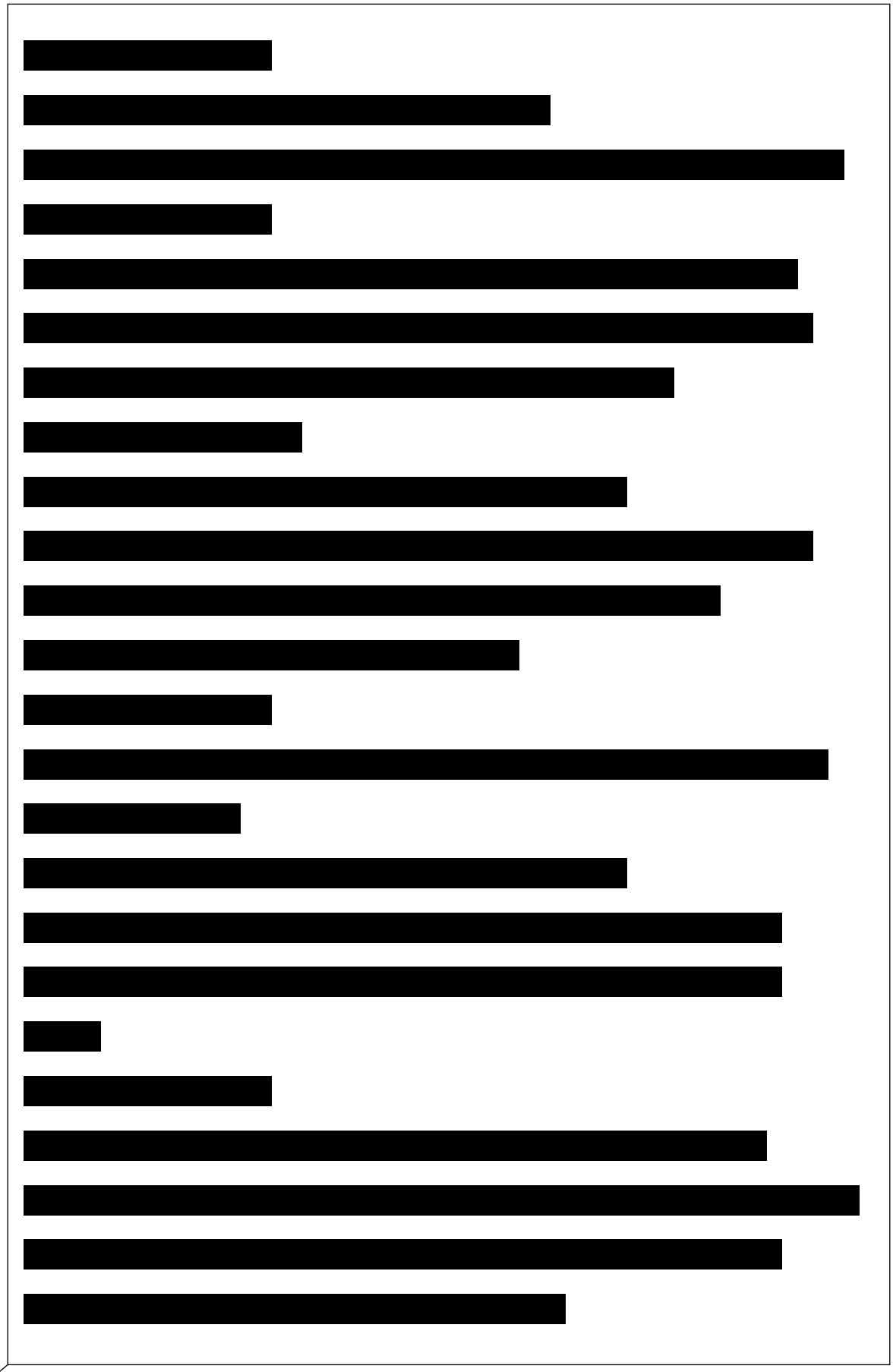
--CONTROL--

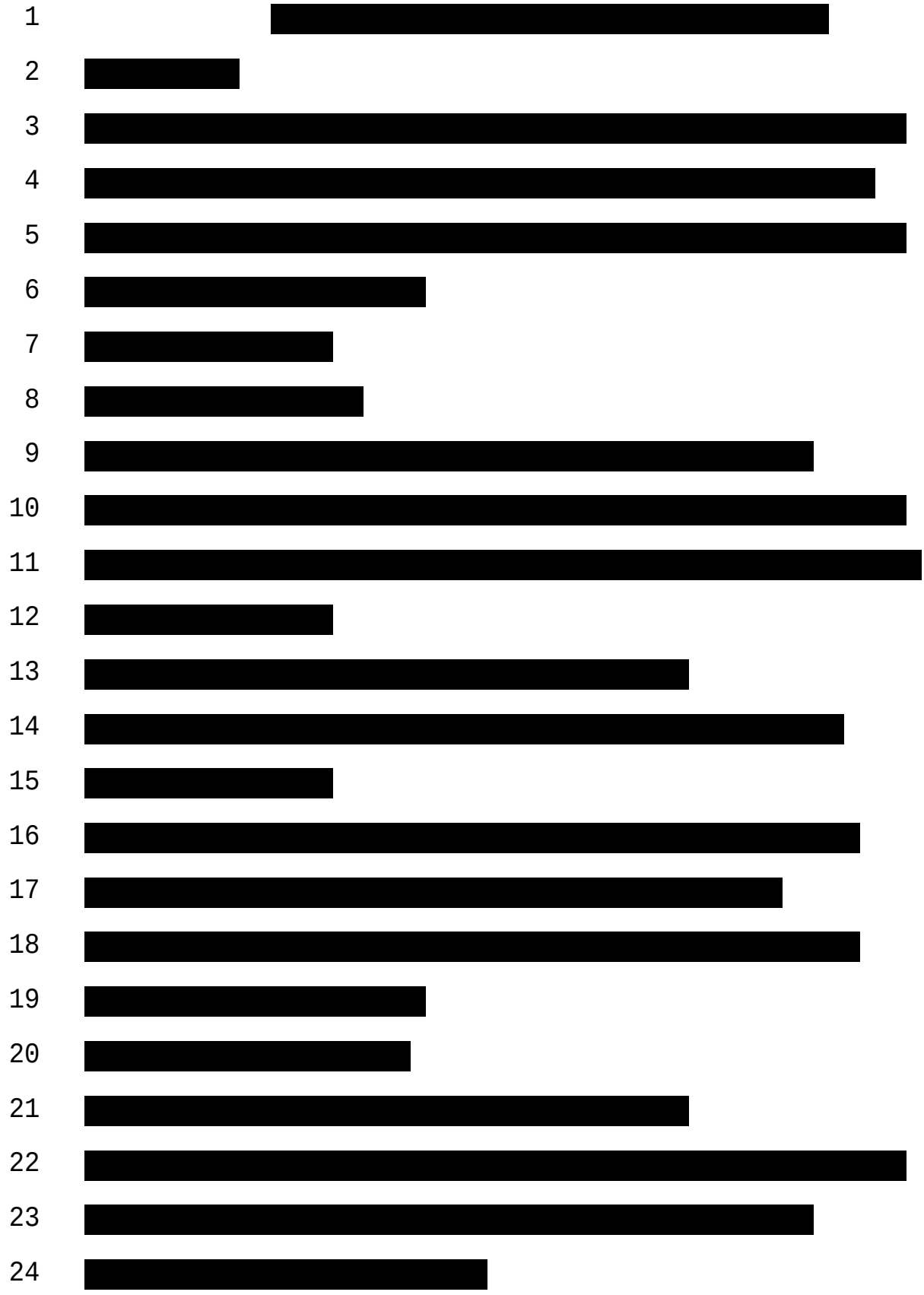
NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

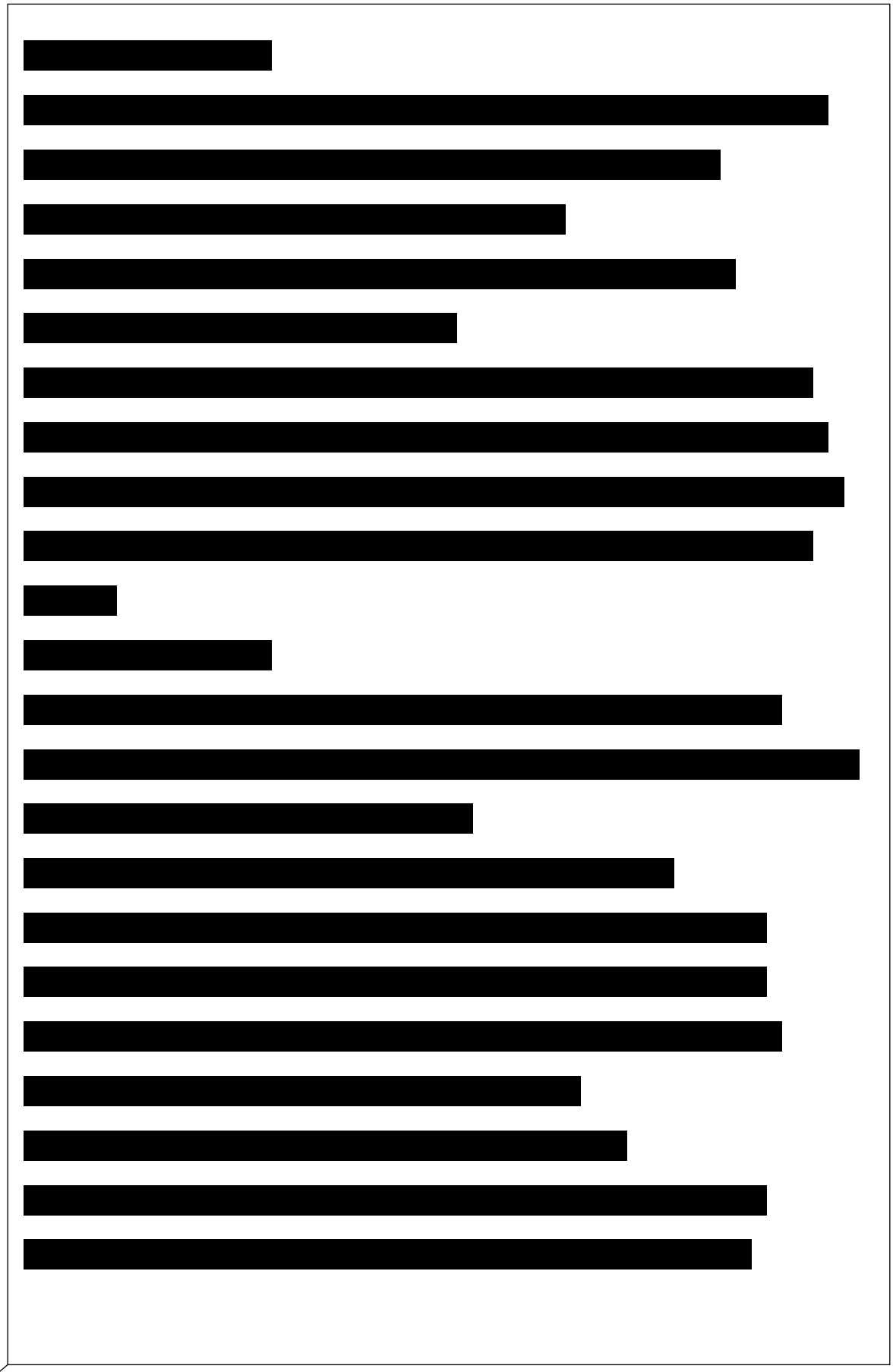
Highly Confidential
Pursuant to the Protective Order

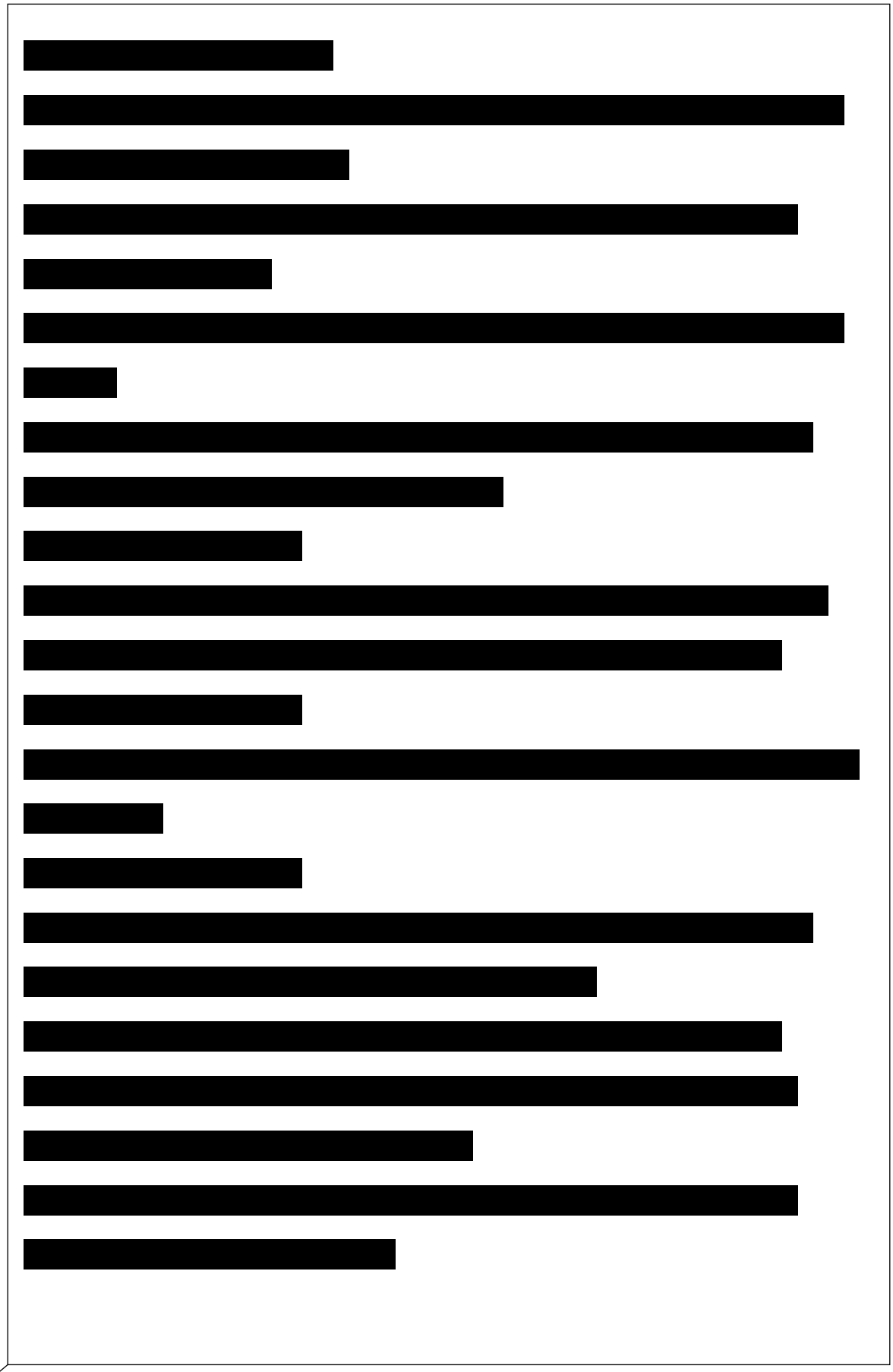
VIDEOTAPED DEPOSITION

The DEPOSITION OF AARON PFEIFER, taken on behalf of the BURLINGTON NORTHERN, at the Law Office OF Kutak Rock, 1650 Farnam Street, Omaha, Nebraska, on the 20th day of August, 2026, at 8:07 a.m., CT

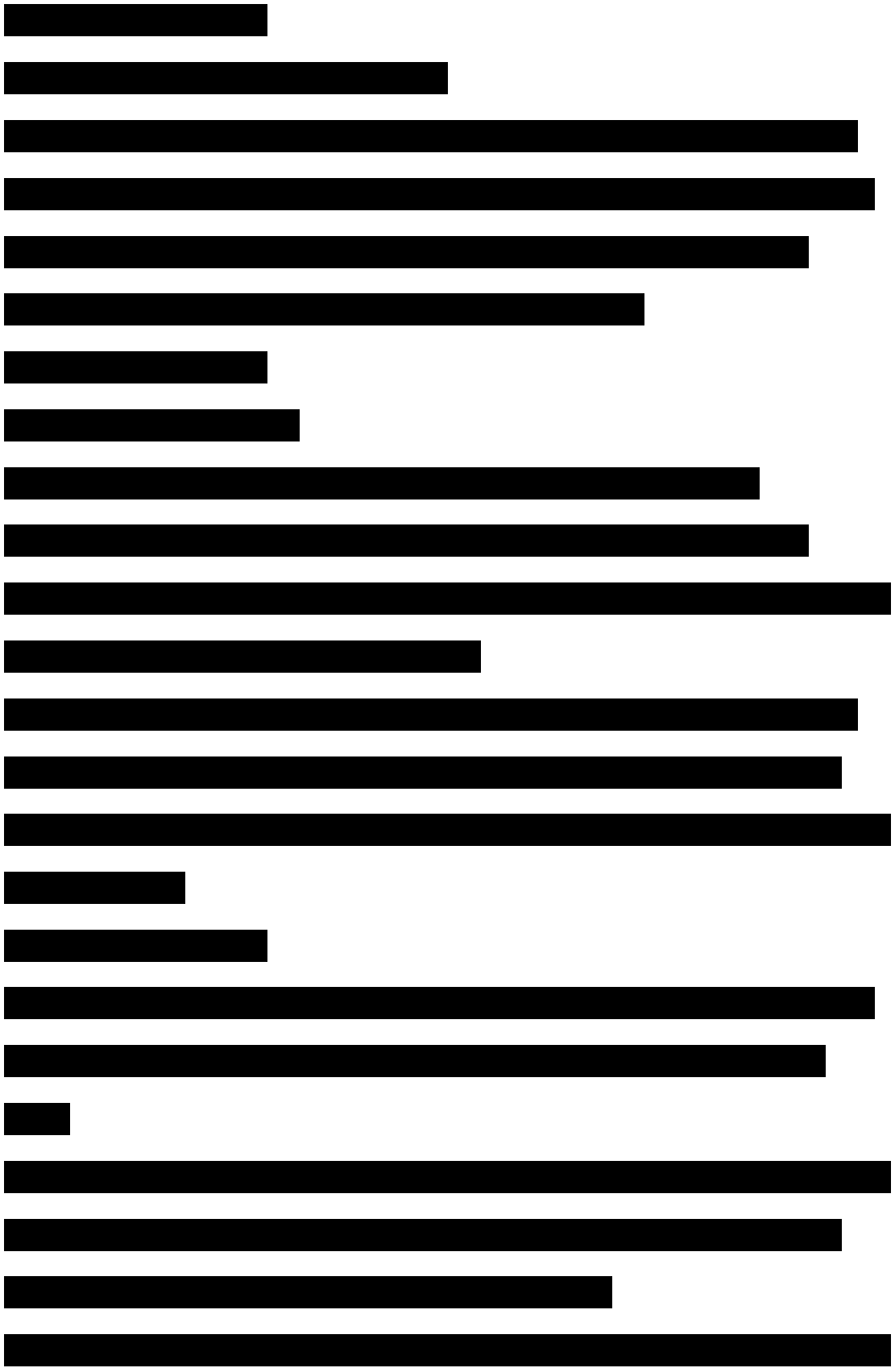


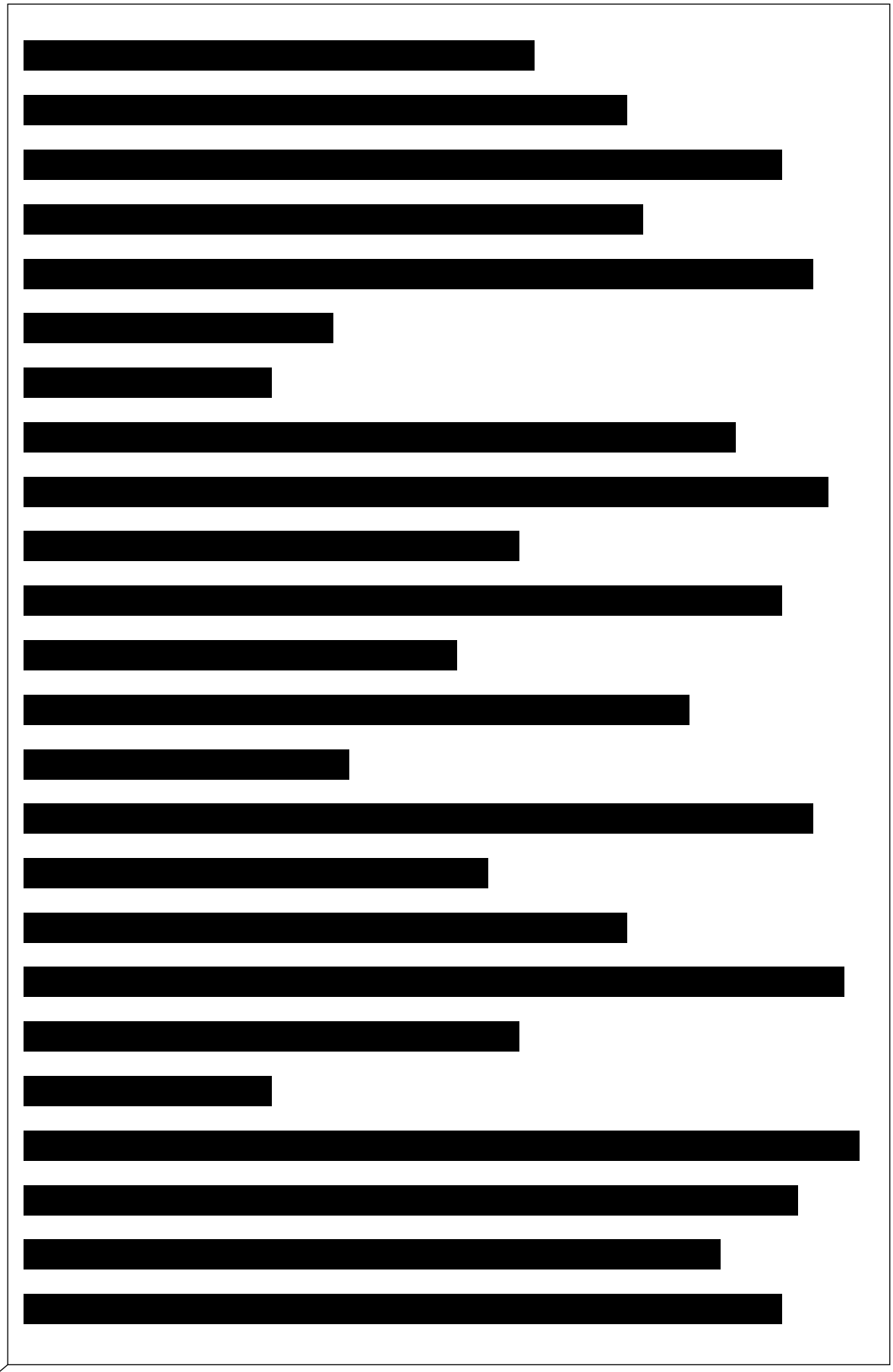


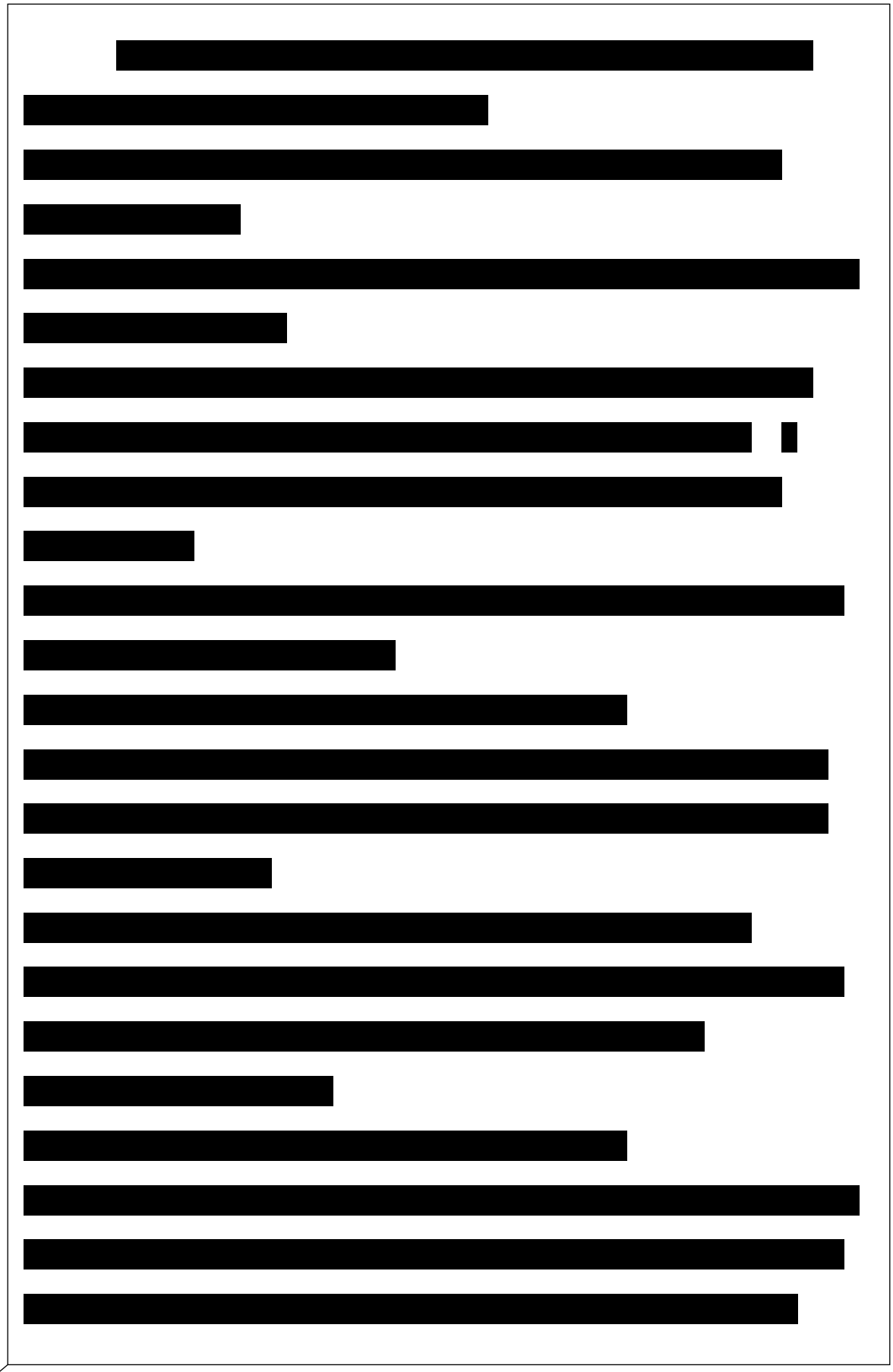




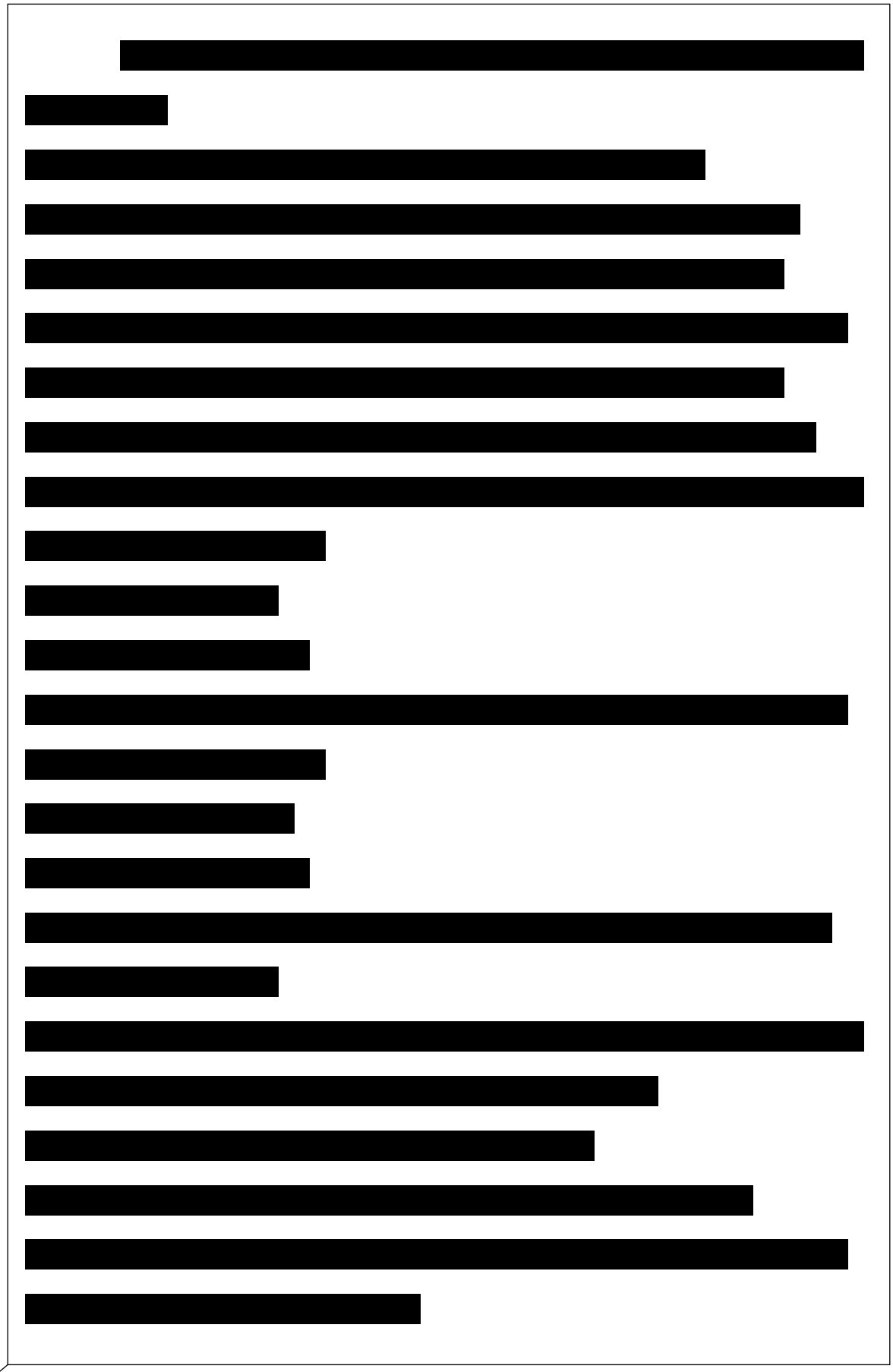












STATE OF ILLINOIS)
) SS.
COUNTY OF DUPAGE)

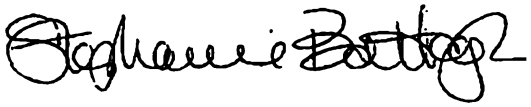
I, STEPHANIE A. BATTAGLIA, CSR and Notary Public in and for the County of DuPage and State of Illinois, do hereby certify that on August 20, 2026, at 8:07 a.m., at Kutak Rock, 1650 Farnam Street, Omaha, Nebraska, the deponent AARON PFEIFER personally appeared before me.

I further certify that the said AARON PFEIFER was by me first duly sworn to testify and that the foregoing is a true record of the testimony given by the witness.

I further certify that the deposition was terminated at 4:46 p.m.

I further certify that I am not counsel for nor related to any of the parties herein, nor am I interested in the outcome hereof.

In witness whereof, I have hereunto set my hand and seal of office this 25th of August, 2026.



Notary Public

CSR No. 084-003337 - Expiration Date: May 31, 2027

EXHIBIT 78 (REDACTED)

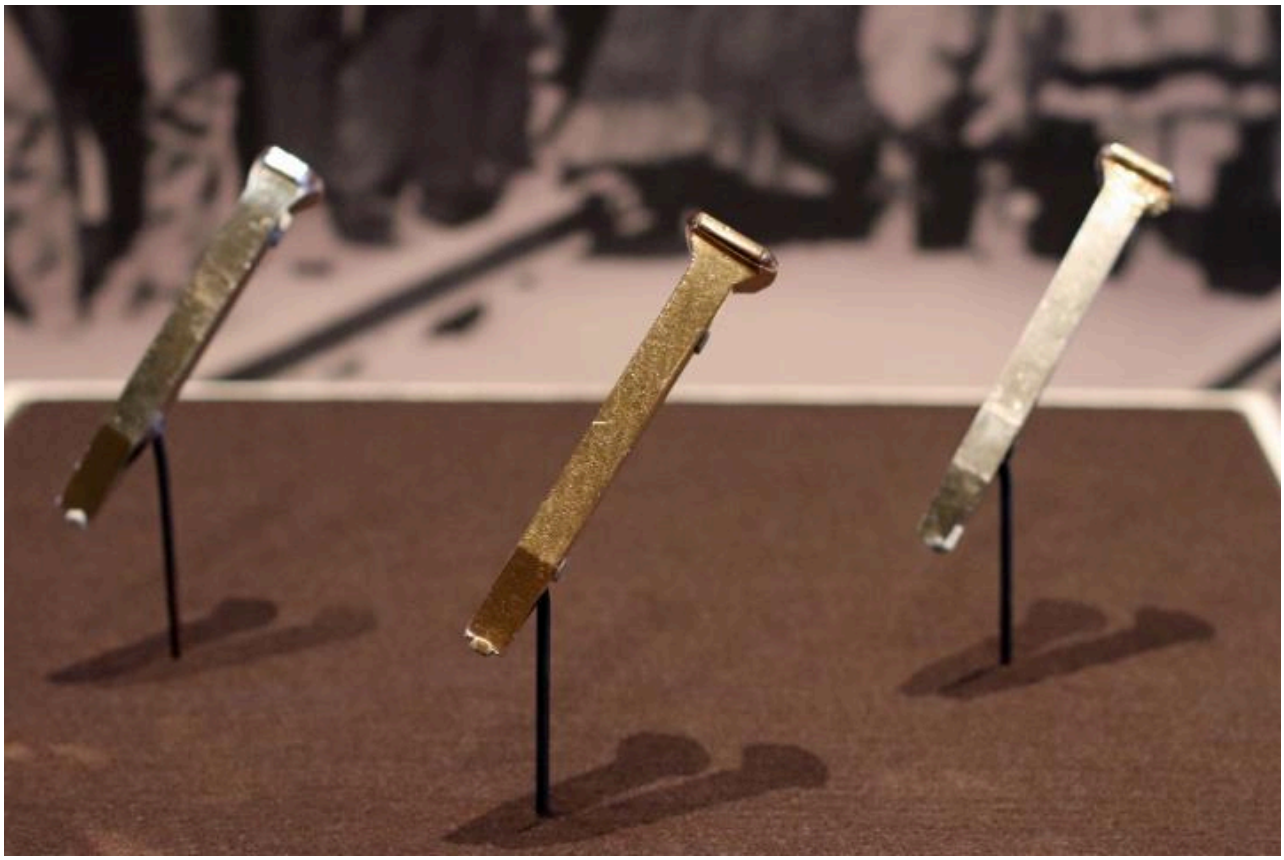
EXHIBIT 79 (REDACTED)

EXHIBIT 80

PUBLIC VERSION - REDACTED

BUILDING AMERICA®

The Original Golden Spike and its Promontory Summit Companions



From left: the silver spike from Nevada, the Golden Spike and the blended spike from Arizona.

For a century and a half, the Golden Spike has symbolized one of the most audacious and significant undertakings in American history – completion of the world's first transcontinental railroad. Schoolchildren learn about the famous spike, but few know about its companions at Promontory Summit or this tale's unexpected twist.

Completing construction of what was known as the "Pacific Railway" by driving home a golden spike appealed to the romantic spirit embraced by many 19th-century Americans. David Hewes, a well-known San Francisco contractor, was no exception. In spring 1869, he ordered a spike be created and delivered to former California Gov. Leland Stanford, president of the Central Pacific Railroad, who would join Union Pacific Vice President Thomas C. Durant at Promontory Summit.

Cast at the William T. Garrett Foundry of 17.6-carat gold alloyed with copper, the spike measures 5 9/16 inches in length and weighs 14.13 troy ounces.

Hewes had the spike polished and engraved by a local jeweler. The top reads, "THE LAST SPIKE." Two sides list Central Pacific directors and officers. A third side says, "The Pacific Railroad ground broken Jany 8th 1863 and completed May 8th 1869." (Inclement weather and a labor dispute delayed Union Pacific officials' arrival at the site, postponing the ceremony two days.) The fourth side states, "May God continue the unity of our country as this railroad unites the two great Oceans of the world." Attached to its tip was a

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rough gold nugget or "sprue" that was later broken off, and commemorative watch fobs and rings were reportedly made.

Following the ceremony, Stanford returned the spike to Hewes, who held it until 1892 when he donated it to the newly formed Leland Stanford Junior University in Palo Alto, California. Today, it is on display in Stanford's Cantor Center for Visual Arts.

