

**BEFORE THE
SURFACE TRANSPORTATION BOARD**

RECIPROCAL SWITCHING

Docket No. EP 711 (Sub-No. 1)

**COMMENTS AND
WRITTEN TESTIMONY OF CN**

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Dated: February 14, 2022

The U.S. rail operating subsidiaries of Canadian National Railway Company (hereafter “CN”) respectfully submit these comments and written testimony in response to the Board’s notice of public hearing served on December 28, 2021, in this proceeding.

I. INTRODUCTION

The Surface Transportation Board (“Board” or “STB”) has been exploring reciprocal switching for over a decade.¹ In 2016, the Board issued a decision proposing to revise its regulations relating to reciprocal switching.² Although the record contains ample evidence and argument explaining the deficiencies of the 2016 Proposal, the Board is now holding a hearing on the 2016 Proposal.

Although CN has not yet participated as an individual commenter in this proceeding, it shares in the concerns that several other parties have raised about the 2016 Proposal. As a railway operating under the Canadian regulatory regime and its mandatory interswitching provisions for over 100 years, CN has significant experience dealing with forced interchange. In these comments, CN will explain its concerns about any expanded use of forced switching in the United States and why, based on CN’s experience in Canada, Canadian interswitching is not an appropriate model for considering whether to amend the existing regulations in the United

¹ *Competition in the Railroad Industry*, Docket No. EP 705 (STB served Jan. 11, 2011); *Petition for Rulemaking to Adopt Revised Competitive Switching Rules*, Docket No. EP 711 (STB served July 25, 2012).

² *Reciprocal Switching*, Docket No. EP 711 (Sub-No. 1) (STB served July 27, 2016) (“2016 Proposal”).

States. CN also provides an overview of the testimony its witnesses will provide at the hearing.

II. CN AGREES WITH THE SERIOUS CONCERNS THAT HAVE BEEN RAISED ABOUT THE 2016 PROPOSAL.

The 2016 Proposal would upend decades of precedent regarding the role that 49 U.S.C. § 11102(c) plays in the statutory scheme. Section 11102(c) was added as part of the Staggers Rail Act of 1980, which fundamentally changed the economic regulation of the industry. In light of the deregulatory purpose of the Staggers Act, the Interstate Commerce Commission (“ICC”) appropriately concluded that government intervention through forced access should be restricted to situations where a railroad engaged in anticompetitive conduct by using its market power to extract unreasonable terms, deprive a shipper of a more efficient route, or disregard the shipper’s needs by rendering inadequate service. *Intramodal Rail Competition*, 1 I.C.C.2d 822 (1985), *aff’d sub nom. Balt. Gas & Elec. Co. v. United States*, 817 F.2d 108 (D.C. Cir. 1987); *Midtec Paper Corp. v. Chi. & N.W. Transp. Co.*, 3 I.C.C.2d 171 (1986).³ The Court of Appeals agreed: “If the Commission were authorized ... to prescribe reciprocal switching ... whenever such an order could enhance competition between rail carriers, it could radically restructure the railroad industry. We have not found even the slightest indication that Congress

³ The ICC explained that “[t]here is a vast difference between using the [agency’s] regulatory power to correct abuses that result from insufficient intramodal competition and using that power to initiate an open-ended restructuring of service to and within terminal areas solely to introduce additional carrier service.” *Midtec Paper Corp.*, 3 I.C.C.2d at 174.

intended the Commission in this way to conform the industry more closely to a model of perfect competition.” *Midtec Paper Corp. v. United States*, 857 F.2d 1487, 1507 (D.C. Cir. 1988).

In the congressional hearings preceding the ICC Termination Act of 1995 (ICCTA), Congress specifically heard arguments about whether it should modify the statute to make it easier for shippers to obtain agency-mandated reciprocal switching or terminal access, or whether such access should remain a narrow remedy.⁴ Congress chose to re-enact the access provisions of the Interstate Commerce Act without making substantive changes to existing standards, rejecting these calls for increased regulation. As other parties have explained in their comments, there is no question that Congress ratified the interpretation of § 11102 that is the foundation of the Board’s current reciprocal switching regulations.⁵ The 2016 Proposal rejected this argument, but did not address the legislative history and evidence that had been presented in Docket No. EP 711 demonstrating that Congress’ re-enactment of § 11102 without change in the wake of the *Midtec* interpretation meets all the elements for a legislative ratification of that interpretation.⁶

⁴ See Disposition of the Railroad Authority of the Interstate Commerce Commission: Hearing Before the Subcomm. on Railroads of the H. Comm. on Transportation, 104th Cong., at 17-18, 183-84, 221, 259-60, 493-94, 496, 534 (Jan. 26 & Feb. 22, 1995).

