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Senior Vice President - Policy & Economics

December 5, 2022

The Honorable Cynthia T. Brown
Chief, Section of Administration
Office of Proceedings
Surface Transportation Board
395 E Street, SW
Washington, DC 20423-0001

This submission is the AAR forecast of the first quarter 2023 All-Inclusive Index and Rail Cost Adjustment Factor, filed in Ex Parte No. 290 (Sub-No. 5) (2023-1) *Quarterly Rail Cost Adjustment Factor*. The versions of RCAF-related indices covered in this filing are: the All-Inclusive Index (initiated in the second quarter of 1985), the Unadjusted RCAF (produced since October 1982), the Adjusted RCAF (first published in the second quarter of 1989), and the RCAF-5 (created by the STB in its Ex Parte No. 290 (Sub-No. 7) decision served October 3, 1996). The table below summarizes the first quarter 2023 results and compares to the previous quarter. Both quarters are shown on a 4Q\2017=100 base.

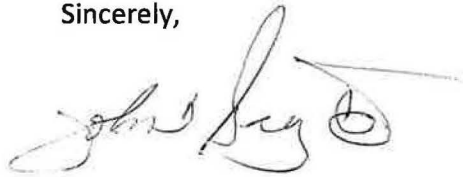
	<u>2022Q4</u>	<u>2023Q1</u>	<u>% Change</u>
All-Inclusive Index	125.3	131.1	4.6
Preliminary RCAF	1.253	1.311	4.6
Forecast Error Adjustment	0.042	-0.038	
RCAF (Unadjusted)	1.295	1.273	-1.7
Productivity Adjustment Factor	2.4588	2.4740	
RCAF (Adjusted)	0.527	0.515	-2.3
PAF-5	2.5738	2.5898	
RCAF-5	0.503	0.492	-2.2

December 5, 2022

In its October 3, 1996 decision in Ex Parte No. 290 (Sub-No. 7), *Productivity Adjustment - Implementation*, the STB noted its intent to publish, in addition to the RCAF (Unadjusted) and RCAF (Adjusted), an RCAF-5 (i.e., a calculation of the productivity adjusted RCAF values as if the agency had always used a 5-year rolling average to calculate the productivity adjustment). In response to a request by STB staff, the AAR is including a calculation of the RCAF-5 in its quarterly RCAF filing. The AAR and its members, however, do not believe the publication of a third RCAF index is required or permitted by the applicable statute (49 U.S.C. § 10708) and do not endorse its publication.

Our quarterly non-proprietary work papers underlying this submission are e-filed herewith, in accordance with the ICC's order in Ex Parte No. 290 (Sub-No. 2), *Railroad Cost Recovery Procedures*, served February 8, 1990. We have notified Pedro Ramirez, in the STB office handling this proceeding, of our plan to e-file the submission and non-proprietary work papers. A second copy of the submission and non-proprietary work papers, plus selected highly confidential work papers, will be provided to Mr. Ramirez's Data Collection and Auditing Team. All work papers are available for STB inspection. Questions should be directed to me or Kiara Williams (202 639-2327) of this office.

Sincerely,

A handwritten signature in black ink, appearing to read "John T. Gray", with a stylized flourish at the end.

John T. Gray

Attachments

**First Quarter 2023
All-Inclusive Index**

Ex Parte No. 290 (Sub-No. 5) (2023-1)

**Quarterly Rail Cost Adjustment Factor
Surface Transportation Board**

**Policy and Economics Department
Association of American Railroads**

December 5, 2022

Table of Contents

Subject	Page
Introduction	1
Index Weights	2
All-Inclusive Index - First Quarter 2023	3
Forecast vs. Actual All Inclusive Index - Third Quarter 2022	4
Productivity	5
Rail Cost Adjustment Factor - First Quarter 2023	6
Appendices	
A Labor	
B Fuel	
C Materials & Supplies	
D Equipment Rents	
E Depreciation	
F Interest	
G Other Expenses	
H Railroad and Union Abbreviations	

Introduction

On January 2, 1985, the Interstate Commerce Commission (ICC) adopted the All-Inclusive Index as the basis for the Rail Cost Adjustment Factor (RCAF). The quarterly projection of railroad costs, as documented herein, employs the All-Inclusive Index as required by the regulations. Also presented in this submission is the RCAF, both Adjusted and Unadjusted, as required by the ICC in its decision in Ex Parte No. 290 (Sub-No. 4), Rail Cost Recovery Procedures - Productivity Adjustment, served March 24, 1989. In addition, the AAR has included the RCAF-5, which was instituted by a Surface Transportation Board decision served October 3, 1996 in Ex Parte No. 290 (Sub-No. 7), *Productivity Adjustment - Implementation*. The AAR and its members do not believe the additional productivity-adjusted index is required or permitted by the applicable statute, and do not endorse its publication.

This quarter's projection of railroad costs is for the first quarter 2023. Each year's first quarter calculation utilizes new health and welfare rates, which are listed in Appendix A on page 5. New payroll tax rates and maximum taxable earnings (Tier I, Tier II, and Unemployment Insurance) also become effective January 1, and are listed in Appendix A on page 4. New labor agreements through national negotiations have been added to the Labor Index component.

Index Weights

In the Ex Parte No. 290 (Sub-No. 2) final rules, issued in April 1981, the Interstate Commerce Commission mandated that the weights of each major cost component be updated annually. These "external" weights are calculated using expense data from Schedules 410 and 210 of the R-1 annual report filed with the Surface Transportation Board by the Class I railroads. The weights are typically updated with the fourth quarter projection.

The 2021 (current) and 2020 (previous) weights are shown below. Weights calculated from 2020 data were used for the fourth quarter of 2021 through the third quarter of 2022. Beginning with the fourth quarter of 2022, weights calculated using 2021 data are used. The component with the biggest change in weight was Fuel, which increased by 4.5 percentage points. Labor and Equipment Rents fell by 1 and 0.3 percentage points, respectively. Materials & Supplies was unchanged. The weight for Depreciation decreased 1 percentage point, and Other decreased by 1.9 percentage points.

Weights for RCAF's All-Inclusive Index		
	2021	2020
Labor	31.4 %	32.4 %
Fuel	14.2	9.7
Materials & Supplies	4.5	4.5
Equipment Rents	4.9	5.2
Depreciation	17.5	18.5
Interest	2.4	2.7
Other	25.1	27.0
Total	100.0	100.0

Reweightings of the index is accomplished by calculating both the current quarter (normally the fourth) and prior (normally the third) quarter indexes with the new weights. The relative change between the two quarters is then multiplied times the prior quarter (usually the third) *linked* index. Use of this method ensures that the weight change, by itself, does not cause a change in the level of the All-Inclusive Index.

Internal weights in the labor and equipment rents components are updated at the same time as the external weights. When these weights are changed, they are also linked using the procedure described above in order to eliminate the effect of the change in weighting.

All-Inclusive Index

First Quarter 2023

The components and values of the current and previous All-Inclusive Indexes are shown below. Details of the construction of each component of the index are contained in the Appendices.

		Forecast		
	2021	Previous	Current	Percent
	Weights	2022Q4	2023Q1	Change
1. Labor	31.4%	479.6	546.0	13.8 %
2. Fuel	14.2%	475.2	467.1	-1.7
3. M&S	4.5%	335.3	328.9	-1.9
4. Equipment Rents	4.9%	253.8	250.1	-1.5
5. Depreciation	17.5%	233.3	234.8	0.6
6. Interest	2.4%	50.1	50.1	0.0
7. Other	25.1%	290.6	280.0	-3.6
8. Weighted Average				
a. 1980 = 100		360.6	377.4	
b. 1980 = 100 (linked)		331.3	346.7 ¹	
c. 4Q17 = 100		125.3	131.1 ²	4.6

¹ Index80 = (Current Index / Previous Index) * the Previous Quarter Linked Index

$$= (377.4 / 360.6) \times 331.3$$

$$= 346.7$$

² To calculate the 4Q17 = 100 index:

Index4Q17 = (Current Linked Index / 4Q17 Basing Factor) * 100

$$= 346.7 \text{ divided by } 264.5 \text{ times } 100$$

$$= 131.1$$

Indexes based on other periods:

4Q12 based index = $346.7 / 297.6 \times 100 = 116.5$
 4Q07 based index = $346.7 / 245.9 \times 100 = 141.0$
 4Q02 based index = $346.7 / 192.1 \times 100 = 180.5$
 4Q97 based index = $346.7 / 173.2 \times 100 = 200.2$
 4Q92 based index = $346.7 / 156.9 \times 100 = 221.0$

Forecast vs. Actual All-Inclusive Index

Third Quarter 2022

Because of data availability, the forecast error adjustment has a two-quarter lag from each filing. As shown below, the third quarter actual index of 117.8 is 3.8 index points below the forecast value of 121.6. Therefore, the forecast error adjustment for first quarter 2023 is -3.8 index points.

	2020	Third Quarter 2022		Amt
	Weights	Forecast	Actual	Difference
1. Labor	32.4%	472.4	472.4	
2. Fuel	9.7%	459.6	484.4	
3. M&S	4.5%	305.0	305.0	
4. Equipment Rents ¹	5.2%	256.0	251.4	
5. Depreciation	18.5%	233.2	233.7	
6. Interest	2.7%	51.1	51.1	
7. Other	27.0%	302.4	289.7	
8. Weighted Average				
a. 1980 = 100		350.8	349.7	
b. 1980 = 100 (linked)		321.5	311.6 ²	
c. 4Q17 = 100 ³		121.6	117.8	-3.8

Forecast error —————> **-3.8 index points**

¹	2020	Third Quarter 2022	
	Weights	Forecast	Actual
Car-Hire	64.7%	206.5	207.1
Lease Rentals	35.3%	302.4	289.7
Weighted Average		240.4	236.3
Weighted Average (linked)		256.0	251.4

² Linked actual index = (actual index / previous actual index) x previous linked actual index.

$$311.6 = 349.7 / 346.6 \times 308.8$$

³ The 4Q17 based indexes are 1980 based indexes divided by the 4Q17 basing factor (264.5/100).

Other basing factors are: 4Q12 = 297.6; 4Q07 = 245.9; 4Q02 = 192.1; 4Q97 = 173.2; and 4Q92 = 156.9.

Productivity

On February 3, 2022, the Surface Transportation Board served a decision which proposed to adopt 2.5 percent as the geometric average productivity change for the five most recent years available. Their five year rolling geometric average calculation added the year 2020 and removed the year 2015. The components of this average annual value are shown on the following table in ratio format – therefore, 1.025 is the same as an increase of 2.5 percent. Productivity changes are calculated by multiplying each of the five productivity changes together and taking the result to the one-fifth power. The productivity adjustment factors (PAF) for each quarter are calculated by increasing the previous quarter's PAF by quarterly versions of the annual rate, which are the fourth root of the geometric average annual growth rate. The difference between the PAF and the PAF-5 is the timing of the five-year productivity trend.

Comparison of Output, Input, & Productivity			
2016 - 2020			
Year	Output Index (1)	Input Index (2)	Productivity Changes (3)
2016	0.955	0.941	1.015
2017	1.045	0.992	1.053
2018	1.032	1.004	1.028
2019	0.968	0.961	1.007
2020	0.923	0.904	1.021
Average			1.025
Previous Average (2015-2019)			1.008

Calculation of PAF and PAF-5			
For 2016-2020, use fourth root of avg. productivity change = 1.0062			
For 2015-2019, use fourth root of avg. productivity change = 1.0020			
Quarter	Year	PAF	PAF-5
Q1	2022	2.4135	2.5585
Q2	2022	2.4285	2.5636
Q3	2022	2.4436	2.5687
Q4	2022	2.4588	2.5738
Q1	2023	2.4740	2.5898

Rail Cost Adjustment Factor

First Quarter 2023

Four RCAF values are presented in this filing. Two are not modified for productivity (Preliminary RCAF and RCAF Unadjusted), and two incorporate a productivity calculation (RCAF Adjusted and RCAF-5). The All-Inclusive Index and all four RCAF values, plus the percent change for each, are shown below. Note that beginning with the 2018Q1 index, the All-Inclusive Index was rebased to a 2017Q4=100 basis as required in the applicable statute.

	Previous 2022Q4	Current 2023Q1	Percent Change
All-Inclusive Index ¹	125.3	131.1	4.6
Preliminary RCAF ²	1.253	1.311	4.6
Forecast Error Adjustment ³	0.042	-0.038	
RCAF (Unadjusted) ⁴	1.295	1.273	-1.7
Productivity Adjustment Factor ⁵	2.4588	2.4740	
RCAF (Adjusted) ⁶	0.527	0.515	-2.3
PAF-5 ⁷	2.5738	2.5898	
RCAF-5 ⁸	0.503	0.492	-2.2

¹ See All-Inclusive Index on page 3.

² All-Inclusive Index divided by the All-Inclusive Index in the base period (100.0).

³ The current figure is from Forecast vs. Actual All-Inclusive Index in this filing (page 4). The previous quarter figure is shown in a similar section of the previous quarter's filing.

⁴ Preliminary RCAF plus the forecast error adjustment.

⁵ See Productivity on page 5.

⁶ RCAF (Unadjusted) divided by the Productivity Adjustment Factor (PAF).

⁷ See Productivity on page 5.

⁸ RCAF (Unadjusted) divided by the PAF-5.

Appendixes

Labor

First Quarter 2023

The first quarter 2023 Labor Index is 13.8 percent higher than the previous quarter. General wage increases, lump sum payments, and healthcare changes are primarily responsible for this quarter's higher Labor Index.

Wage Rate Index

The Wage Rate Index portion of the Labor Index increased by 29%. Compounded retroactive July 1 wage increases of 14.1 percent and back pay were added to the index.

New National Agreements: The 2020 National Negotiations round concluded between all twelve labor unions and the National Carriers Conference Committee, which includes all Class I Railroads except Canadian Pacific. The new national labor agreements were signed in third quarter 2022. The new agreements have three retroactive (July 2020, July 2021, and July 2022) wage increases of 3 percent, 3.5 percent, and a 7 percent increase. A future wage increase of 4.0 percent will be added to the July 2023 index.

Lump Sums: The first quarter lump sum rate remained unchanged from the previous quarter. One amount was fully amortized and removed, and it was replaced by one new similar amount.

Back Pay: Retroactive wage increases caused a large increase in the back pay rate. These wage increases were accompanied by three retroactive \$1000 lump sum payments, which increased the back pay rate to \$7.021. As always, back pay amounts will be removed from the index after they have been amortized for four quarters.¹

Other: In wages, "Other" contains the amortization of incentive compensation payments (similar to lump sums) that one railroad makes each year to its dispatchers, yardmasters, and locomotive engineers. The first quarter rate is relatively the same as last quarter.

¹ Index procedure, decided by the Interstate Commerce Commission in 1988, is to amortize lump sums and/or back pay over four quarters using the rates for 13-week (a.k.a. 3-month) U.S. Treasury bills.

Labor

First Quarter 2023

Supplements Index

The Supplements Index decreased 4 percent this quarter.

Health & Welfare: The Health & Welfare rate decreased 6.5 percent, as a result of the new 2023 rates. This is primarily due to an increase in employee contributions, which was a result for labor agreement changes.

Railroad Retirement: The Railroad Retirement rate increased .8 percent. The maximum taxable earnings for Railroad Retirement's Tier I and Tier II both increased for 2023 and tax rates for employers did not change.

Unemployment Insurance: The Unemployment Insurance rate decreased 24.5 percent, as the result of new unemployment insurance tax rate for 2023. The weighted average Class I railroad rate for 2023 is 7.79 percent, compared to 11.23 percent for 2022. The previous surcharge of 3.5 percent was also reduced to 1.5 percent for 2023.

Other: The "Other" category is a reflection of all other fringe benefits, and currently contains known employer contributions to employee 401(k) accounts and employer contributions to employee stock plans that are recorded as fringe benefits. The first quarter rate is 2.7 cents higher than last quarter.

Labor Index Calculation

As shown in Table A-1 on the next page, the 29 percent increase in the Wage Rate Index and the 4 percent decrease in the Supplements Index combined to cause the Labor Index to be 13.8 percent higher than the previous quarter. The linked first quarter 2023 Labor index is 546, which is 16.3 percent higher than one year ago.

Labor

First Quarter 2023

Table A-1 Labor Index

	2022Q4	2023Q1	Change	
			Percent	Amount
Base Wage – Straight Time & Pay For Time Not Worked	\$44.655	\$50.768	13.7%	\$6.113
Adjustments:				
Lump Sum	0.271	0.271	0.0%	\$0.000
Back Pay	0.013	7.021	53907.7%	\$7.008
Other	0.257	0.259	0.8%	\$0.002
Total Wages	<u>45.196</u>	<u>58.319</u>	29.0%	\$13.123
Health & Welfare Benefits	10.193	9.530	-6.5%	-\$0.663
RR Retirement & Medicare	9.694	9.769	0.8%	\$0.075
Unemployment Insurance	1.162	0.877	-24.5%	-\$0.285
Other	0.162	0.189	16.5%	\$0.027
Total Supplements	<u>\$21.211</u>	<u>\$20.365</u>	-4.0%	-\$0.846
Total Labor (as info only)	\$66.407	\$78.684		
Wage Index¹	386.8	499.1	29.0%	
Supplements Index²	783.9	752.6	-4.0%	
Total labor Index, 2021 Weights ³	504.3	574.1		
Labor Index (linked)⁴	479.6	546.0	13.8%	

¹ 1980 wage rate \$11.685

² 1980 supplements rate \$2.706

³ 2021 weights: wages, supplements 70.4% 29.6%

⁴ 2023Q1 linked Index = 2022Q4 linked x (2023Q1 / 2022Q4)
= 479.6 x 574.1 / 504.3

Labor

First Quarter 2023

Supplement Comparisons

Health and Welfare Rates

Plan	Railroad Payment Per Employee Per Month				
	2021	2022	2023	Change	
				'21-'22	'22-'23
Group Health & Welfare	\$1,697.55	\$1,856.96	\$1,972.43	9.4%	6.2%
Early Retirement Major Medical	116.94	84.14	65.94	-28.0%	-21.6%
Group Dental	63.67	75.01	69.10	17.8%	-7.9%
Group Vision	8.51	8.51	8.51	0.0%	0.0%
Supplemental Sickness					
Maintenance of Way	39.94	48.22	48.22	20.7%	0.0%
Shop Crafts	87.74	98.52	98.52	12.3%	0.0%
Signalmen	45.05	62.17	62.17	38.0%	0.0%
Yardmasters	60.48	74.61	76.77	23.4%	2.9%

Railroad Retirement and Medicare

	Earnings Base			Employer Rate		
	2021	2022	2023	2021	2022	2023
Tier I	\$142,800	\$147,000	\$160,200	6.20%	6.20%	6.20%
Tier II	106,200	109,200	118,800	13.10%	13.10%	13.10%
Medicare	no limit	no limit	no limit	1.45%	1.45%	1.45%

Unemployment Insurance

Monthly Taxable Earnings Base			Weighted Avg. Class I Rate		
2021	2022	2023	2021	2022	2023
\$1,710	\$1,755	\$1,895	5.69%	11.23%	7.79%

Labor

First Quarter 2023

NATIONAL RAILWAY LABOR CONFERENCE EMPLOYEE BENEFITS DEPARTMENT

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November 16, 2022

Ms. Kiara Williams
Director, Financial Reporting
Association of American Railroads
425 Third Street, SW, Suite 1000
Washington, D.C. 20024

Dear Ms. Williams:

The revised employer monthly Payment Rates which are effective January 1, 2023 are as follows:

Railroad Employees National Health & Welfare Plan & National Railway Carriers/United Transportation Union H&W Plan Non-Hospital Road	\$1,972.43
Railroad Employees National Early Retirement Major Medical Benefit Plan Non-Hospital Road	\$ 65.94
Aetna - National Dental Plan	\$ 69.10
The Hartford - Supplemental Sickness Plans	
Shop Craft	\$ 98.52
Signal	\$ 62.17
Maintenance of Way	\$ 48.22
Trustmark - Supplemental Sickness Plans Yardmasters	\$ 76.77
EyeMed - National Vision Plan	\$ 8.51

If you have any questions or need clarification, please contact me.