News of the Golden Spike quickly spread, and others scrambled to get a piece of the action in time for the Promontory Summit ceremony. The spike was joined by five other donated items, each competing for a place in history:

- A silver spike, presented by the newly formed state of Nevada. This spike, weighing 25 troy ounces, was rushed to the site and later inscribed, "To Leland Stanford President of the Central Pacific Railroad. To the iron of the East and the gold of the West Nevada adds her link of silver to span the continent and wed the oceans." It also is on display at Stanford's Cantor Center for Visual Arts.
- A blended spike of iron, gold and silver, provided by the territory of Arizona. It was inscribed, "Ribbed with iron, clad in silver and crowned with gold, Arizona presents her offering to the enterprise that has banded a continent, dictated a pathway to commerce. Presented by Governor Safford." The spike was given to Union Pacific executive Sidney Dillon, and eventually was acquired by the Museum of the City of New York from Dillon's granddaughter. It's currently on loan to the Union Pacific Railroad Museum in Council Bluffs.
- A second, lower-quality golden spike, presented by Frederick Marriott, proprietor of a San Francisco newspaper. It was engraved, "With this spike, the San Francisco ‘News Letter' offers its homage to the great work which has joined the Atlantic and Pacific Oceans." It was never as prominent as the Hewes spike, and it faded into obscurity. It allegedly was handed to Grenville Dodge, Union Pacific's chief engineer. What Dodge did with it – if he actually received it – is unknown. Other accounts place the spike with Durant or Union Pacific board member John Duff. Yet another tale states it was returned to the News Letter and made its way back to San Francisco, where it was lost during the 1906 earthquake and fire.
- A silver-plated maul, or hammer, wielded at the ceremony by Stanford and Durant. The maul joined the Hewes Golden Spike and the silver spike at Stanford University.
- A 7.5-foot tie made of polished California laurel, donated by West Evens, tie contractor for Central Pacific, to receive the ceremonial spikes. Pre-drilled with four holes and placed in the ground under the last rail, it had a silver plate engraved, "The last tie laid on completion of the Pacific Railroad, May, 1869." It was taken back to Sacramento and kept in a railroad shop until 1890, when it was moved to Southern Pacific's San Francisco main office. It burned in the 1906 earthquake and fire.

As an artifact, the spike is historical, but stories about what became of it approached mythical status, largely because many of the estimated 500 to 3,000 people standing amid the sagebrush probably could not get a clear view of the ceremony or hear what was said on a windy day. Immediately following the ceremony, the spikes were replaced with standard-issue material.

In 1937, California writer and historian Robin Lampson researched the Golden Spike's history. Acting on a tip by someone who'd heard him on the radio, Lampson found the original invoice for the spike in a private Bay Area home, but another discovery he made the same day stirred up even more interest. Lampson found a private Hewes family genealogical book with a photo of a golden spike with a slightly different inscription than the one in the Stanford art museum. An erroneous caption under that photo convinced Lampson the historic artifact had been lost or stolen. In 1970, as the centennial year of the ceremony at Promontory Summit neared its end, Lampson doubled down on his claim, asserting that "a historical symbol second only to the Liberty Bell" had been lost to posterity.

Lampson's claim was revealed as an honest mistake in 2005 when two Hewes descendants revealed a second golden spike, hidden for generations as an heirloom. It was cast at the same time as the famous spike, but engraved later with the corrected ceremony date. The family sold the heirloom spike to the California State Railroad Museum in Sacramento, where it is currently on display.

Of course, gold being a relatively soft, malleable metal, it was never practicable to "drive home" that spike. Neither the Hewes Golden Spike nor the silver-plated maul shows any evidence of high-speed impact. What

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has been driven home is the importance of the "Pacific Railway" in U.S. history, and the symbolism of the Golden Spike in American culture.

EXHIBIT 81

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BNSF NEWS

BNSF, NS, NWSA REDESIGN FASTER SERVICE FROM PNW TO CHICAGO AND BEYOND

The new intermodal train service cuts transit time from Pacific Northwest ports to Chicago by 3 days, achieving 6-day delivery.

www.bnsf.com



BNSF Railway and connecting partners Norfolk Southern (NS) and the Northwest Seaport Alliance (NWSA) announced a collaboration to redesign and develop a 3-day faster service product for inland point intermodal (IPI) traffic from the Pacific Northwest (PNW), destined to and connecting through Chicago.

The redesigned plan will encompass the NWSA building trains in less than 2 days dwell off the dock with the density to seamlessly connect to and through Chicago. The seamless hand-off across BNSF's Northern Transcon route enables faster transit and better consistency for cargo shippers.

"This service product collaboration was an outcome of listening to our joint customers, who emphasized the desire to use more rail, but would need to also reduce inventory carrying and total landed transportation costs out of their networks in 2025," said BNSF Group Vice President, Consumer Products Jon Gabriel. "We are proud to deliver a solution that accomplishes these goals."

The NWSA Seattle/Tacoma port complex reported the lowest rail dwell in the country thus far this year as a result of operational changes emphasizing rail loading.

"The Northwest Seaport Alliance is excited to partner with BNSF and NS to offer this industry-leading service for shippers utilizing our gateway," stated NWSA CEO John Wolfe. "This is an example of how through partnership and innovative efforts we can respond to the needs of shippers and deliver best-in-class service for our customers."

With reduced on dock dwell and faster transit, results will be 3 days faster, with the total time from ship to Chicago at 6 days, the fastest from any PNW gateway in North America.

NS and BNSF will deliver all interchange traffic to one location (NS-Ashland), for a single crew swap, then move toward inland markets in

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Ohio, Pennsylvania and more.

www.bnsf.com

Ask For More Information…

EXHIBIT 82

FRA Certification Helpline: (216) 694-0240

UP, BNSF Announce Southern Powder River Basin Joint Line $100 Million Capacity Expansion Plan

MAY 9, 2006 | BNSF, Headlines, UP

(Union Pacific and BNSF issued the following press release on May 8.)

OMAHA, Neb. and FORT WORTH, Texas — Union Pacific and BNSF Railway Company today announced plans to begin another significant capacity expansion on the jointly owned rail line serving the Southern Powder River Basin (SPRB) coal fields, the largest open-pit, low-sulfur coal reserves in North America.

Both railroads have agreed on preliminary work to construct more than 40 miles of third and fourth main line tracks, at a cost of about $100 million over the next two years, to meet current and future forecasted demand for Wyoming's Powder River Basin (PRB) coal. This project is in addition to the construction of 14 miles of a third main line track completed in Spring

2005 and an additional 19 miles of the third main line currently under construction and scheduled to go into service later in May and be fully operational in September 2006. The total cost of this nearly 75-mile capacity expansion will be about $200 million, which is split between the line's two owners, Union Pacific and BNSF.

"The investment in the Joint Line is a strategic part of Union Pacific's coal network operations," said Jim Young, president and chief executive officer, Union Pacific. "On-going infrastructure development improvements in the Southern Powder River Basin will enhance our ability to serve our customers and meet this nation's energy demands."

"This Joint Line project and the magnitude of our investment underscores BNSF's commitment to this country's coal and power industries," said Matthew K. Rose, BNSF's chairman, president and chief executive officer. "The rail, mining, and generating industries all need to work together to keep coal a strong part of the nation's future energy program."

For many years, CANAC, a Montreal-based rail engineering firm, has been evaluating PRB coal production forecasts and both railroad and mine infrastructure capacity needed to support forecasted production. Recommendations for railroad capacity proposed by CANAC in 1999 are in the final stages of completion and will be fully implemented by September 2006.

CANAC began a new study of the Joint Line in early Fall 2005, and presented its preliminary findings to the two railroads in early 2006. In response, Union Pacific and BNSF have advanced construction plans to add the more than 40 miles of third and fourth main line capacity to meet the annual projected growth in demand for SPRB coal in 2007 through

2009. These activities include construction of a fourth main line over Logan Hill and construction of a third main line at the north end of the Southern Powder River Basin.

“I’m very pleased at this investment in Wyoming infrastructure,” said Gov. Dave Freudenthal. “I’m also encouraged by the action, which reflects a new level of responsiveness to our need for more rail capacity to move Wyoming coal to market. This project could have a significant impact on our ability to sell Wyoming coal.”

Over the last 20 years, there have been significant increases in the SPRB Joint Line production volume. In 1985, the Joint Line handled 19 million tons of coal. To meet the growing demand for Western coal, volume grew steadily and in 2005, the Joint Line capacity had grown to handle an all-time record 325 million tons. These improvements will enable the Joint Line to handle in excess of 400 million tons of coal.

Coal-fired power generating technology has improved considerably over the last 20 years. With coal processing technology advances, future coal power systems will be dramatically cleaner and more efficient than plants based on older technologies. Coal is also relatively inexpensive compared to natural gas, which has had highly erratic prices the last few years, and oil, which is used as a fuel source on a rather limited basis. Coal is viewed as one of the best sources of clean, economical fuel to power the needs of North America and reduce its dependency on foreign oil.

About Burlington Northern Santa Fe Corporation

Burlington Northern Santa Fe Corporation’s subsidiary BNSF Railway Company operates one of the largest railroad networks in North America, with about 32,000 route miles in 28 states and two Canadian provinces.

The railway is among the world's top transporters of intermodal traffic, moves more grain than any other American railroad, transports the components of many of the products we depend on daily, and hauls enough low-sulphur coal to generate about ten percent of the electricity produced in the United States. BNSF is an industry leader in Web-enabling a variety of customer transactions at http://www.bnsf.com/.

About Union Pacific Corporation

Union Pacific Corporation owns one of America's leading transportation companies. Its principal operating company, Union Pacific Railroad, links 23 states in the western two-thirds of the country and serves the fastest-growing U.S. population centers. Union Pacific's diversified business mix includes Agricultural Products, Automotive, Chemicals, Energy, Industrial Products and Intermodal. The railroad offers competitive long-haul routes from all major West Coast and Gulf Coast ports to eastern gateways. Union Pacific connects with Canada's rail systems and is the only railroad serving all six major gateways to Mexico, making it North America's premier rail franchise.

Search

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EXHIBIT 83

PUBLIC VERSION - REDACTED

AMERICA'S RAILROADS MEET PTC MANDATE, LOOK TO THE FUTURE

Washington, D.C. — December 29, 2020 — Today, the Federal Railroad Administration (FRA) **announced** that America's passenger and freight railroads have met or surpassed the statutory requirements for **Positive Train Control (PTC)** outlined in the Rail Safety Improvement Act of 2008 (RSIA). After years of tireless, methodical work, the nation's railroads have created a fully interoperable PTC system capable of automatically stopping a train before certain human error related accidents occur. "America's railroads have reached an important milestone this year that will enhance safety and springboard innovation long into the future," said Ian Jefferies, president and CEO of the Association of American Railroads. "While the industry is proud of this accomplishment, the job is never finished. Railroads will remain forward-looking and continue advancing safety through innovation and technology." The nation's largest railroads, known as Class Is, invested nearly $11.5 billion to develop, install and implement fully interoperable PTC systems across 53,676 miles of PTC-required track. These individual systems were designed to work seamlessly across operations as railroads regularly run across each other's tracks. Moving forward, railroads will continue to invest in maintaining and upgrading their PTC systems so they can deliver critical safety benefits. Beyond safety, PTC systems and their foundational components hold promise to drive further efficiencies and innovation across the nation's rail network. Armed with detailed geomapping, advanced communications systems and upgraded locomotive hardware, railroads are working to unlock the promise of this technology to improve efficiency and drive further operational innovations. This gradual, disciplined process will be fully integrated into railroad's ongoing efforts to enhance reliability and better serve their customers. PTC is an essential part – but only one part – of the rail industry's **ongoing technological transformation**. Thanks to steady, substantial investments in infrastructure, equipment and technology – $26 billion a year on average – America's railroads are modernizing to move more freight more efficiently, safely and environmentally friendly. Technology is moving freight rail – and in turn the U.S. economy – forward.

###

For more information contact: AAR Media Relations at **media@aar.org** or 202-639-2345.
About AAR: The AAR is the world's leading railroad policy, research and technology organization focusing on the safety and productivity of rail carriers. AAR members include the major freight railroads of the U.S., Canada and Mexico, as well as Amtrak. **Follow us on Twitter: @AAR_FreightRail** or Facebook: **www.facebook.com/freightrail**.



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THE SIGNAL™

Get freight rail industry news and insights right to your inbox with our biweekly newsletter The Signal™

EXHIBIT 84

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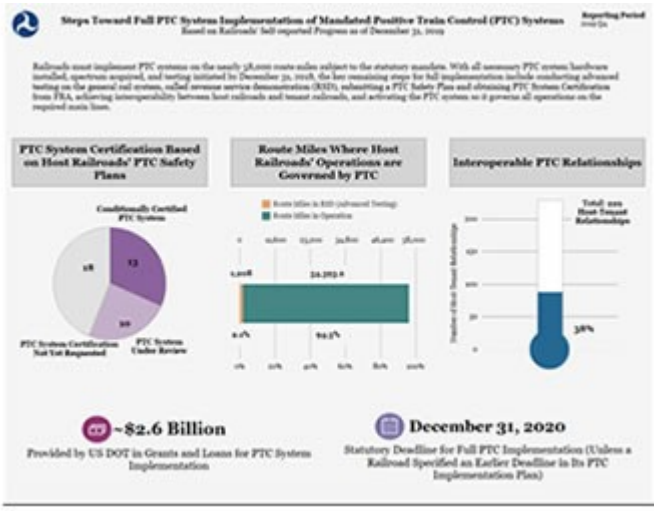
Positive Train Control (PTC)

Skip to main content

USA Banner

Positive Train Control (PTC)

Overview



Click here for detailed PTC implementation progress graphics

Positive Train Control (PTC) systems are designed to prevent train-to-train collisions, over-speed derailments, incursions into established work zones, and movements of trains through switches left in the wrong position. On December 29, 2020, FRA announced that PTC technology is in operation on all 57,536 required freight and passenger railroad route miles, prior to the December 31, 2020 statutory deadline set forth by Congress. Furthermore, as of that date railroads had reported that interoperability has been achieved between each applicable host and tenant railroad that currently operates on PTC-governed main lines. In addition, as required, FRA certified that each host railroad's PTC system complies with the technical requirements for PTC systems. This accomplishment was the culmination of over a decade of sustained and direct engagement and collaboration among FRA and the 41 railroads currently subject to the statutory mandate, including seven Class I railroads, Amtrak, 28 commuter railroads, 5 other freight railroads that host regularly scheduled intercity or commuter rail passenger service, as well as key railroad industry associations, material suppliers, and service providers.

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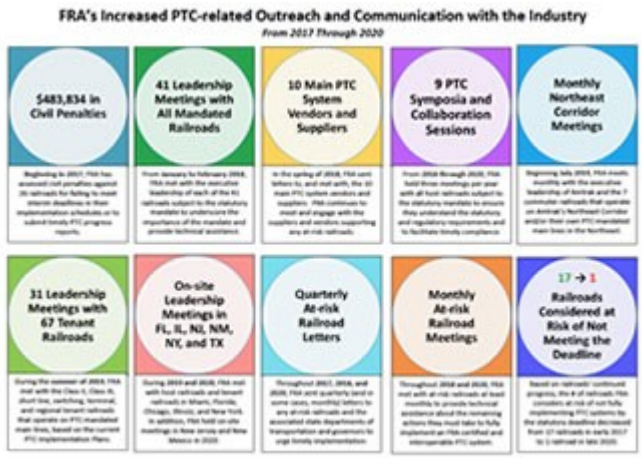
The Rail Safety Improvement Act of 2008 (RSIA) mandated the implementation of PTC systems on Class I railroads' main lines over which five million or more gross tons of annual traffic and certain hazardous materials are transported, and on any main lines over which intercity or commuter rail passenger transportation is regularly provided. RSIA and FRA's implementing regulations also require PTC systems to be interoperable, meaning that the locomotives of host and tenant railroads operating on the same main line must communicate with and respond to the PTC system, including during uninterrupted movements over property boundaries.

Prior to its completion, each railroad subject to the Congressional mandate submitted to FRA Annual and Quarterly Reports detailing their progress towards implementing PTC. From 2016 through 2018, FRA published infographics depicting railroad quarterly progress updates: Steps Towards Full Implementation of Mandated PTC Systems (Q4 2018), Each Railroads Progress Towards Meeting Statutory Criteria for an Extension, PTC Implementation Status by Railroad, and PTC Implementation Status by Freight and Passenger Rail. Beginning in 2018, FRA published new quarterly infographics here summarizing both the industry's progress, and each railroad's incremental progress toward completing the major requirements of full PTC system implementation. In the fall of 2020, FRA published its PTC-related Outreach and Communication with the Industry, detailing the agency's exhaustive stakeholder engagement since 2017 to hasten and facilitate full PTC implementation.



Click here for PTC-related outreach and communication with the industry

PTC Document Submission: Railroads that are subject to the statutory mandate must submit various PTC-related documents to FRA and obtain written approval. Those documents, including PTC Implementation Plans, requests to conduct testing of uncertified PTC systems on the general rail network (including RSD), PTC Safety Plans, and FRA's decision letters are available on www.regulations.gov under each railroad's PTC docket number, which are generally listed here.

PTC Background: In 2008, Congress passed and the President signed the Rail Safety Improvement Act of 2008 requiring PTC systems to be fully implemented by December 31, 2015, on Class I railroads' main lines that transport poison- or toxic-by-inhalation hazardous materials and any main lines with regularly scheduled intercity or commuter rail passenger service. In October 2015, Congress extended the deadline for full implementation by at least three years to December 31, 2018, and required FRA to approve any railroad's request for an "alternative schedule and sequence" with a final deadline not later than December 31, 2020, if a railroad demonstrated it met certain statutory criteria by December 31, 2018. PTC systems use communication-based and processor-based train control technology to reliably and functionally prevent train-to-train collisions, overspeed derailments, incursions into established work zone limits, and movements of trains through switches in the wrong position. FRA will continue to perform comprehensive oversight, provide technical assistance to all applicable host railroads and tenant railroads, and

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work with other stakeholders, including railroad associations and PTC system vendors and suppliers, until all railroads subject to the mandate fully implement FRA-certified and interoperable PTC systems by the statutory deadline.

PTC Grants and Loans: US DOT has provided grants and loans for PTC system implementation through the following programs:

- BUILD/TIGER Grants Program
- FTA Commuter Rail Positive Train Control Program (FY 2017)
- High-Speed Intercity Passenger Rail Program (HSIPR)
- Positive Train Control Grant Program FY 2017
- PTC Systems Grants under the Consolidated Rail Infrastructure and Safety Improvements (CRISI) Program (FY 2018)
- Railroad Rehabilitation & Improvement Financing (RRIF)
- Railroad Safety Technology Grants for Positive Train Control (PTC) Program FY 2010, 2014 and 2016
- Transportation Infrastructure Finance and Innovation Act (TIFIA)

FRA-hosted Symposia and PTC Collaboration Sessions: Beginning in 2018 and planned through 2020, FRA hosts a series of collaboration sessions intended to bring together railroads, railroad associations, and FRA's PTC experts. Topics have included statutory and regulatory requirements, testing best practices, and PTC System Certification. All past materials can be found below:

- PTC Symposium June 2018: Revenue Service Demonstration, Substitute Criteria, Alternative Schedule, and Full Implementation of PTC Systems
- PTC Symposium July 2018: PTC Testing
- PTC Symposium August 2018: PTC System Certification
- PTC Collaboration Session: First of Six in 2019 and 2020
- PTC Collaboration Session: Second of Six in 2019 and 2020
- PTC Collaboration Session: Third of Six in 2019 and 2020
- PTC Collaboration Session: Fourth of Six in 2019 and 2020
- PTC Collaboration Session: Fifth of Six in 2019 and 2020
- PTC Collaboration Session: Final of Six in 2019 and 2020

EXHIBIT 85

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Railpulse: The Digital Age of Railcar Tracking Has Arrived

anthonyernst

A TECHNOLOGY COALTION TO **TRANSFORM THE RAIL INDUSTRY**

RailPulse, LLC was formed by a coalition of forward-thinking railcar owners who have joined together to create a neutral, open-architecture, industry-wide railcar telematics platform. The RailPulse platform is transforming rail shipping by leveraging the latest technologies to gather and share real-time railcar location, health and condition information. It enables data from GPS and railcar-mounted sensors to drive improved service levels, visibility, safety, sustainability, and productivity into North American rail-based supply chains.



WHY A COALITION?

RailPulse is focused on solving the rail industry's most pressing competitive and technological challenges associated with providing visibility into the movement of rail freight. Sharing common goals that will benefit the entire rail ecosystem is the foundation of the RailPulse coalition. The RailPulse members recognized that working independently would result in slow, incremental adoption of the latest GPS and telematics technologies. Working together as a coalition unifies our expertise and resources to take the entire rail industry forward. Rather than duplicating efforts, railcar owners are now collaborating and aligning to not only speed adoption, but also foster greater innovation.

700+ companies that own ~18% of North American railcar fleet

7 RAILROADS AND TTX own
~24% of North American railcar fleet

120+ companies that own
~2% of North American railcar fleet

80+ companies that own

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~56% of North American railcar fleet

EQUAL REPRESENTATION FOR THE ENTIRE RAIL ECOSYSTEM

RailPulse was created for the benefit of all constituents in the rail ecosystem to drive carload growth. The new telematics platform supports the entire rail industry: **shippers, Class I railroads, short line railroads, and railcar operating lessors**, all while enhancing the safety and security of proprietary car-owner data. Each stakeholder has an equal voice in the governance of RailPulse and its policy decisions to ensure that the coalition stays focused on what is best for the North American rail industry rather than a single stakeholder class.

ACCELERATED TELEMATICS ADOPTION

A Shared Source of Truth for Better Collaboration Industry-Wide

Today, monitoring rail logistics data is antiquated, fragmented, and overwhelming. RailPulse's mission is to take the rail industry into the future to improve its competitive position against other modes. We believe that innovative ideas require new and novel approaches — and joining forces with major constituents in our industry is needed to rapidly move the entire rail industry forward and deliver better service to rail shippers. We are working together to enhance the sustainability, efficiency, and safety advantages of rail through a standardized technology infrastructure that will accelerate adoption of telematics across the entire North American railcar fleet.

ACCELERATED TELEMATICS ADOPTION

A Shared Source of Truth for Better Collaboration Industry-Wide

Today, monitoring rail logistics data is antiquated, fragmented, and overwhelming. RailPulse's mission is to take the rail industry into the future to improve its competitive position against other modes. We believe that innovative ideas require new and novel approaches — and joining forces with major constituents in our industry is needed to rapidly move the entire rail industry forward and deliver better service to rail shippers. We are working together to enhance the sustainability, efficiency, and safety advantages of rail through a standardized technology infrastructure that will accelerate adoption of telematics across the entire North American railcar fleet.

RAILPULSE MEMBERS

The RailPulse coalition consists 13 major railcar owners and users who have a significant footprint in the rail ecosystem.

GATX

BNSF-OP-P VOL. 3 PAGE 1392

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WATCO

GENESEE & WYOMING

TRINITYRAIL

NS NORFOLK SOUTHERN

THE GREENBRIER COMPANIES

UNION PACIFIC BUILDING AMERICA

RDC

BUNGE

CPKC

CSX

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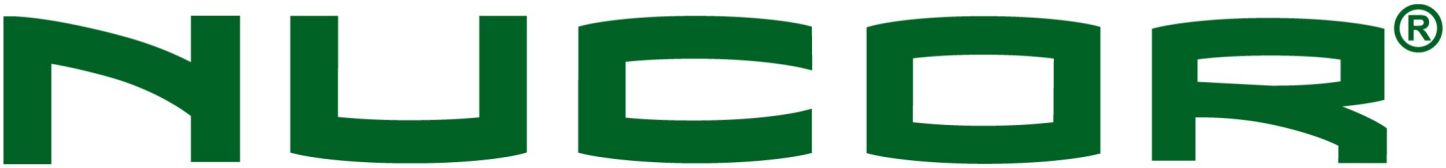



GET STARTED TODAY

Join the RailPulse movement and transform your performance with real-time railcar visibility

EXHIBIT 86

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Service Omaha, Neb. | June 7, 2022

Share

Union Pacific Railroad Joins Forces with RailPulse Coalition to Digitally Transform North America's Freight Rail Industry

RailPulse Is Leading the Effort to Broaden Use of Telematics Technology in Rail

Union Pacific Railroad has joined the RailPulse coalition and its effort to develop, broaden and accelerate the use of GPS and other telematics technologies in North America's freight rail industry.

Union Pacific is RailPulse's seventh member. The other six include GATX Corporation, Genesee & Wyoming, Norfolk Southern, TrinityRail, Watco, and The Greenbrier Companies.

RailPulse was formed in 2020 as a coalition of forward-thinking railcar owners working together to increase safety, efficiency, and visibility in the rail industry by supporting the development and use of GPS and other telematics technologies. Its goal is to provide real-time information and sustained visibility of a railcar's status, location and condition to shippers, railcar owners and railroads.

"The use of technology to increase shipment visibility is critical for ensuring we meet the needs and expectations of our customers who rely upon us for safe and reliable service," said Kenny Rocker, Executive Vice President – Marketing and Sales at Union Pacific. "RailPulse's mission to establish new standards and support GPS and telematics use enhances customer experiences. Ultimately, an improved shipper experience can attract more shipments to the North American rail network."

"The Board of RailPulse is very excited to welcome Union Pacific to RailPulse," said Mike McClellan, Senior Vice President and Chief Strategy Officer at Norfolk Southern. "Interest in RailPulse and the coalition's mission continues to grow. Adding Union Pacific to our ownership ranks demonstrates the strategic appeal of the transformative technology that RailPulse is pursuing for the betterment of all participants in the rail ecosystem: shippers, builders, railcar owners and the railroads."

RailPulse is on track to meet its initial milestone for platform introduction in early 2023. Member companies are currently facilitating trials with remote monitoring equipment from select vendors on their railcars. As the coalition receives and analyzes data from these trials, members plan to share conclusions later this year in preparation of the planned platform launch.

Visit RailPulse's website at **www.railpulse.com** or follow **the coalition on LinkedIn** to see the latest updates.

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About Union Pacific

Union Pacific (NYSE: UNP) delivers the goods families and businesses use every day with safe, reliable and efficient service. Operating in 23 western states, the company connects its customers and communities to the global economy. Trains are the most environmentally responsible way to move freight, helping Union Pacific protect future generations. More information about Union Pacific is available at **www.up.com**.

- **www.up.com**
- **www.facebook.com/unionpacific**
- **www.twitter.com/unionpacific**

The statements and information contained in the news releases provided by Union Pacific speak only as of the date issued. Such information by its nature may become outdated, and investors should not assume that the statements and information contained in Union Pacific's news releases remain current after the date issued. Union Pacific makes no commitment, and disclaims any duty, to update any of this information.

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402-544-6037

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EXHIBIT 87

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Norfolk Southern CMO Ed Elkins testifies on growth in freight rail

SEP 18, 2024



Norfolk Southern Executive Vice President and Chief Marketing Officer, Ed Elkins, recently addressed the Surface Transportation Board (STB) to outline Norfolk Southern's strategy for growth in the freight rail industry. The hearing, which included industry leaders from other Class 1 railroads, focused on the challenges and

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opportunities in the sector, as well as how Norfolk Southern is positioning itself for long-term success.

Elkins began by reaffirming Norfolk Southern's unwavering commitment to its strategy despite recent leadership changes. "The Norfolk Southern strategy is a company strategy, inspired by our railroaders and developed by our entire leadership team," said Elkins, emphasizing that the pillars of service, productivity, and growth remain steadfast, with safety as the foundation.

Key points from Ed's testimony include:

1. **The Norfolk Southern Strategy**: Norfolk Southern's primary focus is delivering reliable service that customers can count on every day, enhancing both efficiency and trust. By doing so, the railroad has begun converting freight back from highways to rail and aggressively targeting new business.
2. **Network Advantages**: Norfolk Southern's expansive network connects major US population centers with global supply chains. This unique positioning, alongside partnerships with more short lines than any other railroad, enables the company to drive growth across diverse markets.
3. **Productivity and Resilience**: Elkins highlighted how improved service reliability and network efficiency have **unlocked additional capacity for growth**. Norfolk Southern led the industry in volume growth during Q2 2024, with intermodal volumes increasing by 8%, marking a post-pandemic high.
4. **Investment for Future Growth**: Norfolk Southern has made significant investments in infrastructure, including the purchase of the **Cincinnati Southern Railway** and upgrades along the **3B line in Alabama**. These projects are designed to support long-term growth and sustainability.
5. **Innovation and Technology**: Elkins underscored the importance of leveraging new technologies to enhance service and customer experience. Notable initiatives include investments in **digital train inspections**, autonomous track inspection, and **RailPulse**, a GPS and telematics platform that gives customers greater shipment visibility.
6. **First and Final Mile Focus**: Elkins noted Norfolk Southern's Business Development and First and Final Mile Markets Division

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as a unique approach to improving local-level service and expanding business opportunities beyond NS railheads. This initiative has driven a **5.2% increase in short-line interchange volumes** since March 2024.

STB Board Chairman Robert E. Primus shared thoughts on growth-oriented railroads during the panel's question and answer session:

"I want to thank both railroads, because I think when it comes to making the hard decision to shift away from where we were going... it takes courage to do so." Primus continued later, "I don't think anybody in the industry is looking for perfection, at all. I think what most people, and what we're looking for, is consistency, is resiliency, and an ability to be transparent – not only with us but with the customer and your partners."

STB members also commended the railroads response to the Francis Scott Key Bridge collapse earlier this year. Elkins said the win stands on the shoulders of our railroaders, "As we become more productive, our system becomes more fluid, and we build up resiliency for when things go wrong, so that, ultimately, we can deliver exceptional results in the face of uncontrollable circumstances.

Elkins closed his testimony by reaffirming Norfolk Southern's commitment to delivering service customers can trust while building supply chains of the future through smart growth, innovation, and continued investments.

CONTINUE READING

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Nov 11, 2026

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Nov 05, 2026

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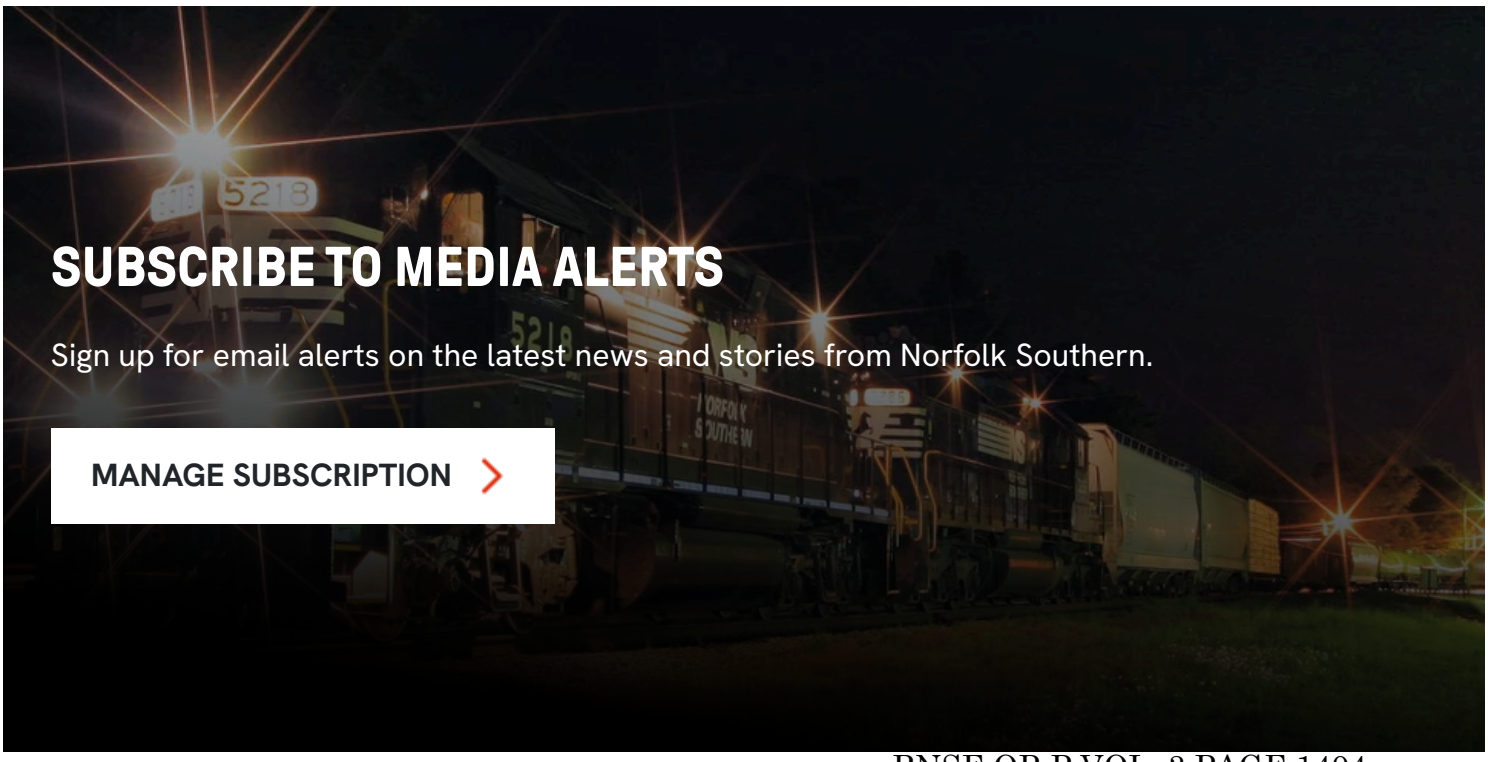

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EXHIBIT 88

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@UnionPacific

We're all consumers. Given the choice between getting the same item in four days or six, most of us would choose four.

The same idea applies to freight. Combining Union Pacific and @nscorp will eliminate time-consuming interchanges and cut 24 to 48 hours from transit times.

That means faster, more seamless service for our customers. Here's why it matters. ▶ youtube.com/watch?v=K8Vr0p...

5:10 PM · Nov 11, 2026 · **2,031** Views

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Union Pacific @UnionPacific · Nov 11
Please review UP.com/CautionaryNote regarding forward-looking statements.



From up.com

1 4 624

Ron Briggs @briggs_ron65945 · Nov 11
Quit blowing smoke. Competition is good for everyone and ke
down. Threatening people to get your way is bad business

6 66

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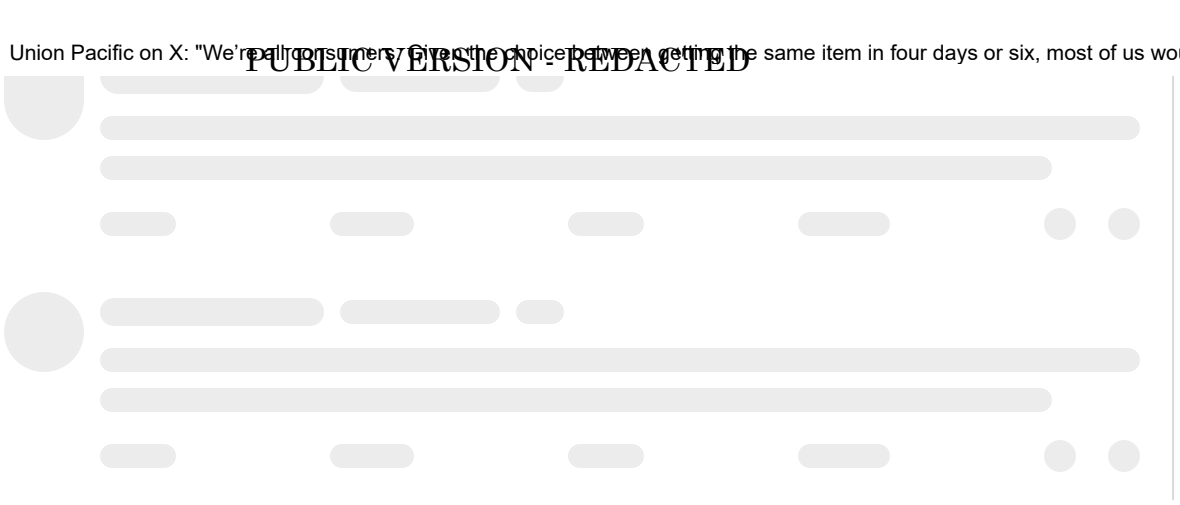

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Cautionary Note Regarding Forward-Looking Statements



Certain statements in this communication are “forward-looking statements” within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995, as amended. These statements relate to future events or future financial performance and involve known and unknown risks, uncertainties, and other factors that may cause Union Pacific’s, Norfolk Southern’s or the combined company’s actual results, levels of activity, performance, or achievements or those of the railroad industry to be materially different from those expressed or implied by any forward-looking statements. In some cases, forward-looking statements may be identified by the use of words like “may,” “will,” “could,” “would,” “should,” “expect,” “anticipate,” “believe,” “project,” “estimate,” “intend,” “plan,” “pro forma,” or any variations or other comparable terminology.