⁵ See Norfolk Southern Railway Company Comments, *Reciprocal Switching*, Docket No. EP 711 (Sub-No. 1), at 39-45 (filed Oct. 26, 2016); CSX Transportation, Inc. Comments, *Reciprocal Switching*, Docket No. EP 711 (Sub-No. 1), at 20-30 (filed Oct. 26, 2016).

⁶ 2016 Proposal, at 11-13.

Consistent with Congress' intent, CN agrees that Board-mandated switching is a narrow remedy that should not be used to supplant market forces except where there has been a showing of competitive abuse. In particular, CN agrees with prior comments that the 2016 Proposal did not provide an adequate justification for upending the existing regulatory regime. For example, the 2016 Proposal relied on a lack of cases brought under § 11102(c), the improved economic health of the industry, and prior consolidations of Class I railroads.⁷ But none of these issues logically or empirically point to any proven problem that needs remedying. A lack of formal cases brought under § 11102(c) could just as easily be interpreted as evidence that commercial arrangements are working. The improved economic health of the industry has been shown to be the result of increased competition and innovation.⁸ Likewise, the consolidation of some Class I railroads in the 1990s does not establish a problem that needs remedying in this proceeding.

⁷ *Id.* at 8-9.

⁸ See, e.g., Reply Comments of the Association of American Railroads, *Railroad Revenue Adequacy*, Docket No. EP 722 (filed Nov. 4, 2014), Reply Verified Statement of Professor Joseph P. Kalt, at 6–7 (“the most exhaustive and rigorous studies of the matter, commissioned by the Board itself, have repeatedly concluded that improvements in carrier financial performance under the Staggers Act have not been the result of enhanced exercise of market power. This conclusion is supported by independent academic research....”); Reply Comments of Union Pacific Railroad Company, *Railroad Revenue Adequacy*, Docket No. EP 722 (filed Nov. 4, 2014), Reply Verified Statement of Professor Kevin M. Murphy, at 9–10 (“[T]here can be no presumption that a railroad earning higher returns has market power and is exercising any more market power than is a railroad earning lower returns. ... Rather, *higher returns* (even returns that exceed the cost of capital for extended periods) *are consistent with increased competitiveness, better shipper service, and increased efficiency.*”) (emphasis added).

Indeed, the 2016 Proposal did not discuss the most comprehensive evidence available on railroad market power—the Christensen Study, commissioned by the Board in 2007. That study found that changes in the industry, including consolidation in the 1990s and improved financial health, did not increase market power abuses.⁹ In short, the Board lacks any objective evidence of a problem in this proceeding, and it should show caution before experimenting with a new approach that could disrupt the rail network.

The Board has received ample evidence over the years indicating that railroads are not earning above-competitive returns and that railroads face intense competition from trucks. For example, in Docket No. EP 766, analyses performed by Professor Kevin M. Murphy, the George J. Stigler Distinguished Service Professor of Economics in the Booth School of Business and the Department of Economics at The University of Chicago, and Mark E. Zmijewski, Professor Emeritus at The University of Chicago Booth School of Business, established that railroads are earning returns consistent with competitive markets and with pro-

⁹ See Laurits R. Christensen Associates, Inc., *A Study of Competition in the U.S. Freight Railroad Industry and Analysis of Proposals that Might Enhance Competition* (Nov. 2008, revised Nov. 2009); Laurits R. Christensen Associates, Inc., *An Update to the Study of Competition in the U.S. Freight Railroad Industry*, at 4-12 to 4-13 (January 2010) (“[W]e have observed the simultaneous lessening of the exercise of market power and the improvement in the railroad industry’s revenue sufficiency position.”). All versions of the Christensen Study are available on the Board’s website at <https://www.stb.gov/reports-data/reports-studies/>.

competitive behavior.¹⁰ The professors employed a “widely used benchmarking methodology” to study and assess Class I railroad returns, explaining: “If the railroads earn a rate of return net of cost of capital no higher than the average or median S&P firm, then there would be no presumption that railroads are earning abnormal returns and can set rates without constraint from competition, or that shippers’ current protections under the Board’s [regulations] ... are not sufficient.”¹¹ The results were clear: “over the 2006 through 2019 period, the financial performance of the railroad industry and each of the seven Class I railroads fell well below the median and mostly in the bottom quartile of the financial performance of all three benchmarking groups.”¹²

Additionally, the Board has received evidence demonstrating the continued dominance of trucking in transportation markets for various commodities and across multiple mileage bands.¹³ This continues to be true, as CN’s witness

¹⁰ See Joint Petition, *Joint Petition for Rulemaking—Annual Revenue Adequacy Determinations*, Docket No. EP 766 (filed Sept. 1, 2020), Verified Statement of Professor Kevin M. Murphy and Professor Mark E. Zmijewski (“Murphy & Zmijewski V.S.”).