Very truly yours,

Eureka Norment

Eureka Norment

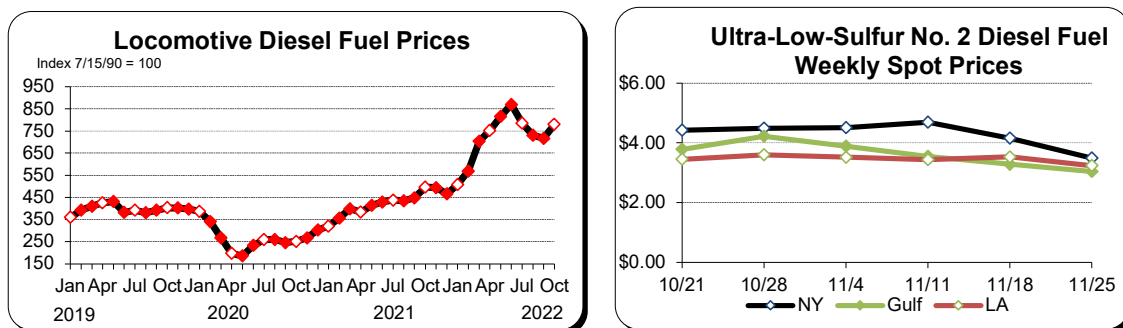
cc: Data@aar.org

Fuel

First Quarter 2023

The forecast for fuel is based on: (1) a survey of railroad fuel purchasing officers concerning current price and volume levels, (2) expectations of railroad purchasing officers based on their own forecast models and discussions with their major suppliers, and (3) a consensus of petroleum industry experts and general business publications. Fuel purchases are assumed to remain in inventory for 30 days before the fuel is consumed (and therefore expensed). Therefore, prices *paid* in the first month of each quarter are for fuel *expensed* in the second (or middle) month of the quarter, and the middle month expensed is used to represent each quarter.

The average locomotive diesel fuel price hit a low point in May 2020, but has been steadily rising since then. While average prices for locomotive diesel fuel are available only through October 2022, data through four weeks of November are available for related fuel types. According to the Energy Information Administration, the daily spot price as of November 28 for Ultra-Low-Sulfur Diesel Fuel* is an average of 27.6 percent lower than the average for October. The chart below (on left) shows the AAR's Monthly Locomotive Diesel Fuel Price Index through October 2022. The second chart (on right) shows recent spot prices for Ultra-Low-Sulfur No. 2 Diesel Fuel as reported by the Energy Information Administration.



Using information from the EIA, prices towards the end of August are higher than prices that actually occurred in October. Railroads that responded to the AAR's forecast survey expect prices to decrease by January (Q1) compared to prices that actually occurred for October (Q4). The first quarter 2023 forecast is 1.7 percent lower than the previous quarter forecast, and 2.8 percent lower than the prior quarter actual.

Forecast Fuel Index (1980 = 100)	467.1
Change from previous quarter forecast	-1.7%
Change from previous quarter actual	-2.8%

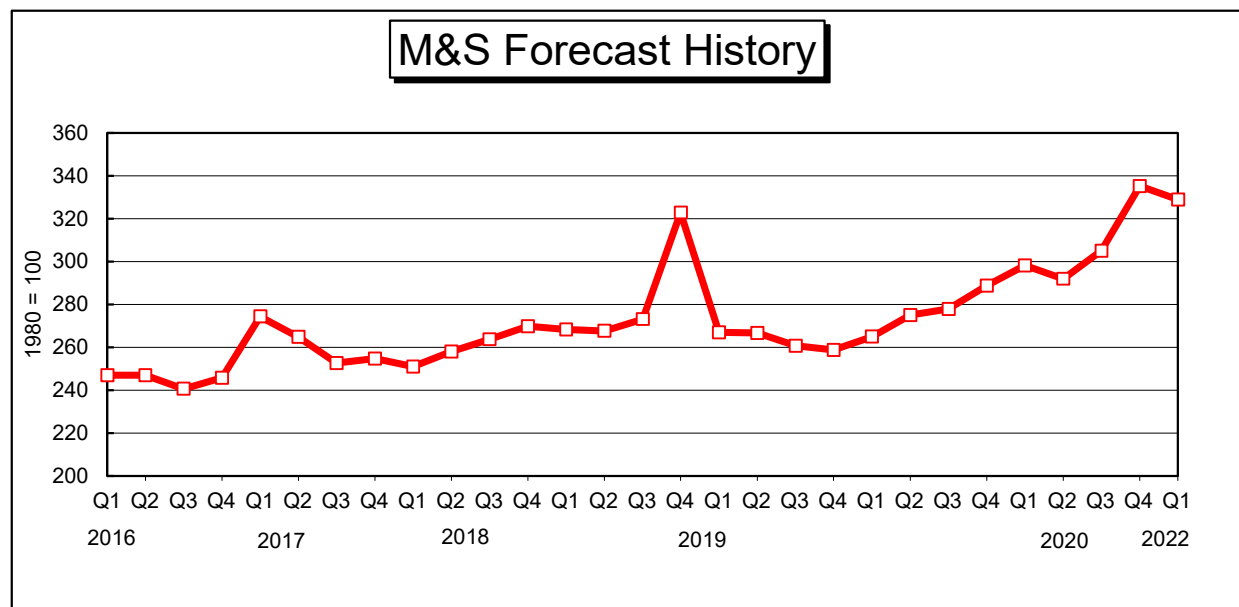
* Heating oil, Ultra-Low-Sulfur No. 2 Diesel Fuel, and locomotive diesel fuel are part of a group of closely related products, commonly labeled as distillates, that differ mostly by their sulfur content. Because of these similarities, these fuels are produced together and have similar pricing trends.

Materials & Supplies

First Quarter 2023

The first quarter 2023 Materials & Supplies Index decreased 1.9 percent from the previous quarter. Prices decreased for Forest Products and Metal Products.

2023Q1	Materials & Supplies Index =	328.9
2022Q4	Materials & Supplies Index =	335.3
	Difference	-6.3 basis points
		or
		-1.9 %



Equipment Rents

First Quarter 2023

The Equipment Rents Index consists of two components – car hire and lease rentals. The methodologies used to create these two components, and the final Equipment Rents Index, are explained below.

Car Hire

The car hire component is indexed using data from the Car Hire Accounting Rate Master (CHARM) file. Car hire rates for the forecast quarter are estimated based on data for active freight cars using the most recent data available. For the first quarter, December 1 of the previous year is typically used. For the second, third and fourth quarters; March 1, June 1, and September 1 are usually used, respectively. Using data retrieved from the latest CHARM file, an average rate per car is developed. Next, those average rates are grouped into four car type categories to create an overall summary of car hire rates. The summary rates are then compared from quarter to quarter, and weighted, to determine the Car Hire Index.

Lease Rentals

The lease rentals portion of the Equipment Rents Index uses the Producer Price Index for Industrial Commodities less Fuel and Related Products and Power (PPI-LF). The Commission adopted this surrogate in its decision served March 13, 1987. The AAR uses six years of historical data to derive its forecast for the PPI-LF. The forecast is used not only for lease rentals, but also for the "Other" component of the All-Inclusive Index. Appendix G discusses the forecast in more detail.

Equipment Rents Index Calculation

The table below calculates the Equipment Rents Index. The first quarter Car Hire portion of the Index increased 1.3 percent because of higher rates for privately-owned cars. A 3.6 percent decrease for the projected PPI-LF (See Appendix G) used as a proxy for Lease Rentals, combined with the 1.3 percent increase for Car Hire, caused the Equipment Rents Index to fall 0.7 percent.

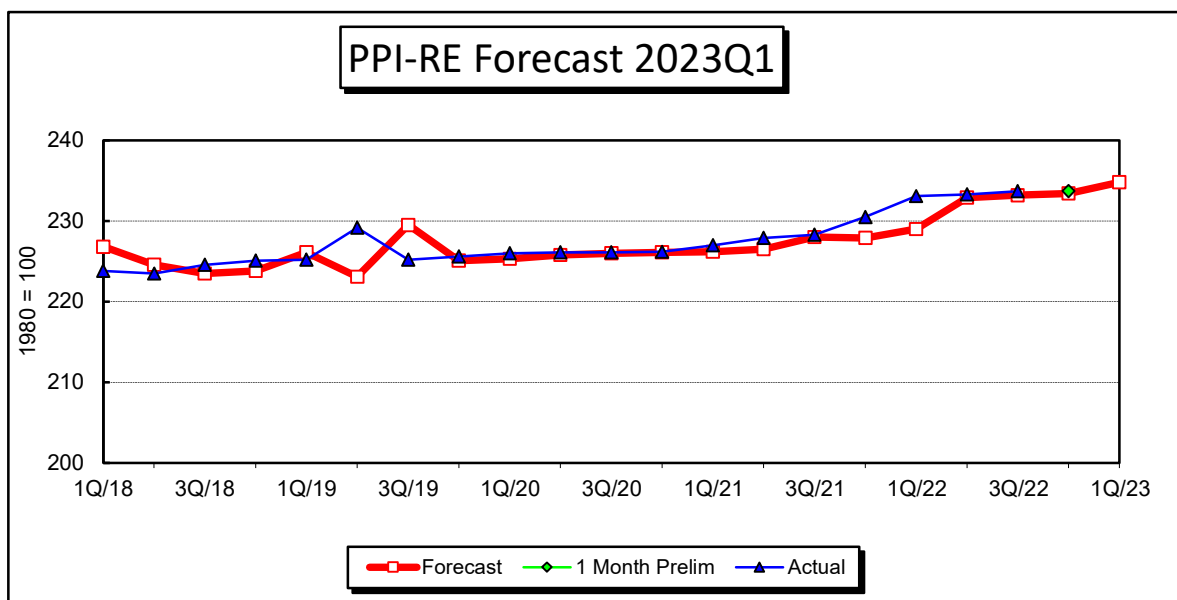
	2021			Percent
	Weight	2022Q4	2023Q1	Change
Car Hire	68.1%	209.5	209.5	0.0 %
Lease Rentals	31.9%	290.6	280.0	-3.6
Weighted Average		235.4	232.0	-1.4
Weighted Average (Linked)		253.8	250.1	-1.5

Depreciation

First Quarter 2023

The Producer Price Index for Railroad Equipment (PPI-RE) is used to index depreciation expense. The PPI-RE is forecast using an ARIMA (Auto-Regressive Integrated Moving Average) process where a statistical package picks the model that best fits the historical data set (see next page), and that model is then used for the forecast. The historical data set contains 6 years of monthly data (a sample size of 72), where the most recent available data point is the first month of the quarter prior to the forecast quarter. For a first quarter forecast, the most recent month of data available would be for October of the prior year. For a second quarter forecast, January would normally be the most recent period available. April and July would be the most recent months available for third and fourth quarter forecasts, respectively. The output from the forecast model is shown on page 2 of this appendix on a 1982=100 basis. The figure forecast by the model is 0.64% (rounds to 0.6) higher than the previous quarter's forecast.

Forecast of Depreciation Index (1982=100)	212.3
Forecast of Depreciation Index (1980=100)	234.8
Change from previous quarter forecast	0.6% = 0.64%
Change from actual first month of previous quarter	0.5% = 0.47%
Change from same quarter of prior year (actual)	0.7%



Depreciation

First Quarter 2023

PPI RAILROAD EQUIPMENT

Expert Analysis

Using rule-based logic I have narrowed down the choice to exponential smoothing or Box-Jenkins.
I will perform an out-of-sample test to select between these two approaches.

The cumulative MAD for Exponential smoothing was 2.66 and for Box-Jenkins was 2.16.
The rolling out-of-sample test used a maximum horizon of 12 and generated 78 forecasts for each method.

Based on the lower MAD, I will use Box-Jenkins.

Model Details

Expert selection
Box-Jenkins
ARIMA(0, 1, 0)

Within-Sample Statistics

Sample size	72	No. parameters	0
Mean	204.93	Std. deviation	3.03
R-square	0.92	Adj. R-square	0.92
Durbin-Watson	2.2	Ljung-Box(18)	17.2 P=0.49
Forecast error	0.87	BIC	0.87
MAPE	0.22	SMAPE	0.22
RMSE	0.87	MAD	0.45
MAD/Mean Ratio	0		

Actual Values for the Most Recent 6 Periods:

Actual

2022-May	210.9
2022-Jun	211.0
2022-Jul	211
2022-Aug	211.7
2022-Sep	212.2
2022-Oct	212.3

Forecasted Values

2.5 Lower	Forecast	97.5 Upper	
Date	2.5 Lower	Forecast	97.5 Upper
2022-Nov	210.588	212.300	214.012
2022-Dec	209.878	212.300	214.722
2023-Jan	209.334	212.300	215.266
2023-Feb	208.875	212.300	215.725
2023-Mar	208.471	212.300	216.129
QTR AVG	208.893	212.300	215.707

Interest

First Quarter 2023

The Interstate Commerce Commission, in its decision served February 28, 1989, revised the All-Inclusive Index methodology to include a specific interest component, which is to track changes in the average interest rate from year to year. The interest rate is essentially the embedded cost of debt, i.e., total interest expense divided by average total long term debt.

The interest rate is calculated for the most recent year and used until the next year's figures are finalized. The source data are from a summary of the annual reports (Form R-1) submitted by each of the Class I railroads. Although the data set is received at the end of March, it is not used until the September filing. This enables data to be entered into a database and reviewed – and any revisions made, if necessary, before the data are used in the Index. The current Interest Index is based on 2021 data, and was updated in the Q4 filing submitted on September 2, 2022. The Interest Index based on 2021 decreased from 51.1 in 2020 to 50.1 in 2021, and is the lowest in recent history.

The R-1 source for interest expense is Schedule 210, column b. The lines currently used are listed below. The source for average total debt is Schedule 200. The sums of data from columns b and c (ending and beginning balances) are combined and divided by 2 to compute an average balance. The line numbers listed below account for the line number changes effective beginning with the 2016 annual report.

Interest Expense (Schedule 210)

Line	
42	Total Fixed Charges
44	Contingent Interest
less	
22	Release of Premium on Funded Debt

Average Total Debt (Schedule 200)

Line	
29	Current Liabilities, Loans and Notes Payable
38	Equipment Obligations and Other Long Term Debt Due Within One Year
40	Non-Current Liabilities: Funded Debt Unmatured
41	Non-Current Liabilities: Equipment Obligations
42	Non-Current Liabilities: Capitalized Lease Obligations
43	Non-Current Liabilities: Debt in Default
44	Non-Current Liabilities: Accounts Payable: Affiliated Companies
45	Non-Current Liabilities: Unamortized Debt Premium

2021	Interest Rate	3.93%
1980	Interest Rate	7.85%
2023Q1	Interest Index	50.1
2022Q4	Interest Index	50.1
	Percent Change	0.1%

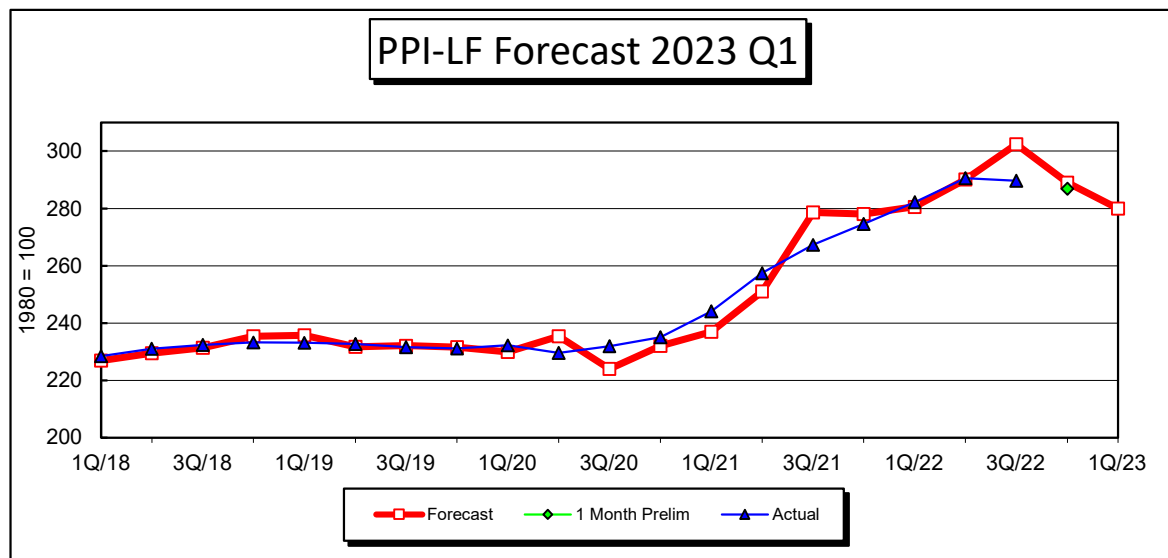
Other Expenses

First Quarter 2023

The Producer Price Index for Industrial Commodities less Fuels and Related Products and Power (PPI-LF) is used to index purchased services, casualties and insurance, loss and damage, taxes (other than income and payroll), general and administrative expenses, and lease rentals. These expenses, when grouped together, are usually called "Other" expenses.

Like the PPI-RE, the PPI-LF is forecast using an ARIMA process on 6 years of monthly data (a sample size of 72) with the most recent available monthly data being the first month of the quarter prior to the forecast quarter. For a first quarter forecast, the most recent month of data available would be for October of the prior year. For a second quarter forecast, January would normally be the most recent month available. April and July would be the most recent months available for third and fourth quarter forecasts, respectively. The output from the forecast model is shown on page 2 of this appendix for 1982=100. The figure forecast by the model is 3.6 percent lower than the prior quarter forecast.