While Union Pacific and Norfolk Southern have based these forward-looking statements on those expectations, assumptions, estimates, beliefs and projections they view as reasonable, such forward-looking statements are only predictions and involve known and unknown risks and uncertainties, many of which involve factors or circumstances that are beyond Union Pacific’s, Norfolk Southern’s or the combined company’s control, including but not limited to, in addition to factors disclosed in Union Pacific’s and Norfolk Southern’s respective filings with the U.S. Securities and Exchange Commission (the “SEC”): the occurrence of any event, change or

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other circumstance that could give rise to the right of one or both of the parties to terminate the definitive merger agreement between Union Pacific and Norfolk Southern providing for the acquisition of Norfolk Southern by Union Pacific (the "Transaction"); the risk that potential legal proceedings may be instituted against Union Pacific or Norfolk Southern and result in significant costs of defense, indemnification or liability; the possibility that the Transaction does not close when expected or at all because required Surface Transportation Board or other approvals and other conditions to closing are not received or satisfied on a timely basis or at all (and the risk that such approvals may result in the imposition of conditions that could adversely affect the combined company or the expected benefits of the Transaction); the risk that the combined company will not realize expected benefits, cost savings, accretion, synergies and/or growth from the Transaction, or that such benefits may take longer to realize or be more costly to achieve than expected, including as a result of changes in, or problems arising from, general economic and market conditions, tariffs, interest and exchange rates, monetary policy, laws and regulations and their enforcement, and the degree of competition in the geographic and business areas in which Union Pacific and Norfolk Southern operate; disruption to the parties' businesses as a result of the announcement and pendency of the Transaction; the costs associated with the anticipated length of time of the pendency of the Transaction, including the restrictions contained in the definitive merger agreement on the ability of Union Pacific and Norfolk Southern, respectively, to operate their respective businesses outside the ordinary course during the pendency of the Transaction; the diversion of Union Pacific's and Norfolk Southern's management's attention and time from ongoing business operations and opportunities on merger-related matters; the risk that the integration of each party's operations will be materially delayed or will be more costly or difficult than expected or that the parties are otherwise unable to successfully integrate each party's businesses into the other's businesses; the possibility that the Transaction may be more expensive to complete than anticipated, including as a result of unexpected factors or events; reputational risk and potential adverse reactions of Union Pacific's or Norfolk Southern's customers, suppliers, employees, labor unions or other business partners, including those resulting from the announcement or completion of the Transaction; the dilution caused by Union Pacific's issuance of additional shares of its common stock in connection with the consummation of the Transaction; the risk of a downgrade of the credit rating of Union Pacific's indebtedness, which could give rise to an obligation to redeem existing indebtedness; a material adverse change in the financial condition of Union Pacific, Norfolk Southern or the combined company; changes in domestic or international economic, political or business conditions, including those impacting the transportation industry (including customers, employees and supply chains); Union Pacific's, Norfolk Southern's and the combined company's ability to successfully implement its respective operational, productivity, and strategic initiatives; a significant adverse event on Union Pacific's or Norfolk Southern's network, including, but not limited to, a mainline accident, discharge of hazardous materials, or climate-related or other network outage; the outcome of claims, litigation, governmental proceedings and investigations involving Union Pacific or Norfolk Southern, including, in the case of Norfolk Southern, those with respect to the Eastern Ohio incident; the nature and extent of Norfolk Southern's environmental remediation obligations with respect to the Eastern Ohio incident; new or additional governmental regulation and/or operational changes resulting from or related to the

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Eastern Ohio incident; and a cybersecurity incident or other disruption to our technology infrastructure.

This list of important factors is not intended to be exhaustive. These and other important factors, including those discussed under "Risk Factors" in Norfolk Southern's Annual Report on Form 10-K for the year ended December 31, 2025, as filed with the SEC on February 9, 2026 (available at **https://www.sec.gov/ix?doc=/Archives/edgar/data/0000702165/000162828026006268/nsc-20251231.htm**) and Norfolk Southern's subsequent filings with the SEC, Union Pacific's most recent Annual Report on Form 10-K for the year ended December 31, 2025, as filed with the SEC on February 6, 2026 (available at **https://www.sec.gov/ix?doc=/Archives/edgar/data/100885/000010088526000037/unp-20251231.htm**) and Union Pacific's subsequent filings with the SEC, may cause actual results, performance, or achievements to differ materially from those expressed or implied by these forward-looking statements. References to Union Pacific's and Norfolk Southern's website are provided for convenience and, therefore, information on or available through the website is not, and should not be deemed to be, incorporated by reference herein. The forward-looking statements herein are made only as of the date they were first issued, and unless otherwise required by applicable securities laws, Union Pacific and Norfolk Southern disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise, except as may be required by applicable law or regulation.

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@BNSFRailway

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Fort Worth, Texas · bnsf.com · Joined July 2009

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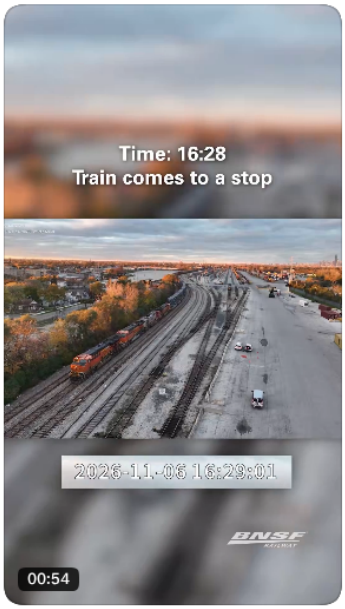
BNSF Railway @BNSFRailway · 21h

Los Angeles ➡️ Chicago ➡️ Northwest Ohio

Two railroads. One seamless trip.

Seven days a week, this intermodal train travels from Los Angeles on BNSF to Chicago, where it is handed off to @CSX before continuing east to Northwest Ohio.

MYTH: You may have heard a stop in Show more



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BNSF Railway @BNSFRailway · Nov 11

Exciting news! The new BNSF.com is here, rebuilt from the ground up to create a better experience for customers, communities and everyone who wants to learn more about BNSF.

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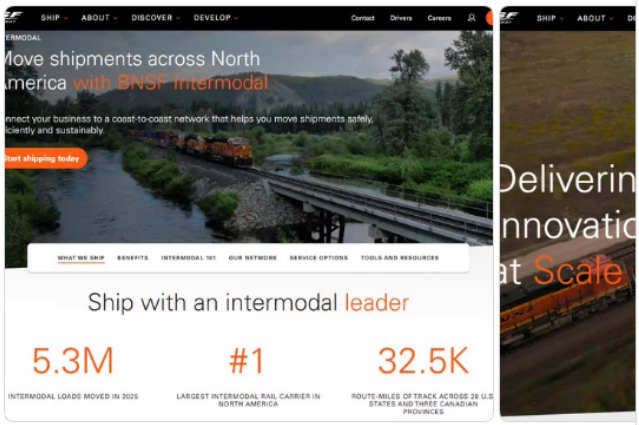

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BNSF Railway @BNSFRailway · Nov 11

This Veterans Day, we're proud to be recognized as a 2026 Military Times Best for Vets Employer, ranking among the top 60 employers nationwide, earning the #4 spot in the transportation category.

This recognition reflects our commitment to recruiting, supporting and developing Show more



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BNSF Railway @BNSFRailway · Nov 10

A new chapter for grain rail transportation has begun! Farmers Cooperative recently loaded its first BNSF train at its newly constructed grain shuttle loading facility near Pawnee City, Nebraska.

BNSF is proud to have worked with Farmers Cooperative on this state-of-the-art Show more



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BNSF Railway @BNSFRailway · Nov 10

Pennsylvania is home to America's second largest intermodal freight market.

The proposed UP-NS merger would make this market captive, meaning it would be served by only one railroad.

Customer choice would vanish, and prices would increase.

Protecting customer choice means Show more



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EXHIBIT 90

BEFORE THE
SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

--CONTROL--

NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

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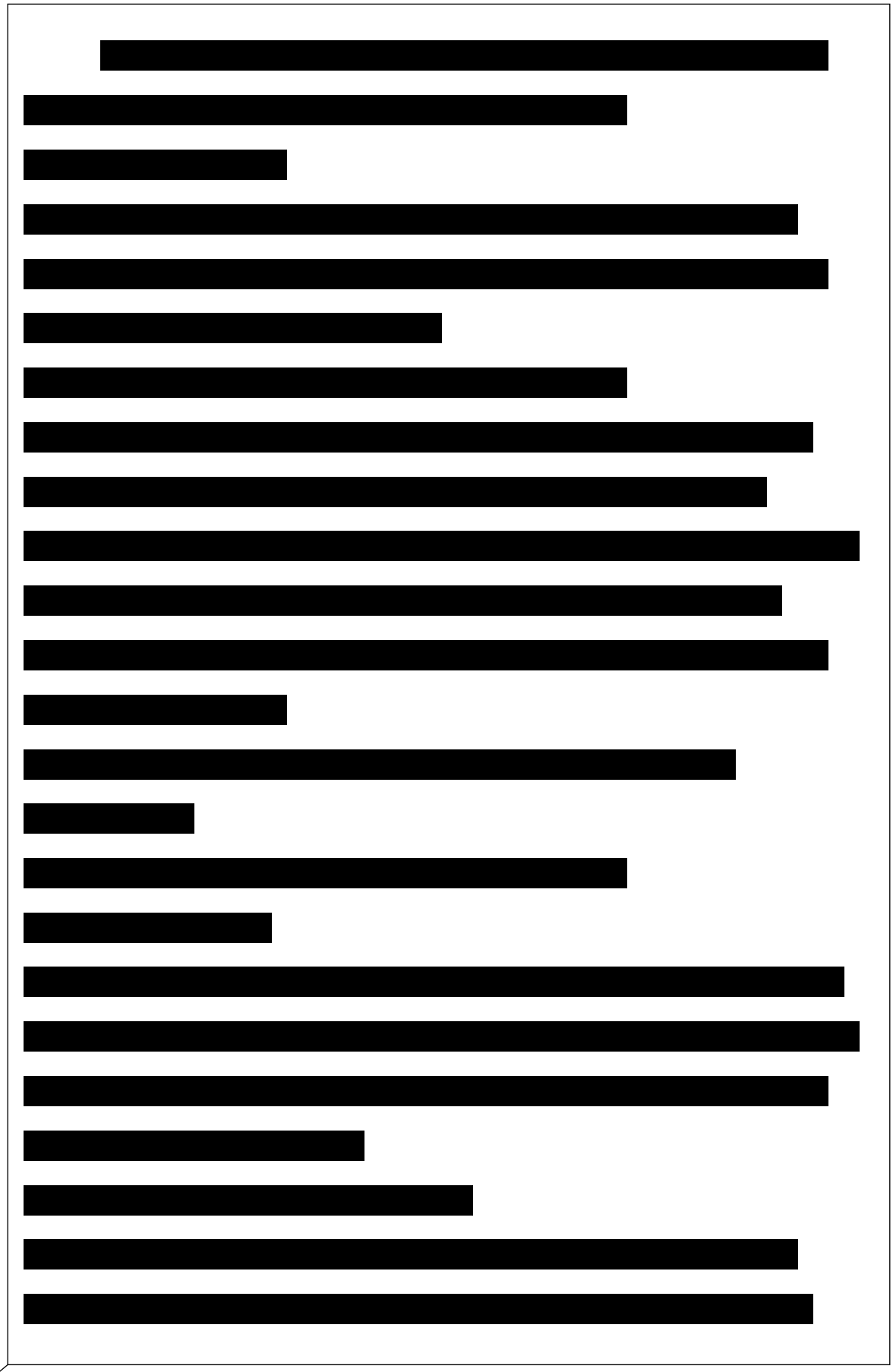
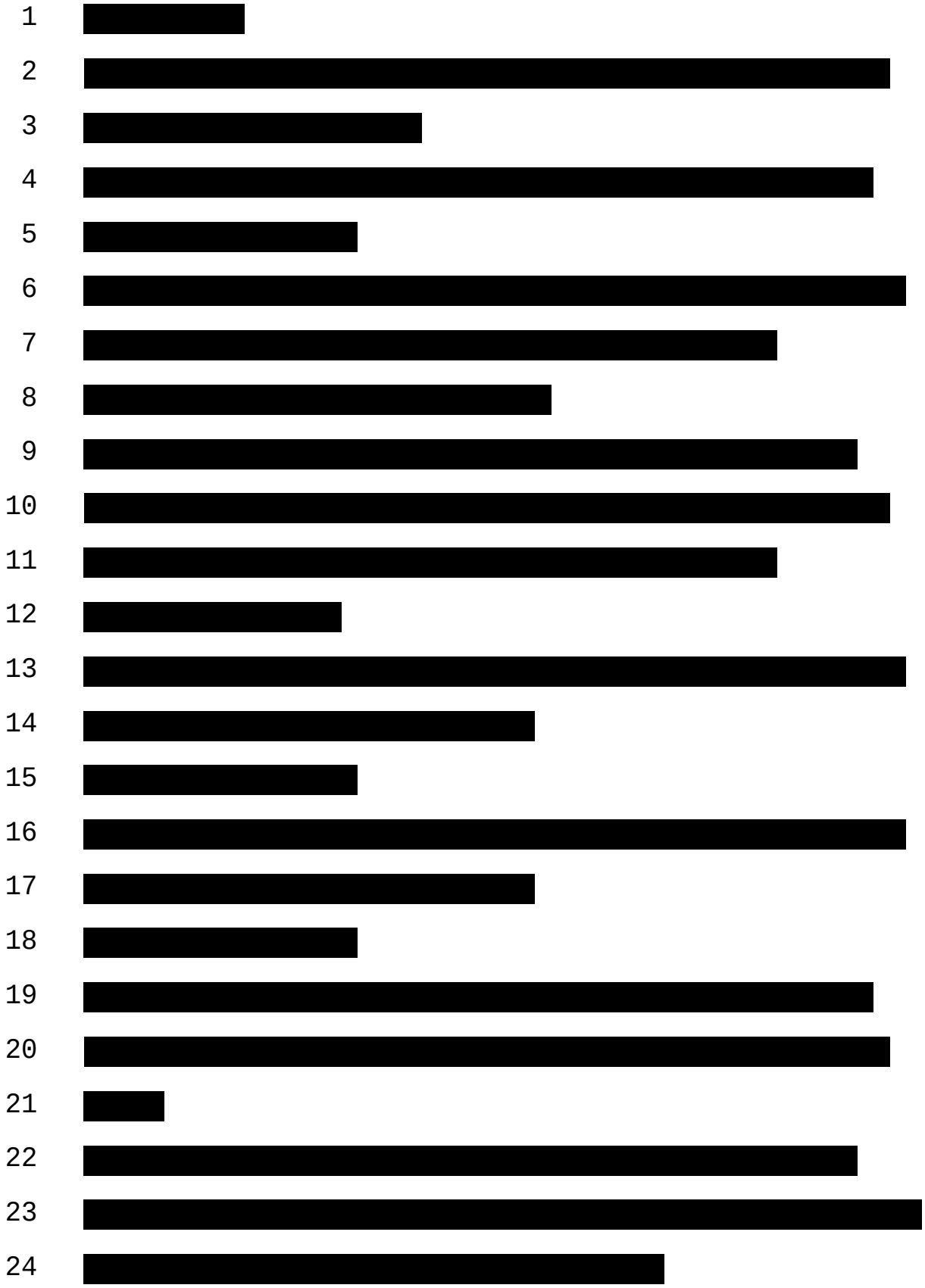
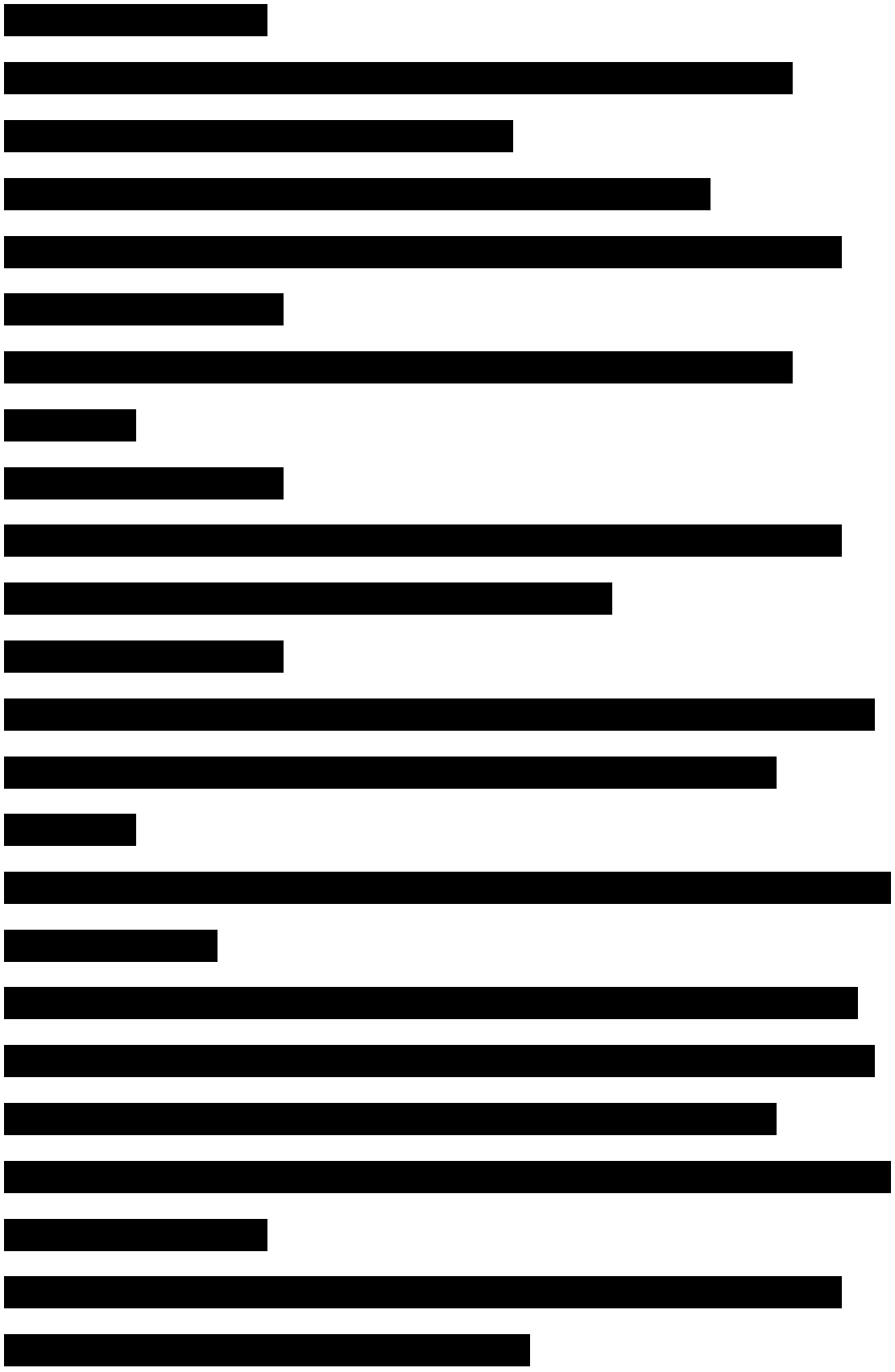
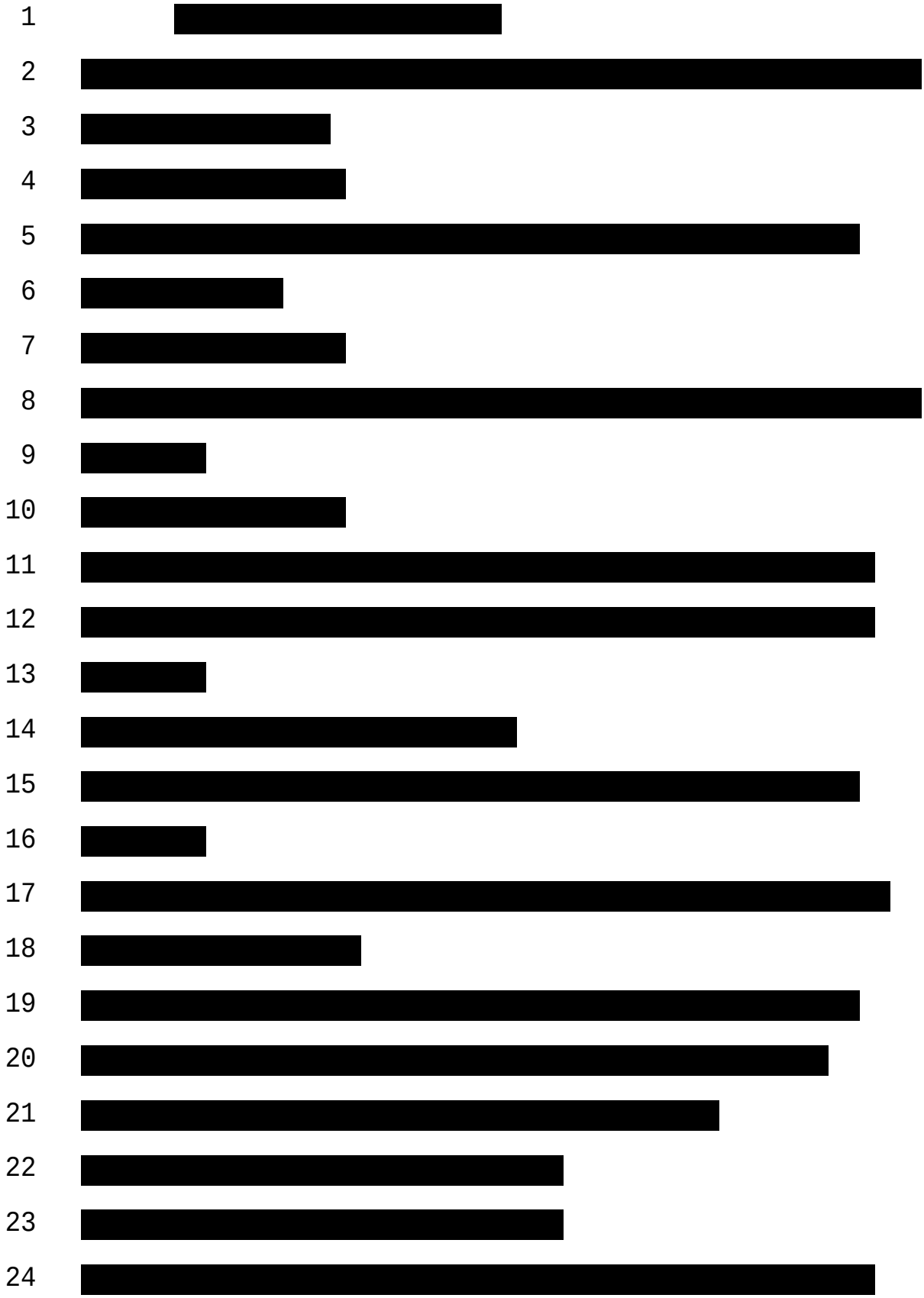
The VIDEOTAPED DEPOSITION OF KENNY ROCKER, taken on behalf of the BURLINGTON NORTHERN, at Baird Holm, LLP, 1700 Farnam Street, Suite 1500, Omaha, Nebraska, on the 29th day of October, 2026, at 7:57 a.m., CT.









[redacted]

BY MR. THOMPSON:

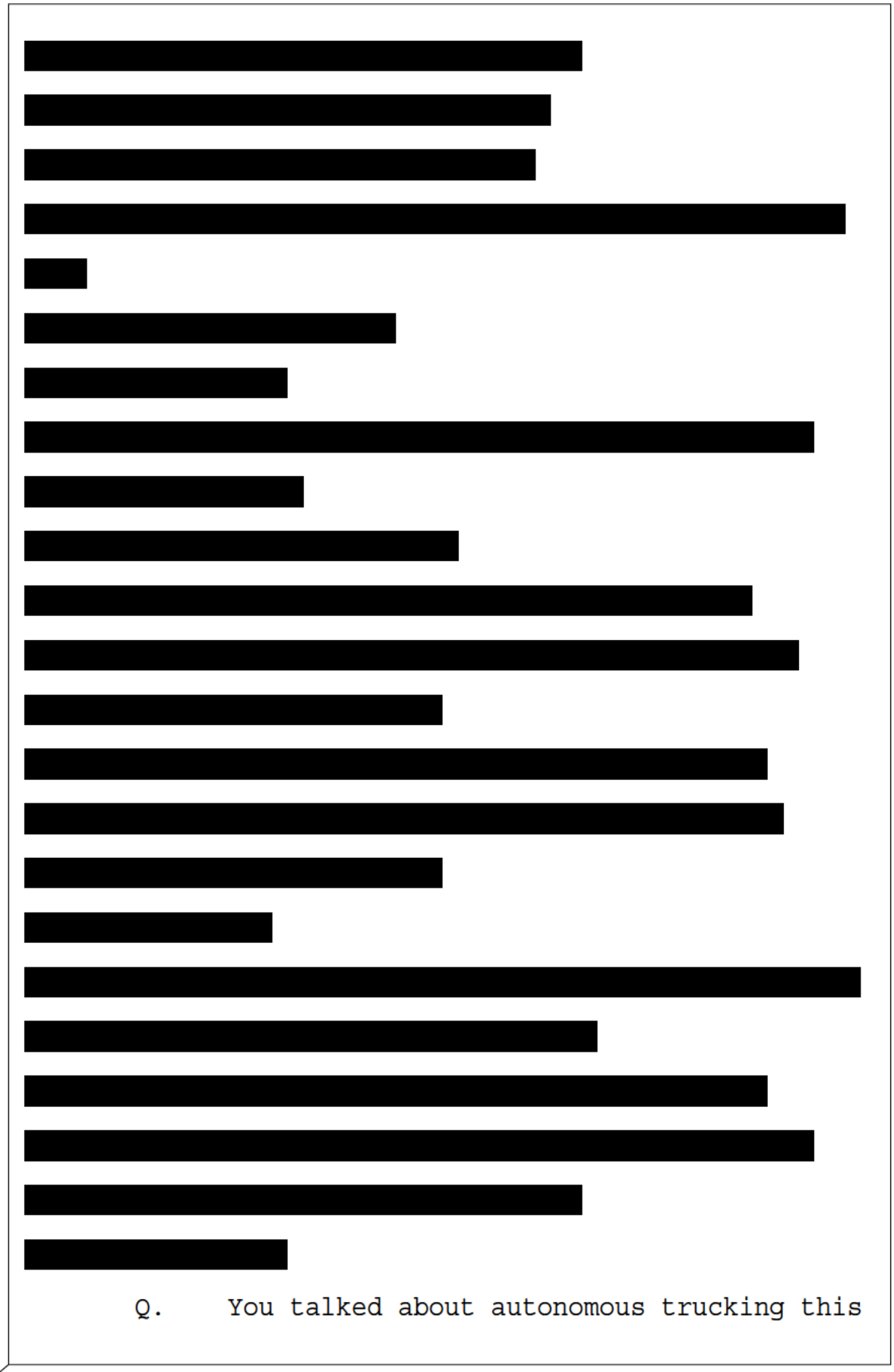
Q. Page 6, sir, of 568, your opening statement, you say: In wrapping up with premium.

Do you see that?

A. Yes.

Q. The bottom third?

A. Can I get a chance to just read all of



Q. You talked about autonomous trucking this

week, right?

A. I did.

Q. You did. You -- you sent a letter, right, to your customers?

A. Absolutely.

Q. And you talked about it in Seattle, right?

A. Yes.

Q. All right. We are going to talk -- I thought you might want to talk about autonomous trucking today because you guys are doing so well. Go to Page 27.

A. Okay.

Q. I am going to ask you about -- Mr. Vena's got a paragraph. Do you see Mr. Vena in the middle of Page 27, Exhibit 568?

A. Yes. Let me just read the question.

Q. Sure.

A. Okay.

Q. In short, what you said in your letter and in Seattle was: We're doing well. Rail is growing. We can't sit still because autonomous trucks are going to help trucks compete against rail.

Generally fair?

A. I will just focus on autonomous trucks. Autonomous trucks is something the industry should be concerned about in the future.

Q. How will autonomous trucks be regulated?

MS. FLAHIVE WU: Objection to form, lacks foundation.

THE WITNESS: I actually have no idea.

BY MR. THOMPSON:

Q. Will they be regulated at the federal level or the state level?

MS. FLAHIVE WU: Objection to form, lacks foundation.

THE WITNESS: I actually have no idea.

BY MR. THOMPSON:

Q. You can imagine a scenario where states, state regulators, are like: I don't want driverless trucks on my highways. Right?

A. I actually --

MS. FLAHIVE WU: Objection to form, lacks foundation.

THE WITNESS: Yeah, let me say it a different way. I have no idea.

BY MR. THOMPSON:

Q. In what ways will autonomous trucks be

regulated?

MS. FLAHIVE WU: Objection to form, lacks foundation.

BY MR. THOMPSON:

Q. I don't think you know either, but I am just making sure.

A. I am not sure how they will be regulated.

{{ [redacted]

BY MR. THOMPSON:

Q. And on -- when will -- in your letter you explain there's some autonomous trucks in -- is it New Mexico, Texas? Right?

A. Texas.

Q. When will autonomous trucking, in your view, be a nationwide product?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: In the future. It's -- it's difficult to pin down a -- it is difficult to pin down a time period.

BY MR. THOMPSON:

Q. Can you -- what's the best you can do? In your -- if -- if your board, your December board meeting said: Hey, Mr. Rocker, I read your letter to your customers. It seems like autonomous trucks are a threat. When is it going to become a nationwide problem, what would you say?

MS. FLAHIVE WU: Objection to form, lacks foundation.

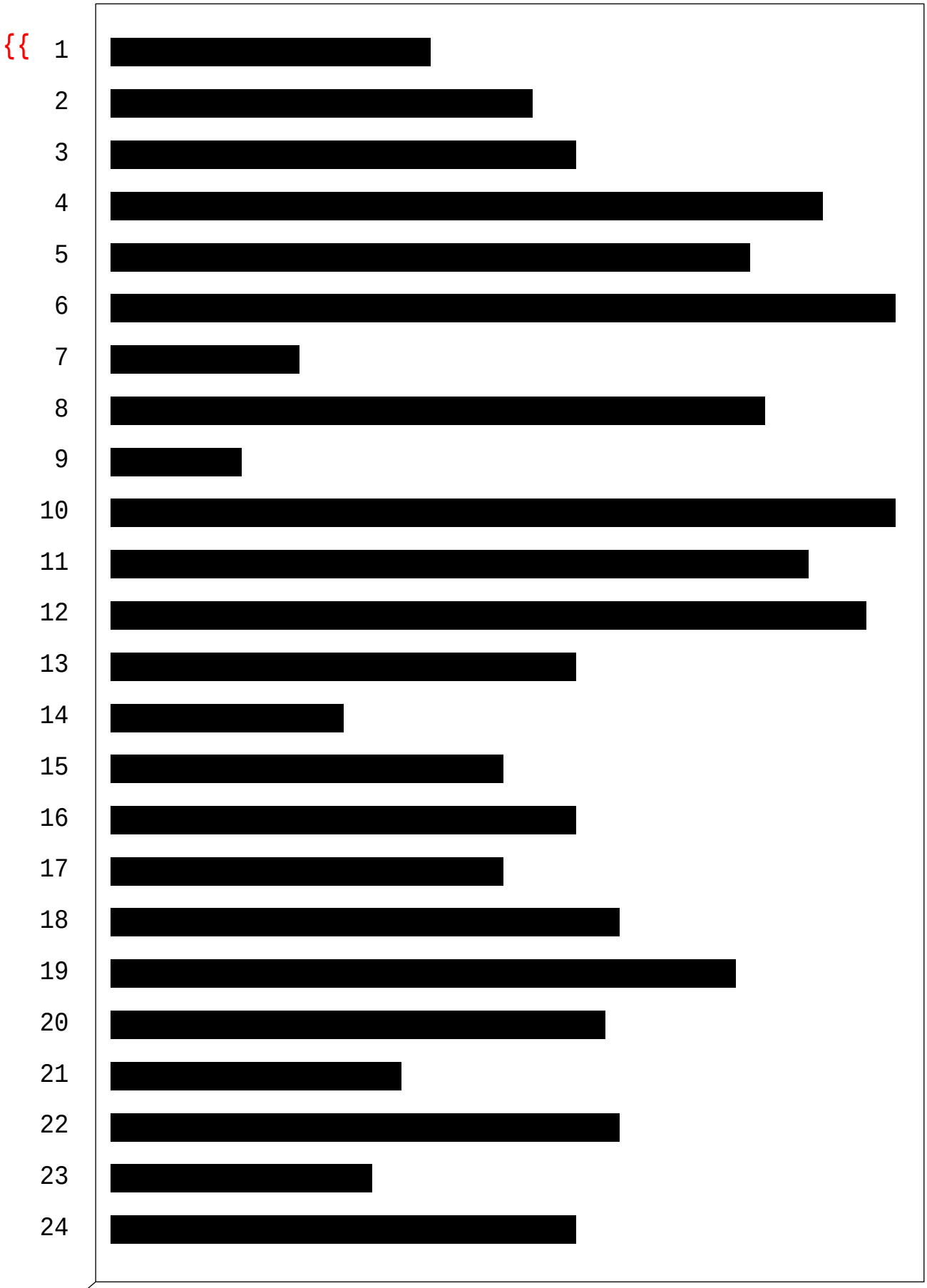
THE WITNESS: I will be candid with you, honest with you. I don't have enough information to say when. It could be ten years. It could be 15. It could be five. It, you know -- it -- it could change if I have spent, you know, more time with them specifically in the future.

BY MR. THOMPSON:

Q. Before you wrote that letter, did you do -- what -- what analysis did you do before you wrote that letter?

A. I researched Aurora, which is --

Q. What did you -- what did you research -- how did you research Aurora?
A. You can go online.
Q. You Googled Aurora?
A. I went online.
MS. FLAHIVE WU: Objection to form.
BY MR. THOMPSON:
Q. Did you Google Aurora or did you ChatGPT it?
MS. FLAHIVE WU: Objection to form.
THE WITNESS: I did not ChatGPT it.
BY MR. THOMPSON:
Q. Did you Google it?
A. Yeah.
Q. What other research did you do before you wrote that letter to your customers?
A. I looked at which lanes they were moving in and what their projections were in some of the customers that they want to move.
Q. And you saw that on their -- are they publicly traded?
A. I don't know, but they have got a website, and you can see all of that on there.
Q. Other than going to their website, did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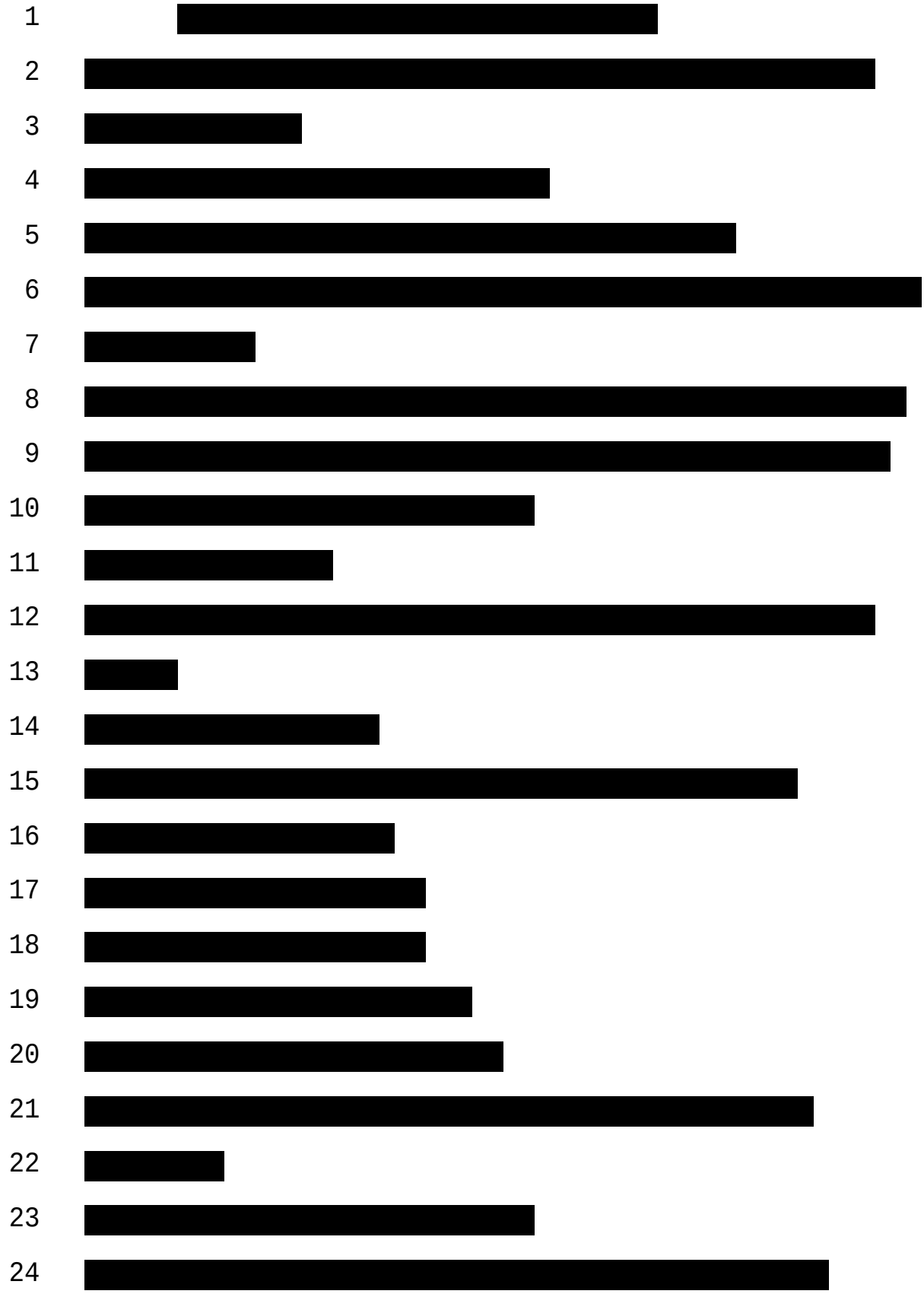


[redacted]

[redacted]

BY MR. THOMPSON:

Q. Your team is -- obviously, you understand there has been some -- you understand UP paid a premium to acquire NS, right?

A. We are paying 85 billion.

Q. Which is more than the market -- which is more than what the market capitalization of NS would imply, correct?

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I think Jennifer would be the right person. I am a finance major, believe it or not, but I think Jennifer would be the right person to ask.

BY MR. THOMPSON:

Q. As a finance major, sir, you understand that Union Pacific paid a premium -- it's not bad. You paid a premium for NS.

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I believe you should ask Jennifer that. I am not --

BY MR. THOMPSON:

Q. Do you understand whether UP paid a

premium for NS or not?