¹¹ Murphy & Zmijewski V.S. at 8, 18–19.

¹² *Id.* at 8.

¹³ See, e.g., Opening Comments of CN, *Review of Commodity, Boxcar, & TOFC/COFC Exemptions*, Docket No. EP 704 (Sub-No. 1) (filed Jan. 29, 2021) (using Transearch data from HIS Markit); Reply Comments of CN, *Review of Commodity, Boxcar, & TOFC/COFC Exemptions*, Docket No. EP 704 (Sub-No. 1) (filed Mar. 2, 2021) (using Federal Highway Administration’s Freight Analysis Framework); Comments of CN, *Market Dominance Streamlined Approach*, Docket No. EP 756 (filed Nov. 12, 2019) (using U.S. Census Bureau’s Commodity Flow Survey); Reply Comments of CN, *Market Dominance Streamlined Approach*, Docket No. EP 756 (filed Jan. 10, 2020) (same).

Andreas Aeppli of Cambridge Systematics will explain at the hearing in March, and as summarized in the attached verified statement.

CN shares the concerns raised by many commenters that adding more complexity to rail movements will hamper efficiency and increase transit times for freight rail customers.¹⁴ And any reduction in efficiency will negatively impact CN's ability to effectively compete with trucks.

As will be addressed at the hearing by Bernd Beyer, CN's Vice-President and Treasurer, CN is also concerned that the 2016 Proposal will adversely impact investment incentives. As a supply chain enabler, CN invests significantly in maintaining and expanding its network to help our customers grow, and those private investments are key to driving service and growth. The 2016 Proposal could greatly expand the availability of forced switching. Such a proposal could increase uncertainty about projected future returns from investments in areas potentially subject to forced switching. This could make it more difficult for individual proposed projects to meet CN's criteria for investment.

¹⁴ See, e.g., Opening Comments of the Association of American Railroads, at 34-37 *Reciprocal Switching*, Docket No. EP 711 (Sub-No. 1) (filed Oct. 26, 2016) ("AAR Opening Comments"); Comments of Hub Group, Inc., *Reciprocal Switching*, Docket No. EP 711 (Sub-No. 1) (filed Oct. 26, 2016) ("the additional handling of railcars will inevitably cause rail operations and service to worsen"); Comments of UPS, *Reciprocal Switching*, Docket No. EP 711 (Sub-No. 1) (filed Oct. 26, 2016) ("implementation of a new reciprocal switching scheme will lead to decreased network velocity, diminished capital investments into the freight rail network, and deteriorating rail intermodal service levels"); see also Comments of Metra, *Reciprocal Switching*, Docket No. EP 711 (Sub-No. 1) (filed Feb. 11, 2022) (emphasizing importance of "maintaining fluidity and minimizing congestion on the rails within the Chicagoland region").

Additionally, CN agrees that Board-ordered switching must be confined to a terminal area. The 2016 Proposal would allow shippers to seek switching orders if “there is or can be a working interchange ... within a reasonable distance of the facilities of the party seeking switching.”¹⁵ As has been explained in other comments, however, there is no basis for the Board to expand reciprocal switching outside of terminal areas. Historically, and at the time of enactment, reciprocal switching was understood to occur at terminals. And unlike the other terminal facility remedy contained at 49 U.S.C. § 11102(a), the reciprocal switching provision does not contain any “reasonable distance” language or other language suggesting that switching could be used outside of a terminal area.

Finally, CN is concerned that, if the Board does move away from forced switching as a narrow remedy to address competitive abuse, then any Board-ordered compensation must ensure the long-term financial health of the railroads and incentivize long-term investments. Such compensation should replicate market outcomes by fully compensating the railroad for lost contribution.