Forecast of Other Expense Index (1982=100)	249.8
Forecast of Other Expense Index (1980=100)	280.0
Change from previous quarter forecast	-3.6%
Change from actual first month of previous quarter	-2.4%
Change from same quarter of prior year (actual)	-0.8%



Other Expenses

First Quarter 2023

PPI INDUSTRIAL COMMODITIES LESS FUEL AND RELATED PRODUCTS AND POWER

Expert Analysis

Using rule-based logic I have narrowed down the choice to exponential smoothing or Box-Jenkins.
I will perform an out-of-sample test to select between these two approaches.

The cumulative MAD for Exponential smoothing was 2.61 and for Box-Jenkins was 3.34.
The rolling out-of-sample test used a maximum horizon of 12 and generated 78 forecasts for each method.

Based on the lower MAD, I will use Exponential Smoothing.

Model Details

Expert selection

Multiplicative Winters: Linear trend, Multiplicative seasonality
LM(0.939, 0.998, 0.999)

Confidence limits proportional to indexes and level

Component	Smoothing Wgt	Final Value
Level	0.941	255.7
Trend	0.9996	-1.509
Seasonal	1	

Seasonal Indexes

Jan - Mar	1.002	0.9992	1
Apr - Jun	0.999	0.9994	0.9994
Jul - Sep	0.9996	1	0.9999
Oct - Dec	1.001	1.001	0.9998

Within-Sample Statistics

Sample size	72	No. parameters	3
Mean	216.59	Std. deviation	19.98
R-square	1	Adj. R-square	1
Durbin-Watson	1.8	Ljung-Box(18)	19.0 P=0.61
Forecast error	0.76	BIC	0.81
MAPE	0.25	SMAPE	0.25
RMSE	0.74	MAD	0.54
MAD/Mean Ratio	0		

Actual Values for the Most Recent 6 Periods:

Actual

2022-May	260.1
2022-Jun	260.4
2022-Jul	259.5
2022-Aug	258.6
2022-Sep	257.2
2022-Oct	255.9

Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2022-Nov	252.529	254.339	256.149
2022-Dec	248.789	252.646	256.504
2023-Jan	246.502	251.648	256.794
2023-Feb	243.322	249.495	255.668
2023-Mar	241.157	248.206	255.255
QTR AVG	243.660	249.783	255.906

Railroad and Union Abbreviations

First Quarter 2023

Railroads

BLE	Bessemer & Lake Erie Railroad (Part of CN's Grand Trunk Corp.)
BNSF	BNSF Railway Company
CC	Chicago, Central & Pacific (Part of CN's Grand Trunk Corp. Sometimes noted as CC&P.)
CN	Canadian National Railway (Commonly known as CN, owns Grand Trunk Corporation.)
CNGT	AAR's abbreviation for Grand Trunk Corporation (Almost all of CN's U.S. operations.)
CP	Canadian Pacific (Also noted as CPR. Owns the U.S. Class I railroad Soo Line.)
CPSL	AAR's abbreviation for Soo Line Corporation (CP's U.S. operations including SOO, D&H, and DME.)
CSX	CSX Transportation
D&H	Delaware & Hudson (Part of Canadian Pacific's U.S. operations, included beginning 2011Q4.)
DME	Dakota, Minnesota & Eastern (Part of Canadian Pacific's U.S. operations, included beginning 2011Q4.)
CMQ	Central Maine & Quebec (Part of Canadian Pacific's U.S. operations, included beginning 2021Q4.)
GTW	Grand Trunk Western Railroad (Part of CN's Grand Trunk Corp.)
IC	Illinois Central Railroad (Part of CN's Grand Trunk Corp.)
KCS	Kansas City Southern Railway
NS	Norfolk Southern Combined Railroad Subsidiaries (a.k.a. Norfolk Southern Railway or NS Rail)
SOO	Soo Line Railroad (The largest part of Canadian Pacific's U.S. operations.)
UP	Union Pacific Railroad
WC	Wisconsin Central and subsidiaries (Part of CN's Grand Trunk Corp.)

Major Unions Involved with Railroads

ATDA	American Train Dispatchers Association
BLET	Brotherhood of Locomotive Engineers and Trainmen Div. of the International Brotherhood of Teamsters
BMWED	Brotherhood of Maintenance of Way Employees Division of the International Brotherhood of Teamsters
BRS	Brotherhood of Railroad Signalmen
IAM	International Association of Machinists and Aerospace Workers
IBBM	International Brotherhood of Boilermakers, Iron Ship Builders, Blacksmiths, Forgers & Helpers
IBEW	International Brotherhood of Electrical Workers
NCFO	National Conference of Firemen and Oilers
SMART-TD	International Association of Sheet Metal, Air, Rail, and Transportation Workers - Transportation Division*
SMART-MD	International Association of Sheet Metal, Air, Rail, and Transportation Workers - Mechanical Division**
TCU	Transportation Communication International Union
TCU-Carmen	Brotherhood of Railway Carmen Division of the Transportation Communications International Union

Predecessor Unions (Some AAR databases use these old abbreviations.)

BLE	Brotherhood of Locomotive Engineers (predecessor to BLET)
BMWE	Brotherhood of Maintenance of Way Employees (predecessor to BMWED)
BRC	Brotherhood of Railway Carmen (predecessor to TCU-Carmen)
IBFO	International Brotherhood of Firemen and Oilers (predecessor to NCFO)
SMW	Sheet Metal Workers' International Association (see SMART-MD)
UTU	United Transportation Union (merged into SMART)
UTU-YMD	United Transportation Union Yardmaster Department (see SMART-TD)

* Represents employees formerly represented by the UTU (conductors and brakemen) and also has a separate yardmasters department.

** Represents employees formerly represented by the SMW (steel workers)

AAR Workpapers Sent to STB for 2023 Q1 RCAF

December 5, 2022

- 1 . Index Calculation Spreadsheet (index_calc.xlsx, 2 pages)
- 2 . Summary of ST and PFTNW Hourly Rates (Summary.xlsx)
- 3 . RCAF Taxable Wages adjustment calculation (TaxableRate.xlsx)
- 4 . National Contracts spreadsheet, 2 sections (2 and 5 pages)
- 5 . Wall Street Journal - 13 week Treasury Bill Rate from recent auction (a.k.a. 3-Mo. T-Bill)
- 6 . 2022/Q4 RCAF Lump Sum Amortization summary, public version (1 page)
- 7 . 2022/Q4 RCAF Back Pay Amortization summary, public version (1 page)
- 8 . Health & Welfare worksheet (1 page)and NRLC H&W Rates for 2023 (1 page)
- 9 . 2023 Tax Rates and Maximum Taxable Earnings from Railroad Retirement Board
- 10 . Railroad Retirement spreadsheet (5 pages)
- 11 . Unemployment Insurance Tax worksheet (1 page)
- 12 . Unemployment Insurance Tax rate for 2023 Memo and RRB Maximum Taxable Earnings (2 pages)
- 13 . 2-page SAS run for 2022 Q4 Unemployment Insurance Tax & 2-page run for restated 2022 Q3
- 14 . 2 pages from EIA including spot prices for various distillates
- 15 . Summary of Materials & Supplies - "U.S. Summary by Composition Category" (1 page)
- 16 . RCAF Car Hire Forecast Spreadsheet for Equipment Rents (2 pages) plus source data page
- 17 . 6 pages of PPI-RE for Depreciation including graph page, input/output, and BLS source data
- 18 . 6 pages of PPI-LF for Other (and Lease Rentals) incl. graph page, input/output, BLS source data
- 19 . Forecast Error calc. and workpapers (10 pages: calc, index actual, fuel, 3 car hire, 2 deprec, 2 other)

RCAF All-Inclusive Index's Labor Index Based on 2021 Benchmarks

	21 Wts.	3Q/22	3Q/22 Rebenched As Info Only	% Chg	4Q/22	% Chg	1Q/23	% Chg	2Q/23	% Chg	3Q/23	% Chg
Straight Time		\$37.452	\$37.443	0.0%	\$37.460	0.0%	\$42.590	13.7%		--		--
PFTNW		\$7.213	\$7.192	-0.3%	\$7.195	-0.2%	\$8.178	13.7%		--		--
Total		\$44.665	\$44.635	-0.1%	\$44.655	0.0%	\$50.768	13.7%	\$0.000	--	\$0.000	--
Adjustments												
Lump Sum		\$0.260	\$0.271		\$0.271		\$0.271					
Back Pay		\$0.002	\$0.002		\$0.013		\$7.021					
Other		\$0.244	\$0.254		\$0.257		\$0.259					
Total Wages		\$45.171	\$45.162	0.0%	\$45.195	0.1%	\$58.319	29.0%	\$0.000	--	\$0.000	--
Pre-Tax Reduction		(\$1.439)	(\$1.437)		(\$1.437)		(\$1.444)					
Taxable Wages		\$43.732	\$43.725		\$43.758		\$56.875		\$0.000		\$0.000	
H & W		\$9.623	\$10.193	5.9%	\$10.193	5.9%	\$9.530	-6.5%		--		--
RR Ret & Medicare		\$9.424	\$9.689	2.8%	\$9.694	2.9%	\$9.769	0.8%		--		--
Unemp. Insurance		\$1.201	\$1.162	-3.3%	\$1.162	-3.3%	\$0.877	-24.5%		--		--
Other		\$0.279	\$0.291	4.3%	\$0.162	-41.8%	\$0.189	16.5%		--		--
Total		\$20.527	\$21.336	3.9%	\$21.212	3.3%	\$20.365	-4.0%	\$0.000	--	\$0.000	--
Adjustments												
Total Supplements		\$20.527	\$21.336	3.9%	\$21.212	3.3%	\$20.365	-4.0%	\$0.000	--	\$0.000	--
Total Labor		\$65.698	\$66.497	1.2%	\$66.407	1.1%	\$78.684	18.5%	\$0.000	--	\$0.000	--
Wage Rate Index	0.7040	386.6	386.5	0.0%	386.8	0.1%	499.1	29.0%	0.0	--	0.0	--
Supplements Index	0.2960	758.6	788.5	3.9%	783.9	3.3%	752.6	-4.0%	0.0	--	0.0	--
Total Labor Index '20 Wts.		495.6										
Total Labor Index '21 Wts.		496.7	505.5	1.8%	504.3	1.5%	574.1	13.8%	0.0	--	0.0	--
Labor Index (Linked)		472.4			479.6	1.5%	546.0	13.8%	0.0	-100.0%	#DIV/0!	--

All Inclusive Index and RCAF using 2021 Benchmarks and Weights

	21 Wts.	3Q/22	21 Wts. 3Q/22	% Chg	4Q/22	% Chg	1Q/23	% Chg	2Q/23	% Chg	3Q/23	% Chg
Labor	0.314	472.40	472.4	0.0%	479.6	1.5%	546.0	13.8%	0.0	-100.0%	#DIV/0!	--
Fuel	0.142	459.60	459.6	0.0%	475.2	3.4%	467.1	-1.7%		--		--
M&S	0.045	305.00	305.0	0.0%	335.3	9.9%	328.9	-1.9%		--		--
Equip. Rents	0.049	256.00	256.0	0.0%	253.8	-0.9%	250.1	-1.5%	0.0	-100.0%	#DIV/0!	--
Depreciation	0.175	233.20	233.2	0.0%	233.3	0.0%	234.8	0.6%		--		--
Interest	0.024	51.10	51.1	0.0%	50.1	-2.0%	50.1	0.0%	50.1	0.0%	50.1	0.0%
Other	0.251	302.40	302.4	0.0%	290.6	-3.9%	280.0	-3.6%		--		--
Weighted Avg.	1.000	350.80	357.8	2.0%	360.6	0.8%	377.4	4.7%	1.2	-99.7%	#DIV/0!	--
Linked		328.70			331.3	0.8%	346.7	4.6%	1.1	-99.7%	#DIV/0!	--
Basing Factor												
10/1/80 basis	102.7	320.1			322.6	0.8%	337.6	4.6%	1.1	-99.7%	#DIV/0!	--
10/1/82	120.9	271.9			274.0	0.8%	286.8	4.7%	0.9	-99.7%	#DIV/0!	--
4Q/87	132.2	248.6			250.6	0.8%	262.3	4.7%	0.8	-99.7%	#DIV/0!	--
4Q/92	156.9	209.5			211.2	0.8%	221.0	4.6%	0.7	-99.7%	#DIV/0!	--
4Q/97	173.2	189.8			191.3	0.8%	200.2	4.7%	0.6	-99.7%	#DIV/0!	--
4Q/02	192.1	171.1			172.5	0.8%	180.5	4.6%	0.6	-99.7%	#DIV/0!	--
4Q/07	245.9	133.7			134.7	0.7%	141.0	4.7%	0.4	-99.7%	#DIV/0!	--
4Q/12	297.6	110.5			111.3	0.7%	116.5	4.7%	0.4	-99.7%	#DIV/0!	--
4Q/17 basis	264.5	124.3			125.3	0.8%	131.1	4.6%	0.4	-99.7%	#DIV/0!	--
Car Hire	0.681	206.90	206.9	0.0%	209.5	1.3%	209.5	0.0%		--		--
Lease Rents	0.319	302.40	302.4	0.0%	290.6	-3.9%	280.0	-3.6%	0.0	--	0.0	--
Weighted Avg Eq Rents		240.60	237.4	-1.3%	235.4	-0.8%	232.0	-1.4%	0.0	--	0.0	--
Linked Equipment Rents		256.00			253.8	-0.9%	250.1	-1.5%	0.0	-100.0%	#DIV/0!	--
Preliminary RCAF		1.243			1.253	0.80%	1.311	4.6%	0.004	-99.7%	#DIV/0!	--
Forecast Error Adj.		0.007			0.042		(0.038)					
RCAF Unadjusted		1.250			1.295	3.60%	1.273	-1.7%	0.004	-99.7%	#DIV/0!	--
PAF		2.4436			2.4588	0.62%	2.4740	0.62%		--		--
RCAF Adjusted		0.512			0.527	2.93%	0.515	-2.3%	#DIV/0!	--	#DIV/0!	--
PAF-5		2.5687			2.5738	0.20%	2.5898	0.62%		--		--
RCAF-5		0.487			0.503	3.29%	0.492	-2.2%	#DIV/0!	--	#DIV/0!	--

Hourly Rate for 2023 Q1

Straight Time and Time Paid For But Not Worked

2023Q1 Straight Time Hourly Rate (from national spreadsheet)	\$42.564
Rebenchmark	

Adjustments to 2021 base:

Added 2022 Q2

Miscellaneous Independents	Nothing	0.000
Soo Corp.	Nothing	0.000

Added 2022 Q3

Miscellaneous Independents	Nothing	0.000
Soo Corp.	Nothing	0.000

Added 2022 Q4

Miscellaneous Independents	Nothing	0.000
Soo Corp.	1 new agreement and a few GWIs	0.019

Added 2023Q1

Miscellaneous Independents	Nothing	0.000
Soo Corp.	Nothing	0.007

Adjusted STHR Total	\$42.590
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Pay For Time Not Worked

PFTNW (from national spreadsheet)				\$8.173
Ratio Adj STHR to Nat STHR	42.590	/	42.564	=
				1.00062

Adjusted Pay For Time Not Worked	\$8.178
---	----------------

Adjusted STHR + Adjusted Pay For Time Not Worked	\$50.768
---	-----------------

Notes:

1. Miscellaneous Independent is mostly trainmen, yardmasters, and non-union plus CN's IAM employees.
Includes 20 union groups with employees and 5 non-union groups with employees.
2. Soo Corp. includes SOO, D&H, DM&E, and CMQ.

National Contracts U.S.

Straight Time Hourly Rate															Check
Weight	UTU	TCU	BLET	SMWIA	BRS	BMWE	TCU-CAR	NCFO	IAM	IBBM	IBEW	ATDA	YDMSTRS	OTHER	Sum
	0.230785	0.029979	0.179992	0.004321	0.047407	0.15861	0.048182	0.011768	0.037162	0.00287	0.031464	0.015627	0.009963	0.191872	1.00000
2021 Avg.	32.747	32.360	35.312	33.481	35.546	30.812	33.489	29.154	34.140	33.504	34.064	45.113	44.124	53.393	507.240
12/31/21	32.747	32.360	35.312	33.481	35.550	30.812	33.490	29.156	34.143	33.504	34.068	46.279	44.131	53.393	508.426
1/1/22	32.747	32.360	35.312	33.481	35.550	30.812	33.490	29.156	34.143	33.504	34.068	46.279	44.131	53.393	
4/1/22	32.747	32.360	35.312	33.481	35.550	30.812	33.490	29.156	34.143	33.504	34.068	46.279	44.131	53.393	
7/1/22	32.747	32.360	35.312	33.481	35.550	30.812	33.490	29.156	34.143	33.504	34.068	46.279	44.131	53.393	
10/1/22	37.267	36.830	40.178	38.202	40.462	35.040	38.121	33.213	38.902	37.801	38.798	50.823	50.245	60.921	
1/1/23	37.267	36.830	40.178	38.202	40.462	35.040	38.121	33.213	38.902	37.801	38.798	50.823	50.245	60.921	
4/1/23	37.267	36.830	40.178	38.202	40.462	35.040	38.121	33.213	38.902	37.801	38.798	50.823	50.245	60.921	
7/1/23	38.726	38.273	41.748	39.730	42.048	36.404	39.617	34.524	40.440	39.176	40.326	52.238	52.219	63.358	

Weighted Straight Time Hourly Rate															
	UTU	TCU	BLET	SMWIA	BRS	BMWE	TCU-CAR	NCFO	IAM	IBBM	IBEW	ATDA	YDMSTRS	OTHER	Total
2021 Avg.	7.558	0.970	6.356	0.145	1.685	4.887	1.614	0.343	1.269	0.096	1.072	0.705	0.440	10.245	37.383
12/31/21	7.558	0.970	6.356	0.145	1.685	4.887	1.614	0.343	1.269	0.096	1.072	0.723	0.440	10.245	37.402
1/1/22	7.558	0.970	6.356	0.145	1.685	4.887	1.614	0.343	1.269	0.096	1.072	0.723	0.440	10.245	37.402
4/1/22	7.558	0.970	6.356	0.145	1.685	4.887	1.614	0.343	1.269	0.096	1.072	0.723	0.440	10.245	37.402
7/1/22	7.558	0.970	6.356	0.145	1.685	4.887	1.614	0.343	1.269	0.096	1.072	0.723	0.440	10.245	37.402
10/1/22	8.601	1.104	7.232	0.165	1.918	5.558	1.837	0.391	1.446	0.108	1.221	0.794	0.501	11.689	42.564
1/1/23	8.601	1.104	7.232	0.165	1.918	5.558	1.837	0.391	1.446	0.108	1.221	0.794	0.501	11.689	42.564
4/1/23	8.601	1.104	7.232	0.165	1.918	5.558	1.837	0.391	1.446	0.108	1.221	0.794	0.501	11.689	42.564
7/1/23	8.937	1.147	7.514	0.172	1.993	5.774	1.909	0.406	1.503	0.112	1.269	0.816	0.520	12.157	44.231

Note: The 2021 Average and 12/31/21 Straight Time Hourly Rates are the industry rates, and include all Class I railroad employees. The rates for 1/1/22 through 7/1/23 are based on the industry year-end rates updated by NATIONAL UNION wage increases using contract information. These national increases are diluted using "percent national" ratios to account for non-national union contracts. The impacts of non-national (or independent contract) increases after 2021 are not shown on this page and are handled separately.