If you don't know, that's fine.

MS. FLAHIVE WU: Objection to form.

THE WITNESS: I don't.

BY MR. THOMPSON:

Q. You don't know?

A. I don't -- I don't know that we paid a premium.

Q. You understand there is some -- UP is projecting that it will have some revenue synergies as a result of the merger, correct?

A. I am aware of that.

Q. You also have members of your team that are doing some synergy assessments of what those revenue synergies will be, correct?

A. That's correct.

{{ [redacted]

A. Or -- or maybe Rahul will talk about the technologies. So if I didn't talk about it, someone from the management team did.

Q. If you go to 106, Page 106, you say: Our focus on growth is built around three things.

Do you see that?

A. No, I don't see it. Give me one minute, please.

Q. The top of 106.

A. I need a minute to --

Q. Sure. Read that paragraph at the top of 106.

A. Okay.

Q. You said: Our focus around --

To the STB, you said: Our focus on growth is built around three things. One, safely delivering the service.

Right.

A. Correct.

Q. Investing in our network.

Right?

A. Correct.

Q. And innovating through technology and product development.

Right?

A. That's right.

Q. So you were reiterating the three things you said at the beginning of your comments, right?

A. Correct.

Q. And Union Pacific, over the last -- from 2023 to today has grown, right?

A. This will be our third consecutive year of growth.

Q. Third quarter record growth, right?

A. No, I am talking full year.

Q. Full year. Third consecutive year of year-over-year growth, right?

A. 2026 will be.

Q. The third year of year-over-year growth, correct?

A. Yes.

Q. And is that measured on revenue?

A. No. I am just referring to -- to volume, which is -- which is important, because we have been talking about price and the role that pricing plays. You have to price appropriately to get that sort of growth, consecutive growth. That's all I am saying.

Q. Wait, hold on.

So third-year year-over-year of growth '26, and you say that's measured on volume, right?

A. I am using the metric volume.

Q. Okay. As it relates to -- has Union Pacific grown year over year for the past three years as measured by revenue?

A. Yes.

{{ [redacted]

STATE OF ILLINOIS)
) SS.
COUNTY OF DUPAGE)

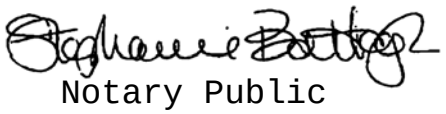
I, STEPHANIE A. BATTAGLIA, CSR and Notary Public in and for the County of DuPage and State of Illinois, do hereby certify that on October 29, 2026, at 7:57 a.m., at Baird Holm, LLP, 1700 Farnam Street, Suite 1500, Omaha, Nebraska, the deponent KENNY ROCKER personally appeared before me.

I further certify that the said KENNY ROCKER was by me first duly sworn to testify and that the foregoing is a true record of the testimony given by the witness.

I further certify that the deposition was terminated at 4:23 p.m.

I further certify that I am not counsel for nor related to any of the parties herein, nor am I interested in the outcome hereof.

In witness whereof, I have hereunto set my hand and seal of office this 2nd of November, 2026.



Notary Public

CSR No. 084-003337 - Expiration Date: May 31, 2027

EXHIBIT 91 (REDACTED)

EXHIBIT 92

BEFORE THE SURFACE TRANSPORTATION BOARD

Finance Docket No. 36873

UNION PACIFIC CORPORATION AND UNION PACIFIC RAILROAD COMPANY

--CONTROL--

NORFOLK SOUTHERN CORPORATION AND NORFOLK SOUTHERN RAILWAY COMPANY

Highly Confidential
Pursuant to Protective Order

CONFIDENTIAL PORTIONS INCLUDED

VIDEOTAPED DEPOSITION

The DEPOSITION OF KATHERINE N. NOVAK, taken on behalf of the BURLINGTON NORTHERN, at the Law Office of Kutak Rock, 1650 Farnam Street, Omaha, Nebraska, on September 24th, 2026, at 8:03 a.m. Central Daylight Time.

REPORTED BY: GREG S. WEILAND, CSR, RDR, CRR

JOB NO.: 23793

MR. McCARRICK: I did the same thing.
MS. WU: Sorry.
MR. McCARRICK: I'll rephrase.
BY MR. McCARRICK:
Q. Apart from the statement -- withdrawn.
Apart from the verified statements that you provided to the Board, on a go-forward basis, do you have any responsibility for the CGP program?
MS. WU: Objection, vague.
THE WITNESS: How would you define "responsibility"?
BY MR. McCARRICK:
Q. Are you going to help administer the CGP program if the merger is approved?
MS. WU: Objection, lacks foundation.
THE WITNESS: We haven't yet fully gone through our integration process, so I don't know what my exact responsibilities will be post-merger.
BY MR. McCARRICK:
Q. Okay. Have you had any discussions about post-merger integration and your role with the CGP program?
A. Not that I recall.

Q. Okay. Do you know if anyone else at UP has had discussions about what their role with respect to CGP would be if the merger is approved?

A. I don't have specific knowledge of -- to answer that question.

Q. Okay. Apart from the two verified statements that you submitted, does your -- well, withdrawn.

Apart from the two verified statements that you submitted, do you have any role with respect to the CGP program today?

MS. WU: Objection, vague.

THE WITNESS: I would say no.

BY MR. McCARRICK:

Q. Okay. Do you know why you were selected as the sponsor for the CGP program that was submitted to the Board?

A. I was asked by my leadership to participate in merger discussions and meetings and to take on the additional responsibility of the committed gateway pricing and the other portions of my verified statement.

Q. Okay. Are there others at UP who are more knowledgeable about CGP program and how it would

work than you are?

MS. WU: Objection to form, lacks foundation, and compound.

THE WITNESS: I can't speak to the length or the depth of knowledge of others, specifically, compared to my own knowledge.

So I can't speak to that.

BY MR. McCARRICK:

Q. Were there others who were more -- withdrawn.

Were there others who were more deeply involved in developing the scope of the CGP program than you were?

MS. WU: Objection, lacks foundation, vague.

THE WITNESS: So there were others who had discussions prior to my involvement and had a portion of the project or the program framed up prior to my involvement.

BY MR. McCARRICK:

Q. Okay. Who were those UP employees that had discussions about the CGP program before your involvement?

A. So I, of course, am not able to name

A. True.
Q. Okay. Why didn't you submit a new verified statement?
MS. WU: Objection to form, lacks foundation.
And I'll also caution the witness not to reveal communications with counsel or work product.
THE WITNESS: I was not asked to.
BY MR. McCARRICK:
Q. Okay. And I don't want to know what they are.
Are there discussions about ways to further change the CGP program from what it is today?
MS. WU: Objection to form, lacks foundation.
THE WITNESS: I don't know.
BY MR. McCARRICK:
Q. Why don't you know?
A. I'm not aware.
Q. Okay. Are there ongoing discussions about CGP that you're a part of?
MS. WU: Objection to form, lacks

foundation.

THE WITNESS: I don't know. I'm not a part of any current discussions.

BY MR. McCARRICK:

Q. Okay. Were you part of any discussions between April 2026 and July 2026 about changing the scope of the CGP program?

A. No.

Q. Okay. Were you involved in the decision to change the scope of the CGP program from the one that you had sponsored?

A. No.

MS. WU: Objection to form, vague.

BY MR. McCARRICK:

Q. Okay. The CGP program that you had put forward --

A. Yes.

Q. -- at the time you -- I'm sorry.

A. That's all right.

Q. And bless you, if that was a sneeze. It might have been cough.

The CGP program that you put forward in your verified statements, at the time you submitted your statements, did you think that there was

anything about that program that could be improved upon?

MS. WU: Objection to form, vague, asked and answered.

THE WITNESS: No.

BY MR. McCARRICK:

Q. Okay. Do you disagree with the change in scope of the CGP program that was put forward in July of 2026?

MS. WU: Objection to form, lacks foundation, and vague.

THE WITNESS: No.

BY MR. McCARRICK:

Q. Okay. Do you have an opinion, one way or another, on the July 2026 changes to the CGP program?

MS. WU: Objection to form, lacks foundation, and vague.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. And what is your opinion?

A. I think they're good changes.

Q. And why?

A. They continue to offer enhancement.

Q. Can you ballpark it for me?

MS. WU: Objection to form, asked and answered.

THE WITNESS: Several, multitudes of hours.

BY MR. McCARRICK:

Q. Okay. There's a number of kind of footnotes with work papers and other documents that are cited in your December 2025 verified statement, correct?

A. Yes.

Q. Before signing that verified statement, did you review those?

A. I believe I did.

Q. Okay. Same question for the April 2026 verified statement.

Did you review all of the work papers that are cited in your verified statement?

A. To the best of my knowledge.

Q. Okay. It's your position that the CGP program builds on and improves on the I-5 agreement, correct?

A. Yes.

Q. What is the I-5 agreement?

A. It was an agreement that was made between UP and BNSF at the time of the UP-SP merger.

Q. And can you describe the I-5 agreement for me?

MS. WU: Objection, vague.

THE WITNESS: As I believe it's described within my statement, it was a negotiated agreement that there was exchange of trackage rights and formulation of rates between the parties.

BY MR. McCARRICK:

Q. Okay. Can you provide any more detail about the I-5 agreement?

MS. WU: Objection to form, vague.

THE WITNESS: It still exists today.

BY MR. McCARRICK:

Q. Okay. Other than that it still exists today, can you provide any more detail of the I-5 agreement?

MS. WU: Objection to form, vague.

What are you asking for, Counsel?

THE WITNESS: I don't know what -- I don't know how to answer that question. I'm sorry. What else --

BY MR. McCARRICK:

Q. Do you have any more specifics, sitting here today, that you can think of off the top of your head, that are salient features of the I-5 program?

MS. WU: Objection to form, vague.

THE WITNESS: Nothing specifically, no.

BY MR. McCARRICK:

Q. Okay. In your day-to-day, are you responsible for administering the I-5 program?

MS. WU: Objection to form, vague.

THE WITNESS: No.

BY MR. McCARRICK:

Q. Okay. Before becoming involved in this verified statement, had you ever looked at a single I-5 rate?

A. No.

Q. Have you looked at an I-5 rate today?

MS. WU: Objection to form, vague.

THE WITNESS: Not today.

BY MR. McCARRICK:

Q. Okay. Have you ever looked at an I-5 rate?

A. No.

Q. Have you looked at an I-5 lane?
MS. WU: Objection to form, vague.
THE WITNESS: In what sense?
BY MR. McCARRICK:
Q. Well, let's just -- have you ever monitored the performance of traffic that's shipped under the I-5 agreement?
MS. WU: Objection, vague.
THE WITNESS: No.
BY MR. McCARRICK:
Q. Have you looked at any performance metrics associated with the I-5 program?
MS. WU: Objection to form, vague.
THE WITNESS: How do you define "performance metric"?
BY MR. McCARRICK:
Q. Sure. How about on-time delivery of shipments?
A. I don't believe I have.
Q. Do you know what geographies the I-5 agreement operates in?
A. Yes.
Q. Where?
A. The western part of the United States,

PNW-type area.

Q. Okay. Do you have any day-to-day responsibility for anything to do with the I-5 agreement?

A. No.

MS. WU: Objection to form, vague.

BY MR. McCARRICK:

Q. I'm sorry. Just for the record, I didn't hear you.

A. No.

Q. Okay. Do you think that comparing I-5 and CGP is an apples-to-apples comparison?

MS. WU: Objection to form, vague.

THE WITNESS: No.

BY MR. McCARRICK:

Q. Okay. Why not?

A. Because they're different programs.

Q. Different in what respects?

A. The I-5 was a negotiated agreement with give and take.

The CGP program is a voluntary commitment that is being offered by Union Pacific and NS.

Q. Okay. And, actually, I just want to talk a little bit about the different kind of features of

the programs. We will talk about how they operate and the whys in a second.

But I-5 was a negotiated agreement, correct?

A. Yes.

Q. CGP is not a negotiated program, correct?

A. Correct.

Q. I-5 is a remedy that was imposed in the UP-SP proceeding, correct?

MS. WU: Objection, lacks foundation.

THE WITNESS: I can't speak to that specific fact.

BY MR. McCARRICK:

Q. Okay. We will get there.

I-5 was an agreement that was approved in the UP-SP proceeding, correct?

A. I know it was part of the proceeding. In terms of the category of approved, imposed, I can't speak to that fact.

Q. Okay. Did you review any of the submissions related to the I-5 from the UP-SP proceeding?

A. Submissions, no.

Q. Okay. I-5 was part of a package that

involved the sale of a line and trackage rights to BNSF, correct?

A. Yes.

MS. WU: Objection, lacks foundation.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. I-5 let UP compete for traffic in BNSF-served areas in the Pacific Northwest, correct?

A. I'll say yes.

Q. Okay. And in the Southwest and Mexico?

A. Yes.

Q. Okay. Let's talk about the duration.

The I-5 agreement is permanent, correct?

A. That's my understanding.

Q. Okay. CGP is temporary, correct?

MS. WU: Objection, vague.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. CGP, as UP proposes it, would sunset at the end of the Board's oversight period, correct?

MS. WU: Objection, vague.

THE WITNESS: I believe we have specified that, yes, it would run for the oversight period.

BY MR. McCARRICK:

Q. Okay. And that oversight period is a period of approximately five years, correct?

A. No oversight period has yet been determined.

Q. Okay. Do you know what the minimum or maximum oversight period could be?

MS. WU: Objection to form to the extent the question calls for a legal conclusion.

THE WITNESS: I do not.

BY MR. McCARRICK:

Q. Okay. Let's talk about pricing.

The I-5 agreement uses average rates from pricing cells, correct?

A. I'm not a hundred percent sure. I don't know.

Q. Okay. So you're unable to say, one way or the other, what the rate level I-5 uses is?

A. Which piece of it are you speaking to?

Q. Rates that are offered for traffic moving pursuant to the I-5 agreement --

A. Yes.

Q. -- are average rates, correct?

A. Yes. That, I do understand.

Q. Those I-5 rates are maintained by a neutral third party, correct?
A. That, I don't know.
Q. Okay. CGP uses 70th percentile rates, correct?
A. Yes.
Q. Can we agree that 70th percentile rates are above-average rates?
MS. WU: Objection to form, vague.
THE WITNESS: I disagree with that.
BY MR. McCARRICK:
Q. Okay. Why did UP choose the 70th percentile as the rate for CGP?
A. We discussed and evaluated the program as a whole and made recommendations. And ultimately, the decision was to make the 70th percentile.
Q. Okay. Who made that decision?
A. I don't specifically know who the final decision-maker was.
Q. Okay. Do you know why the 70th percentile was chosen?
MS. WU: Objection to form, asked and answered.
THE WITNESS: I can't speak to what was in

the mind of the decision-maker.

BY MR. McCARRICK:

Q. Okay. You're sponsoring the program, correct?

A. I am.

Q. Do you know whether a 70th percentile rate is appropriate or not appropriate?

MS. WU: Objection to form, argumentative, and compound.

THE WITNESS: Per my statement, it is appropriate.

BY MR. McCARRICK:

Q. Why?

A. It is, again, a voluntary enhancement that we are offering and we believe offers benefits to both shippers and competitors. And, therefore, we feel that the program as a whole, including the 70th percentile, is appropriate.

{ [redacted]



[redacted] }

Q. Okay. Let me ask this question.

You said that you were not the decision-maker for what rate level would be used, correct?

A. Not the -- correct, yes.

Q. Who were the folks who were involved in that discussion?

MS. WU: Objection to form, vague.

THE WITNESS: I can't speak directly to, ultimately, who was all part of that discussion.

BY MR. McCARRICK:

Q. Okay. Do you have a sense of anyone who was involved in that discussion?

MS. WU: Objection, vague, asked and answered.

THE WITNESS: Executive leadership team.

BY MR. McCARRICK:

Q. And who on the executive leadership team?

A. I was not present, so I was not -- I can't speak to specifically who was there.

Q. Okay. Did you ever have a discussion with the executive leadership team of, "Hey, how did we land on the 70th percentile?"

MS. WU: Objection to form, vague.

THE WITNESS: No, I did not.

BY MR. McCARRICK:

Q. Okay. Have you ever asked anyone why the 70th percentile was chosen?

MS. WU: Objection to form, vague.

THE WITNESS: No, I have not asked that question.

BY MR. McCARRICK:

Q. Okay. Are you aware of anyone at UP ever saying, "Gee, this is a benefit for shippers. Why not 50 percent or 65 percent or another level?"

MS. WU: Objection to form, lacks foundation.

THE WITNESS: No, I am not.

BY MR. McCARRICK:

Q. Are you aware of anyone ever advocating

for a rate below 70 percent?

A. Can you clarify your question, please? Or ask it again?

Q. Sure. Are you aware of anyone at UP ever advocating for a rate below 70 percent?

A. No, I'm not.

Q. Okay. Do you agree with me that a 50 percent rate would be better for shippers?

MS. WU: Objection, lacks foundation.

THE WITNESS: No.

MS. WU: Vague.

THE WITNESS: I don't agree with you.

BY MR. McCARRICK:

Q. Why not?

A. Because I don't know, in your terms, what you're taking 50 percent of, of what that back calculation would be.

So, again, unless you have fully worked it out, I believe that, again, the program that we're offering offers an enhancement and benefit to shippers.

Q. Totally appreciate that.

I guess my question is, do you have an opinion, one way or another, whether using a

50 percent rate would offer additional enhancement?

MS. WU: Objection, lacks foundation, and vague.

THE WITNESS: No, I don't have a specific opinion on that.

BY MR. McCARRICK:

Q. Okay. You were talking about calculations just a moment ago.

Do you recall that?

A. Yes.

Q. All right. Have you calculated the dollar benefits that shippers will obtain for those who are eligible and who participate in the CGP program?

A. No, I have not.

Q. Have others at UP done that calculation?

MS. WU: Objection, lacks foundation.

THE WITNESS: Done what type of calculation again?

BY MR. McCARRICK:

Q. Sure. To your knowledge, has anyone at UP ever tried to calculate, in dollar terms, the benefits that shippers would receive from the CGP program?

MS. WU: Objection, lacks foundation.

THE WITNESS: I can't recall if that specific calculation was done or not.

BY MR. McCARRICK:

Q. Okay. Are there other calculations that were performed related to CGP?

MS. WU: Objection, lacks foundation, and vague.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. And what were those?

A. At a high level, we looked at -- as we were working through the details of the program, looking at data of rates and movements to come to the conclusions regarding commodities, distances, et cetera.

Q. Got it. So there were calculations about the commodity-based and distance-based segmentation that you can recall?

A. Correct.

Q. Okay. Apart from those calculations, are you aware of any other calculations related to CGP?

MS. WU: Objection, vague.

THE WITNESS: None specific come to mind.

BY MR. McCARRICK:

Q. Okay. Are you aware that one of UP's economic experts, Dr. Israel, has done certain calculations related to CGP?

A. Yes.

Q. Okay. Have you reviewed those?

A. I may have. I don't specifically remember.

Q. Okay. Would it be fair to say they're not something you studied in detail?

A. Correct.

Q. Okay. I think I have the answer to this. I just want to make sure the record is clear.

Did UP perform any economic modeling of what benefits CGP would deliver to shippers at different rates?

MS. WU: Objection, lacks foundation, and vague.

THE WITNESS: I don't think I can answer that with certainty. I don't know.

BY MR. McCARRICK:

Q. Okay. If those calculations were done, as the sponsor for CGP, would that be something you'd want to know?

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: If they were done, it would be helpful to have reviewed them.

BY MR. McCARRICK:

Q. Okay. Do you think it would have been helpful to do the calculations of benefits to shippers at the 70th percentile rate?

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: I'm not understanding. Can you please repeat?

BY MR. McCARRICK:

Q. I can rephrase it.

A. That would be great.

Q. Yeah. You testified that you're not aware of any calculations that UP ran about the dollar value of benefits that would accrue to shippers from the CGP program, as it's structured today, correct?

A. I'm not aware.

MS. WU: Object. The testimony speaks for itself.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. Okay. Did you ever ask for that calculation to be done?

A. I don't recall.

Q. Okay. Would it -- withdrawn.

As the sponsor of CGP, would that be information that you would like to know; how much this would benefit or not benefit shippers?

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: No.

BY MR. McCARRICK:

Q. Okay. Would you want to know if CGP harmed shippers?

MS. WU: Objection, lacks foundation.

THE WITNESS: I already have that answer. I don't believe it does.

BY MR. McCARRICK:

Q. Okay. Do you know what rates that shippers will receive in a world with CGP?

MS. WU: Objection, vague.

THE WITNESS: I do not.

BY MR. McCARRICK:

Q. Okay. Do you know how the rate that

shippers will receive in a world with CGP compares to the rates they receive today?

MS. WU: Objection, lacks foundation, and vague.

THE WITNESS: Which specific rates? Are you -- like I feel like there's a lot of rates in that question.

BY MR. McCARRICK:

Q. And so, actually, to break that down, there are different potential rates that a shipper can take advantage of when they're trying to move traffic across the country, correct?

A. Yes.

Q. There's Rule 11 rates, correct?

A. Yes.

Q. And have you ever been responsible for preparing a Rule 11 rate?

A. No.

Q. Have you ever looked at a Rule 11 rate?

A. No.

Q. Okay. A Rule 11 -- well, let me ask you, what's your understanding of a Rule 11 rate?

A. A Rule 11 rate is, through the AR accounting rules, it allows for a shipper to get

rates from two railroads so it can make a cross-country move, and then it will receive two-way bills from each of the railroads.

Q. And the railroads bid independently for each Rule 11 rate that they're offering, correct?

A. That's my understanding.

Q. Okay. And it's your testimony, including your verified statement, that Rule 11 rates will remain available for shippers even if CGP exists, correct?

A. Correct.

Q. So the shipper has the option of choosing CGP or a Rule 11 rate or another rate, correct?

A. Yep.

Q. Okay. And UP will have control, in the post-merger world, of the Rule 11 rates that it charges, correct in?

MS. WU: Objection, lacks foundation.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. Okay. And for any interline rates, UP will set the rates that it wants to charge for any shippers' interline, correct?

MS. WU: Objection, lacks foundation.

THE WITNESS: It will -- yes, they'll set rates, yes.

BY MR. McCARRICK:

Q. Let's talk a little bit about traffic exclusions under the program.

A. Okay.

Q. The I-5 agreement does not exclude categories of traffic from the facilities covered by that agreement, correct?

A. I'm not -- I don't know.

Q. Okay. You don't know one way or the other?

A. I don't.

Q. In comparing I-5 to CGP, did you ever ask whether I-5 has similar traffic exclusions?

MS. WU: Objection, lacks foundation. You haven't established that the witness has made that comparison.

MR. McCARRICK: Well, are you -- just to be clear, are you saying she doesn't make a comparison in her verified statement?

MS. WU: I'm saying as asked in your question, Counsel. I'm not providing testimony. I'm just responding to with an

objection to your question as phrased.

MR. McCARRICK: Okay.

MS. WU: Please feel free to ask however you'd like.

BY MR. McCARRICK:

Q. Do you compare I-5 and CGP in your verified statement?

A. I reference I-5 as a starting position, but the programs are distinctly different.

Q. Okay. Let me ask, did you ever ask whether I-5 has any traffic exclusions as a part of it?

A. I did not ask that question.

Q. Okay. And you don't know the answer, correct?

A. Correct.

Q. Okay. CGP excludes multiple categories of traffic, correct?

A. There are exclusions, yes.

Q. Okay. There are multiple exclusions, correct?

MS. WU: Objection, asked and answered.

THE WITNESS: There are exclusions, yes.

BY MR. McCARRICK:

Q. Okay. One of those is intermodal traffic, correct?

A. Yes.

Q. Why was intermodal traffic excluded?

A. I believe, as I state in my statement, that we did exclude different types of traffic due to unique pricing or other considerations around that type of traffic.

And so intermodal, TIH, or dimensional loads all fit into those categories.

Q. Yeah. I want to break them down, though.

A. Sure.

Q. What are the unique pricing or other considerations that support excluding intermodal traffic from CGP?

A. I don't know.

Q. Okay. What are the unique pricing or other considerations that support excluding storage-in-transit traffic from CGP?

A. I don't know.

Q. You mentioned TIH and PIH.

A. Yes.

Q. Those are toxic and poisonous hazardous

shipments, right?

A. Correct.

Q. Do you know what the unique pricing or other considerations support excluding TIH and PIH from CGP?

A. Through discussions that I was involved in, those specifically, we felt, had public interest in terms of ensuring they require additional handling. And, therefore, sometimes have distinction in terms of pricing, as I understand it.

Q. So your point is that because they're more hazardous shipments and they have additional handling requirements, they're going to have a unique structure that doesn't make this a good fit?

A. Correct.

Q. Okay. And then dimensional loads, what are dimensional loads?

A. Things that are oddly shaped that don't fit in standard types of rail equipment.

Q. Got it. Those are excluded from CGP, correct?

A. Yes.

Q. And what are the unique pricing or other considerations that support excluding dimensional

loads from CGP?

A. They often can take special resources in terms of routing because they're not going to fit everywhere.

Q. Okay. In your December 2025 verified statement, CGP excluded unit trains, correct?

A. Yes.

Q. What are unit trains?

A. A train of the same commodity.

Q. All right. Why were unit trains excluded from the traffic that would be covered by CGP in your December 2025 verified statement?

A. I don't remember our specific discussion around them.

Q. Okay. You are aware as of July 2026, bulk unit trains are now covered by CGP, correct?

A. I am aware, yes.

Q. Okay. And just to make sure I understand the difference, is there a difference between unit trains and bulk unit trains? Like, is that one-to-one?

MS. WU: Objection to form, vague.

THE WITNESS: I can't speak specifically if the intentions and the semantics are

following the same.

I view them as the same, but I don't -- I was not the author of the supplemental, so I can't speak to that.

BY MR. McCARRICK:

Q. Okay. Do you know if Mr. Hughes was involved in preparing the supplemental July 2026 submission around CGP?

MS. WU: Objection, lacks foundation.

THE WITNESS: Yes.

BY MR. McCARRICK:

Q. Okay. Do you expect that Mr. Hughes is going to have responsibility for the CGP program on a go-forward basis in these proceedings?

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: I do not know.

BY MR. McCARRICK:

Q. Okay. Do you expect to have any go-forward responsibility after this deposition with respect to CGP in these proceedings?

A. I do not --

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: I don't know.
BY MR. McCARRICK:
Q. Okay. If CGP applied to intermodal shipments, benefits to shippers would substantially increase, correct?
MS. WU: Objection, lacks foundation, incomplete hypothetical.
THE WITNESS: I don't know.
BY MR. McCARRICK:
Q. Have you done any analysis of whether benefits to shippers would be greater or less if any of those categories of traffic were included in the CGP program?
A. I'm going to need you to repeat, please.
Q. Sure. We just talked about a bunch of exclusions.
A. Right.
Q. Correct?
A. Yes.
Q. Have you done any analysis of whether benefits to shippers would be greater if any of those categories of traffic were included in CGP?
A. I have not.
Q. Okay. Is that something you would want to

know?

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: No.

BY MR. McCARRICK:

Q. Okay. And is that because your view is that this is a competitive enhancement that you guys are offering for free, and people should be happy with what they get?

MS. WU: Objection, lacks foundation, calls for speculation, and argumentative.

THE WITNESS: No, that's not my view.

BY MR. McCARRICK:

Q. Okay. Why is it, I guess, not something that -- well, withdrawn.

Why would you not want to know whether shippers would benefit if additional categories of traffic were included in CGP?

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: I don't feel that I need to know.

BY MR. McCARRICK:

Q. Why?

A. I feel that the program is designed to offer additional benefits, and, again, the merger itself will offer benefits.

And so we are meeting the statutory threshold, in my own opinion, of enhancing competition.

Q. Okay. And so just given that, it just doesn't matter to you whether or not a different program could offer more benefits?

MS. WU: Objection to form, misstates the witness's prior testimony.

MR. McCARRICK: Coaching the witness.

THE WITNESS: It doesn't matter -- or I wouldn't say it doesn't matter. I'm saying that I don't need to go out and seek that information.

BY MR. McCARRICK:

Q. Okay. Well, let me ask that question, then.

Does it matter to you whether or not shippers would receive additional benefits if more categories of traffic were included in the CGP program?

MS. WU: Objection, lacks foundation,

calls for speculation.

MR. McCARRICK: How can it lack foundation? I'm just asking her opinion.

THE WITNESS: Could you restate the question, please?

BY MR. McCARRICK:

Q. Yes, does it matter to you whether --

MS. WU: Counsel, it's a hypothetical, and you may read this transcript and ask the questions you would like. But you may not manipulate the record by misstating the witness's prior testimony or setting forth incomplete hypotheticals.

Ask questions as you wish. And I will object, as called for by your questions.

MR. McCARRICK: Well, there's no manipulation of the record.

BY MR. McCARRICK:

Q. I'm just asking, Ms. Novak, does it matter to you whether or not shippers would receive additional benefits if more categories of traffic were included in CGP?

MS. WU: Objection, vague.

THE WITNESS: It was a very complex

question. I'm thinking.

Can you say it one more time? Sorry.

BY MR. McCARRICK:

Q. Sure. Does it matter to you whether or not shippers would receive additional benefits if more categories of traffic were included in CGP?

MS. WU: Objection, vague.

THE WITNESS: I'm going to have to say I don't know.

BY MR. McCARRICK:

Q. Okay. So you don't know whether it would matter to you?

A. Correct.

Q. Okay. Do you know what percentage of all rail traffic CGP covers?

A. No.

Q. Does it matter to you what percentage of all rail traffic that CGP covers?

MS. WU: Objection to form.

THE WITNESS: I don't know if it matters or not.

BY MR. McCARRICK:

Q. Okay. Let's talk about routes.

The I-5 agreement applies to all routes,

lanes, and corridors in the regions covered by the agreement, correct?

MS. WU: Objection, vague, lacks foundation.

THE WITNESS: I would assume the agreement covers what it covers, so I can't speak directly to it.

BY MR. McCARRICK:

Q. That's totally fine.

You just don't know, one way or the other, whether or not the I-5 agreement covers all routes, lanes, and corridors in the regions covered by the agreement?

A. That's a very large territory, so I can't say that it does.

Q. Okay. That's fine.

You agree that there are routes excluded from CGP, correct?

A. How are you defining that?

Q. Sure. Routes that do not touch Chicago, St. Louis, Memphis, and New Orleans are not eligible for CGP, correct?

A. Correct.

Q. Are you aware of any exclusions similar to

those ones that you just described for CGP in the I-5 agreement?

MS. WU: Objection, vague, asked and answered.

THE WITNESS: I'm not.

BY MR. McCARRICK:

Q. Okay. All right. Let's talk about fees.

Under the I-5 agreement, fees are included in the rates that are offered, correct?

MS. WU: Objection, lacks foundation.

THE WITNESS: I can't speak to that.

BY MR. McCARRICK:

Q. Under CGP, UP and NS can charge additional fees, correct?

MS. WU: Objection, vague.

THE WITNESS: There are fees that are not included in the rates, such as fuel surcharge and accessorial fees.

BY MR. McCARRICK:

Q. Okay. Let's talk about access.

Under the I-5 agreement, there was a line divestiture and trackage rights, correct?

A. Yes.

Q. And CGP doesn't involve a line divestiture

or trackage rights, correct?

A. Correct.

Q. CGP does not increase the number of rail carrier options for shippers over and above what they have today, correct?

MS. WU: Objection, vague.

THE WITNESS: I would disagree with that statement.

BY MR. McCARRICK:

Q. Well, so I want to break out.

It's your testimony that CGP provides shippers with an additional rate option, correct?

MS. WU: Objection. The witness's testimony speaks for itself.

THE WITNESS: Yes, there is rate optionality with the offering of the program.

BY MR. McCARRICK:

Q. Okay. What optionality, if any, does CGP provide as to rail carriers that shippers can use?

MS. WU: Objection, vague.

THE WITNESS: I'm not sure I understand, to be honest.

BY MR. McCARRICK:

Q. That's okay. If you're a shipper in

Los Angeles today, and you're eligible for CGP, does CGP expand the number of Class 1 railroads that you can connect to?

MS. WU: Objection, lacks foundation.

THE WITNESS: How do you define "connect"?

BY MR. McCARRICK:

Q. Well, let me ask you, what, if any, additional access does CGP provide to shippers?

MS. WU: Objection, vague.

THE WITNESS: Well, by offering additional rates, it offers them the ability to have additional competitors fighting for their business.

So through the rate optionality, it does offer additional access, or could offer additional access.

BY MR. McCARRICK:

Q. How would it offer additional access?

A. Well --

MS. WU: Objection to form, asked and answered.

THE WITNESS: If you want to throw out hypotheticals, a person in Los Angeles maybe did not have the ability to go all the way east

because they didn't have a good rate.

CGP can offer them a rate. They might now have access to utilize both BN and CSX, or CSX -- so there's -- so allowing the rate and the optionality of the rate could expand access that they didn't previously have.

BY MR. McCARRICK:

Q. Okay. Let me ask you this.

Have you done any analysis to see how many shippers would get increased access as a result of CGP?

A. I have not done that analysis.

Q. Okay. Does that -- withdrawn.

Does it matter to you whether or not shippers would get increased access as a result of CGP?

MS. WU: Objection to form, vague.

THE WITNESS: It matters to me that the program offers benefits to shippers, both, in my -- both, in my view, rate and access.

BY MR. McCARRICK:

Q. Okay. Let's use the example that you gave and make sure I've got it right.

The example you gave is someone in LA who,

today, would like to ship across the country but just doesn't have the rate structure to do so, correct?

A. That was a very, yes, high-level, potential example, yes.

Q. Okay. Is it your understanding that that shipper is eligible for CGP?

MS. WU: Objection, incomplete hypothetical.

THE WITNESS: It depends on which ways they're going and what they're shipping.

So as with all hypotheticals, there's lots of variability to that.

BY MR. McCARRICK:

Q. Okay. For a shipper that has not moved -- or withdrawn.

For a shipper that has only used UP to ship traffic to the middle of the country, is that shipper eligible for CGP?

MS. WU: Objection, lacks foundation, incomplete hypothetical.

THE WITNESS: It depends.

BY MR. McCARRICK:

Q. Well, to be eligible for CGP, a shipper

needs to move traffic through an interchange, correct?

A. Yes.

Q. Okay. So a shipper that does not move through an interchange is not eligible for CGP, correct?

A. It depends, if -- that could be today's circumstances. I don't know what tomorrow's are. So it could become that they would become eligible.

Q. Okay. But you don't know what rate CGP is ultimately going to offer shippers in the post-merger world, correct?

MS. WU: Objection to form, vague.

THE WITNESS: The specific rate, no.

But the calculation of the rate, yes, is outlined in my verified statement.

BY MR. McCARRICK:

Q. Can you identify a single shipper that will have increased access as a result of CGP?

MS. WU: Objection to form, vague.

THE WITNESS: No.

BY MR. McCARRICK:

Q. Can you identify a single shipper that will have a better rate as a result of CGP?

MS. WU: Objection to form, vague.
THE WITNESS: No.
BY MR. McCARRICK:
Q. Okay. I want to talk about the 70th percentile rate.
CGP sets rates based on rates for comparable movements, correct?
A. Say that again, please.
Q. Sure. And if you want to go to Paragraph 24 of your verified statement.
CGP pricing establishes prices based on comparable movements, correct?
A. Correct.
Q. And so one of the things you start by looking at are what is a similar shipment, correct?
A. Yes.
MS. WU: Objection, vague.
THE WITNESS: Yes.
BY MR. McCARRICK:
Q. All right. And the first thing that -- you're looking -- well, withdrawn.
You're looking at similar shipments that are not eligible for CGP, correct?
MS. WU: Objection, vague.

THE WITNESS: What do you mean?
BY MR. McCARRICK:
Q. Sure. When you're calculating the rate that is going to be offered -- or let me do it this way. Withdrawn.
When you're calculating the cell, cells that have all of the rates that are on offer for folks who are eligible to CGP, you derive those rates based on similar shipments from shippers who are not eligible for CGP, correct?
MS. WU: Objection, vague.
THE WITNESS: Yes. The rates are derived from looking at the commodity and then also the distance. Yes, sorry, the commodities that -- of comparable shipments, yes.
BY MR. McCARRICK:
Q. And you look at waybill data from the previous year, correct?
MS. WU: Objection, vague.
THE WITNESS: Do you mean for calculation?
BY MR. McCARRICK:
Q. Yes, ma'am.
A. Yes.
Q. And the inputs -- well, let me do it this

that the shipper is using?

A. Yes.

Q. Okay. In the post-merger world, UP-NS will set the rates on the traffic that is used to generate the CGP price, correct?

MS. WU: Objection to form, vague.

THE WITNESS: No, I disagree with that.

BY MR. McCARRICK:

Q. Why is that?

MS. WU: Objection to form, vague.

THE WITNESS: We are using market-based rates. So it's rates that are actually out being used in the market. It is not us just setting rates.

BY MR. McCARRICK:

Q. So, yeah, understood. Your point is that the 70th percentile rate is derived from actual market rates that UP is charging, correct?

MS. WU: Objection to form, misstates the witness's testimony.

THE WITNESS: It is rates that are in the marketplace. It is not rates that are just being set by UP and NS.

BY MR. McCARRICK:

Q. Okay. What are the rates that -- so let me do it this way.

Other than UP and NS rates, are there any other rates that are inputs into the CGP price calculation?

A. So can you ask your question again, please?

Q. Sure. Other than UP and NS rates, are there any other rates from other Class 1 railroads that are inputs into the CGP price calculation?