III. CANADIAN INTERSWITCHING IS NOT AN APPROPRIATE MODEL FOR THE UNITED STATES

Since the Board began exploring the idea of changing its forced switching rules, some commenters have argued that the Canadian interswitching regime is

¹⁵ 2016 Proposal, at 41-42.

proof that expanded forced switching in the United States would have no negative impacts.¹⁶ Several comments have correctly noted the flaws in this assumption.¹⁷

At the outset, the apparent belief from some commenters that interswitching in Canada is more prevalent than voluntary reciprocal switching in the United States has things exactly backward. CN does more interswitching in Canada than any other carrier. But CN has almost as much voluntary reciprocal switching in the United States as it has interswitching in Canada, even though CN's U.S. traffic is approximately half that of Canada.

Moreover, there are fundamental differences in the governing statutes in Canada and the United States. For example, unlike in Canada, the governing statute in the United States protects the right to the long haul. *See* 49 U.S.C. § 10705(a)(2). Additionally, while the Surface Transportation Board is charged with promoting the financial health of the railroads, *see, e.g.*, 49 U.S.C. § 10101(3), § 10704(a)(2), the concept of revenue adequacy does not exist in Canadian law.

¹⁶ *See, e.g.*, Summary of Ex Parte Meeting between Shipper Associations and Chairman Oberman August 4, 2021 (filed Aug. 12, 2021) (Shipper Associations commented that “the Canadian experience with interswitching shows that the likelihood of negative impact is low”); Opening Comments of The National Industrial Transportation League, at 59, *Petition for Rulemaking to Adopt Revised Competitive Switching Rules*, Docket No. EP 711 (filed March 1, 2013) (arguing that the Canadian experience shows that there would be no adverse operational or network effects in the United States under its switching proposal).

¹⁷ AAR Opening Comments (attaching Reply Comments of the Association of American Railroads, *Petition for Rulemaking to Adopt Revised Competitive Switching Rules*, Docket No. EP 711 (filed May 30, 2013) (“AAR Reply Comments”)); Reply Comments of CSX Transportation, Inc., *Petition for Rulemaking to Adopt Revised Competitive Switching Rules*, Docket No. EP 711 (filed May 30, 2013); Reply Comments of The Kansas City Southern Railway Company, *Petition for Rulemaking to Adopt Revised Competitive Switching Rules*, Docket No. EP 711 (filed May 30, 2013).

Further, in the United States, railroads and shippers have acted in reliance on the existing regulatory regime where the right to the long-haul has been protected in the statute. Railroads have entered into switching arrangements voluntarily under market conditions, rather than artificially by regulatory fiat. By contrast, and as described below, the Canadian reliance interests are based on an existing statutory provision that has been in place for a century.

There are also fundamental differences in the size and scope of the two networks. While the U.S. rail system connects and crosses in large urban areas and secondary locations with many interchange points, the Canadian rail system is more linear with less overlap. In 2013, the Association of American Railroads presented evidence that there are as many as 1,500 interchange locations in the United States potentially impacted by the proposal in Docket No. EP 711.¹⁸ In stark contrast, there are 69 CTA interswitching points in Canada for CN.¹⁹

In addition to these fundamental differences, CN's experience with interswitching in Canada further underscores why the Canadian regime is not an appropriate model to consider in the United States. CN will address interswitching, long-haul interswitching, and compensation for interswitching in Canada.

¹⁸ AAR Reply Comments, Reply Verified Statement of Phil C. Ireland and Rodney E. Case, at 8, 22.

¹⁹ See <https://www.cn.ca/-/media/Files/Customer-Centre/Shipping/9001-CTA-Interswitching-Points-Canada.pdf>.

A. Interswitching

Under the Canadian framework, interswitching is available if the point of origin or destination is within a 30 km (18 miles) radius of an interchange.²⁰ The concept of interswitching has been part of the Canadian statute for more than a century. The record already includes a thorough explanation on the history of interswitching, including the fact that it was originally adopted for purposes of land use to avoid overbuilding of rail lines in urban areas.²¹ Canadian railroads and shippers have acted in reliance on this long-standing practice, and over the last century facilities in Canada have been built up to accommodate interswitching where it is likely to occur. That would plainly not be the case if the Board were to attempt a regulatory regime change in the United States.

It is also important to note that there are 69 CTA interswitching points where CN interchanges traffic with other Canadian federally regulated railways. Only 10 locations account for approximately 90% of all CN interswitching, with just two locations accounting for approximately 70% of CN interswitching. Outside of these locations, interswitching is minimal. The Canadian experience does not support the notion that interswitching is used as a competitive option considering the high concentration of interswitching activities at a very limited number of points.

²⁰ Canada Transportation Act § 127.