National Contracts U.S.

Pay For Time Not Worked Hourly Rate															Check
Weight	UTU	TCU	BLET	SMWIA	BRS	BMWE	TCU-CAR	NCFO	IAM	IBBM	IBEW	ATDA	YDMSTRS	OTHER	Sum
	0.230785	0.029979	0.179992	0.004321	0.047407	0.15861	0.048182	0.011768	0.037162	0.00287	0.031464	0.015627	0.009963	0.191872	1.00000
2021 Avg.	10.448	4.742	12.377	5.361	8.257	5.523	4.691	3.993	5.203	5.164	6.057	8.695	7.621	1.187	89.319
12/31/21	10.448	4.742	12.377	5.361	8.258	5.523	4.691	3.993	5.203	5.164	6.058	8.919	7.622	1.187	
1/1/22	10.448	4.742	12.377	5.361	8.258	5.523	4.691	3.993	5.203	5.164	6.058	8.919	7.622	1.187	
4/1/22	10.448	4.742	12.377	5.361	8.258	5.523	4.691	3.993	5.203	5.164	6.058	8.919	7.622	1.187	
7/1/22	10.448	4.742	12.377	5.361	8.258	5.523	4.691	3.993	5.203	5.164	6.058	8.919	7.622	1.187	
10/1/22	11.890	5.397	14.082	6.117	9.399	6.281	5.340	4.549	5.928	5.827	6.899	9.795	8.678	1.354	
1/1/23	11.890	5.397	14.082	6.117	9.399	6.281	5.340	4.549	5.928	5.827	6.899	9.795	8.678	1.354	
4/1/23	11.890	5.397	14.082	6.117	9.399	6.281	5.340	4.549	5.928	5.827	6.899	9.795	8.678	1.354	
7/1/23	12.355	5.609	14.633	6.362	9.767	6.526	5.549	4.728	6.163	6.039	7.170	10.068	9.019	1.408	

Pay For Time Not Worked Hourly Rate															Total
	UTU	TCU	BLET	SMWIA	BRS	BMWE	TCU-CAR	NCFO	IAM	IBBM	IBEW	ATDA	YDMSTRS	OTHER	
2021 Avg.	2.411	0.142	2.228	0.023	0.391	0.876	0.226	0.047	0.193	0.015	0.191	0.136	0.076	0.228	7.183
12/31/21	2.411	0.142	2.228	0.023	0.391	0.876	0.226	0.047	0.193	0.015	0.191	0.139	0.076	0.228	7.187
1/1/22	2.411	0.142	2.228	0.023	0.391	0.876	0.226	0.047	0.193	0.015	0.191	0.139	0.076	0.228	7.187
4/1/22	2.411	0.142	2.228	0.023	0.391	0.876	0.226	0.047	0.193	0.015	0.191	0.139	0.076	0.228	7.187
7/1/22	2.411	0.142	2.228	0.023	0.391	0.876	0.226	0.047	0.193	0.015	0.191	0.139	0.076	0.228	7.187
10/1/22	2.744	0.162	2.535	0.026	0.446	0.996	0.257	0.054	0.220	0.017	0.217	0.153	0.086	0.260	8.173
1/1/23	2.744	0.162	2.535	0.026	0.446	0.996	0.257	0.054	0.220	0.017	0.217	0.153	0.086	0.260	8.173
4/1/23	2.744	0.162	2.535	0.026	0.446	0.996	0.257	0.054	0.220	0.017	0.217	0.153	0.086	0.260	8.173
7/1/23	2.851	0.168	2.634	0.027	0.463	1.035	0.267	0.056	0.229	0.017	0.226	0.157	0.090	0.270	8.491

U.S. National Contract

UTU

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				32.74741	10.44784
12/31/21 Industry Rate				32.74742	10.44784
1/1/22			97.885%	32.74742	10.44784
4/1/22			97.885%	32.74742	10.44784
7/1/22			97.885%	32.74742	10.44784
11/1/22	14.10%		97.885%	37.26712	11.88983
1/1/23			97.885%	37.26712	11.88983
4/1/23			97.885%	37.26712	11.88983
7/1/23	4.00%		97.885%	38.72627	12.35536

TCU

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				32.35976	4.74238
12/31/21 Industry Rate				32.35968	4.74237
1/1/22			97.971%	32.35968	4.74237
4/1/22			97.971%	32.35968	4.74237
7/1/22			97.971%	32.35968	4.74237
11/1/22	14.10%		97.971%	36.82980	5.39748
1/1/23			97.971%	36.82980	5.39748
4/1/23			97.971%	36.82980	5.39748
7/1/23	4.00%		97.971%	38.27310	5.60899

BLET

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				35.31235	12.37704
12/31/21 Industry Rate				35.31235	12.37704
1/1/22			97.720%	35.31235	12.37704
4/1/22			97.720%	35.31235	12.37704
7/1/22			97.720%	35.31235	12.37704
11/1/22	14.10%		97.720%	40.17788	14.08242
1/1/23			97.720%	40.17788	14.08242
4/1/23			97.720%	40.17788	14.08242
7/1/23	4.00%		97.720%	41.74836	14.63287

SMWIA

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				33.48139	5.36105
12/31/21 Industry Rate				33.48137	5.36104
1/1/22			100.000%	33.48137	5.36104
4/1/22			100.000%	33.48137	5.36104
7/1/22			100.000%	33.48137	5.36104
11/1/22	14.10%		100.000%	38.20224	6.11695
1/1/23			100.000%	38.20224	6.11695
4/1/23			100.000%	38.20224	6.11695
7/1/23	4.00%		100.000%	39.73033	6.36163

BRS

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				35.54567	8.25699
12/31/21 Industry Rate				35.55011	8.25802
1/1/22			97.989%	35.55011	8.25802
4/1/22			97.989%	35.55011	8.25802
7/1/22			97.989%	35.55011	8.25802
11/1/22	14.10%		97.989%	40.46186	9.39898
1/1/23			97.989%	40.46186	9.39898
4/1/23			97.989%	40.46186	9.39898
7/1/23	4.00%		97.989%	42.04779	9.76738

BMWE

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				30.81232	5.52317
12/31/21 Industry Rate				30.81246	5.52319
1/1/22			97.313%	30.81246	5.52319
4/1/22			97.313%	30.81246	5.52319
7/1/22			97.313%	30.81246	5.52319
11/1/22	14.10%		97.313%	35.04026	6.28103
1/1/23			97.313%	35.04026	6.28103
4/1/23			97.313%	35.04026	6.28103
7/1/23	4.00%		97.313%	36.40421	6.52552

U.S. National Contract

TCU-Carmen

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				33.48920	4.69104
12/31/21 Industry Rate				33.48958	4.69109
1/1/22			98.086%	33.48958	4.69109
4/1/22			98.086%	33.48958	4.69109
7/1/22			98.086%	33.48958	4.69109
11/1/22	14.10%		98.086%	38.12124	5.33988
1/1/23			98.086%	38.12124	5.33988
4/1/23			98.086%	38.12124	5.33988
7/1/23	4.00%		98.086%	39.61690	5.54938

NCFO

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				29.15387	3.99301
12/31/21 Industry Rate				29.15645	3.99337
1/1/22			98.671%	29.15645	3.99337
4/1/22			98.671%	29.15645	3.99337
7/1/22			98.671%	29.15645	3.99337
11/1/22	14.10%		98.671%	33.21286	4.54895
1/1/23			98.671%	33.21286	4.54895
4/1/23			98.671%	33.21286	4.54895
7/1/23	4.00%		98.671%	34.52371	4.72849

IAM

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				34.13992	5.20275
12/31/21 Industry Rate				34.14250	5.20314
1/1/22			98.858%	34.14250	5.20314
4/1/22			98.858%	34.14250	5.20314
7/1/22			98.858%	34.14250	5.20314
11/1/22	14.10%		98.858%	38.90162	5.92840
1/1/23			98.858%	38.90162	5.92840
4/1/23			98.858%	38.90162	5.92840
7/1/23	4.00%		98.858%	40.43991	6.16283

U.S. National Contract

IBBM

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				33.50351	5.16418
12/31/21 Industry Rate				33.50352	5.16418
1/1/22			90.962%	33.50352	5.16418
4/1/22			90.962%	33.50352	5.16418
7/1/22			90.962%	33.50352	5.16418
11/1/22	14.10%		90.962%	37.80057	5.82652
1/1/23			90.962%	37.80057	5.82652
4/1/23			90.962%	37.80057	5.82652
7/1/23	4.00%		90.962%	39.17593	6.03852

IBEW

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				34.06429	6.05711
12/31/21 Industry Rate				34.06779	6.05773
1/1/22			98.467%	34.06779	6.05773
4/1/22			98.467%	34.06779	6.05773
7/1/22			98.467%	34.06779	6.05773
11/1/22	14.10%		98.467%	38.79773	6.89878
1/1/23			98.467%	38.79773	6.89878
4/1/23			98.467%	38.79773	6.89878
7/1/23	4.00%		98.467%	40.32585	7.17050

ATDA

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				45.11347	8.69475
12/31/21 Industry Rate				46.27890	8.91936
1/1/22			69.635%	46.27890	8.91936
4/1/22			69.635%	46.27890	8.91936
7/1/22			69.635%	46.27890	8.91936
11/1/22	14.10%		69.635%	50.82283	9.79511
1/1/23			69.635%	50.82283	9.79511
4/1/23			69.635%	50.82283	9.79511
7/1/23	4.00%		69.635%	52.23846	10.06795

YDMSTRS

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				44.12424	7.62126
12/31/21 Industry Rate				44.13085	7.62240
1/1/22			98.252%	44.13085	7.62240
4/1/22			98.252%	44.13085	7.62240
7/1/22			98.252%	44.13085	7.62240
11/1/22	14.10%		98.252%	50.24455	8.67838
1/1/23			98.252%	50.24455	8.67838
4/1/23			98.252%	50.24455	8.67838
7/1/23	4.00%		98.252%	52.21921	9.01945

OTHER

	Percentage Increase	Cents Increase	Applicable	ST HR	PFTNW HR
2021 Industry Avg.				53.39284	1.18678
12/31/21 Industry Rate				53.39287	1.18678
1/1/22			100.000%	53.39287	1.18678
4/1/22			100.000%	53.39287	1.18678
7/1/22			100.000%	53.39287	1.18678
11/1/22	14.10%		100.000%	60.92127	1.35412
1/1/23			100.000%	60.92127	1.35412
4/1/23			100.000%	60.92127	1.35412
7/1/23	4.00%		100.000%	63.35812	1.40828

Check Sums

	Increase	Applicable	ST HR	PFTNW HR
2021 AVG			507.24025	89.31934
12/31/21			508.42584	
		1341.809%		
		ok matches	ok matches	ok matches
			ok matches	

Should match check sum on National Increase Applicability for U.S. Total page.

All three should match check sums on U.S. Benchmark page.

60 days	5.879	6.062	6.988	2.503
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U.S. Government Rates

Monday, November 28, 2022

Discount Rates [Effective Date: 11/03/22]

	LATEST	WK AGO	52-WEEK	
			HIGH	LOW
	4.00	4.00	4.00	0.25

Federal Funds [Effective Date: 11/03/22]

	LATEST	WK AGO	52-WEEK	
			HIGH	LOW
Effective rate	3.84	n.a.	3.84	0.08
Target rate	3.75-4.00	3.75-4.00	3.75-4.00	0.00-0.25
High	4.0500	4.0500	4.1000	0.0900
Low	3.8100	3.8100	3.8200	0.0500
Bid	3.8300	3.8300	3.8300	0.0600
Offer	3.8700	3.8400	3.8800	0.0800

Treasury Bill Auction

	LATEST	WK AGO	52-WEEK	
			HIGH	LOW
4 weeks	3.970	3.795	3.970	0.020
13 weeks	4.285	4.220	4.285	0.050
26 weeks	4.550	4.520	4.550	0.090

Weekly Survey

Wednesday, November 23, 2022

Freddie Mac

	LATEST	WK AGO	52-WEEK	YEAR AGO

**RCAF Lump Sum Amortization
2023/Q1**

	Quarter of Payment	Quarter Amortization Began	Amount	Annual Per ST Hour	1 Quarter Per ST Hour	U.S. ST Hours
NS - BLET 2021Q4 PPI	2022Q1	2022Q2				223,038,929
NS - BLET 2022 Ave PPI	2022Q1	2022Q2				223,038,929
NS - BLET 2022 TPB	2022Q1	2022Q2				223,038,929
CSX - ATDA 2022Q3	2022Q3	2022Q3				223,038,929
NS - BLET 2022Q1 PPI	2022Q2	2022Q3				223,038,929
NS - BLET 2022Q2 PPI	2022Q3	2022Q4				223,038,929
NS - BLET 2022Q3 PPI	2022Q4	2023Q1				223,038,929
Total			\$59,382,366	0.26624		

Should be slightly less
than amortized amount.

Fell out

NS - BLET 2021Q2 PPI	2021Q3	2021Q4				233,382,710
NS - BLET 2021Q3 PPI	2021Q4	2022Q1				224,055,761

Interest Rate

2021/Q2	0.030
2021/Q3	0.015
2021/Q4	0.055
2022/Q1	0.050
2022/Q2	0.380
2022/Q3	1.060
2022/Q4	2.740
2023/Q1	4.285
2023/Q2	
2023/Q3	
2023/Q4	
2024/Q1	

Lump Sum Adjustment for 2023/Q1	→ 0.270864 or 0.271
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**RCAF Back Pay Amortization
2023/Q1**

	Quarter of Payment	Quarter Amortization Began	Amount	Annual Per ST Hour	1 Quarter Per ST Hr.	U.S. ST Hours	
CMQ - all unions 2022	2022Q1	2022Q2				223,038,929	2021
DME - all unions 2022	2022Q1	2022Q2				223,038,929	2021
CSX - ATDA 2022Q3	2022Q2	2022Q3				223,038,929	2021
DME - BLET 2022Q4	2022Q3	2022Q4				223,038,929	2021
National Contract (All)	2022Q4	2023Q1				223,038,929	2021
Total			\$1,524,846,689	6.83668405			

Should be slightly less
than amortized amount.

Fell out

None

Notes:

"UTU" is now called SMART-TD (Transportation Division), and SMW is now called SMART-MD (Mechanical Division)

CN railroads 2018Q4 = IC BLET, CCP BLET, GTW UTU, GTW UTU-YMD, WC UTU-YMD

CP railroads 2018Q4 = DH BRC, DH IAM, SOO NCFO, SOO IBEW, SOO BRS, SOO UTU-YDM

CP railroads 2019Q3 = DME IAM, SOO IAM, SOO BRC

New National Contracts 2023Q1 = (All Unions) except CP Railroads

Interest Rate

2020/Q2	1.505
2020/Q3	0.130
2020/Q4	0.100
2021/Q1	0.085
2021/Q2	0.030
2021/Q3	0.015
2021/Q4	0.055
2022/Q1	0.050
2022/Q2	0.380
2022/Q3	1.060
2022/Q4	2.740
2023/Q1	4.285
2023/Q2	

Back Pay Adjustment for 2023/Q1

7.02072

or

7.021

Health and Welfare 2023Q1

	Employees Receiving				
	Pay	Monthly Contribution		Total	Total
	2021	2022	2023	2022	2023
1. All Employees					
a. Group health	117,419	\$1,856.96	\$1,972.43	\$218,042,386.24	\$231,600,758.17
b. Group dental	117,419	75.01	69.10	8,807,599.19	8,113,652.90
c. Early retirement major medical	117,419	84.14	65.94	9,879,634.66	7,742,608.86
d. Group vision	117,419	8.51	8.51	999,235.69	999,235.69
2. Supplemental Sickness					
a. Signalmen	5,700	62.17	62.17	354,369.00	354,369.00
b. Shopcrafts	15,459	98.52	98.52	1,523,020.68	1,523,020.68
c. MOW	19,695	48.22	48.22	949,692.90	949,692.90
d. Yardmasters	1,333	74.61	76.77	99,455.13	102,334.41
3. Short-Term Disability					
a. Engineers (CSX, KCS, SOO, UP)	9,062	40.00	40.00	362,480.00	362,480.00
4. Monthly Total Premiums				241,017,873.49	251,748,152.61
5. Monthly Employee Contributions To H&W					
a. National ATDA (BNSF, CSX, KCS, NS, SOO, GTW, WC)	1,486	(\$228.89)	(\$309.21)	(\$340,130.54)	(459,486.06)
b. National BLET (BNSF, CSX, KCS, NS, UP, SOO, DH)	18,899	(\$228.89)	(\$309.21)	(\$4,325,792.11)	(5,843,759.79)
c. National BMW (All except SOO, DME, DH)	19,151	(\$228.89)	(\$309.21)	(\$4,383,472.39)	(5,921,680.71)
d. National BRS (All except DME)	5,667	(\$228.89)	(\$309.21)	(\$1,297,119.63)	(1,752,293.07)
e. National IAM (BNSF, CSX, KCS, NS, SOO, UP)	4,628	(\$228.89)	(\$309.21)	(\$1,059,302.92)	(1,431,023.88)
f. National IBBM (BNSF, CSX, KCS, NS, SOO, UP, IC)	366	(\$228.89)	(\$309.21)	(\$83,773.74)	(113,170.86)
g. National IBEW (All except DME)	3,896	(\$228.89)	(\$309.21)	(\$891,755.44)	(1,204,682.16)
h. National NCFO (All except DME and WC)	1,477	(\$228.89)	(\$309.21)	(\$338,070.53)	(456,703.17)
i. National SMW (BNSF, CSX, KCS, NS, UP, IC)	546	(\$228.89)	(\$309.21)	(\$124,973.94)	(168,828.66)
j. National TCU (All except DME and DH)	3,768	(\$228.89)	(\$309.21)	(\$862,457.52)	(1,165,103.28)
k. National TCU-CAR (All except DME)	5,958	(\$228.89)	(\$309.21)	(\$1,363,726.62)	(1,842,273.18)
l. National UTU (BNSF, CSX, KCS, NS, UP, SOO, DH)	26,843	(\$228.89)	(\$309.21)	(\$6,144,094.27)	(8,300,124.03)
m. Yardmasters (BNSF, CSX, KCS, NS, UP*, SOO, DH)	1,249	(\$228.89)	(\$309.21)	(\$285,883.61)	(\$386,203.29)
n. Misc Indep (DME, CMQ, portions of DH & SOO, portions of CN)	3,357	(\$232.23)	(\$299.75)	(\$779,606.12)	(1,006,269.16)
Total Major Union				(\$22,280,159.38)	(\$30,051,601.30)
All Other Employee Contributions*				(\$3,207,823.72)	(\$3,207,823.72)
6. Net Employer Monthly Payments				\$215,529,890.39	\$218,488,727.59
7. Ratio Projected Year to Base Year, Based on Net Monthly Payments					1.01373
8. H&W hourly rate for base year 2021				\$9.401	
9. H&W hourly rate for projected quarter					\$9.530

* Non-union employee contributions net of opt-outs. The \$22,280,159.38 in major union contributions, plus \$3,207,823.72 in all other employee contributions, totals to the 12-month average of the total employee contributions reported to the AAR in its WF survey.