A. As I state in my verified statement, the rates charged by the requirements will be based on rates charged by the merged UP-NS during the most 12 -- 12-month period for similar shipments moving between the western and eastern portions of the United States, as shown in the figure that was within my statement, that both originate and terminate on UP and NS or that are also interchanged between UP and NS and BNSF or CSX, for westbound or eastbound moves, except for movements that would be eligible for committed gateway pricing.

So since BNSF and CSX are also part of the -- part of the movement.

Q. So, understood. I guess my question is a little different, which is, you populate 92 cells in order to identify rates, correct?

A. Correct.

Q. What goes into those 92 cells are rates based on commodity type and distance segment, correct?

A. Yes.

Q. The rates that go into those cells are the UP-NS portion of the rates for those shipments, correct?

A. Yes.

Q. It's not the BNSF or CSX --

A. Correct.

Q. -- portion? Yeah, okay.

A. I just wanted to make sure that we were thorough in what's being applied.

Q. Okay. Appreciated. And I promise I will direct you to the verified statement when I need to.

Have you ever tried to calculate a CGP rate?

A. No.

Q. Have you ever asked anyone to calculate a CGP rate?

A. No.
Q. All right.
A. Could we take a quick break?
MS. WU: Can we take five minutes?
THE WITNESS: Just to use the restroom. Sorry.
MR. McCARRICK: Yes.
THE VIDEOGRAPHER: The time is 11:56 a.m. We're off the record.
(Whereupon, a recess was taken from 11:56 a.m. to 12:39 p.m.)
THE VIDEOGRAPHER: The time is 12:39 p.m. We are back on the record.
BY MR. McCARRICK:
Q. I just want to level set.
Before we took a break, you had testified that the rates that go into the 92 cells used to calculate the CGP rates are the UP-NS portion of the comparable shipments that go into those cells.
Do you recall that?
A. Yes.
Q. Okay. The UP-NS portion of those rates that go into the CGP cells, in a world with the merger, UP and NS determine what those rates will

be, correct?

A. Could you clarify the word "determined"?

Q. Sure. And yeah. What -- I mean it's not like -- UP --

A. Sorry. I feel bad I'm coughing, like, in the microphone. Sorry.

Q. UP-NS don't just pick rates to populate those cells, correct?

MS. WU: Objection, vague.

BY MR. McCARRICK:

Q. Out of a hat?

A. No, we -- the -- per the -- as it's described in my verified statement, we will use market-based rates.

Q. Right. And at least in the first instance, UP and NS set those market-based rates for their shipments, correct?

MS. WU: Objection, vague.

THE WITNESS: They are rates used that we have negotiated commercial agreements with.

BY MR. McCARRICK:

Q. Right. And if those rates increase, the CGP rate would increase, correct?

A. Theoretically, yes.

Q. Okay. And all else being equal, I think we can agree -- I know you hate that phrase.

But all else being equal, UP would like to charge a higher rate than a lower rate?

MS. WU: Objection, lacks foundation, calls for speculation.

THE WITNESS: UP is going to charge the rates that it can negotiate with customers.

BY MR. McCARRICK:

Q. Okay. We talked about Rule 11 rates and interline rates as alternatives to CGP.

Do you recall that?

A. Yes.

Q. If the merger goes through, UP could price its Rule 11 rates so that CGP is cheaper than Rule 11 for a shipper, correct?

MS. WU: Objection, lacks foundation.

THE WITNESS: I don't know that I can answer that specific -- I don't know that I can answer that question.

BY MR. McCARRICK:

Q. Okay. Is that because you're not responsible for Rule 11 rates?

A. That is correct.

Q. Okay. Same question for interline rates.

Could UP price interline rates in the post-merger world, so that CGP is cheaper than interline rates for a shipper?

MS. WU: Objection, lacks foundation.

THE WITNESS: Again, I don't believe I can answer that question.

BY MR. McCARRICK:

Q. Okay. That's because you don't have visibility into interline rates or the inner workings of them?

A. Correct.

Q. Okay. Has UP estimated how much CGP will cost UP?

MS. WU: Objection to form, lacks foundation, and vague.

THE WITNESS: I don't remember. I don't remember.

BY MR. McCARRICK:

Q. Okay. Separate and apart from anything that UP's experts in this case have done, has UP made any effort to identify shippers that potentially could be harmed by CGP?

MS. WU: Objection, lacks foundation, and

vague.

THE WITNESS: I don't know.

BY MR. McCARRICK:

Q. Have you been involved in any effort to identify shippers that potentially could be harmed by CGP?

MS. WU: Objection, lacks foundation, and vague.

THE WITNESS: I have not.

BY MR. McCARRICK:

Q. Do you know how many shippers -- well, withdrawn.

Do you know the locations of any shippers that potentially could be harmed by CGP?

MS. WU: Objection, lacks foundation.

THE WITNESS: I do not.

BY MR. McCARRICK:

Q. Would it bother you if there was a group of shippers that were harmed by CGP?

MS. WU: Objection, lacks foundation, and vague.

THE WITNESS: There's no evidence to that, so at this point, I am not bothered.

BY MR. McCARRICK:
Q. Well, there's no evidence because you didn't do the calculations, correct?
MS. WU: Objection, lacks foundation, and argumentative.
THE WITNESS: I would disagree with that statement.
BY MR. McCARRICK:
Q. Okay. Why?
A. Whether or not I did calculations does not lead to the lack of or the presence of evidence.
Q. Okay. Do you know whether or not any shippers will be harmed by CGP?
A. I do not.
Q. Okay. If there were shippers who were harmed by CGP, would that bother you?
MS. WU: Objection, lacks foundation, vague, asked and answered.
THE WITNESS: I would need additional facts to form an opinion.
BY MR. McCARRICK:
Q. Okay. What facts would those be?
A. The totality of the circumstance.
Q. So there -- well, withdrawn.

All right. We will talk about terminal railroads.

You're a board member at TRRA, correct?

A. No, no longer.

Q. When -- you were previously a board member at TRRA, correct?

A. That is correct.

Q. And when did you stop being a board member at TRRA?

A. Sometime in 2026. I don't remember the specific date.

Q. It was after the merger was announced, correct?

A. Yes.

Q. Okay. Let's talk about terminal railroads.

Terminal railroads offer neutral, coordinated operations, correct?

A. How do you define "operations"?

Q. Well, when you think about the operations of a terminal railroad, what do you think of?

MS. WU: Objection to form.

THE WITNESS: Switching, classification, sometimes they do service, spot a pole. So it

C E R T I F I C A T E

The within and foregoing deposition of the witness, KATHERINE N. NOVAK, was taken before GREG S. WEILAND, CSR, RDR, CRR, at 1650 Farnam Street, Omaha, Nebraska, commencing at 8:09 o'clock a.m., on the 24th day of September, 2026.

The said witness was first duly sworn and was then examined upon oral interrogatories; the questions and answers were taken down in shorthand by the undersigned, acting as stenographer; and the within and foregoing is a true, accurate and complete record of all the questions asked of and answers made by the aforementioned witness at the time and place hereinabove referred to.

The signature of the witness was not waived and the deposition was submitted to the deponent as per copy of the attached letter.

The undersigned is not interested in the within case, nor of kin or counsel to any of the parties.

Witness my signature on this 28th day of September, 2026.



GREG S. WEILAND, CSR, RDR, CRR
License No. 084-003472

EXHIBIT 93

VIEW IN BROWSER | SUBSCRIBE

CNBC FRI, AUG 29, 2025

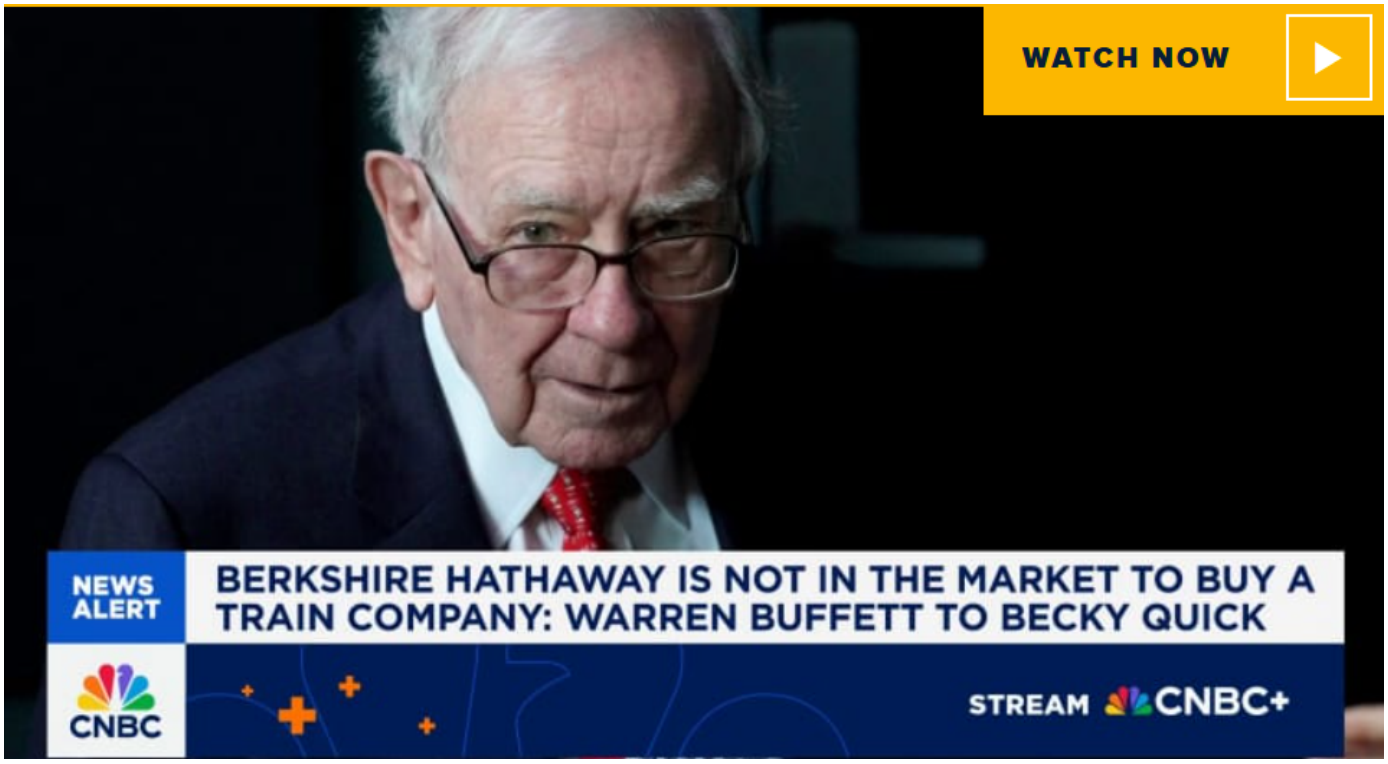
WARREN BUFFETT WATCH

Buffett to CNBC: We won't be acquiring CSX, or any other railroad

Warren Buffett told CNBC's Becky Quick that Berkshire Hathaway is not in the market to buy CSX, or any other railroad.

Buffett said in an off-camera telephone conversation with Becky that he and CEO-designate Greg Abel met in Omaha on August 3 with CSX CEO Joseph Hinrichs.

On Monday's "Fast Money Halftime", Becky reported, "Buffett and Abel made clear at that point that they were not going to be making a bid for CSX, but they really thought there was a lot they could do to cooperate and work together, and come up with those same synergies that there would be even if the two companies were combined."



Last Friday, almost three weeks after that meeting, Berkshire's BNSF and CSX announced a "collaboration" to provide "seamless, efficient, coast-to-coast solutions to ship between the western and eastern U.S."

BNSF's routes are in the western U.S. CSX operates in the east.

That was a disappointment to investors who thought BNSF and CSX would need to merge to remain competitive with Union Pacific and Norfolk Southern.

Last month, those two railroads announced a planned $85 billion merger they said will create the nation's first "transcontinental" freight railroad by combining UNP's western network with NSC's eastern routes.

Currently, freight going all the way across the country has to be transferred from one carrier to another in Chicago, which adds a day or two to shipments between the coasts.



Reuters file photos

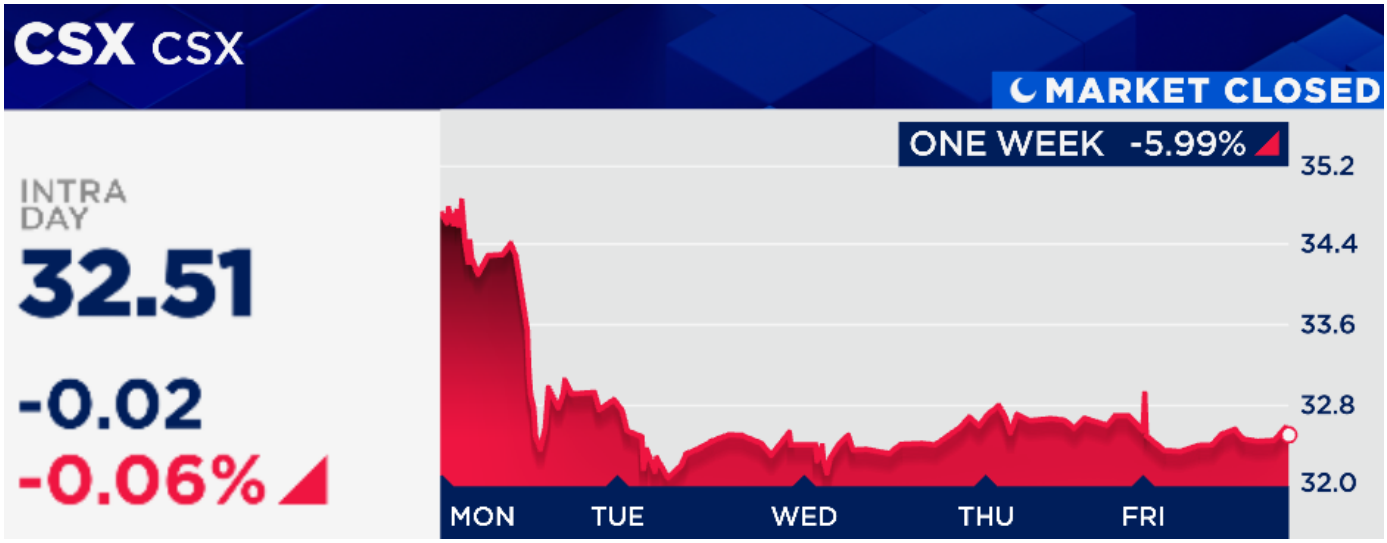
It is not at all certain regulators will approve Union Pacific's acquisition of Norfolk Southern, and in any case, it is expected to be a lengthy review.

Meanwhile, BNSF and CSX will be trying to achieve at least some of the same benefits without Berkshire having to pay a big premium to buy CSX outright.

Buffett noted to Becky that BNSF has a "huge advantage" because it has "unlimited resources to spend on anything that they think makes sense" to facilitate the collaboration.

CSX shares closed almost 4% lower last Friday after the collaboration announcement greatly reduced the odds of a merger.

Now that Buffett closed that door more emphatically Monday morning, they dropped another 6.0% for the week.



Berkshire buys Bell Laboratories

It's not a railroad, but Berkshire Hathaway did buy a company recently.

It's Bell Laboratories, but not the same Bell Laboratories where Claude Shannon did his ground-breaking work on cryptography in the 1940s.

This Bell Laboratories is a privately held company in Wisconsin that makes "the highest quality rodenticides and other rodent control products available to the pest control and agricultural industries on six continents."

Bell Laboratories

Barron's notes Bell Laboratories has been added to the list of Berkshire operating companies on its website.

That confirms reports in several trade publications, including *Pest Control Technology.*

Earlier this month, it said Bell will "continue to operate independently, maintaining its leadership, culture and strategic direction."

According to the report, Warren Buffett, Greg Abel, and Howard Buffett came to Bell's corporate headquarters on August 4.

Bell CEO Steve Levy is quoted as saying, "Mr. Buffett congratulated Bell on 50 years of success. He shared that, because of this transaction, Bell can expect to be around for the next 50 years."

As often happens with Berkshire, it is buying from the children of the company's now-deceased founder. Two of Malcolm Stack's daughters are "nearing retirement age" and presumably want to ensure their father's creation will continue to operate as it has.

The purchase price has not been reported.

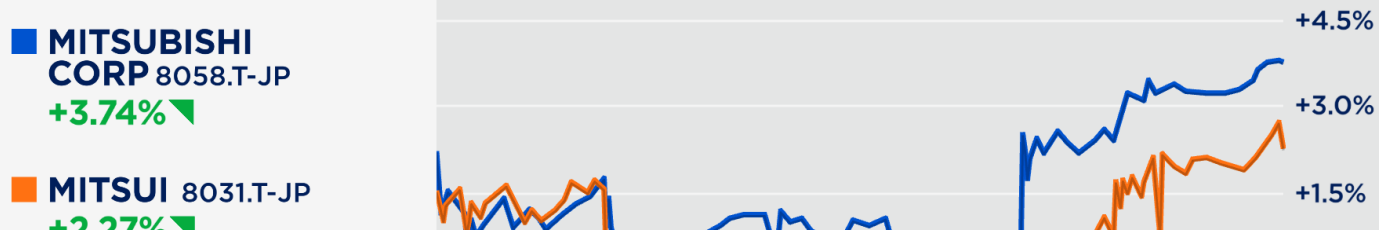
Berkshire's Mitsubishi stake edges above 10%

Japan's Mitsubishi said in a regulatory filing yesterday that Berkshire Hathaway has raised its stake in the "trading house" to 10.2% from 9.7%.

In addition, an official at Mitsui told Reuters Berkshire has increased its holding in that company but declined to provide a specific figure.

They are the first increases since March when Berkshire revealed it had raised its stakes in its five Japanese stocks.

Itochu, Marubeni, and Sumitomo are the other three. While there have been no disclosures for them so far, it seems likely Berkshire has also added to those positions.





When he revealed the initial purchases in 2020, Buffett promised the companies he would not raise the stakes above 10%.

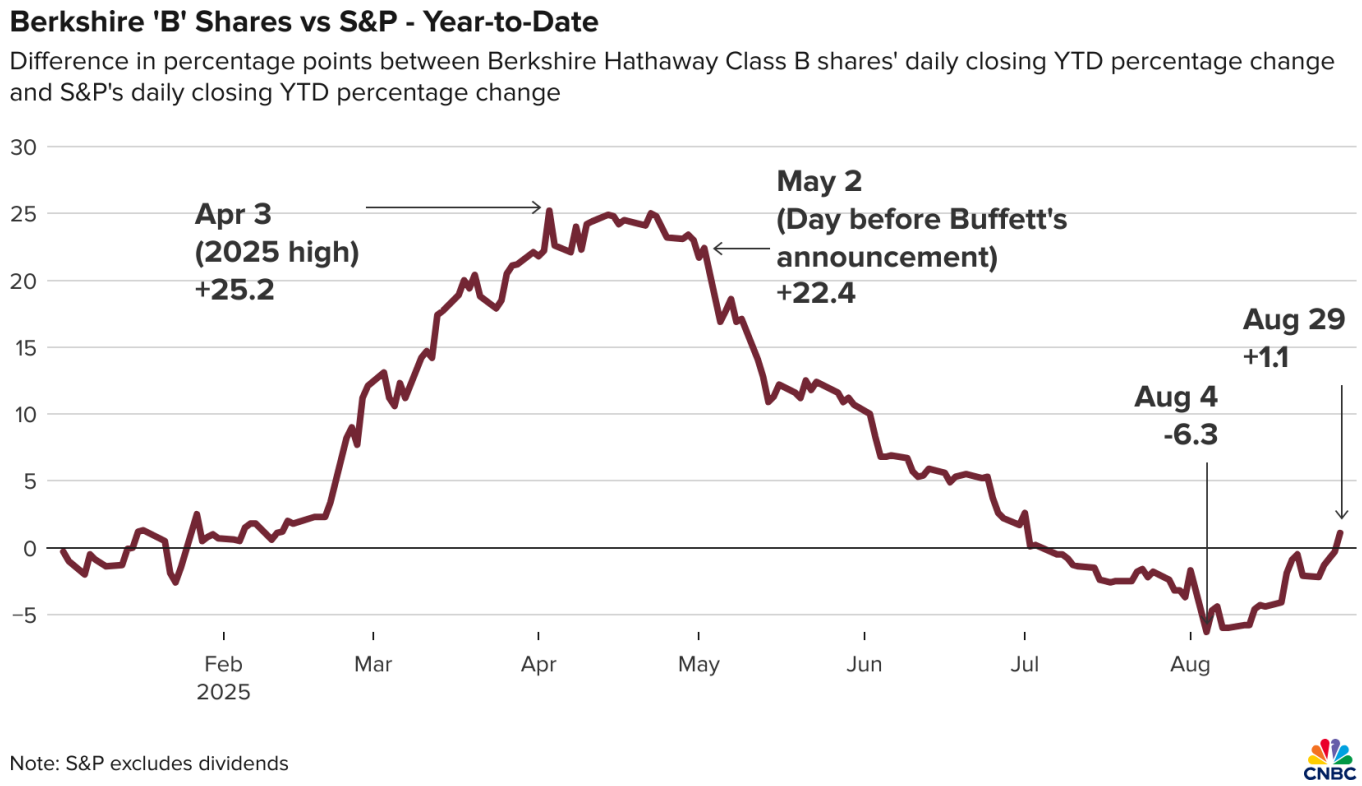
In his annual letter to shareholders released in February, however, Buffett wrote, "As we approached this limit the five companies agreed to moderately relax the ceiling."

As a result, he added, "*Over time*, you will likely see Berkshire's ownership of all five increase somewhat."

Berkshire retakes YTD lead in S&P race

For the first time since July 3, Berkshire Hathaway's Class B shares are outperforming the S&P in 2025, with a 1.1 percentage point lead.

The Bs were trailing the benchmark index, excluding dividends, by as much as 6.3 percentage points early this month, after giving up an early April lead of 25.2 percentage points.



When dividends are included, the S&P's total return of 10.8% is 0.2 percentage points behind BRK.B's 11.0% year-to-date gain.

Happy birthday, Warren!

Warren Buffett will be celebrating his 95th birthday tomorrow.

He was born on August 30, 1930, in Omaha.





Courtesy: Susie Buffett

BUFFETT AROUND THE INTERNET

Some links may require a subscription

- CNBC Pro (subscription): Challenging Buffett: Buying wonderful companies at fair prices isn't more profitable
- Reuters: Squishmallows maker, Build-A-Bear call truce in plush toy legal battle
- Bloomberg Opinion (subscription): Not Even Buffett's Confidence Buy Can Spur a Housing Recovery
- Reuters: BNSF must face US EEOC lawsuit alleging hostility toward women at

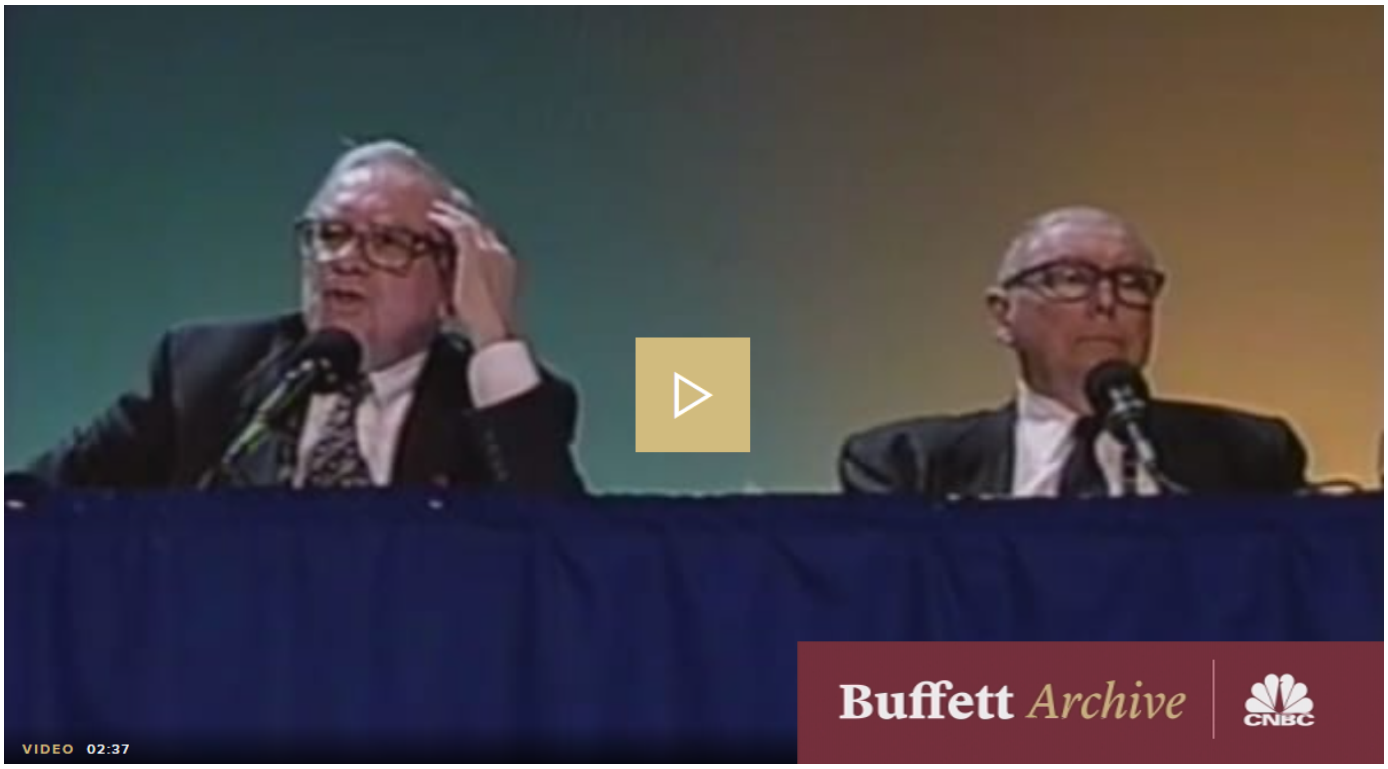
Nebraska railyard

- Quartz: Warren Buffett made value investing sexy. Here's why he shouldn't get all the credit

HIGHLIGHTS FROM THE ARCHIVE

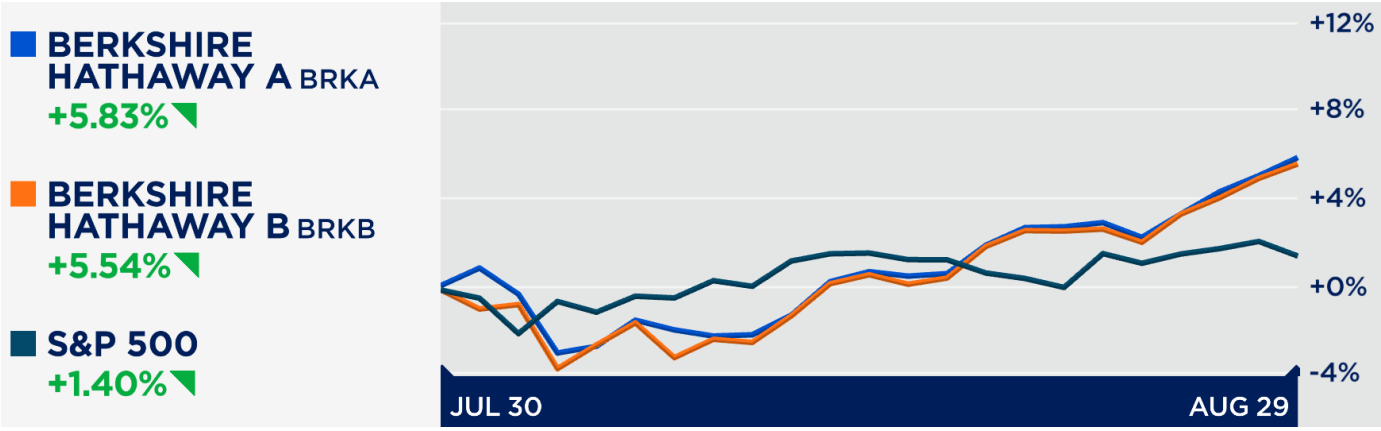
'Buy a stock that you don't ever want to sell' (1998)

Berkshire doesn't sell any of its stock holdings very often, but it can happen. Warren Buffett lists some of the situations that can make him a seller.

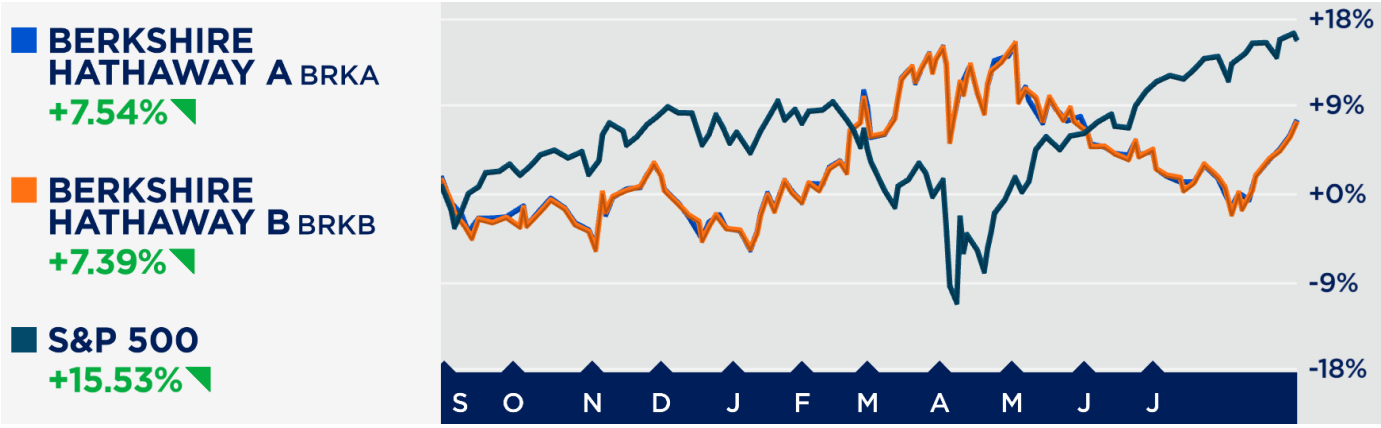


BERKSHIRE STOCK WATCH

Four weeks



Twelve months



BERKSHIRE'S TOP U.S. STOCK HOLDINGS - Aug. 29, 2025

Stock (Symbol)	Holdings	Stake	Mkt. price	Value	Pct of portfolio
Apple Inc (AAPL)	280,000,000	1.9%	$232.14	$65B	27.2%
American Express Co (AXP)	151,610,700	21.8%	$331.28	$50.2B	21.0%
Bank of America Corp (BAC)	605,267,375	8.2%	$50.74	$30.7B	12.9%
Coca-Cola Co (KO)	400,000,000	9.3%	$68.99	$27.6B	11.6%
Chevron Corp (CVX)	122,064,792	6.0%	$160.60	$19.6B	8.2%
Occidental Petroleum Corp (OXY)	264,941,431	26.9%	$47.61	$12.6B	5.3%
Moody's Corp (MCO)	24,669,778	13.8%	$509.76	$12.6B	5.3%
Kraft Heinz Co (KHC)	325,634,818	27.5%	$27.97	$9.1B	3.8%

Kraft Heinz Co (KHC)	325,034,818	27.5%	$27.97	$9.1B	3.8%
Mitsubishi Corp (8058:TYO)	389,043,900	10.2%	$22.84	$8.9B	3.7%
Itochu Corporation (8001:TYO)	135,246,800	8.5%	$57.19	$7.7B	3.2%

Source: CNBC.com Berkshire Hathaway Portfolio Tracker

Berkshire's top holdings of disclosed publicly traded stocks in the U.S., Japan, and Hong Kong, by market value, based on today's closing prices.

Holdings are as of June 30, 2025 as reported in Berkshire Hathaway's 13F filing on August 14, 2025, except for:

- Mitsubishi, which is as of August 28, 2025, and Itochu, which is as of March 17, 2025. Tokyo Stock Exchange prices are converted to U.S. dollars from Japanese yen.

The full list of holdings and current market values is available from CNBC.com's Berkshire Hathaway Portfolio Tracker.

QUESTIONS OR COMMENTS

Please send any questions or comments about the newsletter to me at alex.crippen@nbcuni.com. (Sorry, but we don't forward questions or comments to Buffett himself.)

If you aren't already subscribed to this newsletter, you can sign up here.

Also, Buffett's annual letters to shareholders are highly recommended reading. There are collected here on Berkshire's website.

-- Alex Crippen, Editor, Warren Buffett Watch



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EXHIBIT 94 (REDACTED)

EXHIBIT 95 (REDACTED)

EXHIBIT 96 (REDACTED)

EXHIBIT 97 (REDACTED)

EXHIBIT 98 (REDACTED)

EXHIBIT 99 (REDACTED)

EXHIBIT 100 (REDACTED)

EXHIBIT 101

Union Pacific Corporation (UNP)

NYSE: UNP · Real-Time Price · USD

305.49 +3.38 (1.12%)

Nov 12, 2026, 11:27 AM EST - Market open

Morgan Stanley's 14th Annual Laguna Conference Sep 16, 2026

Slides

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SUMMARY

Carload volumes rose 5% this quarter, led by industrial and intermodal growth, while fuel costs pressured margins but highlighted rail's efficiency over trucking. The merger review is progressing, with strong stakeholder support and strategic concessions to enhance competition. Technology and capacity investments position the company for continued growth and service excellence.

Ravi Shanker

Analyst, Morgan Stanley

Good news. I found Mr. Jim Vena.

Jim Vena

CEO, Union Pacific

Pardon me?

PUBLIC VERSION - REDACTED

Ravi Shanker
Analyst, Morgan Stanley

I said I found you. You're working the room. That's pretty amazing. Great. Let's keep the transport content going. Very happy to welcome back to Laguna, Union Pacific Railroad CEO, Jim Vena. Welcome back, sir, and CFO, Jennifer Hamann. Thanks so much. Tons going on. I know we have some slides out and there are QR codes on your desks for you to access the slides. Jim, I don't know if you want to start with some opening comments and maybe walk through what's in them.

Jim Vena
CEO, Union Pacific

Ravi, listen, thank you very much and good morning, and I've had a chance to say hi and good morning to a number of you. I would rather done that than this. Okay? We could talk personally, but that's okay. Ravi, thanks for inviting me.

Ravi Shanker
Analyst, Morgan Stanley

Absolutely.

Jim Vena
CEO, Union Pacific

What a wonderful place. So listen, Ravi, cautionary information, typical. We do not want to make forward-looking statements. If you need some more detail, please give us a call. Go online and there is a whole boilerplate now that is a freaking big page long. Go read it and figure out because we do not want to do anything wrong. Right, Jennifer?

Jennifer Hamann
CFO, Union Pacific

Absolutely.

Jim Vena
CEO, Union Pacific

Okay. Let's talk a little bit about how we are doing in this quarter. Carload s are up around 5% this quarter, and it is a mix, which is nice. It is not just intermodal and what is happening with fuel prices

and everything else. Actually, our industrial month to date, and I am giving you a number that is not public, but it will be public, n ow it is 5.2%. It is nice to see a cross-section of business, how we are moving it. Bottom line, I could sit here and talk about the metrics completely, but I am sure all of you guys know what I look at and what is real important.

Overall, the metrics at the start of this quarter were a little lower than last year because of incidents and things that we had happen impacting the railroad. Fundamentally, it was not what we were doing, and it has recovered nicely. We are in the mid-230s again in Car Velocity, the dwell under 20 hours. We are handling the increase in business without degrading our service product or degrading how we move. I am very happy with that. Listen, we keep on talking operating ratio, and some people misunderstand me when I talk about operating ratio. Absolutely, you want to have the best operating ratio that your railroad can deliver because of revenue, the type of revenue, and the cost structure that you have. I think we figured out a pretty good model to get to be the best in the industry. I think something like 300 or 400 basis points better than our next competitor, and we like that.

It gives us a different starting place when we are looking at how we bring business on, and that is real important to us. We do not lose sight of that, and we will continue to do everything we can to be able to keep it at the right place. I have said this 1,000 times. If you concentrate on a number, then you miss business or you make decisions that are bad for the long term. I am not the CEO of. They did not hire me as the CEO of operating ratio. They hired me as the CEO of Union Pacific, and that is what I do. Okay? Now, we are going to be the best. We want to stay at the top. We want to win, and it is all about how much business we can bring on that is fundamentally strong business for our company, and I like where we are.

Jennifer, any more sort of details?

Jennifer Hamann

CFO, Union Pacific

No, I think you've hit really some of the high points, particularly around the volume side. Only things I'll add is when you look at what's really the driver of the growth, great to see that Industrial business, and that's been pretty broad-based across many of the segments within Industrial. You've got bulk that's down about 1%. It's pretty similar to what we saw in the second quarter where the low natural gas prices continue to impact the coal demand, but we're seeing very strong demand on the grain side of the world. We look for that to continue. We're getting into the harvest season in the Midwest, and it looks to be a pretty decent harvest in our served territory again. So that's good, and that should give us some sustainability on the grain side.

Then just going back to the intermodal piece, that really is the biggest driver of our growth here in the quarter, and so that does have a mixed impact t hat we just need to remind folks of because that domestic intermodal piece, good business, w e love the business, and we're probably looking at

what's going to be our fifth consecutive quarter of records in terms of looking at it year-o ver- year. So even before the cycle started to change our service product and the way that we were going after and winning and developing business in that market has been shining through. But that will have a little bit of an impact on the mix.

Jim Vena
CEO, Union Pacific

You bet.