²¹ AAR Opening Comments (attaching AAR Reply Comments).

Where there is significant reliance on interswitching and the costs for upgrades are significant, CN has found that regulated interswitching tends to disincentivize infrastructure investment because of the uncertainty it creates about returns.

Additionally, interswitching can lead to or exacerbate operational issues. In the winter of 2018-2019, Vancouver experienced significant congestion-related challenges. One of the challenges faced by CN was an increase in railcars online, which resulted in ripple effects on CN's network during winter when network capacity is reduced for safe operations. For example, at its Thornton Yard near Vancouver, CN experienced an 18% increase in the number of cars carried by CN for interswitching with BNSF Railway. To manage the congestion and operational challenges, CN deployed 18% more locomotives and 16% more crew as compared to the prior year, and still had to embargo traffic.²²

CN agrees that a case-by-case approach to determining switching is more appropriate in the United States than the model rejected by the Board in Docket No. EP 711 or the blanket system employed in Canada. But, based on its experience, CN believes it will be impossible for the Board to predict the type of operational challenges or impacts on investment that can result from increased regulated switching.

²² *Id.* ¶¶ 123-126.

B. Long Haul Interswitching

In 2018, long-haul interswitching was introduced to the statute in Canada. Under long-haul interswitching, a sole-served shipper can seek an order from the Canadian Transportation Agency mandating that the originating Class I railroad interchange traffic at the nearest interchange, up to 1200 km (745 miles) or 50% of the distance over which the traffic is moved by rail in Canada, whichever is greater.²³ There are numerous restrictions on which traffic or points are eligible to obtain a long-haul interswitching order. For example, the statute excludes the movement of vehicles and vehicles parts, Toxic Inhalation Hazard material, radioactive material, dimensional loads, intermodal, traffic covered by Consent Agreement with the Competition Bureau; and any traffic where the interchange is in certain high-density corridors (Quebec-Windsor or Vancouver-Kamloops).²⁴

To CN's knowledge, long-haul interswitching has never been used in Canada since it was added to the statute in 2018. CN opposed the introduction of long-haul interswitching and does not believe that it was required or that it makes economic sense to force the transfer of traffic from a railroad that has made investments and assumes maintenance costs of a line to another railroad which reaps the associated benefits without any capital outlay. As noted above, unlike in Canada, the governing statute in the United States protects the right to the long haul. *See* 49 U.S.C. § 10705(a)(2).

²³ Canada Transportation Act § 129.

²⁴ Canada Transportation Act § 129(3).

C. Interswitching and Long Haul Interswitching Compensation

Although CN opposed the introduction of long-haul interswitching, the rate is appropriately based on comparable commercial rates rather than being cost-based.²⁵ Regular interswitching, on the other hand, is predominantly cost-based and relies on an outdated methodology not subject to Generally Accepted Accounting Principles.²⁶ Although CN agrees with the statutory recognition in Canadian law that rates should be commercially fair and reasonable,²⁷ CN believes that the interswitching rates do not appropriately compensate carriers because of the stronger focus on costs than on commercial rates.

In CN's opinion, regulated interswitching compensation results in some areas subsidizing the cost of interswitching in other areas. Further, it distorts the market for interswitching services. This is evident by the fact that the average rate per car with other Class Is under regulated interswitching is significantly lower than the average rate per car switched with shortlines under provincial jurisdiction, which are not subject to regulated interswitching.

As noted above, one of the impacts of regulated interswitching is a disincentive to pursue infrastructure investment. CN has previously expressed concern about the importance of achieving commercial returns on interswitching

²⁵ Canada Transportation Act § 135. Nevertheless, the use of an average rate remains a problem.

²⁶ Canada Transportation Act § 157.

²⁷ Canada Transportation Act § 112.

expansion projects in Canada, and how below-market rates tend to result in a decline in capital investment in interswitching-intensive locations.

IV. WRITTEN TESTIMONY

CN's hearing testimony will be delivered by Rob Reilly, CN Executive Vice-President and Chief Operating Officer, Bernd Beyer, CN Vice-President and Treasurer, and Andreas Aepli of Cambridge Systematics. CN's witnesses will be accompanied by Kathryn J. Gainey, Deputy General Counsel, and CN's outside counsel Matthew J. Warren of Sidley Austin LLP.

A. Testimony of Rob Reilly

Mr. Reilly will explain the complexity of network operations and the operational challenges associated with expanded forced switching. He will explain why increasing intermediate handlings of railcars can negatively impact network efficiency and transit times. Mr. Reilly will also explain why Canadian interswitching is not an appropriate model for the United States.