NATIONAL RAILWAY LABOR CONFERENCE

EMPLOYEE BENEFITS DEPARTMENT

251 - 18th Street, South, Suite 750, Arlington, VA 22202 ~~~ PHONE: (571) 336-7600

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November 16, 2022

Ms. Kiara Williams
Director, Financial Reporting
Association of American Railroads
425 Third Street, SW, Suite 1000
Washington, D.C. 20024

Dear Ms. Williams:

The revised employer monthly Payment Rates which are effective January 1, 2023 are as follows:

Railroad Employees National Health & Welfare Plan & National Railway Carriers/United Transportation Union H&W Plan Non-Hospital Road	\$1,972.43
Railroad Employees National Early Retirement Major Medical Benefit Plan Non-Hospital Road	\$ 65.94
Aetna - National Dental Plan	\$ 69.10
The Hartford - Supplemental Sickness Plans Shop Craft	\$ 98.52
Signal	\$ 62.17
Maintenance of Way	\$ 48.22
Trustmark - Supplemental Sickness Plans Yardmasters	\$ 76.77
EyeMed - National Vision Plan	\$ 8.51

If you have any questions or need clarification, please contact me.

Very truly yours,

Eureka Norment

Eureka Norment

cc: Data@aar.org

**Tax Rates and Maximum Taxable Earnings Under Social Security,
Railroad Retirement and Railroad Unemployment Insurance Programs, Continued**

Period	Railroad Retirement					Railroad Unemployment Insurance				Unemployment Repayment	
	Maximum earnings base [5]		Tax rate (percent) [5]							Tax [6]	
			Tier I	Tier II		Maximum monthly taxable earnings	Employer tax rate [7] (percent)	Surcharge or (pooled credit)	New employer tax rate (percent)		
	Tier I [9]	Tier II	Employer & employee each	Employer	Employee						
1991	53,400	39,600	7.65	16.1	4.9	765	5.55 - 12.0	...	8.00	765	4.0
1992	55,500	41,400	7.65	16.1	4.9	785	3.10 - 12.0	(3.12)	8.00	785	4.0
1993	57,600	42,900	7.65	16.1	4.9	810	0.65 - 12.0	(5.31)	7.30	810	4.0
1994	60,600	45,000	7.65	16.1	4.9	840	0.65 - 12.0	(0.22)	6.06		
1995	61,200	45,300	7.65	16.1	4.9	850	0.65 - 12.0	...	4.15		
1996	62,700	46,500	7.65	16.1	4.9	865	0.65 - 12.0	...	2.31		
1997	65,400	48,600	7.65	16.1	4.9	890	0.65 - 12.0	...	1.16		
1998	68,400	50,700	7.65	16.1	4.9	925	2.15 - 12.0	1.5	0.85		
1999	72,600	53,700	7.65	16.1	4.9	970	2.15 - 12.0	1.5	0.92		
2000	76,200	56,700	7.65	16.1	4.9	1,005	0.65 - 12.0	...	1.67		
2001	80,400	59,700	7.65	16.1	4.9	1,050	2.15 - 12.0	1.5	2.59		
2002	84,900	63,000	7.65	15.6	4.9	1,100	3.15 - 12.0	2.5	2.71		
2003	87,000	64,500	7.65	14.2	4.9	1,120	3.15 - 12.0	2.5	2.36		
2004	87,900	65,100	7.65	13.1	4.9	1,130	2.15 - 12.0	1.5	2.38		
2005	90,000	66,900	7.65	12.6	4.4	1,150	2.15 - 12.0	1.5	3.43		
2006	94,200	69,900	7.65	12.6	4.4	1,195	2.15 - 12.0	1.5	4.03		
2007	97,500	72,600	7.65	12.1	3.9	1,230	2.15 - 12.0	1.5	3.75		
2008	102,000	75,900	7.65	12.1	3.9	1,280	2.15 - 12.0	1.5	3.02		
2009	106,800	79,200	7.65	12.1	3.9	1,330	2.15 - 12.0	1.5	2.61		
2010	106,800	79,200	7.65	12.1	3.9	1,330	2.15 - 12.0	1.5	2.51		
2011	106,800	79,200	[2] 7.65	12.1	3.9	1,330	3.15 - 12.0	2.5	2.50		
2012	110,100	81,900	[2] 7.65	12.1	3.9	1,365	2.15 - 12.0	1.5	2.65		
2013	113,700	84,300	[3] 7.65	12.6	4.4	1,405	0.65 - 12.0	...	3.69		
2014	117,000	87,000	[3] 7.65	12.6	4.4	1,440	0.65 - 12.0	...	4.53		
2015	118,500	88,200	[3] 7.65	13.1	4.9	1,455	2.15 - 12.0	1.5	4.09		
2016	118,500	88,200	[3] 7.65	13.1	4.9	1,455	2.15 - 12.0	1.5	2.52		
2017	127,200	94,500	[3] 7.65	13.1	4.9	1,545	2.15 - 12.0	1.5	1.62		
2018	128,400	95,400	[3] 7.65	13.1	4.9	1,560	2.15 - 12.0	1.5	1.97		
2019	132,900	98,700	[3] 7.65	13.1	4.9	1,605	2.15 - 12.0	1.5	2.75		
2020	137,700	102,300	[3] 7.65	13.1	4.9	1,655	0.65 - 12.0	...	3.10		
2021	142,800	106,200	[3] 7.65	13.1	4.9	1,710	3.15 - 12.0	2.5	3.15		
2022	147,000	109,200	[3] 7.65	13.1	4.9	1,755	4.15 - 12.5	3.5	2.62		
2023	160,200	118,800	[3] 7.65	13.1	4.9	1,895	2.15 - 12.0	1.5	2.82		
2024 and later	[4]	[4]	[3] 7.65	[10]	[10]	[4]	[7]	[7]	[7]		

See footnotes at end of table.

Railroad Retirement and Medicare for RCAF

Inputs:

RRB Earnings Distribution Year	2020	Tier I Maximum Taxable Earnings for 2023	160,200
Wage Statistics Year	2021	Tier II Maximum Taxable Earnings for 2023	118,800
Current Year	2023	Medicare Maximum Taxable Earnings for 2023	no limit
Employees Receiving Pay*	117,419	Tier I Employer Tax Rate for 2023	6.20%
* from 2021 final wage statistics		Tier II Employer Tax Rate for 2023	13.10%
		Medicare Employer Tax Rate for 2023	1.45%

USA RCAF	Wage Rate	Update Factor	Railroad Retirement Tax	Hourly Rate
2020	\$43.981			
2021	\$43.459	0.98813	\$529,869,982	\$9.587
1Q/2023	\$43.482	0.98866	\$539,933,467	\$9.769
2Q/2023	\$43.606	0.99148	\$541,244,192	\$9.793
3Q/2023	\$43.732	0.99434	\$542,576,058	\$9.817
4Q/2023	\$43.758	0.99494	\$542,852,604	\$9.822

Railroad Retirement & Medicare, U.S.

From 2020 Earnings Distribution			1Q/2023 Updated Using Earnings Distribution & Wage Statistics, plus Current Wage Rates with Current Tax Info									
Earnings Groups	Avg Ann. Earnings	% of Total Employees	Employees Recvg. Pay	Annual Earnings	Avg Qtlly Earnings	Tier I Taxable	Tier II Taxable	Medicare Taxable	Total Taxable Earnings (Taxable x Employees)			
									Tier I	Tier II	Medicare	
\$0 - 41,699	\$29,135	1.023 %	1,201	\$28,805	\$7,201	\$7,201	\$7,201	\$7,201	\$8,649,975	\$8,649,975	\$8,649,975	
41,700 - 43,699	\$43,170	0.241	283	42,680	10,670	10,670	10,670	10,670	3,019,418	3,019,418	3,019,418	
43,700 - 45,699	\$44,951	0.602	707	44,441	11,110	11,110	11,110	11,110	7,853,442	7,853,442	7,853,442	
45,700 - 47,699	\$46,889	0.722	848	46,357	11,589	11,589	11,589	11,589	9,824,996	9,824,996	9,824,996	
47,700 - 49,699	\$49,192	0.301	353	48,634	12,159	12,159	12,159	12,159	4,297,196	4,297,196	4,297,196	
49,700 - 51,699	\$50,718	0.903	1,060	50,143	12,536	12,536	12,536	12,536	13,291,503	13,291,503	13,291,503	
51,700 - 53,699	\$52,814	0.662	777	52,215	13,054	13,054	13,054	13,054	10,146,851	10,146,851	10,146,851	
53,700 - 55,699	\$54,722	1.144	1,343	54,101	13,525	13,525	13,525	13,525	18,168,212	18,168,212	18,168,212	
55,700 - 57,699	\$56,670	1.445	1,697	56,027	14,007	14,007	14,007	14,007	23,765,408	23,765,408	23,765,408	
57,700 - 59,699	\$58,720	0.963	1,131	58,054	14,513	14,513	14,513	14,513	16,411,057	16,411,057	16,411,057	
59,700 - 61,699	\$60,685	1.505	1,767	59,997	14,999	14,999	14,999	14,999	26,505,870	26,505,870	26,505,870	
61,700 - 63,699	\$62,702	2.288	2,687	61,991	15,498	15,498	15,498	15,498	41,635,293	41,635,293	41,635,293	
63,700 - 65,699	\$64,670	2.769	3,251	63,936	15,984	15,984	15,984	15,984	51,969,678	51,969,678	51,969,678	
65,700 - 67,699	\$66,717	4.214	4,948	65,960	16,490	16,490	16,490	16,490	81,593,442	81,593,442	81,593,442	
67,700 - 69,699	\$68,810	3.793	4,454	68,030	17,007	17,007	17,007	17,007	75,745,810	75,745,810	75,745,810	
69,700 - 71,699	\$70,608	4.455	5,231	69,807	17,452	17,452	17,452	17,452	91,290,551	91,290,551	91,290,551	
71,700 - 73,699	\$72,626	3.913	4,595	71,802	17,951	17,951	17,951	17,951	82,475,733	82,475,733	82,475,733	
73,700 - 75,699	\$74,684	3.793	4,454	73,837	18,459	18,459	18,459	18,459	82,211,889	82,211,889	82,211,889	
75,700 - 77,699	\$76,849	3.070	3,605	75,977	18,994	18,994	18,994	18,994	68,470,076	68,470,076	68,470,076	
77,700 - 79,699	\$78,714	3.070	3,605	77,821	19,455	19,455	19,455	19,455	70,131,733	70,131,733	70,131,733	
79,700 - 81,699	\$80,712	3.552	4,171	79,797	19,949	19,949	19,949	19,949	83,202,290	83,202,290	83,202,290	
81,700 - 83,699	\$82,591	2.047	2,404	81,654	20,414	20,414	20,414	20,414	49,065,336	49,065,336	49,065,336	
83,700 - 85,699	\$84,572	2.709	3,181	83,613	20,903	20,903	20,903	20,903	66,490,534	66,490,534	66,490,534	
85,700 - 87,699	\$86,748	2.830	3,323	85,764	21,441	21,441	21,441	21,441	71,247,580	71,247,580	71,247,580	
87,700 - 89,699	\$88,822	3.371	3,958	87,815	21,954	21,954	21,954	21,954	86,896,746	86,896,746	86,896,746	
89,700 - 91,699	\$90,488	2.047	2,404	89,462	22,365	22,365	22,365	22,365	53,756,755	53,756,755	53,756,755	
91,700 - 93,699	\$92,856	2.709	3,181	91,803	22,951	22,951	22,951	22,951	73,003,417	73,003,417	73,003,417	
93,700 - 95,699	\$94,580	2.950	3,464	93,507	23,377	23,377	23,377	23,377	80,973,990	80,973,990	80,973,990	
95,700 - 97,699	\$96,766	1.746	2,050	95,668	23,917	23,917	23,917	23,917	49,033,313	49,033,313	49,033,313	
97,700 - 99,699	\$98,698	2.589	3,040	97,579	24,395	24,395	24,395	24,395	74,159,128	74,159,128	74,159,128	
99,700 - 101,699	\$100,644	2.228	2,616	99,502	24,876	24,876	24,876	24,876	65,076,965	65,076,965	65,076,965	
101,700 - 103,699	\$102,670	1.746	2,050	101,505	25,376	25,376	25,376	25,376	52,024,991	52,024,991	52,024,991	
103,700 - 105,699	\$104,718	2.167	2,544	103,530	25,883	25,883	25,883	25,883	65,857,382	65,857,382	65,857,382	
105,700 - 107,699	\$106,632	2.529	2,970	105,423	26,356	26,356	26,356	26,356	78,263,740	78,263,740	78,263,740	
107,700 - 109,699	\$108,627	1.385	1,626	107,395	26,849	26,849	26,849	26,849	43,662,819	43,662,819	43,662,819	
109,700 - 111,699	\$110,789	1.445	1,697	109,532	27,383	27,383	27,383	27,383	46,461,016	46,461,016	46,461,016	
111,700 - 113,699	\$112,619	1.866	2,191	111,342	27,835	27,835	27,835	27,835	60,988,439	60,988,439	60,988,439	
113,700 - 115,699	\$114,639	1.626	1,909	113,339	28,335	28,335	28,335	28,335	54,097,493	54,097,493	54,097,493	
\$115,700 - over	\$145,306	17.580	20,642	143,658	35,914	35,914	29,700	35,914	<u>741,355,699</u>	<u>613,075,128</u>	<u>741,355,699</u>	
TOTAL	\$92,450	99.998	117,417						Total Taxable Earnings	2,683,075,766	2,554,795,195	2,683,075,766
									Employer Tax Rate	6.20%	13.10%	1.45%
									Quarterly Payment	\$166,350,698	\$334,678,171	\$38,904,599

Total Tier I, Tier II, and Medicare Paid this Quarter

\$539,933,467

Railroad Retirement & Medicare, U.S.

From 2020 Earnings Distribution			2Q/2023 Updated Using Earnings Distribution & Wage Statistics, plus Current Wage Rates with Current Tax Info								
Earnings Groups	Avg Ann. Earnings	% of Total Employees	Employees Recvg. Pay	Annual Earnings	Avg Qtly Earnings	Tier I Taxable	Tier II Taxable	Medicare Taxable	Total Taxable Earnings (Taxable x Employees)		
									Tier I	Tier II	Medicare
\$0 - 41,699	\$29,135	1.023 %	1,201	\$28,887	\$7,222	\$7,222	\$7,222	\$7,222	\$8,674,643	\$8,674,643	\$8,674,643
41,700 - 43,699	\$43,170	0.241	283	42,802	10,701	10,701	10,701	10,701	3,028,029	3,028,029	3,028,029
43,700 - 45,699	\$44,951	0.602	707	44,568	11,142	11,142	11,142	11,142	7,875,838	7,875,838	7,875,838
45,700 - 47,699	\$46,889	0.722	848	46,489	11,622	11,622	11,622	11,622	9,853,014	9,853,014	9,853,014
47,700 - 49,699	\$49,192	0.301	353	48,773	12,193	12,193	12,193	12,193	4,309,451	4,309,451	4,309,451
49,700 - 51,699	\$50,718	0.903	1,060	50,286	12,571	12,571	12,571	12,571	13,329,407	13,329,407	13,329,407
51,700 - 53,699	\$52,814	0.662	777	52,364	13,091	13,091	13,091	13,091	10,175,787	10,175,787	10,175,787
53,700 - 55,699	\$54,722	1.144	1,343	54,256	13,564	13,564	13,564	13,564	18,220,024	18,220,024	18,220,024
55,700 - 57,699	\$56,670	1.445	1,697	56,187	14,047	14,047	14,047	14,047	23,833,181	23,833,181	23,833,181
57,700 - 59,699	\$58,720	0.963	1,131	58,220	14,555	14,555	14,555	14,555	16,457,857	16,457,857	16,457,857
59,700 - 61,699	\$60,685	1.505	1,767	60,168	15,042	15,042	15,042	15,042	26,581,459	26,581,459	26,581,459
61,700 - 63,699	\$62,702	2.288	2,687	62,168	15,542	15,542	15,542	15,542	41,754,027	41,754,027	41,754,027
63,700 - 65,699	\$64,670	2.769	3,251	64,119	16,030	16,030	16,030	16,030	52,117,883	52,117,883	52,117,883
65,700 - 67,699	\$66,717	4.214	4,948	66,148	16,537	16,537	16,537	16,537	81,826,126	81,826,126	81,826,126
67,700 - 69,699	\$68,810	3.793	4,454	68,224	17,056	17,056	17,056	17,056	75,961,818	75,961,818	75,961,818
69,700 - 71,699	\$70,608	4.455	5,231	70,006	17,502	17,502	17,502	17,502	91,550,890	91,550,890	91,550,890
71,700 - 73,699	\$72,626	3.913	4,595	72,007	18,002	18,002	18,002	18,002	82,710,934	82,710,934	82,710,934
73,700 - 75,699	\$74,684	3.793	4,454	74,047	18,512	18,512	18,512	18,512	82,446,337	82,446,337	82,446,337
75,700 - 77,699	\$76,849	3.070	3,605	76,194	19,049	19,049	19,049	19,049	68,665,336	68,665,336	68,665,336
77,700 - 79,699	\$78,714	3.070	3,605	78,043	19,511	19,511	19,511	19,511	70,331,731	70,331,731	70,331,731
79,700 - 81,699	\$80,712	3.552	4,171	80,024	20,006	20,006	20,006	20,006	83,439,562	83,439,562	83,439,562
81,700 - 83,699	\$82,591	2.047	2,404	81,887	20,472	20,472	20,472	20,472	49,205,259	49,205,259	49,205,259
83,700 - 85,699	\$84,572	2.709	3,181	83,851	20,963	20,963	20,963	20,963	66,680,148	66,680,148	66,680,148
85,700 - 87,699	\$86,748	2.830	3,323	86,009	21,502	21,502	21,502	21,502	71,450,761	71,450,761	71,450,761
87,700 - 89,699	\$88,822	3.371	3,958	88,065	22,016	22,016	22,016	22,016	87,144,554	87,144,554	87,144,554
89,700 - 91,699	\$90,488	2.047	2,404	89,717	22,429	22,429	22,429	22,429	53,910,056	53,910,056	53,910,056
91,700 - 93,699	\$92,856	2.709	3,181	92,065	23,016	23,016	23,016	23,016	73,211,605	73,211,605	73,211,605
93,700 - 95,699	\$94,580	2.950	3,464	93,774	23,443	23,443	23,443	23,443	81,204,908	81,204,908	81,204,908
95,700 - 97,699	\$96,766	1.746	2,050	95,941	23,985	23,985	23,985	23,985	49,173,144	49,173,144	49,173,144
97,700 - 99,699	\$98,698	2.589	3,040	97,857	24,464	24,464	24,464	24,464	74,370,612	74,370,612	74,370,612
99,700 - 101,699	\$100,644	2.228	2,616	99,786	24,947	24,947	24,947	24,947	65,262,548	65,262,548	65,262,548
101,700 - 103,699	\$102,670	1.746	2,050	101,795	25,449	25,449	25,449	25,449	52,173,354	52,173,354	52,173,354
103,700 - 105,699	\$104,718	2.167	2,544	103,825	25,956	25,956	25,956	25,956	66,045,191	66,045,191	66,045,191
105,700 - 107,699	\$106,632	2.529	2,970	105,723	26,431	26,431	26,431	26,431	78,486,929	78,486,929	78,486,929
107,700 - 109,699	\$108,627	1.385	1,626	107,701	26,925	26,925	26,925	26,925	43,787,335	43,787,335	43,787,335
109,700 - 111,699	\$110,789	1.445	1,697	109,845	27,461	27,461	27,461	27,461	46,593,511	46,593,511	46,593,511
111,700 - 113,699	\$112,619	1.866	2,191	111,659	27,915	27,915	27,915	27,915	61,162,363	61,162,363	61,162,363
113,700 - 115,699	\$114,639	1.626	1,909	113,662	28,415	28,415	28,415	28,415	54,251,766	54,251,766	54,251,766
\$115,700 - over	\$145,306	17.580	20,642	144,068	36,017	36,017	29,700	36,017	743,469,864	613,075,128	743,469,864
TOTAL		99.998	117,417				Total Taxable Earnings		2,690,727,240	2,560,332,505	2,690,727,240
							Employer Tax Rate		6.20%	13.10%	1.45%
							Quarterly Payment		\$166,825,089	\$335,403,558	\$39,015,545
Total Tier I, Tier II, and Medicare Paid this Quarter											\$541,244,192

Railroad Retirement & Medicare, U.S.