Jennifer Hamann
CFO, Union Pacific

Jim's comments on the operations are spot on. We're handling it well. Our strategy with the surge resources is definitely helping us. That's definitely to our benefit, and we see strong core results with that. The only, I'll say, fly in the ointment is fuel.

Jim Vena
CEO, Union Pacific

Sure.

Jennifer Hamann
CFO, Union Pacific

I'm sure everybody's talking to you about fuel, Ravi.

Jim Vena
CEO, Union Pacific

Yep.

Jennifer Hamann
CFO, Union Pacific

Back in July, we thought we were maybe going to get a little bit of a reprieve. Since then it's ticked up pretty substantially. So we're probably going to average, I'd say around $4.25 or so for the quarter, the third quarter. But I have to say right now we're paying closer to $5.20, $5.30 a gallon. So it's come up pretty substantially, and obviously that has some short-term impact on our operating

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ratio. But again, the core business, the core fundamentals of what we do, Safety, Service, Operational Excellence . We're hitting on all cylinders there.

Jim Vena
CEO, Union Pacific

Yeah, you bet. You bet. Ravi I could go on further and fill this whole 27 minutes and 31 seconds-

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Ravi Shanker
Analyst, Morgan Stanley

They're not here to listen to me. They're here to hear from you

---

Jim Vena
CEO, Union Pacific

-on merger, but you know what? I'll leave it to you.

Ravi Shanker
Analyst, Morgan Stanley

Oh.

Jim Vena
CEO, Union Pacific

I like where we are and the way to go, so all yours. Looking forward to the questions.

Ravi Shanker
Analyst, Morgan Stanley

Great. Perfect. Maybe let's start with some of the macro and demand picture, and we'll come to M&A obviously in a second. But, actually, Jennifer, maybe we can just piggyback off of your fuel comments here. How do we think about that OR walk, 2Q to 3Q to 4Q, based on what you laid out, both in terms of the fuel lag that you guys have on the recovery side, but also potentially any tailwinds you might be seeing on incremental truck conversions as a result of that?

Jennifer Hamann

CFO, Union Pacific

Yeah. So on the last part of your question, it certainly is benefiting us from just highlighting that stark difference in terms of the fuel efficiency between truck and rail. And, we believe that is starting to drive some conversions to the network over and above what maybe some of the cyclical changes are driving. So I do think that's a plus for us. In terms of the OR impact, I think we had about 120 basis point impact to our OR in the second quarter with fuel prices coming up t o where they're at now.

Ravi Shanker

Analyst, Morgan Stanley

Yep.

Jennifer Hamann

CFO, Union Pacific

Probably fair to say that it's going to be that big of an impact or bigger. But again, that's why I point back to the core. Core is very strong and continuing to see improvement.

Ravi Shanker

Analyst, Morgan Stanley

Got it.

Jim Vena

CEO, Union Pacific

Well, Ravi, real quick. Fundamentally, at a higher fuel price, not as hot, is never good for the economy-

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Ravi Shanker

Analyst, Morgan Stanley

Sure

Jim Vena

CEO, Union Pacific

-in the long run.

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Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

That's what you have to worry about, that's what you have to be prepared for, that's what we have to do. Now, we haven't seen it so far.

It's truly amazing, with the products that we're moving, other than some specific areas that you know are going to be reactive quicker, that we've seen a slowdown. It's interesting. It helps us bring more business in. We sure don't want to damage, and have the economy damaged by having high fuel prices and slowing some things down. But so far, we haven't seen it.

Ravi Shanker
Analyst, Morgan Stanley

Understood. But going back to Jennifer's comments of the core being really strong here, obviously you're seeing mid-single digit volume growth. You raised the guidance last quarter. Is it fair to say that we are now out of the freight recession, and we have visibility of what's coming forward? Or to Jim's point, is that still a little bit of a risk?

Jennifer Hamann
CFO, Union Pacific

I mean, it feels good right now.

Ravi Shanker
Analyst, Morgan Stanley

Okay.

Jennifer Hamann
CFO, Union Pacific

I think our customers are pretty bullish right now. When you look at order books, when you look at inventories, I think those point to some sustainability here in the demand.

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Ravi Shanker
Analyst, Morgan Stanley

Okay.

Jennifer Hamann
CFO, Union Pacific

We feel good about that, other than watching, is there the possibility for some demand destruction with the high fuel?

Jim Vena
CEO, Union Pacific

Right.

Ravi Shanker
Analyst, Morgan Stanley

Got it. On domestic intermodal itself, obviously the big theme of the conference has been the capacity tightness on the trucking side. Has that resonated with your customers, and is that driving a long-term pipeline of volumes coming your way? Or does it feel like shippers are being a little more opportunistic, just given how suddenly this kind of crept up on them?

Jim Vena
CEO, Union Pacific

Bottom line is it's a little bit of both.

Ravi Shanker
Analyst, Morgan Stanley

Okay.

Jim Vena
CEO, Union Pacific

Okay? Let's get serious here. If they thought that they could have a better product and move it quicker some other way, they'd leave us real quick, a certain percentage that just came on.

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Ravi Shanker
Analyst, Morgan Stanley

Got it.

Jim Vena
CEO, Union Pacific

Okay? That's life.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

But the best way for us to keep them, high service product-

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

-show them that we can deliver it, and the final receiver of the product, the true decision-maker, is real important.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

PUBLIC VERSION - REDACTED

The shipper or the receiver, not the trucking company.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

Okay?

Ravi Shanker
Analyst, Morgan Stanley

Got it. On the international intermodal side, obviously there's a lot of talk on the price gap now between the East and the West. How does that benefit you guys, and what is the Again, does it also seem transitory, or do you think there's more structural gains to be had there?

Jennifer Hamann
CFO, Union Pacific

I think we'll see. It seems like there's different headwinds and tailwinds that tend to make that freight shift back and forth-

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Ravi Shanker
Analyst, Morgan Stanley

Yeah.

Jennifer Hamann
CFO, Union Pacific

-between the two coasts, and I think that shows, going back to Jim's point about the optionality of these firms. They're going to look for their best option, best transit time, best overall price to delivery. But right now, I do think with some of the low water levels in the Panama Canal, some of the other things that are going on in the world, we are seeing a little benefit. Our international intermodal volumes are up a little bit here in the quarter. That's a positive for us.

Jim Vena
CEO, Union Pacific

You can sit there if you're in my job or Jennifer's job, and worry about things that you don't control, or you do look at things that you can control. The customers that are buying internationally, and when they look at their supply chain, if it's better for them to go to the East, they're going to go to the East. If it's better for them to go to the Gulf, it's go to the Gulf. If it's better for them to go. Our job to partner with, I'm here in the West Coast with Long Beach, and we have a great relationship, and L.A., who are supportive of our merger because they see the benefit, then we work, and that's why we're doing the things we're doing to be faster, more consistent, so that when people make decisions.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

Because it's a cost thing. It's a cost and service thing, right?

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

Listen, I get different service when I go to McDonald's. No, I didn't take my wife. Some people remember me saying this, about was going to take my wife for-

---

Ravi Shanker
Analyst, Morgan Stanley

The burger in the conference call

PUBLIC VERSION - REDACTED

Jim Vena
CEO, Union Pacific

-right, for our anniversary to McDonald's. I did take her to a nice steakhouse in Omaha. But bottom line is, I go there for speed, quality, and that's what I get. But when I go to one of those $80 steakhouses for a- can you believe it? For a steak, 80 bucks. But at the end of the day, I expect something different. If it's not there, I'm going to go back and get an $8 Big Mac.

Ravi Shanker
Analyst, Morgan Stanley

Sure.

Jim Vena
CEO, Union Pacific

Okay?

Ravi Shanker
Analyst, Morgan Stanley

I don't think so, but sure.

Jim Vena
CEO, Union Pacific

I'm not real worried about the East Coast, West Coast, but that's why we want to merge.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

We're going to give people more optionality with a single line that'll take you across the country looking forward to it.

Ravi Shanker
Analyst, Morgan Stanley

Yep. I'll come to the merger in just a second.

Jim Vena
CEO, Union Pacific

Oh, that's okay.

Ravi Shanker
Analyst, Morgan Stanley

Thinking about $80 stakes and pricing here, obviously, what is happening in the truck market kind of gives you a pretty nice opportunity for intermodal pricing as well. You guys said that you think it will be a bigger opportunity next bid season for you guys. Can you just talk about how you see that rolling through mechanically, kind of cadence over the next few quarters?

Jim Vena
CEO, Union Pacific

Jennifer, why don't you take them through the sort of the three different models that we have, right?

Jennifer Hamann
CFO, Union Pacific

Yeah.

Jim Vena
CEO, Union Pacific

Some of it is priced in on long-term contracts, so way to go.

Jennifer Hamann
CFO, Union Pacific

Yep. I think the part you were just referring to, Ravi, is some of those longer-term contracts-

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Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jennifer Hamann
CFO, Union Pacific

-which we put some flexibility into the pricing, which has served us well because, at the time we won some of those contracts, you started to see the market tail off. What you are seeing now certainly is the volume come from those contracts, but the pricing will lag, and it will trail a little bit. Then you also have the business that moves on more of a spot basis. That bid season is in more the springtime of the year, and so since spring of 2026, prices have continued to run up. Assuming they stay at these levels or-

---

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jennifer Hamann
CFO, Union Pacific

-continue to go higher, we would expect a stronger bid season. Again, you are going to get the benefit of that more in the back half of 2027. Then the third piece that Jim is talking about is we have our own boxes.

That is the nice thing about our intermodal franchise, is we can hit the market in a number of different places. With our boxes, we actually have them fully unstacked, out and running for the first time since about 2008, or excuse me, 2018. Went back too far. Dropped a decade. But 2018, so that is a long time. We have actually gone out, and opportunistically picked up a few extra boxes, and we have put some surcharges on there as well to reflect the strong demand that we have for that part of our product. We are hitting on all of those cylinders, and it is being supported by the service product, so that is where we feel good.

Ravi Shanker
Analyst, Morgan Stanley

Got it. You said the S word, so just given what is happening to fuel, is there an opportunity to maybe use surcharges and accessorials to maybe get pricing a little bit quicker? Especially given how

extraordinary what is happening with fuel is.

Jennifer Hamann
CFO, Union Pacific

Our fuel surcharges are programmatic. They're set up either through contracts with our customers, or through our tariffs, so they've been in that same situation for a very long time. They're just kind of set it and forget it. What I was referring to was some of the peak season surcharges-

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Ravi Shanker
Analyst, Morgan Stanley

Sure.

Jennifer Hamann
CFO, Union Pacific

-that are lane specific, market specific, and intermodal-

Ravi Shanker
Analyst, Morgan Stanley

Right.

Jennifer Hamann
CFO, Union Pacific

-to address some of the capacity.

Ravi Shanker
Analyst, Morgan Stanley

Got it. On peak itself, we've heard from a few trucking companies so far that they're looking forward to a very robust peak. Do you guys have a sense of what that's looking like just yet, or is it a little too soon?

Jim Vena
CEO, Union Pacific

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I do not know. We think that the volume is not going to go up a whole bunch-

---

Ravi Shanker
Analyst, Morgan Stanley

Okay.

Jim Vena
CEO, Union Pacific

-in those segments that are usually driven by peak. But I am hoping that everybody else is right, and not our experts.

Ravi Shanker
Analyst, Morgan Stanley

Got it.

Jennifer Hamann
CFO, Union Pacific

They are pretty decent levels right now.

Jim Vena
CEO, Union Pacific

Yeah.

Jennifer Hamann
CFO, Union Pacific

That's the nice point.

Jim Vena
CEO, Union Pacific

Yeah. It's not negative-

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Jennifer Hamann
CFO, Union Pacific

No.

Jim Vena
CEO, Union Pacific

-but I don't see another substantial-

Jennifer Hamann
CFO, Union Pacific

Yeah.

Jim Vena
CEO, Union Pacific

-double-digit increase.

Ravi Shanker
Analyst, Morgan Stanley

Got it.

Jim Vena
CEO, Union Pacific

For sure.

Ravi Shanker
Analyst, Morgan Stanley

I think a big message from you guys for the last two, three years during the downturn has been, "Hey, we have the capacity for when the volumes do come back." You have seen a pretty nice improvement in volumes already, kind of off the bottom here in the last couple of years. Where are you now on excess capacity on the service levels that you can maintain? At what point do you think you'll have to bring some resources back? This will be a high quality one.

Jim Vena
CEO, Union Pacific

Ravi, it's pretty simple, okay? What we did was starting in 2019, we looked at the railroad in a completely different manner of what was possible. We invested hundreds of millions of dollars in making our railroad to be able to handle trains of different lengths and in different corridors. As we publicly have said lots, we operate with more business than we did in 2019, with 24% less trains. Some people think that's a number you can just slap on the wall, and it was easy. That wasn't easy, but that's capacity that we have excess.

Ravi Shanker
Analyst, Morgan Stanley

Sure.

Jim Vena
CEO, Union Pacific

If we're going to run seven new lanes in the merger, my God, we don't get back to where we were even in 2019.

Let alone the business that we have now.

We're very comfortable with that piece. And the other two areas that you always have to be careful with is locomotives. The reason is you just can't get them if you need them in a short period of time. Otherwise, the buffer would be zero. We'd just go down to the corner place and buy a locomotive, but nobody has them just sitting there for us-

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Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

-and people. I'm very comfortable with capacity-wise. Few little pinch point areas that we'll continue to invest in.

PUBLIC VERSION - REDACTED

On the intermodal side, Jennifer, we spent, I think, something like $1.2 billion in the last eight or nine years to increase our capacity, the number of lifts we put in there, on purpose to be able to handle these changes that we think that we can draw to our railroad as we move ahead. That's what we've done, is tried to touch every piece of our business to give ourselves the capacity to not run up against it. And you'll see that if you run up against it, you just slow down.

The railroad slows down-

Ravi Shanker

Analyst, Morgan Stanley

Yep.

Jim Vena

CEO, Union Pacific

-which is not good.

Ravi Shanker

Analyst, Morgan Stanley

Got it. Just to follow up from that topic very close to your heart, you mentioned it several times already today, which is service levels. How comfortable are you with where you are with service? What technology investments do you have to make to push that to a new level? And are you confident that will sustain even when these volumes come back?

Jim Vena

CEO, Union Pacific

Listen, let's just tag team this. We've invested on technology from gate technology. At technology, so truckers can come in seamlessly. They don't even have to stop. They slow down to come in and out of our terminals. The way we switch boxcars at the terminals, we've invested in technology that allows them to do more, so we're handling switch number of cars per hour, probably 20% better than we were before. We continue to invest.

We have taken all our main systems a nd replaced them with the latest in the last three or four years, whether it's the dispatch system, whether it's our fundamental NetControl. The best part about NetControl was, it was a little scary thing, and I had hoped that Lance had done it when he was the CEO, but he sort of left that for me and kept it building. They came to see me and said, "We're going to shut down our main system that runs everything off of it, payroll, cars, everything." I said to him,

"Well, what's our backup? If that doesn't work or we have a glitch, what do we do?" He says, "You can't do anything because you can't meld the two." We're talking about hundreds of thousands of railcar movements and everything else, and we did it over a weekend. I give Rahul and his entire team accolades.

So we're ready to do what we have to do moving forward. I'm very comfortable where we are. Jennifer, anything to add, or did I cover it?

Jennifer Hamann

CFO, Union Pacific

You covered a lot of it. We are continuing to develop both within our terminal systems, our Terminal Command Center, that's going to help prompt decisions originally to some of the managers in terms of how do they want to bring the trains into the yard, how do they want to set up the switch plans to make sure that the cars are making the next connection. Ultimately, you look forward, instead of just prompting the terminal manager, it's going to go ahead and make those decisions and send those instructions to the crew automatically. There's a lot ahead of us there that we can do to continue to get more productive and safer.

Jim Vena

CEO, Union Pacific

The most exciting thing that we are working on, and we're pretty close, is a dynamic operating plan.

It takes us a long time to change the operating plan against what happens with the business because you have so many things you have to worry about, assets, people, commitments, service plans, everything else. I'm telling you, we are very close. I'd like it so that the day after tomorrow we could have a new plan that fulfills what we have to do, but able to be able to run assets better and cheaper, size of trains and everything else. We're getting there. I'm not happy with Rahul on this one and hopefully he's listening in. I expected him to give it to me six months ago, and he thinks it's difficult. I don't know. It's pretty simple from where I sit. He just needs to get going on it.

Ravi Shanker

Analyst, Morgan Stanley

You should take him for a run early in the morning.

Jim Vena

CEO, Union Pacific

Oh, he's too fast.

Ravi Shanker
Analyst, Morgan Stanley

Yeah.

Jim Vena
CEO, Union Pacific

He's a marathoner. Son of a gun. I would have to trip him to beat him, for sure. He is fast, Rahul. Fast.

Ravi Shanker
Analyst, Morgan Stanley

Never mind. I have a few more questions on financials and some thematic topics, so I'll come to that in the end. Maybe let's talk about the merger now. First of all, congratulations. The STB obviously has removed the proceedings from abeyance, resumed consideration of the merger on merits-

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Jim Vena
CEO, Union Pacific

Yes. Thank you.

Ravi Shanker
Analyst, Morgan Stanley

-accepted the applications. How do you view this latest milestone? How should investors think of it? And give us a sense of what do you think the timeline and the next steps are from here?

Jim Vena
CEO, Union Pacific

Well, listen, we are very happy to cross that threshold because once the STB on May 28th accepted the merger application, then the clock starts. This next piece is the merits and the parties that have an issue with what we're doing get to put in, but they have to put in their detail.

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They have to tell the STB and make it public what it is that they can't just speak. It's like some railroads are out there saying that we end up with 50% of the business. That's just a lie. It just is a lie. Burlington Northern Santa Fe, owned by Berkshire, big company, they have more gross ton miles than us. So we're number two on gross ton miles. Yes, our revenue's more. You'll have to ask them why. That's up to them. Not up to me. Okay? And our operating metrics are better, everything else, but bottom line, that's where we are. CSX and Norfolk Southern are about the same. So if you put number two and three or two and four together, you don't get to 50%.

Somebody forgot that there's two Canadian railroads that actually operate in the U.S. So you add them in there, Canadian National and Canadian Pacific, and we end up at 40. The reason I'm telling you this story is they can't go about telling the STB that we get to 50 without proving their math. And I don't know what math people are taking, but it's just wrong.

I even heard it yesterday-

Ravi Shanker
Analyst, Morgan Stanley

Yeah.

Jim Vena
CEO, Union Pacific

-at IANA. Son of a gun. The good part about it is, I love where we are without being too snarky.

Ravi Shanker
Analyst, Morgan Stanley

Sure.

Jim Vena
CEO, Union Pacific

I apologize if I woke up a little snarky this morning. Bottom line is, I like where we are in the process. It's taken us way too long to get here, but if anybody's worked with government regulators, it takes them a while to get through to the right place you want them. I'm going to look at it from their side. I think they're being very cautious in making sure that they do the right thing as they go through the process. I think the chair and both the members, all three members, sorry, are smart and they'll make the right decision because they see the benefit for America-

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Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

-and the benefit for the shippers and the benefit for America to win against worldwide competition. I love it where we are. We have a timeline now called May 28th next year.

They get 30 days to give us a decision. Now, again, this is Jim Vena. I'm hoping they make the decision in two days. So on the 1st of June, we have an answer, but I bet you any money they don't take two days, Ravi.

Ravi Shanker
Analyst, Morgan Stanley

We shall see.

Jim Vena
CEO, Union Pacific

Jennifer, anything you want to add on that?

Jennifer Hamann
CFO, Union Pacific

No.

Jim Vena
CEO, Union Pacific

I think I covered it off.

Jennifer Hamann
CFO, Union Pacific

I think you covered it off.

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Ravi Shanker

Analyst, Morgan Stanley

Jim, you guys have not been sitting still waiting for them. At the same time, you offered a number of concessions already. You obviously had the agreement with Canadian National. Can you just talk about the thought process there, kind of why you did that, and what benefits do you think it will give you through the process?

Jim Vena

CEO, Union Pacific

Well, listen, you can go study history all you want, all the way back on mergers and anything else, and you need to deal with concentration of railroad against customers, and that is what we had. When the merger gets consummated, we would end up with three rail tracks between our two that we have today, plus we would take over the Norfolk Southern one. We needed to do something with that. You cannot have that.

Either we make a deal with somebody, and I give Canadian National and Tracy and the whole team there a lot of credit. They could see the value of what they do. They are going to be able to move intermodal from Canada into there if they want to Kansas City, and I think it is wonderful. It is competition, and they might take a little business away from us. Now, they better be good or we are going to try to keep it, right?

But at the end of the day, I love that. With that, we started talking about the terminal issues, whether it's the TRRA. The STB came back twice and asked us on the TRRA, even though we said, "Listen, we don't want to control it." What people miss, there's terminal railroads and cooperation agreements within terminals across the U.S.

They are all run with one thing when the railroads own them. It's a non-profit. It's not there to make money. It's there to switch a rail car for the cheapest price going, and that's how we manage it, all of us. We fixed TRRA with this, and we fixed the Kansas City. So it's good for CN. It expands their reach. We had to fix that. If you look at our network now, it's a bolt-on.

Ravi Shanker

Analyst, Morgan Stanley

Sure.

Jim Vena

CEO, Union Pacific

Would I make a deal with another railroad? Absolutely. It would have to be a win-win for Union Pacific and for them. They could see what the benefit is. The idea to give up tracks of your railroad for no reason at all just goes against the fundamental principle of how business should work. On top of that, this is what it would do. If we allowed X railroad to run on our railroad for 800 mi, we would charge them a per car mile charge that actually would make it more expensive for them to get to that destination. I have thought about just about agreeing. Because guess what? We would just reset the price higher for us.

Ravi Shanker
Analyst, Morgan Stanley

Sure.

Jim Vena
CEO, Union Pacific

Okay? That doesn't make a particle of sense in business.

In business, it should be who can get the best and what the market allows you to do. That's why I am going to have a hard time making a deal with anybody else.

But if it's there. One piece of the deal that's really interesting, Ravi, is we gave Canadian National access from Canada to Mexico.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

Through Memphis.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

Man, I can hardly wait. We win by them growing Canadian business to Mexico.

Got to love the competition. We just added to Canada against the Canadian Pacific.

Ravi Shanker
Analyst, Morgan Stanley

Right.

Jim Vena
CEO, Union Pacific

Love it. I didn't get a phone call thanking me about, "That was a great deal for you, Jim, and bad for CN.

Ravi Shanker
Analyst, Morgan Stanley

We shall see how this plays out. Jim, can you give us the latest insight into the conversations you're having with various stakeholders here, folks who called you in support of the deal, folks who called you with concerns? What's the latest update on there?

Jim Vena
CEO, Union Pacific

You bet. So we have over 2,000 groups or individuals that are positive on the merger, letters of support. We have over 500 customers, and just a couple of days ago, the governor from South Carolina sent a letter in, and we have letters continuing to come in. So the support is the, and it's the most support that anybody's had on a merger. So, we're very happy, and it's across state lines all over the place.

And we have some detractors that have said that they put in, but at the end of the day, the positive is much stronger than the negative b ecause they see the benefit of being able to operate through. So we're continuing. I wrote a letter to the top 50 customers, CEOs, myself, and said, "Listen, if there's anything that you want to talk to me that you don't understand, this is my personal phone number. This is me. Give me a call." And a couple of them have. And we've actually had great conversations and we'll probably get a couple letters of support from them.

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Ravi Shanker
Analyst, Morgan Stanley

Okay.

Jim Vena
CEO, Union Pacific

Some of the rest of them, I haven't heard from them, that means they must support me.

Ravi Shanker
Analyst, Morgan Stanley

Sign off your socks.

Jim Vena
CEO, Union Pacific

I got it. It's not quite. But at the end of the day, communicate with our customers because that's real important.

It's hard to communicate against associations. They don't pay anything.

Ravi Shanker
Analyst, Morgan Stanley

Sure.

Jim Vena
CEO, Union Pacific

So it's pretty hard to have a proper discussion, plus I can't tell them exactly what we're doing with some of our customers.

They're an association. So I like it. Other stakeholders, son of a gun, I'm telling you if there's one thing I really screwed up on, I did not know I was going to have to make so many trips to different government offices somewhere in this country over this. I've done lots of, myself, Jennifer, and the entire team to make sure the story is straight. They get it. As soon as you tell them, how'd you like an airline industry that never went across the country? How'd you like an interstate system where when 80 gets to the Mississippi River, there's no road bridge across.

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You have to barge it across the cars over to the other side so you can get to the other part of the country. They get it as soon as you tell them that. So I love it.

Ravi Shanker
Analyst, Morgan Stanley

Yeah.

Jim Vena
CEO, Union Pacific

Lots of communication.

Ravi Shanker
Analyst, Morgan Stanley

Good analogy there. Any questions from the room? Madison, you can go first. Is there a mic? Here.

Jim Vena
CEO, Union Pacific

Okay. I love it.

Ravi Shanker
Analyst, Morgan Stanley

Here. Right up here.

Jim Vena
CEO, Union Pacific

Oh, there is a question?

Ravi Shanker
Analyst, Morgan Stanley

Yes.

Jim Vena
CEO, Union Pacific

Okay. I thought I was going to get off the stage two minutes and 47 earlier.

Ravi Shanker
Analyst, Morgan Stanley

No, sir. We are not letting you off.

Speaker 4

Hi, guys. Thanks for the question. Mine is actually on autonomous trucking. I was wondering what your view is on it more broadly. Do you see it as a competitive risk or opportunity for railroads? As autonomous trucks increasingly become a reality, and if it does come to pass, how can rails close the gap on the value offered to customers?

Ravi Shanker
Analyst, Morgan Stanley

It's been a big topic of the conversation so far.

Jim Vena
CEO, Union Pacific

Listen, this is something that we should always think about in the business that we're in, and I do think about it lots. If you stand still, someone else is going to beat you. You got to look at what's coming up and you got to look forward. We're not into defragmenting, or fragmenting our railroad network to have 48 railroads like we had back in the Second World War, class ones. We want to move ahead because our competitors are moving ahead, and that is one of the reasons we've looked at this merger and we think it's so important for the country is the competition's going to get better and we need to be able to get better and have a chance to win. I've actually ridden in an autonomous truck, and I'm telling you, the technology's there on the road system.

I do everything I can. I know for an old guy, 68 years old, and people might say, by the time you get to 68-year-old grizzled and you only look at things a certain way. If there's technology out there, I got my IT guy going to get me a flip phone from Apple because I want to see what that technology does. Plus, I think it's cool. At the end of the day, I ride Waymo. I ride Teslas that are autonomous. I go trucks. I don't fool around, Aurora, I've been in there. It's a few years ago.

I'm telling you, the technology's there.

Okay? They are driving right now with somebody in the seat, but hang on, okay? We need to be able to be smart enough to move ahead. If we stay the same, we just lose business because-

---

Ravi Shanker
Analyst, Morgan Stanley

Right.

Jim Vena
CEO, Union Pacific

-they are going to be competitively more efficient than us, and they stretch that mileage of how far they can haul.

Ravi Shanker
Analyst, Morgan Stanley

Got it.

Jim Vena
CEO, Union Pacific

If people want more trucks on the road, then I guess don't let us do the things that we need to do as a rail industry to move ahead. That's what's real important.

Ravi Shanker
Analyst, Morgan Stanley

You referenced the transaction in relation to that. Do you think that is going to be part of the debate, kind of, hey, autonomous trucks are coming. It will help the rails compete better or how do you think that will relate to the transaction?

Jim Vena
CEO, Union Pacific

Well, listen, I know the five key areas that the STB needs to look at.

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Public interest is the very first thing, and it is pretty hard for them not to look at everything that is coming up.

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

You want a railroad that seamlessly can operate between the East Coast and the West Coast without handing off and being, even in intermodal, 8- 24 hours faster and less complication, less handling, safer because every time you touch something, it costs you something. Something could happen. Do you want to have a railroad system that allows you to compete against that truck?

Ravi Shanker
Analyst, Morgan Stanley

Yep.

Jim Vena
CEO, Union Pacific

Or do you want not to? Listen, that's why this merger is going to get approved. There's no question. It's good for the country. It is good for the customer. Single-line railroad costs less. Rates are less on a single-line railroad haul today than anybody that has a multiple railroad touch. That means that we can offer better. Now, I'm not here telling people expect a 5% rate cut because my job is to represent my company.

Ravi Shanker
Analyst, Morgan Stanley

Sure.

Jim Vena
CEO, Union Pacific

But if we market-wise everything else, we could do that and still be able to do what we have to. So it is, Ravi, it truly is a great deal for America.

Ravi Shanker

Analyst, Morgan Stanley

Great. That's a great spot to wrap it up, Jim. Always fun, always insightful. Thank you so much for being here. Jennifer as well.

Jim Vena

CEO, Union Pacific

Ravi, thank you very much. Thanks, everyone.

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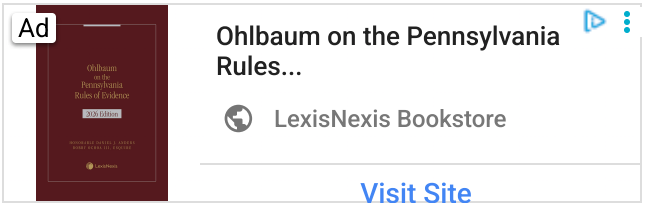

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EXCLUSIVE: Rail merger critics should "quit looking backward," says Union Pacific CEO

Transcon deal more than just numbers, says Vena, as merger refiling deadline nears



Stuart Chirls • Tuesday, March 10, 2026



(Photo: UP/NS)

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In *The Tempest*, Shakespeare wrote, "what's past is prologue," meaning history sets the context for the present and dictates future events. Except, apparently, when it comes to transcontinental railroads.

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In an exclusive interview with FreightWaves, Union Pacific Chief Executive Jim Vena fired back at critics of his blockbuster merger with Norfolk Southern, insisting it won't have the lasting price and service issues that have accompanied past transportation consolidations even as it reshapes the U.S. supply chain.

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"People have to quit looking backwards and look at what's possible," Vena said by phone from UP's Omaha headquarters.

Union Pacific (NYSE: UNP) has faced withering criticism from industry observers who declared the math supporting the $85-billion transaction with NS (NYSE: NSC) didn't add up.

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Bur Vena said it was a "mistaken view" to see it just through the numbers."You have to look at the quality aspect, as well. The people and companies that manufacture and produce the goods we consume every day, we want to be able to give them a better rail system, one that allows them to compete against the world."



Jim Vena

At the same time, numbers are at the crux of the merger proposal: 1.4 million truckloads converted to intermodal in 36 months, and 2 million truckloads diverted to rail annually.

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More numbers: The railroads say the merger will shave up to 2 days off a typical 5 to 7 day journey for railcars moving from coast to coast. That's a radical game-changer making rail competitive with transcontinental freight moving by truck; some industry executives have said privately that the time savings could be even greater. The single-line route will also open up the Midwest watershed, where rail has long grappled with a tangle of competing lines and interchange issues.

The questions surrounding UP-NS only intensified after the Surface Transportation Board in December rejected the initial merger filing as incomplete, and made explicit requests for more information including forward-looking market data and agreement details.

The companies expect to file an updated application in April.

Vena defended not including some data for competitive reasons — "you have to be careful you don't give everything away to your competitors" — and repeated assertions that the vast majority of growth in the long term will come from taking share away from trucks. But some analysts took issue with the railroads in the application categorizing dray-to-rail conversions and rail-to-rail market share shifts as growth, instead of just truck-to-rail and the opening of all-new markets.

Vena fairly bristles at the critiques, and questions some credentials.



"It's always easy to be on the negative side if you're not out to deliver," said Vena, pointing out that UP is atop industry analytics for efficiency, revenue and safety. "Our people are comfortable with what's there and the data we have calculated."

The company also redacted Schedule 5.8, which specifies "Materially Burdensome Regulatory Conditions" that would allow UP to walk away from the deal.

"With a transaction as large as ours, there will always be protection for both sides," says Vena, who compared it to the contract terms for the 17 homes he and his family have

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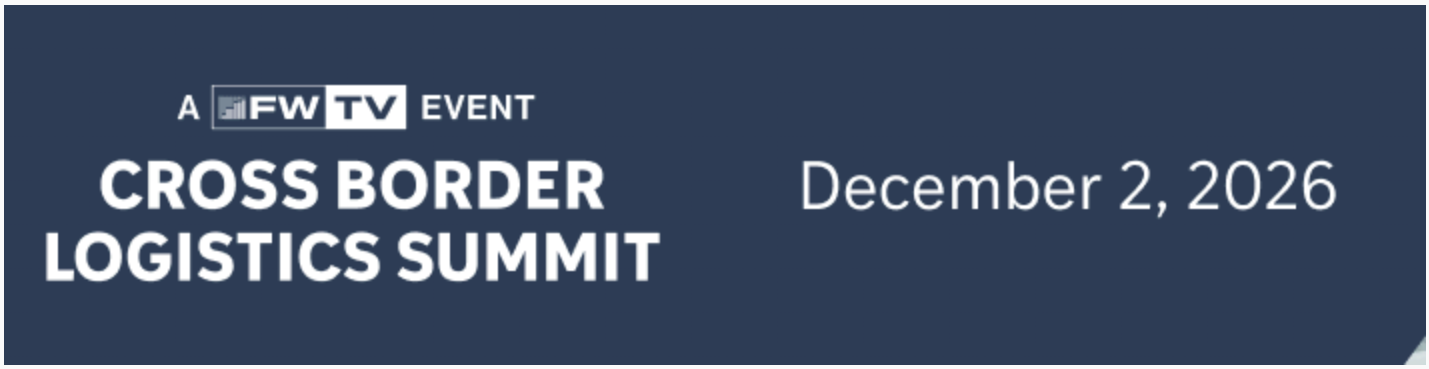
lived in during his railroad career. "At some point we have the right to walk away, we have an out. But, there's no walking away without a penalty. If the STB had told us to put it [the terms] out, we would have. We asked them to keep it confidential; it's up to them. Why would you ever tell your competitors the financial details? It's ridiculous, it really is. They would love to see what we have."

The STB recently proposed a reset of reciprocal switching rules, which if approved would give some shippers a choice of rail carriers. Vena says that's not a condition to scrap the merger. "I'm all for reciprocal switching, it gives optionality. I'm glad the STB came out with that reset."

Asked about UP's recent history of dismal growth, Vena says a focus on service can help optimize what the railroad can do, and answer the STB's 'higher bar' requirement that a merger not only preserves competition, but enhances it.



"We're a strong and well-run company," says Vena. "Today, we have a low double-digit share of freight that is is moved every day in America. That's a of tonnage. At the end of the day, we have to ask, does it make movement of goods more competitive? It will be better for the customer, and better for the country. We have to deliver more optionality and be able to take trucks off the highway, and that's what we're doing. To make shippers more competitive in the markets they're in, we need to understand that market, and we need to win with our customers."

Long term, Vena says, "50% of UP's business is intermodal, and the merger will bring that segment to a whole new level of capability, so you need to tackle that, that's where the growth is. We continue to work with customers to open up new markets, and spend capital to give them optionality. We've developed a steel plant in Phoenix, new chemical plants in Louisiana, new facilities across the network for intermodal."

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Vena said UP will continue to be efficient with its outlay for motive power, continuing to rebuild older locomotives rather than buy new. Union Pacific and Wabtec in later 2025 signed an agreement worth about $1.2 billion to modernize UP's AC4400-series locomotives, the fourth such rebuild program since 2018. That will bring the carrier's total to 1,700 rebuilt units.

"We're still spending a lot to modernize, from the frame up, like new," says Vena, a former locomotive engineer. "That is way more cost- effective, delivers onboard components, fuel efficiency, and reliability, we're very comfortable doing that. If there was a product that was substantially better we'd buy it. The plan is to continue to modernize."

Vena pointed out that the railroad has 1,500 'excess' locomotives.

Still, the recent history of transportation mergers among airlines and railroads isn't a study in customer-facing benefits where fares, rates and choices are concerned. Vena points out that railroads have succeeded despite the structural limitations of a heavily-regulated, capital-intensive industry.

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"The cost structure of railroads over the past 20 years is nowhere near inflation," he says. "Our customers are very large and very sophisticated companies — Cargill, Exxon, ADM, Chevron, Walmart, Fedex, UPS — major internationals, and they push every year to help them be better in the marketplace. We always ask, 'What service are we providing, and how can we make that better?' My God, as a business, where do we go? Always look to be operationally efficient in how you use your assets, faster, with more fluidity, and less touch points [per railcar]."

As for service issues, Vena said that, sometimes, the railroad has to work with what it's given.

"Railroads aren't precision operations because customers aren't always precise, and you don't know what they're going to give you on a daily basis. People need to get off of this

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'driven by OR [operating ratio]' thinking, that's not what drives us."

Asked about Ancora, the activist investor that forced leadership changes at NS and CSX (NASDAQ: CSX), Vena says, "At the end of the day, companies that are well-operated that fulfill and look for the greatest opportunity to deliver for shareholders and customers, and be the best in the industry, no activist will ever be able to take that company on. The American system of capitalism makes people look at companies that aren't performing in the marketplace. It keeps your feet to the fire, to deliver as a CEO, that's your job.

As far as NS, "There are always going to be activists who are not being fair about what they're doing. Shareholders vote and decide whether management has a good plan or not. The outcome of the [Ancora] campaign was that the management team proved to shareholders they had the right plan moving ahead.

"There is not another system that's better."