B. Testimony of Bernd Beyer

Mr. Beyer will explain the importance of CN investments in maintaining and expanding CN's network. He will explain how CN's investments are key to increasing capacity and network fluidity, thereby driving service and growth.

Mr. Beyer will also explain how CN must account for risk when making long-term investment decisions. He will explain the concerns CN has about the 2016 proposal in this proceeding from an investment perspective.

Mr. Beyer will urge the Board to proceed with caution and focus on policies that encourage private investment and growth in the freight rail network.

C. Testimony of Andreas Aeppli

Mr. Aeppli will explain how, apart from some bulk commodities that move in high volumes, much of the rail industry's traffic is competitive with highway. In some markets, water is directly competitive with rail where volumes for low-value bulk commodities such as grain, coal, and aggregates, are high. He will explain how, in considering the conditions under which a reciprocal switching scheme may be imposed, it is necessary to consider the inter-modal competitive landscape.

Mr. Aeppli will explain the analyses he performed of modal market share across major commodities and modal market share by length of haul. He will explain his conclusions regarding the competitive nature of the freight transportation market in the United States and how modal alternatives provide shippers with competitive choices in many instances.

V. CONCLUSION

The Board should not adopt its proposed rules. CN does not believe there is an adequate justification to abandon the current standard and that it would be unwise to do so. If the Board does adopt revised regulations, which it should not, CN urges the Board to proceed with caution and within the confines of Staggers' deregulatory mandate and to ensure appropriate compensation to allow railroads to attain long-term financial health and incentivize long-term investments.

Respectfully submitted,

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Dated: February 14, 2022

Reciprocal Switching

Docket No. EP 711 (Sub-No. 1)

Verified Statement of Andreas Aeppli

1. My name is Andreas Aeppli, and I submit this verified statement on behalf of CN in the Surface Transportation Board's Docket No. EP 711 (Sub-No. 1) proceeding.
2. I am a Principal of Cambridge Systematics with over 35 years of experience in the areas of goods movement policy, carrier economics, asset management, and transportation information systems. I have been involved in numerous projects involving all surface modes (marine, rail, and highway), intermodal freight systems, and freight supply chains for public and private clients. I have extensive experience conducting policy-level studies, having served in senior roles in statewide rail and freight plans, as well as examinations focused on modal economics and system performance. A summary of my experience is attached.
3. I have been asked by CN to provide a high-level analysis on the general competitive market conditions in which the rail industry operates, and the degree to which such competition is intermodal rather than intramodal in nature. CN has also asked me to testify at the Surface Transportation Board's upcoming hearing in Docket No. EP 711 (Sub-No. 1) and to provide a summary of my conclusions in advance of the hearing.
4. In considering the conditions under which a reciprocal switching scheme may be imposed, it is necessary to consider the intermodal competitive landscape. For this purpose, I aimed to examine the following: modal market share across the major commodities and modal market share by length of haul. Using available data, the analysis was undertaken on a national basis and at a high-level of commodity classification as specified by the Standard Commodity Classification Code.
5. Below I present a brief explanation of my approach as well as a summary of my findings, which I intend to address at the hearing.

Approach

6. Transearch is a product of IHS Markit. It provides information on the flow of goods moving by multiple modes of transportation between various geographies, including U.S. counties; U.S. Bureau of Economic Analysis Economic Areas (“BEAs”); Canadian Consolidated Metropolitan Areas (“CMAs”); Canadian provinces; and Mexican states. Commodity detail is available at a four-digit level of Standard Transportation Commodity Code (“STCC”), as used by the STB. For purposes of this summary, I limited examination to the 2-digit STCC level (“STCC2”), which categorizes commodities into 50 groupings. Volumes are principally provided for the following modes: rail carload, rail intermodal, truckload (private and for-hire), less-than-truckload, water, and air.
7. CN provided me with its Transearch database for a base year of 2019. This database contains over 28 million commodity flow records. The provided version of Transearch contained routed distances for rail and highway but not for other modes; thus ton-mile comparisons were not developed for water and air. In the analysis, modes were grouped together in accordance with the arrangement shown in Table 1.