From 2020 Earnings Distribution			3Q/2023 Updated Using Earnings Distribution & Wage Statistics, plus Current Wage Rates with Current Tax Info								
Earnings Groups	Avg Ann. Earnings	% of Total Employees	Employees Recvg. Pay	Annual Earnings	Avg Qtlly Earnings	Tier I Taxable	Tier II Taxable	Medicare Taxable	Total Taxable Earnings (Taxable x Employees)		
									Tier I	Tier II	Medicare
\$0 - 41,699	\$29,135	1.023 %	1,201	\$28,970	\$7,243	\$7,243	\$7,243	\$7,243	\$8,699,708	\$8,699,708	\$8,699,708
41,700 - 43,699	\$43,170	0.241	283	42,926	10,731	10,731	10,731	10,731	3,036,779	3,036,779	3,036,779
43,700 - 45,699	\$44,951	0.602	707	44,697	11,174	11,174	11,174	11,174	7,898,596	7,898,596	7,898,596
45,700 - 47,699	\$46,889	0.722	848	46,624	11,656	11,656	11,656	11,656	9,881,485	9,881,485	9,881,485
47,700 - 49,699	\$49,192	0.301	353	48,914	12,228	12,228	12,228	12,228	4,321,903	4,321,903	4,321,903
49,700 - 51,699	\$50,718	0.903	1,060	50,431	12,608	12,608	12,608	12,608	13,367,922	13,367,922	13,367,922
51,700 - 53,699	\$52,814	0.662	777	52,515	13,129	13,129	13,129	13,129	10,205,190	10,205,190	10,205,190
53,700 - 55,699	\$54,722	1.144	1,343	54,412	13,603	13,603	13,603	13,603	18,272,671	18,272,671	18,272,671
55,700 - 57,699	\$56,670	1.445	1,697	56,349	14,087	14,087	14,087	14,087	23,902,047	23,902,047	23,902,047
57,700 - 59,699	\$58,720	0.963	1,131	58,388	14,597	14,597	14,597	14,597	16,505,412	16,505,412	16,505,412
59,700 - 61,699	\$60,685	1.505	1,767	60,342	15,085	15,085	15,085	15,085	26,658,266	26,658,266	26,658,266
61,700 - 63,699	\$62,702	2.288	2,687	62,347	15,587	15,587	15,587	15,587	41,874,675	41,874,675	41,874,675
63,700 - 65,699	\$64,670	2.769	3,251	64,304	16,076	16,076	16,076	16,076	52,268,478	52,268,478	52,268,478
65,700 - 67,699	\$66,717	4.214	4,948	66,339	16,585	16,585	16,585	16,585	82,062,564	82,062,564	82,062,564
67,700 - 69,699	\$68,810	3.793	4,454	68,421	17,105	17,105	17,105	17,105	76,181,311	76,181,311	76,181,311
69,700 - 71,699	\$70,608	4.455	5,231	70,208	17,552	17,552	17,552	17,552	91,815,427	91,815,427	91,815,427
71,700 - 73,699	\$72,626	3.913	4,595	72,215	18,054	18,054	18,054	18,054	82,949,928	82,949,928	82,949,928
73,700 - 75,699	\$74,684	3.793	4,454	74,261	18,565	18,565	18,565	18,565	82,684,566	82,684,566	82,684,566
75,700 - 77,699	\$76,849	3.070	3,605	76,414	19,104	19,104	19,104	19,104	68,863,745	68,863,745	68,863,745
77,700 - 79,699	\$78,714	3.070	3,605	78,269	19,567	19,567	19,567	19,567	70,534,956	70,534,956	70,534,956
79,700 - 81,699	\$80,712	3.552	4,171	80,255	20,064	20,064	20,064	20,064	83,680,662	83,680,662	83,680,662
81,700 - 83,699	\$82,591	2.047	2,404	82,124	20,531	20,531	20,531	20,531	49,347,438	49,347,438	49,347,438
83,700 - 85,699	\$84,572	2.709	3,181	84,093	21,023	21,023	21,023	21,023	66,872,821	66,872,821	66,872,821
85,700 - 87,699	\$86,748	2.830	3,323	86,257	21,564	21,564	21,564	21,564	71,657,219	71,657,219	71,657,219
87,700 - 89,699	\$88,822	3.371	3,958	88,319	22,080	22,080	22,080	22,080	87,396,359	87,396,359	87,396,359
89,700 - 91,699	\$90,488	2.047	2,404	89,976	22,494	22,494	22,494	22,494	54,065,830	54,065,830	54,065,830
91,700 - 93,699	\$92,856	2.709	3,181	92,331	23,083	23,083	23,083	23,083	73,423,151	73,423,151	73,423,151
93,700 - 95,699	\$94,580	2.950	3,464	94,045	23,511	23,511	23,511	23,511	81,439,550	81,439,550	81,439,550
95,700 - 97,699	\$96,766	1.746	2,050	96,218	24,055	24,055	24,055	24,055	49,315,231	49,315,231	49,315,231
97,700 - 99,699	\$98,698	2.589	3,040	98,140	24,535	24,535	24,535	24,535	74,585,506	74,585,506	74,585,506
99,700 - 101,699	\$100,644	2.228	2,616	100,075	25,019	25,019	25,019	25,019	65,451,125	65,451,125	65,451,125
101,700 - 103,699	\$102,670	1.746	2,050	102,089	25,522	25,522	25,522	25,522	52,324,109	52,324,109	52,324,109
103,700 - 105,699	\$104,718	2.167	2,544	104,125	26,031	26,031	26,031	26,031	66,236,029	66,236,029	66,236,029
105,700 - 107,699	\$106,632	2.529	2,970	106,029	26,507	26,507	26,507	26,507	78,713,718	78,713,718	78,713,718
107,700 - 109,699	\$108,627	1.385	1,626	108,012	27,003	27,003	27,003	27,003	43,913,859	43,913,859	43,913,859
109,700 - 111,699	\$110,789	1.445	1,697	110,162	27,541	27,541	27,541	27,541	46,728,144	46,728,144	46,728,144
111,700 - 113,699	\$112,619	1.866	2,191	111,982	27,995	27,995	27,995	27,995	61,339,092	61,339,092	61,339,092
113,700 - 115,699	\$114,639	1.626	1,909	113,990	28,498	28,498	28,498	28,498	54,408,527	54,408,527	54,408,527
\$115,700 - over	\$145,306	17.580	20,642	144,484	36,121	36,121	29,700	36,121	<u>745,618,128</u>	<u>613,075,128</u>	<u>745,618,128</u>
TOTAL		99.998	117,417				Total Taxable Earnings		2,698,502,125	2,565,959,125	2,698,502,125
							Employer Tax Rate		6.20%	13.10%	1.45%
							Quarterly Payment		\$167,307,132	\$336,140,645	\$39,128,281

Total Tier I, Tier II, and Medicare Paid this Quarter

\$542,576,058

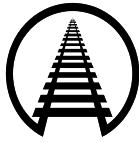
Railroad Retirement & Medicare, U.S.

From 2020 Earnings Distribution			4Q/2023 Updated Using Earnings Distribution & Wage Statistics, plus Current Wage Rates with Current Tax Info								
Earnings Groups	Avg Ann. Earnings	% of Total Employees	Employees Recvg. Pay	Annual Earnings	Avg Qtly Earnings	Tier I Taxable	Tier II Taxable	Medicare Taxable	Total Taxable Earnings (Taxable x Employees)		
									Tier I	Tier II	Medicare
\$0 - 41,699	\$29,135	1.023 %	1,201	\$28,987	\$7,247	\$7,247	\$7,247	\$7,247	\$8,704,913	\$8,704,913	\$8,704,913
41,700 - 43,699	\$43,170	0.241	283	42,951	10,738	10,738	10,738	10,738	3,038,595	3,038,595	3,038,595
43,700 - 45,699	\$44,951	0.602	707	44,723	11,181	11,181	11,181	11,181	7,903,321	7,903,321	7,903,321
45,700 - 47,699	\$46,889	0.722	848	46,652	11,663	11,663	11,663	11,663	9,887,396	9,887,396	9,887,396
47,700 - 49,699	\$49,192	0.301	353	48,943	12,236	12,236	12,236	12,236	4,324,489	4,324,489	4,324,489
49,700 - 51,699	\$50,718	0.903	1,060	50,461	12,615	12,615	12,615	12,615	13,375,919	13,375,919	13,375,919
51,700 - 53,699	\$52,814	0.662	777	52,547	13,137	13,137	13,137	13,137	10,211,295	10,211,295	10,211,295
53,700 - 55,699	\$54,722	1.144	1,343	54,445	13,611	13,611	13,611	13,611	18,283,602	18,283,602	18,283,602
55,700 - 57,699	\$56,670	1.445	1,697	56,383	14,096	14,096	14,096	14,096	23,916,346	23,916,346	23,916,346
57,700 - 59,699	\$58,720	0.963	1,131	58,423	14,606	14,606	14,606	14,606	16,515,286	16,515,286	16,515,286
59,700 - 61,699	\$60,685	1.505	1,767	60,378	15,094	15,094	15,094	15,094	26,674,214	26,674,214	26,674,214
61,700 - 63,699	\$62,702	2.288	2,687	62,385	15,596	15,596	15,596	15,596	41,899,727	41,899,727	41,899,727
63,700 - 65,699	\$64,670	2.769	3,251	64,343	16,086	16,086	16,086	16,086	52,299,748	52,299,748	52,299,748
65,700 - 67,699	\$66,717	4.214	4,948	66,379	16,595	16,595	16,595	16,595	82,111,657	82,111,657	82,111,657
67,700 - 69,699	\$68,810	3.793	4,454	68,462	17,115	17,115	17,115	17,115	76,226,886	76,226,886	76,226,886
69,700 - 71,699	\$70,608	4.455	5,231	70,250	17,563	17,563	17,563	17,563	91,870,355	91,870,355	91,870,355
71,700 - 73,699	\$72,626	3.913	4,595	72,258	18,065	18,065	18,065	18,065	82,999,552	82,999,552	82,999,552
73,700 - 75,699	\$74,684	3.793	4,454	74,306	18,576	18,576	18,576	18,576	82,734,032	82,734,032	82,734,032
75,700 - 77,699	\$76,849	3.070	3,605	76,460	19,115	19,115	19,115	19,115	68,904,942	68,904,942	68,904,942
77,700 - 79,699	\$78,714	3.070	3,605	78,315	19,579	19,579	19,579	19,579	70,577,153	70,577,153	70,577,153
79,700 - 81,699	\$80,712	3.552	4,171	80,303	20,076	20,076	20,076	20,076	83,730,723	83,730,723	83,730,723
81,700 - 83,699	\$82,591	2.047	2,404	82,173	20,543	20,543	20,543	20,543	49,376,959	49,376,959	49,376,959
83,700 - 85,699	\$84,572	2.709	3,181	84,144	21,036	21,036	21,036	21,036	66,912,827	66,912,827	66,912,827
85,700 - 87,699	\$86,748	2.830	3,323	86,309	21,577	21,577	21,577	21,577	71,700,087	71,700,087	71,700,087
87,700 - 89,699	\$88,822	3.371	3,958	88,372	22,093	22,093	22,093	22,093	87,448,643	87,448,643	87,448,643
89,700 - 91,699	\$90,488	2.047	2,404	90,030	22,507	22,507	22,507	22,507	54,098,174	54,098,174	54,098,174
91,700 - 93,699	\$92,856	2.709	3,181	92,386	23,096	23,096	23,096	23,096	73,467,075	73,467,075	73,467,075
93,700 - 95,699	\$94,580	2.950	3,464	94,101	23,525	23,525	23,525	23,525	81,488,271	81,488,271	81,488,271
95,700 - 97,699	\$96,766	1.746	2,050	96,276	24,069	24,069	24,069	24,069	49,344,733	49,344,733	49,344,733
97,700 - 99,699	\$98,698	2.589	3,040	98,198	24,550	24,550	24,550	24,550	74,630,127	74,630,127	74,630,127
99,700 - 101,699	\$100,644	2.228	2,616	100,134	25,034	25,034	25,034	25,034	65,490,281	65,490,281	65,490,281
101,700 - 103,699	\$102,670	1.746	2,050	102,150	25,538	25,538	25,538	25,538	52,355,411	52,355,411	52,355,411
103,700 - 105,699	\$104,718	2.167	2,544	104,188	26,047	26,047	26,047	26,047	66,275,655	66,275,655	66,275,655
105,700 - 107,699	\$106,632	2.529	2,970	106,092	26,523	26,523	26,523	26,523	78,760,807	78,760,807	78,760,807
107,700 - 109,699	\$108,627	1.385	1,626	108,077	27,019	27,019	27,019	27,019	43,940,130	43,940,130	43,940,130
109,700 - 111,699	\$110,789	1.445	1,697	110,228	27,557	27,557	27,557	27,557	46,756,099	46,756,099	46,756,099
111,700 - 113,699	\$112,619	1.866	2,191	112,049	28,012	28,012	28,012	28,012	61,375,788	61,375,788	61,375,788
113,700 - 115,699	\$114,639	1.626	1,909	114,059	28,515	28,515	28,515	28,515	54,441,077	54,441,077	54,441,077
\$115,700 - over	\$145,306	17.580	20,642	144,570	36,143	36,143	29,700	36,143	<u>746,064,189</u>	<u>613,075,128</u>	<u>746,064,189</u>
TOTAL		99.998	117,417				Total Taxable Earnings		2,700,116,485	2,567,127,424	2,700,116,485
							Employer Tax Rate		6.20%	13.10%	1.45%
							Quarterly Payment		\$167,407,222	\$336,293,693	\$39,151,689
Total Tier I, Tier II, and Medicare Paid this Quarter											\$542,852,604

RCAF Unemployment Insurance Tax

	Unemployment Ins.			RRB	Factor	Avg. Ann.	Un. Ins.
	Tax	Earnings	Hourly	Sample	To Update	Taxable	Hourly
	Rate	Base	Earnings	Year	RRB Sample	Earnings	Rate
			\$39.599	(2017)			
2018 Avg.	3.76%	\$18,720	\$41.687		1.052729	\$17,600.87	\$0.347
3Q/19 reb.	3.38%	\$19,260	\$43.672		1.102856	\$18,120.16	\$0.321
4Q/19	3.38%	\$19,260	\$43.660		1.102553	\$18,119.99	\$0.321
1Q/20	0.99%	\$19,860	\$43.839		1.107073	\$18,666.82	\$0.097
2Q/20	0.99%	\$19,860	\$43.626		1.101694	\$18,663.57	\$0.097
3Q/20	0.99%	\$19,860	\$43.572		1.100331	\$18,662.74	\$0.097
			\$41.687	(2018)			
2019 Avg.	3.38%	\$19,260	\$43.000		1.031497	\$17,742.46	\$0.318
3Q/20 reb.	0.99%	\$19,860	\$43.596		1.045794	\$18,283.51	\$0.096
4Q/20	0.99%	\$19,860	\$43.596		1.045794	\$18,283.51	\$0.096
1Q/21	5.69%	\$20,520	\$43.620		1.046369	\$18,867.16	\$0.569
2Q/21	5.69%	\$20,520	\$43.397		1.041020	\$18,863.22	\$0.569
3Q/21	5.69%	\$20,520	\$43.326		1.039317	\$18,861.96	\$0.569
			\$43.000	(2019)			
2020 Avg.	0.99%	\$19,860	\$43.981		1.022814	\$18,813.21	\$0.100
3Q/21 reb.	5.69%	\$20,520	\$43.508		1.011814	\$19,413.47	\$0.593
4Q/21	5.69%	\$20,520	\$43.504		1.011721	\$19,413.42	\$0.593
1Q/22	11.23%	\$21,060	\$43.482		1.011209	\$19,907.93	\$1.200
2Q/22	11.23%	\$21,060	\$43.606		1.014093	\$19,909.70	\$1.200
3Q/22	11.23%	\$21,060	\$43.732		1.017023	\$19,911.50	\$1.201
		\$1,755	\$43.981	(2020)			
2021 Avg.	5.69%	\$20,520	\$43.459		0.988125	\$19,350.22	\$0.574
3Q/22 reb.	11.23%	\$21,060	\$43.725		0.994174	\$19,846.09	\$1.162
4Q/22	11.23%	\$21,060	\$43.758		0.994933	\$19,846.60	\$1.162
1Q/23	7.79%	\$22,740	\$56.875		1.293172	\$21,601.54	\$0.877
2Q/23			\$52.254		1.188104		\$0.000
3Q/23			\$52.254		1.188104		\$0.000

Note: Average Annual Taxable Earnings is calculated from the RRB 1% sample data, by multiplying the average annual earnings in the file times the "Factor", and limiting the amount to the earnings base. Thus, the annual hourly earnings used for the calculation of the Factor is for the RRB sample year, and the Factor brings the earnings in the RRB 1% sample file to the current quarter's level.