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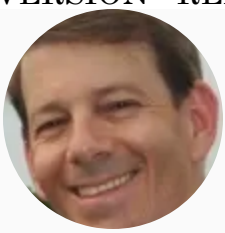


Stuart Chirls

Stuart Chirls is a journalist who has covered the full breadth of railroads, intermodal, container shipping, ports, supply chain and logistics for Railway Age, the Journal of Commerce and IANA. He has also staffed at S&P, McGraw-Hill, United Business Media, Advance Media, Tribune Co., The New York Times Co., and worked in supply chain with BASF, the world's largest chemical producer. Reach him at stuartchirls@firecrown.com.

EXHIBIT 103 (REDACTED)

EXHIBIT 104

ORIGINAL

BNSF Contract No. BF57851

TRACKAGE RIGHTS AGREEMENT
BETWEEN KENTUCKY STREET AND KC JUNCTION
IN MEMPHIS, TENNESSEE

THIS AGREEMENT, made and entered into this 16th day of December, 2009 (the "Execution Date"), by and between **BNSF RAILWAY COMPANY**, a Delaware corporation (hereinafter referred to as "BNSF" or "Owner"), and **UNION PACIFIC RAILROAD COMPANY**, a Delaware corporation (hereinafter referred to as "UP" or "User").

W I T N E S S E T H:

WHEREAS, BNSF is the owner and operator of certain railroad lines between MP 483.8 and MP 486.0 on the BNSF Thayer Subdivision at Memphis, TN, which shall be referred to herein as the "Joint Trackage", and as depicted on Exhibit A attached hereto;

WHEREAS, UP desires to obtain trackage rights upon certain railroad lines of BNSF for the sole purpose of interchanging with Canadian National Railway ("CN") at CN's Johnson Yard; and

WHEREAS, BNSF is willing to grant UP trackage rights upon BNSF railroad lines subject to the terms and conditions set forth herein.

NOW, THEREFORE, it is mutually agreed by and between the parties.

Section 1. General Conditions; Conflicts Between Provisions:

The General Conditions set forth in Exhibit B attached hereto are hereby made a part of this Agreement. Each capitalized term used and not otherwise defined in this Agreement shall have the meaning ascribed to it in the General Conditions. If any conflict between the General Conditions and this Agreement shall arise, the provisions of this Agreement shall prevail.

All amendments, supplements, modifications to and waivers of the terms of this Agreement shall be in writing and signed by the parties hereto.

Section 2. UP's Rights:

(a) Subject to the terms and conditions contained herein, BNSF grants to UP the nonexclusive right to use the Joint Trackage for the limited operation of two (2) trains per day (without restriction as to direction) between the hours of 1600 and 0800 for the sole purpose of

interchanging Equipment between CN's Johnson Yard in Memphis and UP's Sargent Yard in Memphis in common with BNSF and such other railroad company or companies as BNSF has heretofore admitted or may hereafter at any time in the future admit to the joint use of all or part of the Joint Trackage (provided that such future admittance shall not materially hinder or obstruct the fair and reasonable exercise of the rights granted in this Agreement), such other railroad company or companies to hereinafter be considered BNSF for the purposes of this Agreement, it being understood and agreed that UP shall not have the right to:

(i) Switch industries or transload upon the Joint Trackage except as permitted in Section 2 (a) (iii) below; or

(ii) Set out, pick up or store Equipment upon the Joint Trackage, or any part thereof, except as otherwise provided in Sections 2.12, 2.13 and 2.14 of Exhibit B; or

(iii) Serve any industry, team or house track, intermodal or auto facility now existing or hereafter located along the Joint Trackage, except as permitted in an agreement between the parties dated December 17, 1965; or

(iv) Permit or admit any third party to the use of all or any portion of the Joint Trackage, nor, under the guise of doing its own business, contract or make any agreement to handle as its own Equipment over or upon the Joint Trackage, or any portion thereof, the Equipment of any such third party which in the normal course of business would not be considered the Equipment of UP; provided, however, that the foregoing shall not prevent UP, pursuant to a run-through agreement with any railroad, from using the locomotives and cabooses of another railroad as its own under this Agreement; or

(v) Connect with itself at any location along the Joint Trackage; or

(vi) Connect with any other railroad at any location along the Joint Trackage except as required to complete movements between CN's Johnson Yard and UP's Sargent Yard ; or

(vii) Build-in to or build out from any point on or along the Joint Trackage; or

(viii) Interchange with any other railroad or perform haulage services for any other railroad on or along the Joint Trackage.

(b) The rights granted in Section 2 (a), above, shall be for rail freight traffic, carload and intermodal, of all commodities.

(c) UP agrees that when entering, exiting, setting out or picking up from its existing lines of railroad or trackage rights lines ("UP's Operations"), it shall do so without

unreasonable interference or impairment of the Joint Trackage. However, except as may be expressly agreed otherwise by the parties in writing, UP agrees that if sufficient trackage is not available at such location(s) to facilitate UP's Operations, BNSF may require UP to construct additional trackage ("Additional Trackage") in the vicinity of such location(s) as may be required in the reasonable judgment of BNSF, the cost and expense of which shall be borne solely by UP. In the event such Additional Trackage is constructed at the cost and expense of UP, and BNSF shall choose to use such Additional Trackage, BNSF shall pay UP fifty percent (50%) of the cost of constructing such Additional Trackage plus per annum interest thereon at a rate equal to the average paid on 90-day Treasury Bills of the United States Government as of the date of completion until the date of use by BNSF commences. Per annum interest shall be adjusted annually on the first day of the twelfth (12th) month following the date of completion and every year thereafter on such date, based on the percentage increase or decrease in the average yield of 30-year U.S. Treasury Notes for the prior year compared to their average yield in first year of completion of the Additional Trackage. Each annual adjustment shall be subject, however, to a "cap" (up or down) of two percentage points of the prior year's interest rate (i.e., the adjustment may not exceed an amount equal to two percentage points of the immediately preceding year's interest rate).

(d) BNSF will make best efforts, consistent with reasonable operating practices, to maintain clear route access over the Joint Trackage.

Section 3. UP Train Operations:

UP trains must secure from the appropriate dispatch personnel an operational slot (hereafter "Landing Spot") before entering BNSF trackage.

Section 4. Per Car Rate:

(a) In addition to other payments to be made under this Agreement, UP shall pay BNSF $0.62 per Car (hereinafter called, "Per Car Rate") on a monthly basis for its access to and use of the Joint Trackage. The Per Car Rate includes Ordinary Maintenance and Programmed Maintenance, operating expenses, interest rental, depreciation and taxes.

(b) For the purposes of computing the Car Miles under this Section 4, the parties mutually agree that the distance between the designated points on the Joint Trackage is 2.2 miles. In the event Capacity Improvements or Changes and/or Additions to the Joint Trackage result in changes to the mileage provided above, then the distances listed above will be adjusted up or down to reflect the new mileage and the new mileage will be used to calculate Per Car Rate effective as of commencement of train operations over such Capacity Improvements or Changes and/or Additions to the Joint Trackage.

(c) The Per Car Rate shall be subject to adjustment annually beginning on July 1, 2010 to reflect (75%) of increases or decreases in the Rail Cost Adjustment Factor ("Index"), not adjusted for changes in productivity ("RCAF-U"), and published by the AAR or successor agency or other organization. In the event the RCAF-U is no longer maintained, the parties shall select a substantially similar index and failing to agree on such an index, the matter shall be referred to binding arbitration under Exhibit B.

The ratio between the Index for 4th quarter of the year immediately prior to any year in which an increase or decrease is to be made effective and the Index for 4th quarter of 2009 shall be developed, and the Per Car Rate shall be increased or decreased in direct proportion to such ratio thus yielding the new effective Per Car Rate. When the RCAF-U 4th quarter index is restated to 1.00, then the current Per Car Rate will become a new base and the 4th quarter restated to 1.000 will be the new base year replacing 2009. Provided, however, under no circumstances shall the Per Car Rate ever be less than the initial amount of $0.62 per car.

Additionally, in calculating adjustments, (i) all published values will be rounded to a thousandth of an index point; (ii) all percent change calculations will be rounded to a tenth of a percent; and (iii) the Per Car Rate will be rounded to the nearest whole cent. The Parties agree that the rounding rule used will be that any fraction less than one-half will be dropped, while any fraction equal to or greater than one-half will be rounded up to the next higher value.

In the event the AAR (or any successor organization) ceases to publish the Index, the Parties shall determine a substitute index. The substitute index shall be the index that most closely matches the Index. The substitute index shall be used for the remainder of the term of the Original Agreement. If the Parties cannot agree on a substitute index within ninety (90) days after the cancellation of the Index, either Party may submit the matter to be determined by binding arbitration.

All rates/charges/fees will be adjusted up or down depending on the Index, but under no circumstances shall the Per Car Rate ever decrease below the base rate(s) published herein through application of the adjustment formula provided herein. In no event shall any adjusted rate be less than the base rate set forth in this Agreement.

(d) UP shall furnish BNSF, at the end of each month, a statement of the number of cars operated over the Joint Trackage during the month.

Section 5. Additions

(a) Expenditures for any future Changes in and/or Additions to the Joint Trackage, such as, but not limited to, sidings, Centralized Traffic Control, grade separations, and future connections, shall be handled as follows: The cost of such Changes in and/or Additions to the Joint Trackage made in the first twelve (12) months after UP begins permanent operations on the Joint Trackage shall be shared by BNSF and UP based on the projected proportion of UP's number of Car Miles moved over the Joint Trackage to the total number of Car Miles moved over the Joint Trackage in

the first twelve (12) months of usage, adjusted for actual number of Car Miles moved over the Joint Trackage at the end of the twelve (12)-month period. Any Changes in and/or Additions to the Joint Trackage subsequent to the first twelve (12) months of permanent UP operations shall be shared by BNSF and UP on the basis that the parties' respective number of Car Miles operated over the Joint Trackage bear to total number of Car Miles operated over the Joint Trackage for the twelve (12) month period immediately prior to the month work on the project is commenced. The use of Joint Trackage by any third party shall be attributed to BNSF for purposes of computing respective Car Miles for purposes of this Section 5.

(b) If UP terminates this Agreement at any time as provided for in Section 9.1 of the General Conditions, UP will not be entitled to any refund of any amount paid by it for Changes in and/or Additions to the Joint Trackage.

Section 6. Effective Date, Term and Termination:

Subject to and conditioned upon approval of the U.S. Department of Transportation Surface Transportation Board ("STB"), this Agreement shall be effective as of the date STB approval is effective ("Effective Date"), and shall remain in effect for the Term stated in the General Conditions. Liabilities created under this Agreement shall survive any such termination.

Section 7. Notices:

All notices, demands, requests, submissions and other communications which are required or permitted to be given pursuant to this Agreement shall be given by either party to the other in writing and shall be deemed properly served if delivered by hand, or mailed by overnight courier or by registered or certified mail, return receipt requested, with postage prepaid, to such other party at the address listed below:

If intended for UP:

Executive Vice President-Operations
Mail Stop 1180
1400 Douglas Street
Omaha, Nebraska 68179

With a copy to:

General Manager Joint Facilities
Mail Stop 1180
1400 Douglas Street
Omaha, Nebraska 68179

If intended for BNSF:

Sr. Vice President-Operations
2600 Lou Menk Drive
P.O. Box 961034
Fort Worth, Texas 76161-0034

With a copy to:

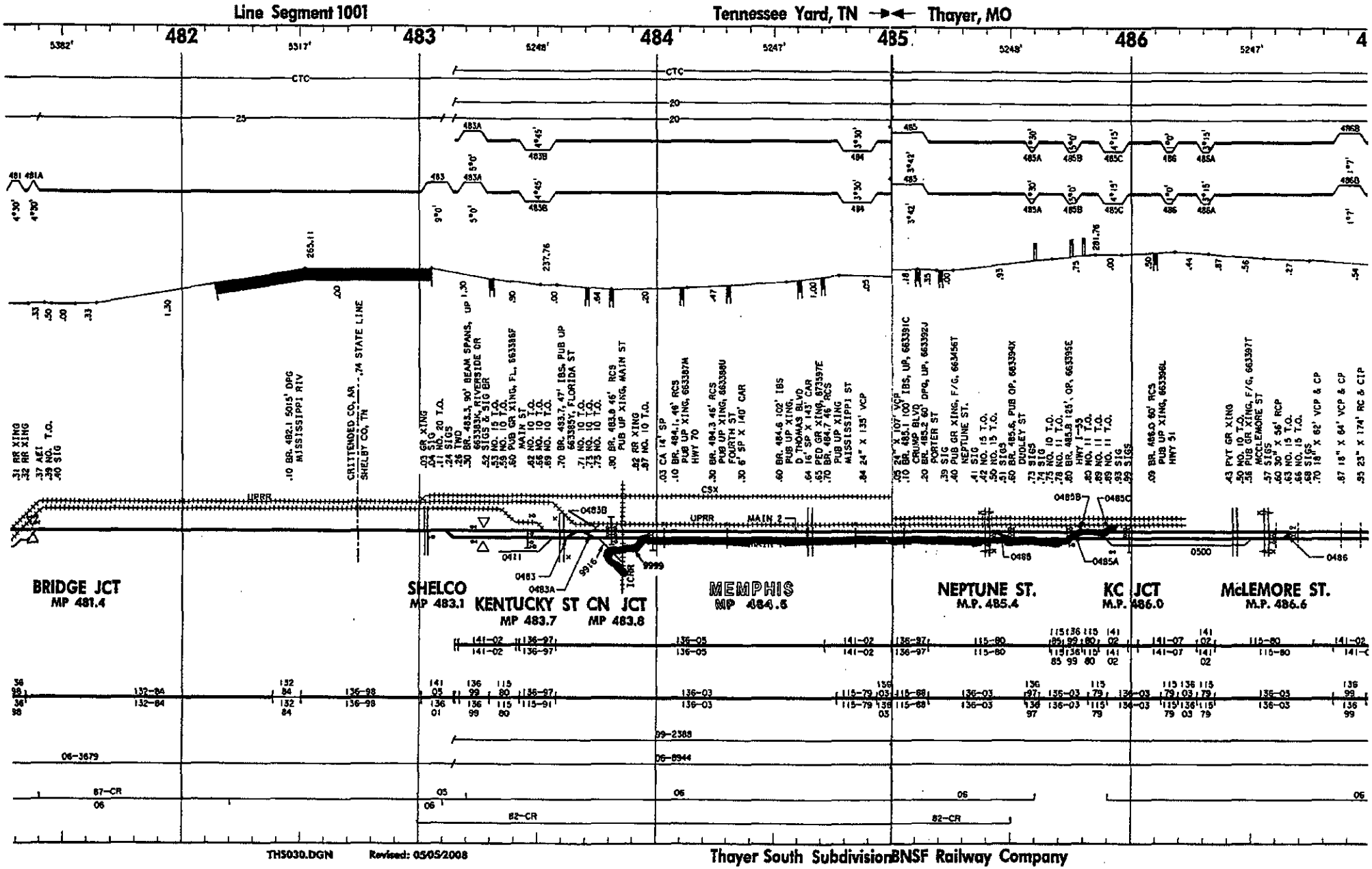
AVP Contracts and Joint Facilities
2600 Lou Menk Drive
P.O. Box 961034
Fort Worth, Texas 76161-0034

Notice of address change may be given any time pursuant to the provisions of this Section 7.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

UNION PACIFIC RAILROAD COMPANY	**BNSF RAILWAY COMPANY**
By:	By:
Printed: John H. Rebensdorf	Printed: JEFFREY B. WRIGHT
Its: Vice President Network Plng & Ops.	Its: Central Region Vice President

Exhibit "A"



= Joint Trackage

EXHIBIT "B"

GENERAL CONDITIONS

TRACKAGE RIGHTS AGREEMENT

BETWEEN KENTUCKY STREET AND KC JUNCTION

Section 1. DEFINITIONS

1.1 "Agreement" shall mean that certain agreement dated December 16, 2009, to which this Exhibit "B" is appended.

1.2 "Annual" shall mean a calendar year.

1.3 "Car" shall mean one (1) rail car; however, in the case of an articulated rail car the number of cars shall be determined by the AAR Car Type Code as defined in the UMLER Specification Manual. The second character in the Car Type Code field covering codes "Q" and "S" will be the factor in determining the car count for an articulated unit. For example, AAR Car Type Code (S566) would equate to a five (5) car count as these type cars have five wells capable of handling 40' to 48' containers in each well. (Car count data for articulated units are subject to change upon development of technology to separate units by car numbers.) Notwithstanding the above, it is the intent of the Parties that each well or platform of an articulated unit be counted as a car. Each locomotive shall be counted as two (2) cars.

1.4 "Changes in and/or Additions to" shall mean work projects and retirements, the cost of which is chargeable in whole or in part to Property Accounts during the term of this Agreement.

1.5 "Equipment" shall mean trains, locomotives, rail cars (loaded or empty), intermodal units (loaded or empty), cabooses, vehicles, and machinery which are capable of being operated on railroad tracks or on right-of-way for purpose of the maintenance or repair of such railroad tracks.

1.6 "GTM" shall mean gross ton mile which is the weight in tons for Equipment and lading transported over one (1) mile of track included in the Joint Trackage.

1.7 "GTM Handled Proportion" shall mean the GTMs handled over the Joint Trackage by or for a party divided by the total number of GTMs handled by or for all parties using the Joint Trackage, during the same period. For the purpose of computing such GTM's Handled Proportion, Equipment engaged in work service pertaining to construction, maintenance or operation of the Joint Trackage or Changes in and/or Additions to the Joint Trackage shall not be counted and GTMs of third parties shall be attributed to the Owner.

1.8 "Joint Trackage" shall mean the track structure of Owner as described in the Agreement including necessary right-of-way and all appurtenances, signals, communications, and facilities of Owner and all Changes in and/or Additions to said track structure now or in the future located as are required or desirable for the operation of the Equipment of the parties hereto.

1.9 "Mill" shall mean one-tenth of a cent ($0.001 US).

1.10 "Owner" shall have the meaning given to it in the Agreement.

1.11 "Property Accounts" shall mean accounts so designated under the Uniform System of Accounts for Railroad Companies prescribed by the Interstate Commerce Commission, or any replacement of such system prescribed by the applicable federal regulatory agency, if any, and used by the parties hereto.

1.12 "STB" shall mean the Surface Transportation Board of the United States Department of Transportation or any successor agency.

1.13 "User" shall have the meaning given to it in the Agreement.

Section 2. MAINTENANCE, ADDITIONS, OPERATION, AND CONTROL

2.1 Owner shall have sole charge of the maintenance and repair of the Joint Trackage with its own supervisors, labor, materials and equipment. Owner, from time to time, may make such Changes in and/or Additions to the Joint Trackage as shall be required by any law, rule, regulation or ordinance promulgated by any government body having jurisdiction, or as Owner, in its sole discretion, shall deem necessary, subject to Section 2.2. Such Changes in and/or Additions to the Joint Trackage shall become a part of the Joint Trackage or in the case of retirements shall be excluded from the Joint Trackage.

2.2 Unless otherwise mutually agreed to by the parties in writing, Owner shall, (i) keep and maintain the Joint Trackage on a consistent basis at no less than the track standard designated in the timetable in effect on the date of the Agreement, including special instructions for the Joint Trackage as of the date of the Agreement, (ii) maintain at least the physical capacity of the Joint Trackage as of the date of the Agreement (i.e., number of main tracks, support tracks, signal systems, rail weight, line clearances, etc.), and (iii) be responsible for any Changes in and/or Additions to the Joint Trackage as shall be necessary to accommodate the traffic of Owner and User while maintaining existing service standards (including transit times) in effect on the date of the Agreement. In the event that User desires that the Joint Trackage be improved to a condition in excess of the standard set forth in this Section 2.2, or desires that other Changes in and/or Additions to be made to the Joint Trackage, Owner agrees to make such Changes in and/or Additions to the Joint Trackage if funded in advance by User. Thereafter, such Changes in and/or Additions to the Joint Trackage shall become part of the Joint Trackage and shall be maintained by Owner in such improved condition.

2.3 Owner shall employ all persons necessary to construct, operate, maintain, repair and renew the Joint Trackage. Owner shall be bound to use reasonable and customary care, skill and diligence in the construction, operation, maintenance, repair and renewal of the Joint Trackage and in managing of the same. Owner shall make its best effort to ensure that User is given the same advance notice of maintenance plans and schedules as is provided to Owner's personnel.

2.4 The trackage rights granted hereunder shall give User access to and joint use of the Joint Trackage equal to that of Owner. The management, operation (including dispatching) and maintenance of the Joint Trackage shall, at all times, be under the exclusive direction and control of Owner, the movement of Equipment over and along the Joint Trackage shall at all times be subject to the exclusive direction and control of Owner's authorized representatives and in accordance with such reasonable operating rules as Owner shall from time to time institute, but in the management, operation (including dispatching) and maintenance of the Joint Trackage, Owner and User shall be treated equally. All operating, dispatching and maintenance decisions by Owner affecting the movement of Equipment on the Joint Trackage shall be made pursuant to the BNSF-UP/SP Dispatching Protocols attached hereto as Attachment 1. User shall, at User's sole cost and expense, obtain, install and maintain necessary communication equipment to allow User's Equipment to communicate with Owner's dispatching and signaling facilities the same as Owner's trains so utilize. Owner shall consult with User prior to the adoption of new communication or signaling systems to be employed on the Joint Trackage, which have not theretofore been generally adopted in the railroad industry.

2.5 A Joint Service Committee ("Committee"), comprised of the chief transportation officers of Owner and User (or their designees) has been established, and is responsible for establishing rules or standards as appropriate to ensure equitable and non-discriminatory treatment, appropriate maintenance and efficient joint use of the Joint Trackage. The Committee shall meet when any party serves upon the other party thirty (30) days' written notice of its desire to meet to review the overall performance of Equipment on the Joint Trackage, conflicts, if any, experienced between Equipment of Owner and Equipment of User, grievances over the handling of particular Equipment or operational events, maintenance of the Joint Trackage, ways in which future conflicts may be minimized, ways of improving operations and maintenance of the Joint Trackage and such other relevant matters as the Committee may decide to consider. The Committee may issue standards or rules to prevent unnecessary interference or impairment of use of the Joint Trackage by either party or otherwise ensure fair and equal treatment as between Owner and User. Either party may request a special meeting of the Committee on reasonable notice to the other. Informal telephonic conferences shall be held by the Committee where appropriate to address immediate concerns of either party. It is expected that the work on the Committee shall be undertaken in a spirit of mutual cooperation consistent with the principles expressed in the Agreement.

2.6 If the use of the Joint Trackage shall at any time be interrupted or traffic thereon or thereover be delayed for any cause, neither party shall have or make any claim against the other for loss, damage or expense caused by or resulting solely from such interruption or delay.

2.7 Owner may from time to time provide any track or tracks on the Joint Trackage other than those delineated in Exhibit A to the Agreement for use by User provided there shall at all times be afforded User a continuous route of equal utility for the operations of its Equipment between the termini of the Joint Trackage. When such tracks which are not part of the Joint Trackage are used as provided herein, the Agreement shall govern for purposes of direction and control and liability as if all movement had been made over the Joint Trackage.

2.8 Each party shall be responsible for furnishing, at its sole cost and expense, all labor, fuel, train supplies and other supplies necessary for the operation of its own Equipment over the Joint Trackage. In the event a party does furnish such labor, fuel or train and other supplies to another party, the party receiving the same shall promptly, upon receipt of billing therefor, reimburse the party furnishing the same for its reasonable costs thereof, including customary additives.

2.9 User shall be responsible for the reporting and payment of any mileage, per diem, use or rental charges accruing on Equipment in User's account on the Joint Trackage. Except as may be specifically provided for in this Agreement, nothing herein contained is intended to change practices with respect to interchange of traffic between the parties or with other carriers on or along the Joint Trackage.

2.10 Except as otherwise may be provided in the Agreement, User shall operate its Equipment over the Joint Trackage with its own employees, but before said employees are assigned or permitted to operate Equipment over the Joint Trackage as herein provided, and from time to time thereafter as and when reasonably requested by Owner, they shall be required to pass the applicable rules examinations required by Owner of its own employees. Owner shall delegate to specified User's officers the conduct of such examinations in the event User chooses to conduct such examinations. If an Owner officer conducts such examinations of employees of User, User shall pay Owner a reasonable fee for each employee so examined, such fee to be mutually agreed upon by the parties from time to time in a separate agreement. Notwithstanding any such examination, User shall be responsible for ensuring that its employees are qualified and have taken all such rules examinations. Upon request of User, Owner shall qualify one or more of User's supervisory officers as pilots and such supervisory officer or officers so qualified shall qualify employees of User engaged in or connected with User's operations on or along the Joint Trackage. At User's request, Owner shall furnish a pilot or pilots, at the expense of User, to assist in operating trains of User over the Joint Trackage. Should Owner ever require a pilot on User's Equipment after the initial start-up period on a frequent basis, that matter shall be referred to the Committee for resolution.

2.11 If any employee of User shall neglect, refuse or fail to abide by Owner's rules, instructions and restrictions governing the operation on or along the Joint Trackage, such employee shall, upon written request of Owner, be prohibited by User from working on the Joint Trackage. If either party shall deem it necessary to hold a formal investigation to establish such neglect, refusal or failure on the part of any employee of User, then upon such notice presented in writing, Owner and User shall promptly hold a joint investigation in which the parties concerned shall participate and

bear the expense for their respective officers, counsel, witnesses and employees. Notice of such investigations to User's employees shall be given by User's officers, and such investigation shall be conducted in accordance with the terms and conditions of schedule agreements between User and its employees. If, in the judgment of Owner, the result of such investigation warrants, such employee shall, upon written request by Owner, be withdrawn by User from service on the Joint Trackage, and User shall release and indemnify Owner from and against any and all claims and expenses arising from such withdrawal.

If the disciplinary action is appealed by an employee of User to the National Railroad Adjustment Board or other tribunal lawfully created to adjudicate such cases, and if the decision of such board or tribunal sustains the employee's position, such employee shall not thereafter be barred from service on the Joint Trackage by reason of such disciplinary action.

2.12 If any Equipment of User is bad ordered enroute on the Joint Trackage and (i) it is necessary that it be set out, and (ii) only light repairs to the Equipment are required, such bad ordered Equipment shall be promptly repaired, and, thereafter, be promptly removed from the Joint Trackage by User. Owner may, upon request of User and at User's sole cost and expense, furnish the required labor and material and perform light repairs to make such bad ordered Equipment safe for movement. The employees and Equipment of Owner while in any manner so engaged or while enroute to or returning to Owner's terminal from such an assignment shall be considered Sole Employees (as hereinafter defined) of User and Sole Property (as hereinafter defined) of User. However, should Owner's employees after repairing such bad ordered Equipment for User move directly to perform service for Owner's benefit rather than return to Owner's terminal, then User's exclusive time and liability will end when Owner's employees depart for work to be performed for Owner's benefit. In the case of such repairs by Owner to freight cars in User's account, billing therefor shall be in accordance with the Field and Office Manuals of the Interchange Rules, adopted by the Association of American Railroads ("AAR"), hereinafter called "Interchange Rules", in effect on the date of performance of the repairs. Owner shall then prepare and submit billing directly to and collect from the car owner for car owner responsibility items as determined under said Interchange Rules, and Owner shall prepare and submit billing directly to and collect from User for handling line responsibility items as determined under said Interchange Rules. Owner also shall submit billing to and collect from User any charges for repair to freight cars that are User's car owner responsibility items as determined under said Interchange Rules, should said car owner refuse or otherwise fail to make payment therefor. Repairs to locomotives shall be billed as provided for in Section 3 of these General Conditions.

2.13 If Equipment of User shall become derailed, wrecked, or otherwise disabled while upon the Joint Trackage, it shall be re-railed or cleared by Owner, except that employees of User may re-rail User's derailed Equipment on the Joint Trackage whenever use of motorized on or off track equipment is not required; however, in any such case, employees of User shall consult with and be governed by the directions of Owner. Owner reserves the right to re-rail Equipment of User when, in the judgment of Owner, Owner deems it advisable to do so to minimize delays and interruptions to train movement. The reasonable costs and expenses of rerailing or clearing derailed, wrecked or

disabled Equipment shall be borne by the parties in accordance with Section 5 of these General Conditions. Services provided under this section shall be billed in accordance with Section 3 of these General Conditions.

2.14 In the event Equipment of User shall be forced to stop on the Joint Trackage, and such stoppage is due to insufficient hours of service remaining among User's employees, or due to mechanical failure of User's Equipment (other than bad ordered Equipment subject to light repairs pursuant to Section 2.12), or to any other cause not resulting from an accident or derailment (including the failure of User to promptly repair and clear bad ordered Equipment pursuant to Section 2.12), and such Equipment is unable to proceed, or if a train of User fails to maintain the speed required by Owner on the Joint Trackage, or if, in emergencies, disabled Equipment is set out of User's trains on the Joint Trackage, Owner shall have the option to furnish motive power or such other assistance (including but not limited to the right to re-crew User's train) as may be necessary to haul, help or push such Equipment, or to properly move the disabled Equipment off the Joint Trackage. The reasonable costs and expenses of rendering such assistance shall be borne by User. Services provided under this section shall be billed in accordance with Section 3 of these General Conditions.

2.15 User shall pay to Owner reasonable expenses incurred by Owner in the issuance of timetables made necessary solely by changes in the running time of the trains of User over the Joint Trackage. If changes in running time of trains of Owner or third parties, as well as those of User, require the issuance of timetables, then User shall pay to Owner that proportion of the expenses incurred that one bears to the total number of parties changing the running time of their trains. If changes in running time of trains of Owner or third parties, but not those of User, require the issuance of timetables, then User shall not be required to pay a proportion of the expenses incurred in connection therewith.

2.16 User, at Owner's request, shall be responsible for reporting to Owner the statistical data called for in the Agreement, which may include, but is not limited to, the number and type of Equipment and GTMs operated on the Joint Trackage.

Section 3. BILLING

3.1 Billing shall be accomplished on the basis of data contained in a billing form mutually agreed to between the parties. Such billing forms shall contain sufficient detail to permit computation of payments to be made hereunder. Billing shall be prepared according to the rules, additives, and equipment rental rates as published by the Owner. User shall pay to Owner at the Office of the Treasurer of Owner, or at such other location as Owner may from time to time designate in writing, all the compensation and charges of every name and nature which in and by the Agreement User is required to pay in lawful money of the United States within sixty (60) days after the rendition of bills therefor. Bills shall contain a statement of the amount due on account of the expenses incurred, properties and facilities provided and services rendered during the billing period.

3.2 Errors or disputed items in any bill shall not be deemed a valid excuse for delaying payment, but shall be paid subject to subsequent adjustment; provided, no exception to any bill shall be honored, recognized or considered if filed after the expiration of three (3) years from the last day of the calendar month during which the bill is rendered and no bill shall be rendered later than three (3) years (i) after the last day of the calendar month in which the expense covered thereby is incurred, or (ii) in the case of claims disputed as to amount or liability, after the amount is settled and/or the liability is established. This provision shall not limit the retroactive adjustment of billing made pursuant to exception taken to original accounting by or under authority of the STB or retroactive adjustment of wage rates and settlement of wage claims.

3.3 So much of the books, accounts and records of each party hereto as are related to the subject matter of this Agreement shall at all reasonable times be open to inspection by the authorized representatives and agents of the parties hereto. All books, accounts, and records shall be maintained to furnish readily full information for each item in accordance with any applicable laws or regulations.

3.4 Should any payment become payable by Owner to User under the Agreement, the provisions of Sections 3.1 and 3.2 of these General Conditions shall apply with User as the billing party and Owner as the paying party.

3.5 Either party hereto may assign any receivables due it under this Agreement; provided, however, that such assignments shall not relieve the assignor of any rights or obligations under the Agreement.

Section 4. COMPLIANCE WITH LAWS

4.1 With respect to operation of Equipment on the Joint Trackage, each party shall comply with all applicable federal, state and local laws, rules, regulations, orders, decisions and ordinances ("Standards"), and if any failure on the part of any party to so comply shall result in a fine, penalty, cost or charge being imposed or assessed on or against another party, such other party shall give prompt notice to the failing party and the failing party shall promptly reimburse and indemnify the other party for such fine, penalty, cost or charge and all expenses and reasonable attorneys' fees incurred in connection therewith, and shall upon request of the other party defend such action free of cost, charge and expense to the other party.

4.2 User agrees to comply fully with all applicable Standards concerning "hazardous waste" and "hazardous substances" ("Hazardous Materials"). User covenants that it shall not treat or dispose of Hazardous Materials on the Joint Trackage. User further agrees to furnish Owner (if requested) with proof, satisfactory to Owner, that User is in such compliance.

In the event any accident, bad ordered Equipment, derailment, vandalism or wreck (for purposes of this Section 4.2 and 4.3 hereinafter called collectively "Derailment") involving Equipment of or a train operated by User carrying Hazardous Materials shall occur on any segment

of the Joint Trackage, any report required by federal, state or local authorities shall be the responsibility of User. User shall also advise the owner/shipper of the Hazardous Materials involved in the Derailment, and Owner, immediately.

In the event of a Derailment, Owner shall assume responsibility for cleaning up any release of Hazardous Materials from User's Equipment in accordance with all federal, state, or local regulatory requirements. User may have representatives at the scene of the Derailment to observe and provide information and recommendations concerning the characteristics of Hazardous Materials release and the cleanup effort. Such costs shall be borne in accordance with Section 5 of these General Conditions.

If a Hazardous Materials release caused by a derailment involving Equipment of User, or on a train operated by User, results in contamination of real property or water on the Joint Trackage or on real property or water adjacent to the Joint Trackage (whether such real property or water is owned by Owner or a third party), Owner shall assume responsibility for emergency cleanup conducted to prevent further damage. User shall be responsible for performing cleanup efforts thereafter. Any costs associated with cleaning up real property or water on or adjacent to the Joint Trackage contaminated by Hazardous Materials shall be borne in accordance with Section 5 of these General Conditions.

If Hazardous Materials must be transferred to undamaged Equipment or trucks as a result of a release caused by a derailment involving Equipment of User, or on a train operated by User, User shall perform the transfer; PROVIDED, HOWEVER, that if the Hazardous Materials are in damaged Equipment that is blocking the Joint Trackage, Owner, at its option, may transfer the Hazardous Materials with any costs associated with such transfer borne in accordance with Section 5 of these General Conditions. Transfers of Hazardous Materials by User shall only be conducted after being authorized by Owner.

4.3 The total cost of clearing a Derailment, cleaning up any Hazardous Materials released during such Derailment, and/or repairing the Joint Trackage or any other property damaged thereby shall be borne by the party or parties liable therefor in accordance with Section 5 of these General Conditions.

4.4 In the event of release of Hazardous Materials caused by faulty Equipment or third parties, cleanup will be conducted as stated in Sections 4.2 and 4.3 of these General Conditions.

Section 5. LIABILITY

5.1 General. The provisions of this Section 5 shall apply only as between the parties hereto and are solely for their benefit. Nothing herein is intended to be for the benefit of any person or entity other than the parties hereto. It is the explicit intention of the parties hereto that no person or entity other than the parties hereto is or shall be entitled to bring any action to enforce any provision hereof against any of the parties hereto, and the assumptions, indemnities, covenants,

undertakings and agreements set forth herein shall be solely for the benefit of, and shall be enforceable only by, the parties hereto. Notwithstanding anything contained in this Section 5, no provisions hereof shall be deemed to deprive Owner or User of the right to enforce or shall otherwise restrict any remedies to which they would otherwise be entitled under other provisions of this Agreement as a result of the other party's failure to perform or observe any other obligation or duty created by this Agreement. The provisions of this Section 5 shall apply as between the parties hereto irrespective of the terms of any other agreements between the parties hereto and other railroads using the Joint Trackage, and the allocation of liabilities provided for herein shall control as between the parties hereto.

5.2 Definitions and Covenants. The parties agree that for the purposes of this Section 5:

(a) The term "Employee(s)" of a party shall mean all officers, agents, employees and contractors of that party. Such Employees shall be treated either as "Sole Employees" or "Joint Employees", as hereinafter specified;

(b) "Sole Employees" and "Sole Property" shall mean one or more Employees, Equipment, tools and other equipment and machinery while engaged in, en route to or from, or otherwise on duty incident to performing service for the exclusive benefit of one party. Pilots furnished by Owner to assist in operating Equipment of User shall be considered the Sole Employees of User while engaged in such operations. Equipment shall be deemed to be the Sole Property of the party receiving the same at such time as deemed interchanged under AAR rules or applicable interchange agreements, or when such party is responsible for the car hire or per diem for the Equipment under agreement between the parties;

(c) "Joint Employee" shall mean one or more Employees while engaged in maintaining, repairing, constructing, renewing, removing, inspecting or managing the Joint Trackage or making Changes in and/or Additions to the Joint Trackage for the benefit of both of the parties hereto, or while preparing to engage in, en route to or from, or otherwise on duty incident to performing such service for the benefit of both parties;

(d) "Joint Property" shall mean the Joint Trackage and all appurtenances thereto, and all Equipment, tools and other equipment and machinery while engaged in maintaining, repairing, constructing, renewing, removing, inspecting, managing or making Changes in and/or Additions to the Joint Trackage for the benefit of both of the parties hereto, or while being prepared to engage in, en route to or from, or otherwise incident to performing such service;

(e) "Loss and/or Damage" shall mean injury to or death of any person, including Employees of the parties hereto, and loss or damage to any property, including property of the parties hereto and property being transported by the parties, which arises out of an incident occurring on, the Joint Trackage and shall include liability

for any and all claims, suits, demands, judgments and damages resulting from or arising out of such injury, death, loss or damage, except liability for punitive and exemplary damages. Loss and/or Damage shall include all costs and expenses incidental to any claims, suits, demands and judgments, including attorneys' fees, court costs and other costs of investigation and litigation. Loss and/or Damage shall further include the expense of clearing wrecked or derailed Equipment and the costs of environmental protection, mitigation or clean up necessitated by such wreck or derailment and shall include any liabilities for any third-party claims for personal injury or death, property damage, natural resource damage, or any penalties, judgments or fines associated with a release of any contaminants resulting from such wreck or derailment. Loss and/or Damage shall be reduced by any amount recovered from third parties;

(f) Operating Employees of Owner whose service may be jointly used by the parties hereto for the movement of trains over the Joint Trackage, including, but not limited to, train dispatchers, train order operators, operator clerks and watchmen shall at the time of performing their services be deemed to be Sole Employees of the party hereto for whose benefit said services may be separately rendered (during the time they are so separately rendered) and be deemed to be Joint Employees of the parties hereto at such time as their services may be rendered for the parties' joint benefit;

(g) All Employees, Equipment, tools and other equipment and machinery other than as described in (b), (c), (d) or (f) above or in Section 5.4. shall be deemed the Sole Employees of the employing party and the Sole Property of the using party;

(h) Any railroad not a party to this Agreement heretofore or hereafter admitted to the use of any portion of the Joint Trackage, shall, as between the parties hereto, be regarded in the same light as a third party. Without limiting the generality of the foregoing, neither of the parties hereto assumes any responsibility to the other under the provisions of this Agreement for any Loss and/or Damage occasioned by the acts or omissions of any employees of any such other railroad, or for any Loss and/or Damage which such other railroad shall be obligated to assume in whole or in part pursuant to law or any agreement relating to such other railroad's use of any portion of the Joint Trackage;

(i) For the purpose of this Section 5, Equipment of foreign lines being detoured over the Joint Trackage, and all persons other than Joint Employees engaged in moving such Equipment, shall be considered the Equipment and Employees of the party hereto under whose detour agreement or other auspices such movement is being made.