Table 1 Transearch Transportation Modes

Number	Code	Description	Mode Group
0	NONE	None	None
1	CL	Rail Carload	Carload Rail
2	IMX	Rail Intermodal	Intermodal Rail
3	RAIL	Rail NEC	Carload Rail
4	TL	Truck Truckload	Truck
5	LTL	Truck Less-Than-Truckload	Truck
6	PVT	Truck Private	Truck
7	TRUCK	Truck NEC	Truck
8	AIR	Air	Air
9	WTR	Water	Water
10	OTH	Other	Other
11	PIPE	Pipeline	Pipeline
12	MAIL	Mail	Other
13	FTZ	Foreign Trade Zones	Other
14	CONT	Water Containerized	Water
15	BULK	Water Non-Container	Water

8. The tonnage of the STCC2 commodities were summed by mode. The STCC codes that are primarily for rail, STCC 41-49, or are primarily for truck, STCC 50, were excluded from the table. While some shipments handled in rail intermodal service are reported with the actual commodity, roughly two-thirds are not; these are all reported under STCC 46, mixed shipments. This results in the underreporting of volumes and thus modal share for intermodal traffic by specific STCC for many commodities. The CN Transearch database of more than 28 million records was aggregated to a database of 10.4 million records with the following attributes: Origin; Destination; STCC2 (commodity at the 2 Digit STCC level); Tons; and Average miles for rail and highway. From this information additional fields, such as ton-miles which is the product of tons and miles, could be generated. This makes it possible to display tons, ton-miles, share of tons; or share of ton-miles by mode, for individual STCC2 commodities or groups of STCC2 commodities, for all miles combined, or within certain distance ranges.

Modal Share Analysis

9. **Table 2** presents overall modal shares of domestic shipments on an originated tonnage basis for all major freight modes – highway, rail, water, and air. The data shows the overall dominance of highway for freight haulage at 78%. Rail carload and intermodal traffic accounts for 14.5%, and water at 7% of all intercity freight tonnage. The mode share for water is notable, as it is not a broadly available option in the manner that highway and rail are.

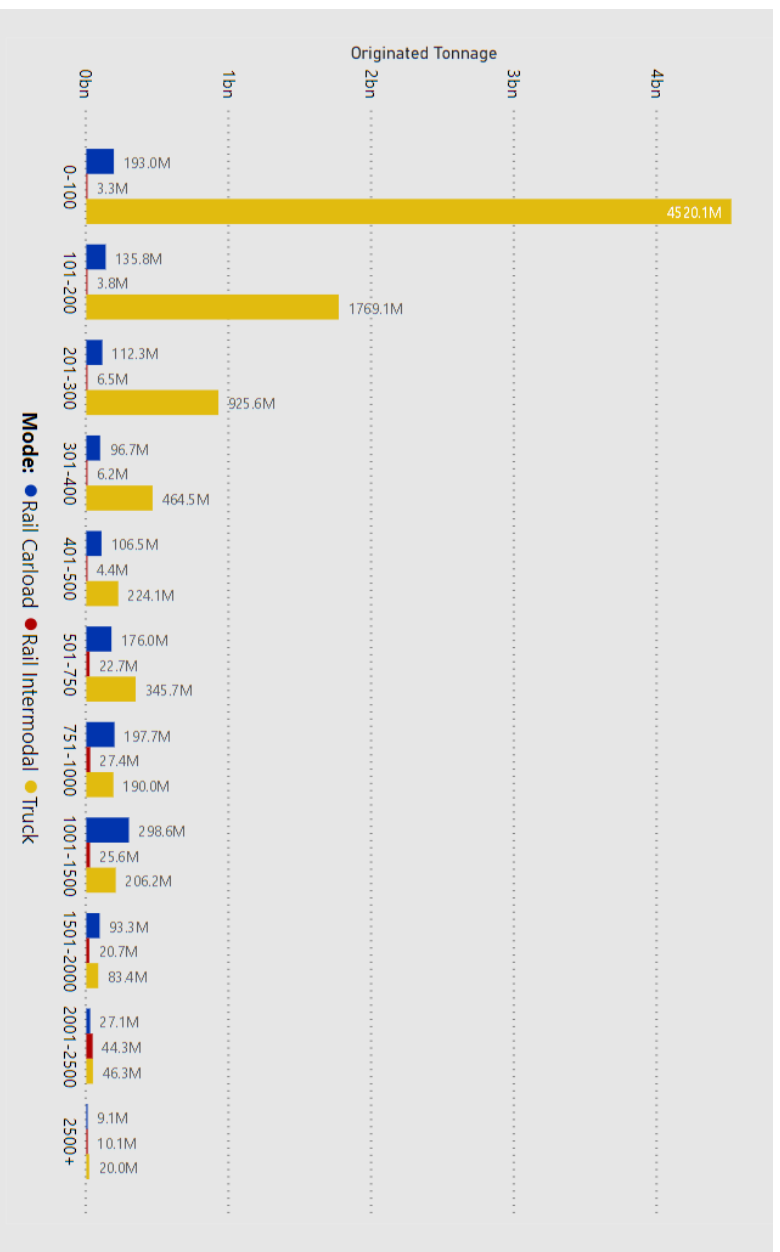
Table 2 2019 Originated Tonnage by Mode, US Domestic Shipments, All Commodities