ASSOCIATION OF
AMERICAN RAILROADS

M E M O R A N D U M

TO: File
FROM: Kiara Williams
DATE: November 29, 2022
RE: Unemployment Insurance Tax Rate for 2023

Unemployment Insurance rates for 2023 can range from a minimum of 0.65 percent to a maximum of 12.5 percent (the prior maximum was 12 percent) on monthly earnings up to \$1,895. A surcharge of 1.5 percent will be in effect for 2023, meaning the minimum tax rate is effectively 2.15 percent. Sheryl Enders at the Railroad Retirement Board said in her November e-mail that the weighted average 2022 Unemployment Insurance rate for Class I railroads is **7.79 percent** which includes Delaware and Hudson Railway (D&H) and Dakota, Minnesota & Eastern Railroad Corporation (DME).

RCAF Taxable Wages

(To Use for Railroad Retirement and Unemployment Insurance Payroll Tax Calculations)

In the RCAF calculation, Total Wages are the wages paid, while Taxable Wages are the wages on which to base payroll tax calculations. The difference is caused by pre-tax employee contributions to help pay Health & Welfare costs. This page calculates that wage rate difference.

The national agreements feature employee Health & Welfare cost sharing. Some of the independent agreements adopt the dollar amount contributed under the national agreement, and some have their own employee contribution rate. This Cost Sharing is a pre-tax employee contribution to Health & Welfare insurance premiums paid by the employer. The employee contribution reduces employer Health & Welfare costs, while the Health & Welfare insurance premiums paid to the provider are unchanged. In the RCAF calculation, the reduction to the employer's Health & Welfare costs affect the Supplements portion of the Labor component of the index. The Taxable Wage Rate is used for Railroad Retirement and Unemployment Insurance calculations.

Reduction Calculation for 1Q/20223

U.S. ST Hours = 223,038,929
 Wage Statistics are for 2021

Union Group	Employees	Mo. Rate	Annual \$
National ATDA (BNSF, CSX, KCS, NS, SOO, GTW, WC)	1,486	(\$309.21)	(\$5,513,832.72)
National BLET (BNSF, CSX, KCS, NS, UP, SOO, DH)	18,899	(\$309.21)	(\$70,125,117.48)
National BMW (All except SOO, DME, DH)	19,151	(\$309.21)	(\$71,060,168.52)
National BRS (All except DME)	5,667	(\$309.21)	(\$21,027,516.84)
National IAM (BNSF, CSX, KCS, NS, SOO, UP)	4,628	(\$309.21)	(\$17,172,286.56)
National IBBM (BNSF, CSX, KCS, NS, SOO, UP, IC)	366	(\$309.21)	(\$1,358,050.32)
National IBEW (All except DME)	3,896	(\$309.21)	(\$14,456,185.92)
National NCFO (All except DME and WC)	1,477	(\$309.21)	(\$5,480,438.04)
National SMW (BNSF, CSX, KCS, NS, UP, IC)	546	(\$309.21)	(\$2,025,943.92)
National TCU (All except DME and DH)	3,768	(\$309.21)	(\$13,981,239.36)
National TCU-CAR (All except DME)	5,958	(\$309.21)	(\$22,107,278.16)
National UTU (BNSF, CSX, KCS, NS, UP, SOO, DH)	26,843	(\$309.21)	(\$99,601,488.36)
Yardmasters (BNSF, CSX, KCS, NS, UP, SOO, DH)	1,249	(\$309.21)	(\$4,634,439.48)
Misc Indep (DME, CMQ, portions of DH & SOO, portions of CN)	3,357	(\$299.75)	(\$12,075,129.00)
Total Union	97,291		(\$360,619,114.68)
All Other @ -\$3,207,823.72 total per month			\$38,493,884.64
Total			(\$322,125,230.04)

Reduction in Wage Rate Per ST Hour	-\$1.44425564
Deduct this amount from the Wage Rate	-\$1.444

The SAS System
TOTAL GROSS EARNINGS AND AVERAGE GROSS EARNINGS-2023 RRB File

The MEANS Procedure

Variable	N	Sum	Mean
ANUAL_US	2410	47942442.36	19893.13
QTRLY_US	2410	52059710.76	21601.54

The SAS System
Factors and Caps 2021 and 2023Q1

The MEANS Procedure

Variable	N	Sum	Mean
FactorA	2410	2381.38	0.9881250
FactorQ	2410	3116.54	1.2931720
Capa	2410	50754600.00	21060.00
Capq	2410	54803400.00	22740.00

PETROLEUM & OTHER LIQUIDS

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Spot Prices

(Crude Oil in Dollars per Barrel, Products in Dollars per Gallon)

Period: ▼

Product by Area	Graph Clear	11/21/22	11/22/22	11/23/22	11/24/22	11/25/22	11/28/22	View History
Crude Oil								
WTI - Cushing, Oklahoma	☐	79.74	80.83	77.93		76.45	77.10	1986-2022
Brent - Europe	☐	88.44	88.65	85.90	85.59	83.40	83.50	1987-2022
Conventional Gasoline								
New York Harbor, Regular	☐	2.712	2.729	2.653		2.553	2.506	1986-2022
U.S. Gulf Coast, Regular	☐	2.230	2.404	2.480		2.380	2.111	1986-2022
RBOB Regular Gasoline								
Los Angeles	☐	2.387	2.364	2.288		2.208	2.087	2003-2022
No. 2 Heating Oil								
New York Harbor	☐	3.365	3.480	3.363		3.289	2.968	1986-2022
Ultra-Low-Sulfur No. 2 Diesel Fuel								
New York Harbor	☐	3.580	3.570	3.453		3.379	3.183	2006-2022
U.S. Gulf Coast	☐	3.192	3.135	2.966		2.892	2.913	2006-2022
Los Angeles	☐	3.437	3.270	3.153		3.099	2.716	1996-2022
Kerosene-Type Jet Fuel								
U.S. Gulf Coast	☐	3.125	3.035	2.873		2.799	2.720	1990-2022
Propane								
Mont Belvieu, Texas	☐	0.840	0.826	0.811			0.785	1992-2022

Click on the source key icon to learn how to download series into Excel, or to embed a chart or map on your website.

-- = No Data Reported; -- = Not Applicable; **NA** = Not Available; **W** = Withheld to avoid disclosure of individual company data.

Notes: Weekly, monthly, and annual prices are calculated by EIA from daily data by taking an unweighted average of the daily closing spot prices for a given product over the specified time period. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 11/30/2022

Next Release Date: 12/7/2022

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Spot Prices

(Crude Oil in Dollars per Barrel, Products in Dollars per Gallon)

Period: ▼

Product by Area	Graph Clear	10/21/22	10/28/22	11/04/22	11/11/22	11/18/22	11/25/22	View History
Crude Oil								
WTI - Cushing, Oklahoma	☐	85.36	87.87	89.14	88.41	84.02	78.74	1986-2022
Brent - Europe	☐	91.04	93.01	95.86	96.08	92.09	86.40	1987-2022
Conventional Gasoline								
New York Harbor, Regular	☐	2.920	3.184	3.126	3.088	2.812	2.662	1986-2022
U.S. Gulf Coast, Regular	☐	2.697	2.962	2.739	2.595	2.372	2.374	1986-2022
RBOB Regular Gasoline								
Los Angeles	☐	2.624	2.910	3.147	3.523	2.898	2.312	2003-2022
No. 2 Heating Oil								
New York Harbor	☐	4.375	4.271	4.157	4.394	3.922	3.374	1986-2022
Ultra-Low-Sulfur No. 2 Diesel Fuel								
New York Harbor	☐	4.433	4.494	4.513	4.694	4.168	3.496	2006-2022
U.S. Gulf Coast	☐	3.792	4.227	3.892	3.549	3.283	3.046	2006-2022
Los Angeles	☐	3.458	3.607	3.527	3.437	3.533	3.240	1996-2022
Kerosene-Type Jet Fuel								
U.S. Gulf Coast	☐	3.459	3.998	3.613	3.273	3.179	2.958	1990-2022
Propane								
Mont Belvieu, Texas	☐	0.827	0.860	0.874	0.878	0.866	0.826	1992-2022

Click on the source key icon to learn how to download series into Excel, or to embed a chart or map on your website.

-- = No Data Reported; -- = Not Applicable; **NA** = Not Available; **W** = Withheld to avoid disclosure of individual company data.

Notes: Weekly, monthly, and annual prices are calculated by EIA from daily data by taking an unweighted average of the daily closing spot prices for a given product over the specified time period. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 11/30/2022

Next Release Date: 12/7/2022

PETROLEUM & OTHER LIQUIDS

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Spot Prices

(Crude Oil in Dollars per Barrel, Products in Dollars per Gallon)

Period: ▼

Product by Area	Graph Clear	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	View History
Crude Oil								
WTI - Cushing, Oklahoma	☐	109.55	114.84	101.62	93.67	84.26	87.55	1986-2022
Brent - Europe	☐	113.34	122.71	111.93	100.45	89.76	93.33	1987-2022
Conventional Gasoline								
New York Harbor, Regular	☐	3.828	4.082	3.484	3.027	2.642	3.013	1986-2022
U.S. Gulf Coast, Regular	☐	3.750	4.049	3.283	2.793	2.578	2.837	1986-2022
RBOB Regular Gasoline								
Los Angeles	☐	4.034	4.270	3.330	3.123	3.884	3.227	2003-2022
No. 2 Heating Oil								
New York Harbor	☐	4.497	4.246	3.552	3.437	3.257	4.163	1986-2022
Ultra-Low-Sulfur No. 2 Diesel Fuel								
New York Harbor	☐	4.646	4.362	3.696	3.596	3.435	4.345	2006-2022
U.S. Gulf Coast	☐	3.934	4.286	3.629	3.535	3.357	3.963	2006-2022
Los Angeles	☐	4.050	4.382	3.630	3.512	3.531	3.858	1996-2022
Kerosene-Type Jet Fuel								
U.S. Gulf Coast	☐	3.902	4.120	3.478	3.339	3.262	3.715	1990-2022
Propane								
Mont Belvieu, Texas	☐	1.223	1.219	1.142	1.093	0.991	0.859	1992-2022

Click on the source key icon to learn how to download series into Excel, or to embed a chart or map on your website.

-- = No Data Reported; -- = Not Applicable; **NA** = Not Available; **W** = Withheld to avoid disclosure of individual company data.

Notes: Weekly, monthly, and annual prices are calculated by EIA from daily data by taking an unweighted average of the daily closing spot prices for a given product over the specified time period. See Definitions, Sources, and Notes link above for more information on this table.

Release Date: 11/30/2022

Next Release Date: 12/7/2022

U.S.

Summary by Composition Category

	MS-2021		Prev. Idx	2022Q4		Calculation		Relative of Change
	MS Amount	Weight		Cur Idx		Prev. Idx	Cur Idx	
Forest Products	748,703,531	0.1729	401.84	399.31		69.48	69.04	
Metal Products	2,475,909,550	0.5717	222.83	211.27		127.39	120.78	
Misc. Products	1,106,315,926	0.2554	494.24	497.90		126.23	127.16	
Total	4,330,929,007	1.0000	323.10	316.98				0.9811
Total Linked			316.00	310.03				
'77 = 100 Link Fact.= 1.423			449.67	441.17				
'80 = 100 Link Fact.= 1.061			335.28	328.94				

As info only	Change
Forest Products	-0.63%
Metal Products	-5.19%
Misc. Products	0.74%
Total ('80=100)	-1.89%
Rounded 80 Indices	-1.9%
Rounded 77 Indices	-1.9%

CHARM Process - Car Hire Rate Report

Average Car Rental Rates for 12/22

Ownership	Car Group	Car Count	Time Rate (cents/hour)	Mileage Rate (\$/mile)	Auto Rack Rate (cents/hour)
Railroad	Vehicular Flats	11,076	107	0.056	94
Railroad	Number of Zero-Rated Vehicular Flats	183			
Railroad	All Other Cars	363,618	65	0.065	
Railroad	Number of Zero-Rated Other Cars	10,926			
Railroad	Total Railroad Equipment	385,803			
Private	Vehicular Flats	53,099	85	0.014	85
Private	Number of Zero-Rated Vehicular Flats	62			
Private	Covered Hoppers	433,335	0	0.453	
Private	Number of Zero-Rated Covered Hoppers	14,001			
Private	Tanks	424,680	0	0.862	
Private	Number of Zero-Rated Tanks	14,811			
Private	All Other Cars	296,149	105	0.085	
Private	Number of Zero-Rated Other Cars	21,815			
Private	Total Private Equipment	1,257,952			

This report excludes these car types: D (Locomotives), M (MoW, EOTs, etc.), U (Containers), Z (Trailers).

All TTX equipment (including ABOX, RBOX, GONX) is contained in the Private section of report.

Equipment can be zero rated due to owners supplying incorrect or insufficient information to the car accounting process.

Zero-rated equipment includes those with Umler Rate_Indicator of 6 and 0 (zero).

Zero-rated equipment is excluded from the averages shown in this report.

Equipment must be Active in Umler to be included in this report; Pre-registered and Inactive cars are excluded.

Car Hire for RCAF - 2021 Weights

Car Hire Index used in RCAF's All-Inclusive Index (Forecast)

		1980	June 3Q/22	Sept. 4Q/22	Dec. 1Q/23	Mar. 2Q/23	June 3Q/23
RATE							
RR-OWNED TIME		31.00	66.00	66.00	65.00	--	--
RR-OWNED MILEAGE		4.69	6.60	6.50	6.50	--	--
PRIVATELY-OWNED CARS		25.47	54.50	55.30	55.33	--	--
AUTORACKS		47.00	84.28	85.28	86.55	--	--
INDEX							
RR-OWNED TIME		100.0	212.9	212.9	209.7	--	--
RR-OWNED MILEAGE		100.0	140.7	138.6	138.6	--	--
PRIVATELY-OWNED CARS		100.0	214.0	217.1	217.2	--	--
AUTORACKS		100.0	179.3	181.4	184.2	--	--
CAR HIRE INDEX (old wts)	2020	100.0	209.9	--	--	--	--
CAR HIRE INDEX (new wts)	2021	100.0	209.8	212.4	212.4	--	--
CAR HIRE INDEX (LINKED)		100.0	206.9	209.5	209.5	--	--

Note: The Car Hire Index for third quarter using *old weights* and *linked* should match that quarter's filing. The third quarter *new weights* version is used in the fourth quarter linked index calculation to ensure that the transition from old weights to new weights does not impact the linked index.

Note: Indexes are rounded, rates are full float.

Car Hire for RCAF - 2021 Weights

RCAF (Forecast) Analysis of Change

	1980	June 3Q/22	Sept. 4Q/22	Dec. 1Q/23	Mar. 2Q/23	June 3Q/23
INDEX						
RR-OWNED TIME	100.0	212.9	212.9	209.7	--	--
RR-OWNED MILEAGE	100.0	140.7	138.6	138.6	--	--
PRIVATELY-OWNED CARS	100.0	214.0	217.1	217.2	--	--
AUTORACKS	100.0	179.3	181.4	184.2	--	--
UNLINKED CAR HIRE INDEX (new wts)		209.8	212.4	212.4	--	--

Weighted Change	Weight					
RR-OWNED TIME	0.065	0.000	-0.208	#VALUE!	#####	
RR-OWNED MILEAGE	0.038	-0.080	0.000	#VALUE!	#####	
PRIVATELY-OWNED CARS*	0.857	2.657	0.086	#VALUE!	#####	
AUTORACKS	0.040	0.084	0.112	#VALUE!	#####	
* see other tab for details	1.000	2.661	-0.010	#VALUE!	#####	
UNLINKED CAR HIRE INDEX (new wts)		2.600	0.000	#VALUE!	#####	

Check of weights	3Q/22	2020		2021	
RR-owned Time	212.9	0.052	11.0708	0.065	13.839
RR-owned Mileage	140.7	0.039	5.4873	0.038	5.3466
Privately-owned Cars	214.0	0.874	187.036	0.857	183.4
Autoracks	179.3	0.035	6.2755	0.040	7.172
		1.000	209.87	1.000	209.76

Car Hire Data From CHARM

	2022 (first day of month)						2023 (first day of month)							
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug
Railroad Equipment														
No. of Cars (cars with rates only)														
Superstructures (Vehicular Flats)	11,290	11,241	11,227	11,170	11,145	11,076								
Rate (in cents)														
Superstructures #3 - Auto Rack	96.0	96.0	96.0	94.0	94.0	94.0								
All other #1 - Time	66.0	66.0	66.0	66.0	65.0	65.0								
All other #2 - Mileage	6.6	6.6	6.5	6.5	6.5	6.5								
Private Equipment														
No. of Cars (cars with rates only)														
Superstructures (Vehicular Flats)	52,889	52,862	52,821	52,861	52,954	53,099								
Covered Hoppers	432,908	433,070	433,230	433,142	433,214	433,335								
Tank Cars	424,667	424,855	424,771	424,425	424,653	424,680								
Others	291,898	292,890	294,113	294,736	295,326	296,149								
Rate (in cents)														
Superstructures #1 - Time	86.0	86.0	86.0	86.0	85.0	85.0								
Superstructures #2 - Mileage	1.4	1.4	1.4	1.4	1.4	1.4								
Superstructures #3 - Auto Rack	82.0	83.0	83.0	84.0	84.0	85.0								
Covered Hoppers #2 - Mileage	45.1	45.1	45.2	45.2	45.2	45.3								
Tank Cars #2 - Mileage	83.8	83.8	86.2	86.2	86.2	86.2								
Others #1 -Time	105.0	105.0	104.0	104.0	105.0	105.0								
Others #2 - Mileage	8.4	8.5	8.5	8.5	8.5	8.5								
AVERAGE RATES														
Private Superstructures	21.61	21.61	21.61	21.61	21.38	21.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private Others	31.71	31.81	31.59	31.59	31.81	31.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Private Total	54.48	54.49	55.30	55.28	55.31	55.33	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Autoracks	84.46	85.28	85.28	85.74	85.74	86.55	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

Car Hire Weights	"Old Wts"	"New Wts"
	2020	2021
For RCAF & RCR		
RR-owned Time	0.052	0.065
RR-owned Mileage	0.039	0.038
Privately-owned Cars	0.874	0.857
Autoracks	0.035	0.040
----- Check sum	1.000	1.000

Weights for Equipment Rents		
(not used in Car Hire calculation)		
	2020	2021
Car Hire - U.S.	0.614	0.647
Lease Rentals - U.S.	0.386	0.353
----- Check sum	1.000	1.000

Notes:

The Car Hire Index and Lease Rentals Index are weighed together to calculate the Equipment Rents Index

CHARM is the Car Hire Accounting Rate Master

The 4 bold lines are used for the Car Hire Rate. Private Total uses a weighted average of the Covered Hoppers, Tank Cars, Combined Private Superstructures, and Combined Private Others rates.