5.3 Reimbursement and Defense. The parties agree that:

(a) Each party hereto shall pay promptly Loss and/or Damage for which such party shall be liable under the provisions of this Section 5, and shall indemnify the other party against such Loss and/or Damage, including reasonable attorneys' fees and costs. If any suit or suits shall be brought against either of the parties hereto and any judgment or judgment shall be recovered which said party is compelled to pay, and the other party shall under the provisions of the Agreement be solely liable therefor, then the party which is so liable shall promptly repay on demand to the other party paying the same any monies which it may have been required to pay, whether in the way of Loss and/or Damage, costs, fees or other expenses; and if the Loss and/or Damage in such case or cases is joint or allocated between the parties to the Agreement, the party defendant paying the same or any costs, fees or other expenses shall be reimbursed by the other party as allocated pursuant to this Agreement;

(b) Each party covenants and agrees with the other party that it will pay for all Loss and/or Damage, both as to persons and property, and related costs which it has herein assumed, or agreed to pay, the judgment of any court in a suit by third party or parties to the contrary notwithstanding, and will forever indemnify and save harmless the other party, its successors and assigns, from and against all liability and claims therefor, or by reason thereof, and will pay, satisfy and discharge all judgments that may be rendered by reason thereof, and all costs, charges and expenses incident thereto;

(c) Each party hereto shall have the sole right to settle, or cause to be settled for it, all claims for Loss and/or Damage for which such party shall be solely liable under the provisions of this Section 5, and the sole right to defend or cause to be defended all suits for the recovery of any such Loss and/or Damage for which such party shall be solely liable under the provisions of this Section 5;

(d) User shall provide written notice to Owner of any accidents or events resulting in Loss and/or Damage within seven (7) days of its discovery or receipt of notification of such occurrence;

(e) In the event both parties hereto may be liable for any Loss and/or Damage under the provisions of this Section 5 ("Co-Liable"), and the same shall be settled by a voluntary payment of money or other valuable consideration by one of the parties Co-Liable therefor, release from liability shall be taken to and in the name of all the parties so liable; however, no such settlement in excess of the sum of One Hundred Thousand Dollars ($100,000) shall be made by or for any party Co-Liable therefor without the written consent of the other parties so liable, but any settlement made by any party in consideration of One Hundred Thousand Dollars ($100,000) or a lesser sum shall be binding upon the other parties and allocated in accordance with Section 5.5; and no party shall unreasonably withhold its consent to a settlement proposed by the other party; provided, however, that failure by a party to secure consent from the

other shall not release such other party to the extent the party who failed to obtain such consent demonstrates that the other party was not prejudiced by such failure.

(f) In case a claim or suit shall be commenced against any party hereto for or on account of Loss and/or Damage for which another party hereto is or may be solely liable or Co-Liable under the provisions of this Section 5, the party against whom such claim or suit is commenced shall give to such other party prompt notice in writing of the pendency of such claim or suit, and thereupon such other party shall assume or join in the defense of such claim or suit as follows: If the claim or suit involves Loss and/or Damage to the Sole Employees or Sole Property of a party or its invitee or property in its care, custody or control, that party shall assume and control the investigation and defense of such claim or suit; if the claim or suit involves Loss and/or Damage to third parties, Joint Employees or the Joint Trackage, the party whose Sole Employees or Equipment were involved in the incident shall investigate and defend such claim or suit; and if such claim or suit involves Loss and/or Damage to third parties, Joint Employees or the Joint Trackage and neither or both party's Equipment and Sole Employees were involved in the incident, Owner shall investigate and defend such claim or suit; provided that the other party also may participate in the defense of any of the foregoing if it may have liability as a result of such incident;

(g) No party hereto shall be conclusively bound by any judgments against the other party, unless the former party shall have had reasonable notice requiring or permitting it to investigate and defend and reasonable opportunity to make such defense. When such notice and opportunity shall have been given, the party so notified and the other party shall be conclusively bound by the judgment as to all matters which could have been litigated in such suit, including without limitation a determination of the relative or comparative fault of each.

5.4 Wrecks and Derailment. The cost and expense of repairing bad ordered Equipment, clearing wrecks or otherwise disabled Equipment or rerailing Equipment (and the costs of repair or renewal of damaged Joint Trackage or adjacent properties) shall be borne by the party whose Equipment was wrecked, disabled, or derailed or caused such damage. All Employees or Equipment, while engaged in, en route to or from, or otherwise incident to operating wrecker or work trains clearing wrecks, disabled Equipment or Derailments or engaged in repair or renewal of the Joint Trackage subsequent to any such wreck, disability or Derailment, shall be deemed to be Sole Employees and/or Sole Property of the party whose Equipment was wrecked, disabled or derailed. However, such Employees or Equipment, while en route from performing such clearing of wrecks, disabled Equipment or Derailments or repairing or renewing the Joint Trackage to perform another type of service, shall not be deemed to be performing service incident to the instant wreck, disability or Derailment.

5.5 Allocation.

(a) Each party shall bear all costs of Loss and/or Damage to its Sole Employees or its Sole Property, or property in its care, custody or control or its invitees without regard to which party was at fault.

(b) Loss and/or Damage to third parties (i.e., any person or entity other than a party hereto, a Sole Employee of either party, a Joint Employee or an invitee of either party) or their property, to Joint Employees or their property or to Joint Property shall be borne by the parties hereto as follows:

(I) If the Loss and/or Damage is attributable to the acts or omissions of only one party hereto, that party shall bear and pay all of such Loss and/or Damage.

(ii) If such Loss and/or Damage is attributable to the acts or omissions of more than one party hereto, such Loss and/or Damage shall be borne and paid by those parties in accordance with a comparative negligence standard, whereby each such party shall bear and pay a portion of the Loss and/or Damage equal to the degree of causative fault or percentage of responsibility for the Loss and/or Damage attributable to that party without regard to laws limiting recovery if one party is more than fifty percent (50%) at fault.

(iii) Loss and/or Damage to third parties or Joint Employees occurring in such a way that it cannot be determined how such Loss and/or Damage came about shall be apportioned equally between the parties, provided that, without limitation, User shall not bear or incur any liability for claims, suits, demands, judgments, losses or damages resulting from environmental contamination of or hazardous material on or released from the Joint Trackage, except contamination or a release of hazardous materials from User's own Equipment or caused by or arising from the actions or omissions of User or User's Employees, and then only in accordance with the other provisions hereof.

(c) The parties agree that the characterization herein of certain Employees as "Sole Employees" or "Joint Employees" is only for the purpose of allocating Loss and/or Damage suffered by those Employees. Except as specified in subsection (a) of this Section 5.5. (which provides for the allocation of certain Loss and/or Damage between the parties without regard to fault), no party shall be liable for the acts or omissions (negligent or otherwise) of any other party's Employee.

5.6 OWNER AND USER EXPRESSLY INTEND THAT WHERE ONE PARTY IS TO INDEMNIFY THE OTHER PURSUANT TO THE TERMS OF THIS AGREEMENT, SUCH INDEMNITY SHALL INCLUDE (1) INDEMNITY FOR THE NEGLIGENCE OR ALLEGED NEGLIGENCE, WHETHER ACTIVE OR PASSIVE, OF THE INDEMNIFIED PARTY WHERE THAT NEGLIGENCE IS A CAUSE OF THE LOSS OR DAMAGE; (2) INDEMNITY FOR STRICT LIABILITY OF THE INDEMNIFIED PARTY RESULTING FROM A VIOLATION OR

ALLEGED VIOLATION OF ANY FEDERAL, STATE OR LOCAL LAW OR REGULATION BY THE INDEMNIFIED PARTY, INCLUDING BUT NOT LIMITED TO THE FEDERAL EMPLOYERS LIABILITY ACT ("FELA"), THE SAFETY APPLIANCE ACT, THE LOCOMOTIVE INSPECTION ACT, THE OCCUPATIONAL SAFETY AND HEALTH ACT ("OSHA"), THE RESOURCE CONSERVATION AND RECOVERY ACT ("RCRA"), THE COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT ("CERCLA"), THE CLEAN WATER ACT ("CWA"), THE OIL POLLUTION ACT ("OPA"), AND ANY SIMILAR STATE STATUTE IMPOSING OR IMPLEMENTING SIMILAR STANDARDS; AND (3) INDEMNITY FOR ACTS OR ALLEGED ACTS OF GROSS NEGLIGENCE OF THE INDEMNIFIED PARTY, OR OTHER CONDUCT ON THE PART OF THE INDEMNIFIED PARTY FOR WHICH PUNITIVE DAMAGES MIGHT BE SOUGHT.

5.7 Notwithstanding any provision to the contrary in this Agreement, liability and indemnity for Loss and/or Damage to Joint Employees shall be governed by the terms of Section 1 of that certain letter agreement between Owner and User, dated January 24, 2003 (the "Letter Agreement") for so long as the Letter Agreement remains in effect. Accordingly, for purposes of the application of Section 1 of the Letter Agreement, this Agreement shall be deemed to be an agreement identified in Exhibit A of the Letter Agreement.

Section 6. ARBITRATION

6.1 If at any time a question or controversy shall arise between the parties hereto in connection with the Agreement upon which the parties cannot agree, such question or controversy shall be submitted to and settled by arbitration. Unless other procedures are agreed to by the parties, arbitration between the parties pursuant to this Section 6 shall be governed by the rules and procedures set forth in this Section 6. The parties acknowledge that other procedures have been agreed to for resolution of disputes concerning compliance with the BNSF-UP/SP Dispatching Protocols (attached hereto as Attachment 1) which procedures are set forth in Paragraph 13 thereof.

6.2 If the parties to the dispute are able to agree upon a single competent and disinterested arbitrator within twenty (20) days after written notice by one party of its desire for arbitration to the other party, then the question or controversy shall be submitted to and settled by that single arbitrator. Otherwise, any party (the notifying party) may notify the other party (the noticed party) in writing of its request for arbitration and nominating one arbitrator. Within twenty (20) days after receipt of said notice, the noticed party shall appoint an arbitrator and notify the notifying party in writing of such appointment. Should the noticed party fail within twenty (20) days after receipt of such notice to name its arbitrator, said arbitrator may be appointed by the Chief Judge (or acting Chief Judge) of the United States District Court for the District of Columbia upon application by either party after ten (10) days' written notice to the other party. The two arbitrators so chosen shall select one additional arbitrator to complete the board. If the arbitrators so chosen fail to agree upon an additional arbitrator, the same shall, upon application of a party, be appointed by said judge in the manner heretofore stated.

6.3 Upon selection of the arbitrator(s), said arbitrator(s) shall, with reasonable diligence, determine the questions as disclosed in said notice of arbitration, shall give both parties reasonable notice of the time and place (of which the arbitrator(s) shall be the judge) of hearing evidence and argument, may take such evidence as the arbitrator(s) shall deem reasonable or as either party may submit with witnesses required to be sworn, and hear arguments of counsel or others. If an arbitrator declines or fails to act, the party (or parties in the case of a single arbitrator) by whom the arbitrator was chosen or said judge shall appoint another to act in the arbitrator's place.

6.4 After considering all evidence, testimony and arguments, said single arbitrator or the majority of said board of arbitrators shall promptly state such decision or award and the reasoning for such decision or award in writing which shall be final, binding, and conclusive on all parties to the arbitration when delivered to them. The award rendered by the arbitrator(s) may be entered as a judgment in any court having jurisdiction thereof and enforced as between the parties without further evidentiary proceeding, the same as entered by the court at the conclusion of a judicial proceeding in which no appeal was taken. Until the arbitrator(s) shall issue the first decision or award upon any question submitted for arbitration, performance under the Agreement shall continue in the manner and form existing prior to the rise of such question. After delivery of said first decision or award, each party shall forthwith comply with said first decision or award immediately after receiving it.

6.5 Each party to the arbitration shall pay all compensation, costs, and expenses of the arbitrator appointed in its behalf and all fees and expenses of its own witnesses, exhibits, and counsel. The compensation, cost, and expenses of the single arbitrator or the additional arbitrator in the board of arbitrators shall be paid in equal shares by all parties to the arbitration.

6.6 The parties may obtain discovery and offer evidence in accordance with the Federal Rules of Civil Procedure Rules 26 - 37, and Federal Rules of Evidence, as each may be amended from time to time.

6.7 Interest computed annually, at a rate equal to the Prime Rate plus two (2) percentage points, shall be applied to any and all arbitrator's awards requiring the payment of money and shall be calculated from thirty (30) days following the date of the applicable arbitration decision. The term "Prime Rate" shall mean the minimum commercial lending rate charged by banks to their most credit-worthy customers for short-term loans, as published daily in the Wall Street Journal.

Section 7. GOVERNMENTAL APPROVAL and ABANDONMENT

7.1 Owner and User shall, at their respective cost and expense, initiate by appropriate application or petition and thereafter diligently prosecute proceedings for the procurement of all necessary consent, approval or authority from any governmental agency for the sanction of the Agreement and the operations to be carried on or conducted by User thereunder. User and Owner agree to cooperate fully to procure all such necessary consent, approval or authority.

7.2 In the event Owner shall be involuntarily dispossessed, including by threat of condemnation by competent public authority, of the right to operate upon and maintain any portion of its Joint Trackage and Owner fails or declines to replace said Joint Trackage, Owner shall have no obligation hereunder to provide tracks in replacement of such Joint Trackage for User's use, and User shall have and shall make no claim of any kind, legal or otherwise, against Owner for failure to provide such Joint Trackage for User's use.

7.3 To the extent that Owner may lawfully do so, Owner reserves to itself the exclusive right, exercisable at any time during the life of the Agreement without concurrence of User, to elect to abandon all or any part of the Joint Trackage by giving six (6) months' prior written notice to User of its intention so to do ("Notice of Abandonment").

Owner shall, concurrent with its Notice of Abandonment, if legally able to do so, give to User the option to purchase the part or parts of the Joint Trackage thereof to be abandoned, at the Net Liquidation Value thereof, on the date of said notice. "Net Liquidation Value" shall mean fair market value of land and salvage value of track components less the estimated cost of removal. User shall have three (3) months from the date of receipt of Owners notice to exercise its option and shall evidence the exercise of its option by giving owner written notice thereof. Thereafter User shall immediately make appropriate application to secure all necessary governmental authority for such transaction. Within thirty (30) days following the effective date of all requisite governmental approval of the transaction, User shall pay to owner the amount of money required to purchase said Joint Trackage to be abandoned at the aforesaid Net Liquidation Value. Upon the receipt of payment of such sum the Agreement shall terminate as to the part of the Joint Trackage so purchased by User. Contemporaneously with such payment, by instrument or instrument, Owner shall convey and assign by good and sufficient quit claim deed or deeds, bills of sale or other instruments, all of Owner's right, title, interest, and equity, in and to the Joint Trackage so purchased. Owner agrees that it shall promptly take all necessary action to obtain from the trustees of its mortgages all releases or satisfactions covering the same and shall deliver to User such instruments.

If User fails to exercise the option herein granted within the time and in the manner above specified, Owner may forthwith proceed free of all obligation to User to, make appropriate application to secure all necessary governmental authority for such abandonment. User agrees that at such time it will concurrently make application for all necessary governmental authority for abandonment of its right to operate over the Joint Trackage. The Agreement shall terminate as to the section of Joint Trackage so abandoned upon the effective date of such approval by governmental authority.

7.4 Owner and User each shall be responsible for and shall bear labor claims, and employee protection payable to, its own respective employees (and employees of its respective affiliated companies) including any amounts that either Owner or User may be required to pay to its own respective employees pursuant to labor protective conditions imposed by the STB.

Section 8. CATASTROPHIC EXPENSE

Catastrophic expense to the Joint Trackage, such as, but not limited to, that arising from flood, earthquake or acts of God, etc., in excess of One Hundred Thousand Dollars ($100,000) for each occurrence shall be billed in addition to the GTM Rates and apportioned on the basis of the parties' GTMs operated over the Joint Trackage for the twelve (12) month period ending immediately prior to the first day of the month of occurrence.

Section 9. TERM

9.1 The Agreement shall be effective upon execution and shall run for an initial term of ninety-nine (99) years (Initial Term). At the end of the Initial Term, the User shall have the unilateral right to extend the Initial Term for an additional ninety-nine years (Extended Term). At the end of any Extended Term, the User shall have the right to extend the term of the Agreement for an additional term of ninety-nine (99) years. User shall have the right to terminate the Agreement upon twelve (12) months' prior notice to Owner. Liabilities created under this Agreement shall survive any such termination.

9.2 Upon termination of the Agreement, or any partial termination, as the applicable case may be, however the same may occur, User shall be released from any and all manner of obligations and shall be deemed to have forever relinquished, abandoned, surrendered and renounced any and all right possessed by User to operate over that part of the Joint Trackage to which such termination applied, and as to such part, User shall forever release and discharge Owner of and from any and all manner of obligations, claims, demands, causes of action, or suits which User might have, or which might subsequently accrue to User growing out of or in any manner connected with, directly or indirectly, the contractual obligations of Owner under the Agreement, in all events provided, however, the aforesaid relinquishment, abandonment, surrender, renunciation, release and discharge by User shall not in any case affect any of the rights and obligations of either Owner or User which may have accrued, or liabilities accrued or otherwise, which may have arisen prior to such termination or partial termination. Upon any termination, Owner shall remove from Owner's right of way any connecting track, and any exclusive facility of User, at User's expense with salvage to be delivered to and retained by User. Upon any partial termination of the Agreement, however the same may occur, the terms and conditions hereof shall continue and remain in full force and effect for the balance of the Joint Trackage.

Section 10. ASSIGNMENT

Except as provided in Section 3.5 and in the sentence immediately following, the Agreement and any rights granted hereunder may not be assigned in whole or in part by Owner or User without the prior written consent of the other. The Agreement may be assigned by Owner or User without the prior written consent of the other only (I) as a result of a merger, corporate reorganization, consolidation, change of control or sale of substantially all of its assets, or (ii) to an affiliate of the assigning party where the term "affiliate" means a corporation, partnership or other entity controlled, controlling or under common control with the assigning party. In the event of an

authorized assignment, the Agreement and the operating rights hereunder shall be binding upon the successors and assigns of the parties.

Section 11. DEFAULT

11.1 Notwithstanding the provisions of Section 3 of these General Conditions, either party hereto claiming default of any of the provisions of the Agreement (including these General Conditions) shall furnish notice and written demand to the other party for performance or compliance with the covenant or condition of the Agreement claimed to be in default, which notice shall specify wherein and in what respect such default is claimed to exist and shall specify the particular Section or Sections of the Agreement under which such claim of default is made.

11.2 If the default shall continue for an additional period of thirty (30) days after receipt of such written notice and demand, and such default has not been remedied within said thirty (30) day period, or reasonable steps have not been nor continue to be taken to remedy a failure or default which cannot reasonably be remedied within said thirty (30) day period, and such default relates to the provisions and terms of the Agreement, either party shall resort to binding arbitration provided that the arbitrator shall not have the authority to amend, modify or terminate the Agreement.

11.3 Failure of a party to claim a default shall not constitute a waiver of such default. Either party hereto entitled to claim default may waive any such default, but no action by such party in waiving such default shall extend to or be taken to effect any subsequent defaults or impair the rights of either party hereto resulting therefrom.

Section 12. OTHER CONSIDERATIONS

12.1 The Agreement and each and every provision hereof is for the exclusive benefit of the parties hereto and not for the benefit of any third party. Nothing herein contained shall be taken as creating or increasing any right in any third person to recover by way of damages or otherwise against any of the parties hereto.

12.2 If any covenant or provision of the Agreement not material to the right of User to use the Joint Trackage shall be adjudged void, such adjudication shall not affect the validity, obligation or performance of any other covenant or provision which is in itself valid. No controversy concerning any covenant or provision shall delay the performance of any other covenant or provision. Should any covenant or provision of the Agreement be adjudged void, the parties shall make such other arrangements as will effect the purposes and intent of the Agreement.

12.3 In the event there shall be any conflict between the provisions of these General Conditions and the Agreement, the provisions of the Agreement shall prevail, except that the definition of Joint Trackage set forth in Section 1.7 of these General Conditions shall prevail.

12.4 All section headings are inserted for convenience only and shall not affect any construction or interpretation of the Agreement.

12.5 Reference to any agency or other organization shall include any successor agency or organization, and reference to any index or methodology (e.g., RCAF-U, URCS, etc.), if such index or methodology ceases to exist or is no longer available, shall include any substantially similar index or methodology selected by the parties or, if the parties fail to agree on such, one determined by binding arbitration under Section 6 of these General Conditions.

END OF EXHIBIT "B"

BNSF Contract Transmittal

PUBLIC VERSION - REDACTED

Pursuant to BNSF's "Rules Governing Authority for Contracts, Deeds and Payments," complete the form and send with the original contract to: BNSF Corporate Support , c/o James Obermiller, 2500 Lou Menk Dr., Fort Worth, TX 76131. See attached instructions for more information.

ONLY ORIGINAL CONTRACT WITH ORIGINAL SIGNATURES ARE TO BE SUBMITTED TO CORPORATE SUPPORT

FORM SUBMITTED BY:	PHONE NUMBER	FAX NUMBER	DATE SUBMITTED
Bruce D Barrett	817.352.4939	817.352.7219	1/7/10

DEPARTMENT	LOCATION	CONTRACT SIGNED BY: Name and Title	OFFICER CODE
Contracts & Joint Facilities	Ft Worth TX	Jeffry B Wright	MISC

	DATE OF CONTRACT (mm/dd/yyyy)	EFFECTIVE DATE (mm/dd/yyyy)	EXPIRATION DATE (mm/dd/yyyy)	REVIEW DATE (mm/dd/yyyy)
☒ NEW CONTRACT Complete the following:	12/16/2009	12/16/2009		12/15/2109
☐ AMENDMENT Complete the following:	ORIGINAL CONTRACT NO.	ORIGINAL CONTRACT DATE (mm/dd/yyyy)	AMENDMENT DATE (mm/dd/yyyy)	
☐ CANCELLATION Complete the following:	ORIGINAL CONTRACT NO.	ORIGINAL CONTRACT DATE (mm/dd/yyyy)	TERMINATION DATE (mm/dd/yyyy)	

AMOUNT - TOTAL OR MAXIMUM CONSIDERATION	**LAW DEPT. APPROVAL REQUIRED** (SEE SECTION VI OF RULES GOVERNING AUTHORITY	**FINANCE DEPT. APPROVAL** (SEE SECTION VII OF RULES GOVERNING AUTHORITY). CHECK EACH THAT APPLIES.
CONTRACT TYPE CODE OPJF	☐ FORM NO. AND REVISION DATE: OR ☒ ATTORNEY'S APPROVAL: (ATTORNEY SIGNATURE) Kristy Clark OR ☐ DOCUMENTATION INDICATING ATTORNEY APPROVAL (APPROVAL IS ATTACHED)	☐ ACCOUNTING APPROVAL _____ AND/OR ☐ RISK MANAGEMENT APPROVAL _____ AND/OR ☐ TAX APPROVAL _____ AND/ OR ☐ DOCUMENTATION INDICATING APPROVAL IS ATTACHED, OR ☐ NO FINANCE DEPT. APPROVAL REQUIRED

CONTRACT PARTIES (OTHER THAN BNSF)

Union Pacific Railroad

DESCRIPTION OF THE CONTRACT	**IS CONTRACT ARRA FUNDED?** YES ☐ NO ☒
Grant UP trackag rights between Kentucky St and KC Jct in Memphis TN	

CONFIDENTIAL (Y,N)	CPAR NUMBER	AFE NUMBER	VENDOR NO. ASSIGNED TO CONTRACT
☐ YES ☒ NO			

CONTRACT LOCATION			LINE SEGMENT / MILEPOST INFORMATION					
STATE	COUNTY	CITY	LINE SEG. #	FROM MP #	TO MP #	LINE SEG #	FROM MP #	TO MP #
TN	Shelby	Memphis	1001					

CONTRACT HAS MULTIPLE LOCATIONS	CROSS REFERENCE NUMBER
☐ YES ☐ NO	

DOT NUMBER	FEDERAL FUNDED (Y,N)	FEDERAL PROJECT ID #	STATE PROJECT ID #
	☐ YES ☐ NO		

CONTRACT OJT CLAUSE	WHAT IS THE CONTRACT TERM?	**CONTRACT MANAGER NAME** (print name)
NUMBER OF DAYS n/a	FIXED (DEFINITE) TERM ☒ ONGOING (INDEFINITE) TERM ☐ EVERGREEN (EXPIRATION DATE, THEN INDEFINITE) ☐	Travis Thowe

BNSF BILLS OTHER PARTY? (Y) (N) Y	**SUBMITTING DEPT. IS RESPONSIBLE FOR NOTIFYING CORPORATE SUPPORT WHEN CONTRACT IS CANCELLED**	CONTRACT NO. ASSIGNED BY CORPORATE SUPPORT
IF YES, ATTACH EXTRA COPY OF CONTRACT FOR ACCT. DISTRIBUTION **NOTE: NO OTHER DISTRIBUTION WILL BE MADE**	JAN [illegible]	BF 57851

EXHIBIT 105

800-763

ORDER SERVICE DATE JANUARY 5, 1966

At a Session of the INTERSTATE COMMERCE COMMISSION, Finance Board No. 3, held at its office in Washington, D. C., on the 29th day of December, A. D. 1965.

Finance Docket No. 23834

UNION RAILWAY CO.--TRACKAGE RIGHTS AT MEMPHIS, TENN.--
ST. LOUIS-SAN FRANCISCO RAILWAY CO.

Finance Docket No. 23835

MISSOURI PACIFIC RAILROAD CO.--TRACKAGE RIGHTS
AT MEMPHIS, TENN.--ST. LOUIS-SAN FRANCISCO RAILWAY CO.

Finance Docket No. 23836

ST. LOUIS-SAN FRANCISCO RAILWAY CO.--TRACKAGE RIGHTS
AT MEMPHIS, TENN.--UNION RAILWAY CO.

Upon consideration of the joint application filed October 11, 1965, in the above-numbered proceedings by the Union Railway Co., Missouri Pacific Railroad Co., and St. Louis-San Francisco Railway Co., all carriers by railroad subject to part I of the Interstate Commerce Act, for authority under section 5(2) of the act to acquire joint trackage rights in Memphis, Tenn., as follows: (1) the Union Railway Co. and the Missouri Pacific Railroad Co., to operate over the present northbound main track of the St. Louis-San Francisco Railway Co., jointly with that railroad between Chaining Station 25538 + 29.5 and Chaining Station 25656 + 03, a distance of 2.23 miles; and (2) the St. Louis-San Francisco Railway Co., to operate over the tracks of Union Railway Co. jointly with that railroad and the Missouri Pacific Railroad Co., between Chaining Station 5 + 46 and Chaining Station 118 + 48.5, a distance of 2.14 miles; and of the protest to the joint application filed by the Railway Labor Executives' Association on the grounds that the proposed trackage right acquisitions, if approved, could have an adverse effect on the employees of the carriers involved; and

It appearing, That the interests of the carrier employees affected by the grant of trackage rights will be adequately protected by the imposition of appropriate conditions; that the proposed transactions will eliminate certain track cross-overs and will facilitate the movement of rail traffic in the Memphis, Tenn., area, thus improving the rail transportation service, including car utilization of each of the applicants, and will relieve motor traffic congestion caused by waiting trains at road intersections; that there is at present in effect among the applicants an agreement originally entered into on October 19, 1903, as modified on June 3, 1925, among the predecessors of the respective applicants, covering operations over certain trackage at Memphis, Tenn., which agreement applicants herein propose to further amend pursuant to a supplemental agreement executed by the parties on December 17, 1965;

2800-763

It further appearing, That the supplemental agreement of December 17, 1965, makes no provision for the user to pay rental to the owning company for the use of the trackage involved, but provides that subject to approval by the owning company, user shall have the right to require the owning company to provide, without cost to owner, additions and betterments to the latter's facilities as set out in paragraphs 6(a) and 7(a) of said agreement, including such signals as desired; that should salvage result from such additions and betterments, such salvage would become the property of the user and the additions and betterments would become the property of the owning company;

It further appearing, and the Board so finds, that a hearing on the trackage rights transactions is not necessary in the public interest, that the terms of the amendment to the existing agreement are for the mutual benefit of the parties and are just and reasonable and that the said transactions are within the scope of section 5(2) of the act and will not result in the guarantee or assumption of any obligations or in any fixed charges and will not be contrary to the public interest; that no other railroad has requested to be included in the trackage rights applications; that transportation services to the public will be improved and consummation of the proposed transactions would be consistent with the public interest:

It is ordered, That subject to the same conditions for the protection of railway employees as were imposed in Oklahoma Ry. Co. Trustees Abandonment, 257 I.C.C. 177, the acquisition by the Union Railway Co. and the Missouri Pacific Railroad Co., of trackage rights over the line of railroad of the St. Louis-San Francisco Railway Co., herein above described, and the acquisition by the St. Louis-San Francisco Railway Co., of trackage rights over the lines of railroad of the Union Railway Co., herein above described, upon the terms and conditions set forth in the application and in the trackage rights agreement, as amended, be, and they are hereby, approved and authorized;

It is further ordered, That this order shall take effect and be in force as of December 29, 1965;

It is further ordered, That no change or modification in the terms and conditions of the trackage rights agreement herein authorized shall be effected, and no additional parties may exercise such trackage rights, without prior approval of this Commission; and

It is further ordered, That unless the authority granted herein is exercised within one year from the effective date hereof, it shall be of no further force or effect; and that the applicants shall confirm in writing to this Commission, immediately after commencement of operations herein authorized, the date such operations were commenced.

By the Commission, Finance Board No. 3.

H. NEIL GARSON
Secretary

EXHIBIT 106 (REDACTED)

EXHIBIT 107 (REDACTED)

EXHIBIT 108 (REDACTED)

EXHIBIT 109

PUBLIC VERSION - REDACTED

Remembering Hunter Harrison's Approach to Enhancing Competition

Bill Huneke

Much of the recent press coverage of Union Pacific and Norfolk Southern's merger application has focused on the fact that this will be the first time that the Surface Transportation Board will apply its 2001 merger rules, including the requirement that applicants show enhanced competition. That is true. But it is not the first time a railroad has tried to meet that standard.

Back in 2015, when I was Chief Economist at the Surface Transportation Board, Canadian Pacific (CP), led by Hunter Harrison, proposed to merge with NS. CP told shippers that if it were permitted to acquire Norfolk Southern, the merged company would let a competing railroad run over its own tracks and take the business away if CP ever failed them on rates or service.

In stark contrast, UP's answer now, a decade later, is a pricing formula that reaches only a sliver of the nation's freight, sets rates at a benchmark near the top of what shippers pay today, and comes with a built-in expiration date. This does not enhance competition.

The competitive enhancement requirement arose, in part, from STB's concern that the next rail merger would not only create a U.S. transcontinental but would lead to the final round of mergers. This would create the ultimate North American railroad map. It would also freeze the industry's competitive structure for good.

As a result, in evaluating future merger proposals, STB wanted more than just the preservation of competition. Instead, STB wanted "enhanced" competition to be sure the new railroad structure would benefit rail shippers. With the possibility of only two or three major railroads in the future, it would not be sufficient for new mergers simply to preserve existing competitive options.

STB also wanted enhanced competition to offset harms it knew were inevitable but not predictable, and therefore could not be remedied. Rail-to-rail competition among seven (at the time) Class I railroads cannot be reproduced in a world of two or three. So, STB required competition to be enhanced, not just preserved.

STB's new merger rules dissuaded anyone from attempting a Class I merger for more than 14 years until Hunter Harrison began contemplating merging CP with an eastern railroad. When proposing its NS merger, CP said in a Nov. 17, 2015 press release how it intended to satisfy the new standard:

PUBLIC VERSION - REDACTED

"Among the combined company's key innovations is a new approach to terminal access that would change the status quo in U.S. rail transportation. In the event the new company failed to provide adequate service or competitive rates, it would allow another carrier to operate from a point of connection over the combined company's tracks and into its terminals, providing an unprecedented alternative to the affected shipper. In addition, the new company would give shippers the choice of where they can connect with another railroad along its network, bringing an end to the practice of 'bottleneck pricing' to a large number of shippers in the U.S. while further enhancing competition."

CP tried to meet the new standard head-on, proposing more competitive options after the merger than existed before it. The message to shippers was blunt: If you don't like merged CP-NS's rate or service, get a better one from another railroad—and that competitor will move your freight over CP-NS's own lines. And by ending bottleneck pricing, CP would give solely-served shippers the ability to reach competing railroads—breaking the bottleneck outright.

Harrison even told Wall Street analysts that this merger would give shippers what they had been asking for and what railroads had been opposing. He said in a Dec. 16, 2015 conference call:

"I have been in this business a long time and I have seen every merger come and go for about 45 years now, plus. And everything that I know of that the shippers have ever requested or asked for that the railroads have fought, we have been willing to put in our proposal. Whether it is bottleneck—we have never supported bottleneck. Have we been outliers there? Yes, we have been outliers, but that is our view. Have we supported paper barriers? No. Has access scared us? No. And the access that we are advocating is what we call a modified control access in internal areas. We have had some dialogue with the shipping public, very positive feedback at this point."

Why would Harrison propose such expanded access and an end to bottleneck pricing? For one thing, he had experience with Canada's 30-kilometer (18.6-mile) interswitching regime and had prospered under it with both CN and CP. While his proposal did not go as far as the Canadian system, Harrison knew that he had developed those railroads and the Illinois Central into highly efficient competitors. I have no doubt that Harrison believed he could successfully compete with the remaining Class I's under a regime of expanded access without bottleneck pricing.

It is clear to me that Harrison was proposing to give shippers a significant competitive enhancement: more access and more rail options rather than preserving the status quo. Harrison's 2015 proposal was never formalized into an application, so we do not know if it would have met STB's competitive enhancement requirement.

We also do not know if there was a price or service threshold the shipper had to meet to get access, which would have limited the benefits to competition, or if it was unconditional, like the Canadian interswitching regime. At least we know that Harrison was proposing to meet the competitive enhancement requirement with structural changes. More access should be necessary, even if it

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perhaps is not sufficient for meeting the standard.

Now, let me turn to what Jim Vena and UP have offered as competition proposals in their merger application. Certainly, they seem to have tried to address the preservation of competition requirement by providing a third railroad (CN) with access to certain locations where UP and NS overlap. But that was required by STB's pre-2001 merger rules.

The applicants have also stressed how merged UP-NS will be a stronger competitor and be able to divert shipments from highway carriers. However, this is what all pre-2001 merger applicants promised, too. Even if UP were to become more efficient after the merger, it is not offering more rail options like Harrison did.

The only supposed new competitive enhancement proposed by the applicants is a Committed Gateway Pricing (GCP) program. The Targeted Access Program (TAP) proposal added in supplemental filings was not intended to satisfy the enhanced competition requirement. It is just a weak backstop against service disruptions during integration. And CGP fails at the threshold: It is a pricing formula for interline movements that happen today, and it gives no shipper access to a railroad it cannot already reach. A litany of exclusions—intermodal and finished motor vehicles among them—leaves CGP reaching only a sliver of traffic.

To develop the applicable price, the applicants group their existing traffic by commodity and mileage and set the CGP at the 70th percentile. It's hard to see how this would result in lower rates for shippers, and it definitely does not offer shippers new competitive options.

Nor is CGP new. It is a bastardized version of the UP I-5A Proportional Rate Agreement (I-5A) that was part of the 1996 UP-Southern Pacific merger conditions. CGP differs in important ways from I-A5. Just consider these three: I-5A applied to all commodities, was not temporary, and the rate measure was the arithmetic average. CGP applies to a narrow group of commodities, is set at the 70th percentile, and evaporates at the end of STB's oversight period. None of these benefit shippers or enhance competition.

The 2001 merger rules exist because STB understood that the competitive structure the next big rail merger left behind would be permanent. Measured against what CP put on the table in 2015, the UP-NS proposal falls far short.



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