Mode ^a	Tons	
	Amount (billions)	%of modal total
Truck	8.8	78%
Rail	1.63	14.5%
Carload	1.45	13%
Intermodal	0.18	1.6%
Water	0.8	7%
Air	.008	0.07%
Total	11.0	100%

^a Pipeline flows reported in Transearch are incomplete, and thus have been omitted from analysis.

10. The variation in modal market share by distance is illustrated in **Figure 1**, which shows modal share by routed distance bands for rail and highway. Notably, the chart demonstrates how highway transport dominates modal share at distances 400 miles and below, trips that trucks can typically accomplish in one day or less. The situation changes at longer distances over 400 miles, where rail does become substantially more competitive. Rail modal share reaches a peak in the 750 to 2,000 mile distance bands, reflecting not only the efficiency of long-haul rail, but also the distances between some major markets (i.e. Chicago and the West Coast), as well as the substantial volumes of coal that are shipped out of Wyoming's Powder River Basin to power plants in the Midwest, Texas, and eastern regions of the US. Exclusion of the coal traffic would result in significantly diminished rail mode share at those distances.

Figure 1: 2019 Originated Domestic Tonnage by Routed Distance Bands for Rail and Highway

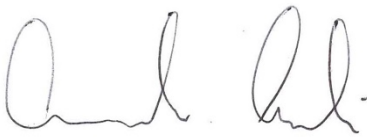


Conclusion

11. On the basis of the Transearch data, the analysis indicates that except for very few commodities, transport by highway is clearly the most commonly used mode. This trend applies consistently at distances under 750 miles or so. Even at longer distances, where railroad efficiencies are most evident, highway transport nevertheless handles the majority of traffic. These results clearly demonstrate the generally highly competitive nature of the freight transportation marketplace in the US, and that modal alternatives—principally highway—provide shippers with competitive choices in many instances.

VERIFICATION

I, Andreas Aeppli, declare under penalty of perjury that the foregoing is true and correct. Further, I certify that I am qualified and authorized to file this verified statement.



Andreas Aeppli

Executed on: February 12, 2022

Andreas Aepli

Andreas Aepli is a nationally recognized expert on topics of rail technology and operations, goods movement, economics, marketing, asset management, and policy. Currently a Principal in the Planning practice at Cambridge Systematics, Mr. Aepli has over 35 years of experience in the transportation industry as a consultant and manager. He frequently provides input on a broad set of topics involving freight and passenger rail - including operations to infrastructure, markets, and economic regulation - as well as freight more generally. Mr. Aepli launched his career in the Marketing department of the Chicago North Western Railroad, with subsequent engagements including the co-founding and successful management of a consulting and software firm specializing in engineering economics, and Principal with Global Insight and predecessor Reebie Associates. Mr. Aepli holds a Masters of Science in Transportation from the Massachusetts Institute of Technology. While at M.I.T., he conducted research on grain transport pricing in the western U.S. This research kindled his interest and expertise in the analysis of freight markets and the associated economic and policy implications.

Mr. Aepli has applied his extensive knowledge of the railroad industry, maintenance and reliability, and transport economics and markets, in supporting a variety of legal and regulatory proceedings. Most recently, for the Surface Transportation Board's Ex-Parte 704, he provided technical analysis and written testimony on the nature of specific commodity markets. For a major shipper, he conducted a regulatory and economic analysis of transport costs. For Superfund cases in Wisconsin and Michigan, he performed forensic traffic analyses to identify and verify historic volumes and distribution patterns for a toxic chemical. In a project for the counsel of a transit vehicle manufacturer, he assessed the reliability and economic performance of a costly and failure-prone component and projected its long-term economic impact on the vehicle owner. For the same case, he examined construction and maintenance practices for transit vehicle finishes. On behalf of a surety bondholder involved in a bankruptcy proceeding, he forecast the demand for new railcars in North America and completed a competitive analysis of railcar manufacturers.