[The purpose of this page is to provide more insight on the calculation of the **private total rate**.]

Beginning with 2012 data, only active cars are used.

Car Hire for RCAF - 2021 Weights

Car Hire Index used in RCAF's All-Inclusive Index (Actual)

		1980	Aug 3Q/22	Nov 4Q/22	Feb 1Q/23	May 2Q/23	Aug 3Q/23
RATE							
RR-OWNED TIME		31.00	66.00	65.00	--	--	--
RR-OWNED MILEAGE		4.69	6.60	6.50	--	--	--
PRIVATELY-OWNED CARS		25.47	54.49	55.31	--	--	--
AUTORACKS		47.00	85.28	85.74	--	--	--
INDEX							
RR-OWNED TIME		100.0	212.9	209.7	--	--	--
RR-OWNED MILEAGE		100.0	140.7	138.6	--	--	--
PRIVATELY-OWNED CARS		100.0	214.0	217.2	--	--	--
AUTORACKS		100.0	181.4	182.4	--	--	--
CAR HIRE INDEX (old wts)	2020	100.0	209.9	--	--	--	--
CAR HIRE INDEX (new wts)	2021	100.0	209.8	212.3	--	--	--
CAR HIRE INDEX (LINKED)		100.0	207.1	209.6	--	--	--

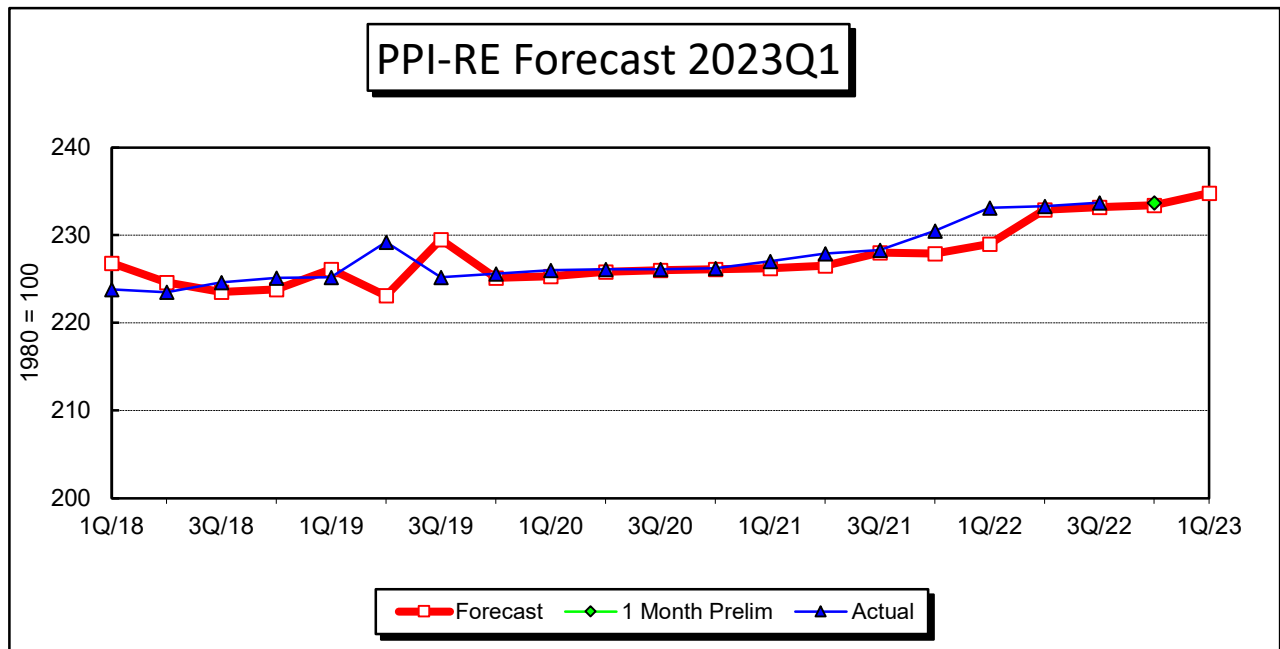
Note: Indexes are rounded, rates are full float.

PPI-RE Forecast (for Depreciation Component)

	Forecast	Actual	1 Month Prelim
1Q/18	226.8	223.8	
2Q/18	224.6	223.5	
3Q/18	223.5	224.6	
4Q/18	223.8	225.1	
1Q/19	226.1	225.2	
2Q/19	223.1	229.2	
3Q/19	229.5	225.2	
4Q/19	225.1	225.6	
1Q/20	225.3	226	
2Q/20	225.8	226.1	
3Q/20	226.0	226.1	
4Q/20	226.1	226.2	
1Q/21	226.2	227	
2Q/21	226.5	227.9	
3Q/21	228.0	228.3	
4Q/21	227.9	230.5	
1Q/22	229.0	233.1	
2Q/22	232.9	233.3	
3Q/22	233.2	233.7	
4Q/22	233.4		233.7
1Q/23	234.8		

1980 Base

	PPI-RE Forecast		Percent Change			
	(82=100)	(80=100)	Yr Ago Actual	Latest Month Actual	2nd Prev Qtr Actual	Previous Forecast
2023Q1						
Low	208.9	231.1	-0.9%			
Midpoint	212.3	234.8	0.7%	0.5%	0.5%	0.6%
High	215.7	238.6	2.4%			



Depreciation

Forecast Report for PPIRE

Description: PPIRE

Expert Analysis

Using rule-based logic I have narrowed down the choice to exponential smoothing or Box-Jenkins.
I will perform an out-of-sample test to select between these two approaches.

The cumulative MAD for Exponential smoothing was 1.87 and for Box-Jenkins was 1.52.
The rolling out-of-sample test used a maximum horizon of 12 and generated 78 forecasts for each method.

Based on the lower MAD, I will use Box-Jenkins.

Model Details

Expert selection

Box-Jenkins

ARIMA(0, 1, 0)

Within-Sample Statistics

Sample size	72	No. parameters	0
Mean	204.93	Std. deviation	3.03
R-square	0.92	Adj. R-square	0.92
Durbin-Watson	2.2	Ljung-Box(18)	17.2 P=0.49
Forecast error	0.87	BIC	0.87
MAPE	0.22	SMAPE	0.22
RMSE	0.87	MAD	0.45
MAD/Mean Ratio	0		

Historic Data

Date	Historic
2016-Nov	201.5
2016-Dec	201.8
2017-Jan	201.9
2017-Feb	204.1
2017-Mar	203.3
2017-Apr	203.4
2017-May	203.5
2017-Jun	204.6
2017-Jul	203.6
2017-Aug	204.5
2017-Sep	203.8
2017-Oct	202.8
2017-Nov	201.7
2017-Dec	201.6
2018-Jan	202.1
2018-Feb	202.1
2018-Mar	202
2018-Apr	202.1

Depreciation

2018-May	202.1
2018-Jun	202.1
2018-Jul	204.1
2018-Aug	204.1
2018-Sep	201.1
2018-Oct	201.3
2018-Nov	201.3
2018-Dec	201.3
2019-Jan	202.1
2019-Feb	203.1
2019-Mar	206.5
2019-Apr	203.4
2019-May	203.4
2019-Jun	203.4
2019-Jul	203.5
2019-Aug	203.5
2019-Sep	203.7
2019-Oct	203.7
2019-Nov	203.9
2019-Dec	204
2020-Jan	204.3
2020-Feb	204.3
2020-Mar	204.3
2020-Apr	204.4
2020-May	204.4
2020-Jun	204.4
2020-Jul	204.4
2020-Aug	204.4
2020-Sep	204.4
2020-Oct	204.4
2020-Nov	204.4
2020-Dec	204.6
2021-Jan	204.9
2021-Feb	204.9
2021-Mar	205.8
2021-Apr	206
2021-May	206
2021-Jun	206.1
2021-Jul	206.4
2021-Aug	206.4
2021-Sep	206.5
2021-Oct	207.2
2021-Nov	208.7
2021-Dec	209.4
2022-Jan	210.6
2022-Feb	210.7
2022-Mar	210.7
2022-Apr	210.8
2022-May	210.9
2022-Jun	211
2022-Jul	211
2022-Aug	211.7

Depreciation

2022-Sep	212.2
2022-Oct	212.3

Forecast Data

Date	2.5 Lower	Forecast	97.5 Upper
2022-Nov	210.588	212.3	214.012
2022-Dec	209.878	212.3	214.722
2023-Jan	209.334	212.3	215.266
2023-Feb	208.875	212.3	215.725
2023-Mar	208.471	212.3	216.129
2023-Apr	208.105	212.3	216.495
2023-May	207.769	212.3	216.831
2023-Jun	207.456	212.3	217.144
2023-Jul	207.163	212.3	217.437
2023-Aug	206.885	212.3	217.715
2023-Sep	206.62	212.3	217.98
2023-Oct	206.368	212.3	218.232



Databases, Tables & Calculators by Subject

Change Output Options:

From: 2021 To: 2022 

☐ include graphs ☐ include annual averages

[More Formatting Options](#) 

Data extracted on: November 28, 2022 (2:11:17 PM)

PPI Commodity Data

Series Id: WPU144
Not Seasonally Adjusted
Series Title: PPI Commodity data for Transportation equipment-Railroad equipment, not seasonally adjusted
Group: Transportation equipment
Item: Railroad equipment
Base Date: 198200

Download:  [xlsx](#)

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	204.9	204.9	205.8	206.0	206.0	206.1	206.359	206.359	206.524	207.166	208.716	209.447
2022	210.629	210.710	210.731	210.761	210.942	210.986	211.080(P)	211.724(P)	212.243(P)	212.331(P)		
P : Preliminary. All indexes are subject to monthly revisions up to four months after original publication.												

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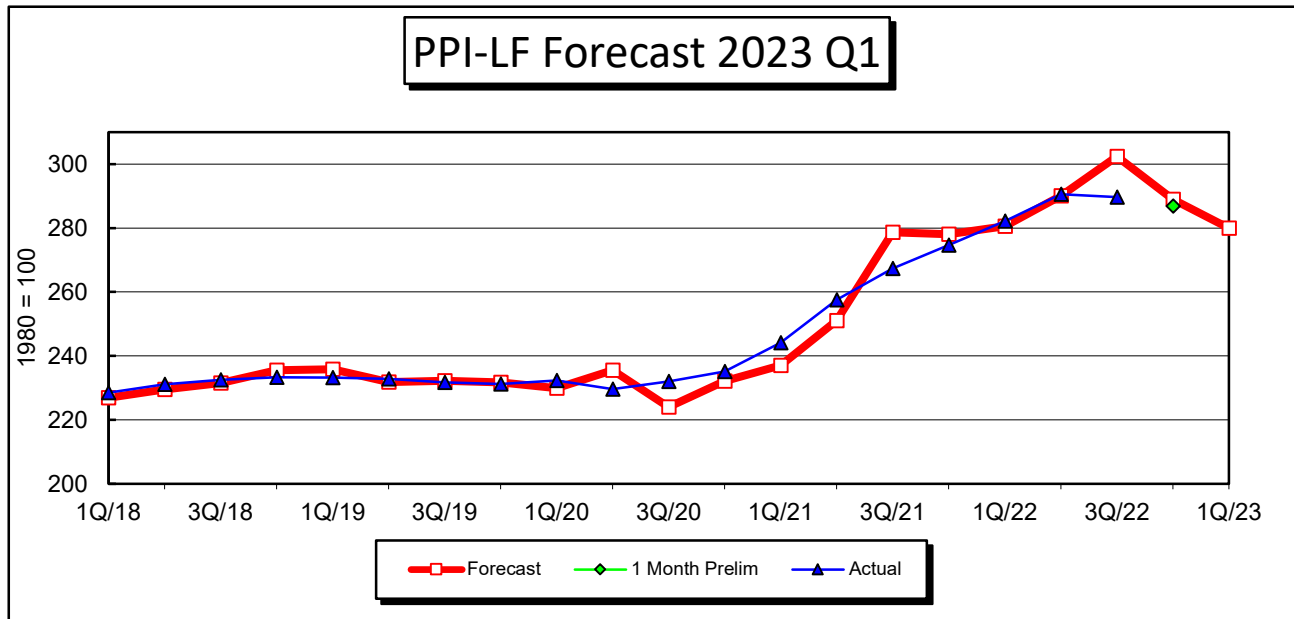
Telephone:1-202-691-5200_ Telecommunications Relay Service:7-1-1_ [www.bls.gov](#) [Contact Us](#)

PPI-LF Forecast (for Other and Lease Rentals Components)

	Forecast	Actual	1 Month Prelim
1Q/18	226.9	228.5	
2Q/18	229.5	231.1	
3Q/18	231.5	232.5	
4Q/18	235.5	233.3	
1Q/19	235.8	233.2	
2Q/19	231.8	232.8	
3Q/19	232.2	231.7	
4Q/19	231.7	231.2	
1Q/20	229.9	232.3	
2Q/20	235.5	229.6	
3Q/20	224.0	232.0	
4Q/20	232.1	235.1	
1Q/21	237.0	244.1	
2Q/21	251.0	257.5	
3Q/21	278.7	267.3	
4Q/21	278.1	274.6	
1Q/22	280.6	282.2	
2Q/22	290.1	290.6	
3Q/22	302.4	289.7	
4Q/22	289.0		286.9
1Q/23	280.0		

1980 Base

	PPI-LF Forecast		Percent Change			
	(82=100)	(80=100)	Yr Ago Actual	Latest Month Actual	2nd Prev Qtr Actual	Previous Forecast
2023Q1						
Low	243.7	273.2	-3.2%			
Midpoint	249.8	280.0	-0.8%	-2.4%	-3.3%	-3.1%
High	255.9	286.9	1.7%			



Forecast Report for PPILF

Description: PPILF

Expert Analysis

Using rule-based logic I have narrowed down the choice to exponential smoothing or Box-Jenkins.
I will perform an out-of-sample test to select between these two approaches.

The cumulative MAD for Exponential smoothing was 5.47 and for Box-Jenkins was 10.11.
The rolling out-of-sample test used a maximum horizon of 12 and generated 78 forecasts for each method.

Based on the lower MAD, I will use Exponential Smoothing.

Model Details

Expert selection

Multiplicative Winters: Linear trend, Multiplicative seasonality

LM(0.941, 1.000, 1.000)

Confidence limits proportional to indexes and level

Component	Smoothing Wgt	Final Value
Level	0.941	255.7
Trend	0.9996	-1.509
Seasonal	1	
Seasonal Indexes		
Jan - Mar	1.002	0.9992
Apr - Jun	0.999	0.9994
Jul - Sep	0.9996	1
Oct - Dec	1.001	0.9998

Within-Sample Statistics

Sample size	72	No. parameters	3
Mean	216.59	Std. deviation	19.98
R-square	1	Adj. R-square	1
Durbin-Watson	1.8	Ljung-Box(18)	19.0 P=0.61
Forecast error	0.76	BIC	0.81
MAPE	0.25	SMAPE	0.25
RMSE	0.74	MAD	0.54
MAD/Mean Ratio	0		

Historic Data

Date	Historic
2016-Nov	194.9
2016-Dec	195.6
2017-Jan	196.8

Other

2017-Feb	197.8
2017-Mar	198.7
2017-Apr	199.3
2017-May	199.2
2017-Jun	199.4
2017-Jul	199.2
2017-Aug	199.7
2017-Sep	200
2017-Oct	200.9
2017-Nov	201.5
2017-Dec	201.7
2018-Jan	203
2018-Feb	203.8
2018-Mar	204.8
2018-Apr	205.4
2018-May	206.3
2018-Jun	207
2018-Jul	207.4
2018-Aug	207.6
2018-Sep	207.9
2018-Oct	208.7
2018-Nov	208.5
2018-Dec	207.8
2019-Jan	208.3
2019-Feb	208.2
2019-Mar	208.4
2019-Apr	208.2
2019-May	207.7
2019-Jun	207.1
2019-Jul	206.9
2019-Aug	206.5
2019-Sep	206.1
2019-Oct	206.5
2019-Nov	206.4
2019-Dec	206.3
2020-Jan	207.2
2020-Feb	207.1
2020-Mar	207.1
2020-Apr	205.2
2020-May	204.4
2020-Jun	205
2020-Jul	205.8
2020-Aug	207
2020-Sep	208.1
2020-Oct	208.7
2020-Nov	209.2
2020-Dec	211.5
2021-Jan	214.9
2021-Feb	217.5
2021-Mar	221.5
2021-Apr	225.9
2021-May	230.5

Other

2021-Jun	234
2021-Jul	236.5
2021-Aug	238.5
2021-Sep	240
2021-Oct	242.8
2021-Nov	245.5
2021-Dec	246.5
2022-Jan	249.8
2022-Feb	251.3
2022-Mar	254.6
2022-Apr	257.4
2022-May	260.1
2022-Jun	260.4
2022-Jul	259.5
2022-Aug	258.6
2022-Sep	257.2
2022-Oct	255.9

Forecast Data

Date	2.5 Lower	Forecast	97.5 Upper
2022-Nov	252.529	254.339	256.149
2022-Dec	248.789	252.646	256.504
2023-Jan	246.502	251.648	256.794
2023-Feb	243.322	249.495	255.668
2023-Mar	241.157	248.206	255.255
2023-Apr	238.594	246.422	254.251
2023-May	236.466	245.001	253.537
2023-Jun	234.314	243.503	252.692
2023-Jul	232.252	242.051	251.85
2023-Aug	230.37	240.744	251.117
2023-Sep	228.173	239.092	250.01
2023-Oct	226.34	237.777	249.214



Databases, Tables & Calculators by Subject

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From: 2021 To: 2022 

☐ include graphs ☐ include annual averages

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Data extracted on: November 29, 2022 (5:53:28 PM)

PPI Commodity Data

Series Id: WPU03T15M05
Not Seasonally Adjusted
Series Title: PPI Commodity data for Industrial commodities less fuels, not seasonally adjusted
Group: Industrial Commodities less fuels
Item: Industrial commodities less fuels
Base Date: 198200

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Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	214.9	217.5	221.5	225.9	230.5	234.0	236.539	238.534	240.004	242.825	245.549	246.483
2022	249.774	251.330	254.556	257.425	260.128	260.449	259.494(P)	258.596(P)	257.237(P)	255.933(P)		

P : Preliminary. All indexes are subject to monthly revisions up to four months after original publication.

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Forecast Error Calculation

	2020	Third Quarter 2022		Difference		Notes
		2023Q2	2023Q2	Pt.	Pct.	
	Weight	Forecast	Actual			
Labor	32.4%	472.4	472.4	0.0	0%	* actual=forecast
Fuel	9.7%	459.6	484.4	24.8	5%	from 1st month of quarter
M&S	4.5%	305.0	305.0	0.0	0%	* actual=forecast
Equip Rents	5.2%	256.0	251.4	-4.6	-2%	
Depreciation	18.5%	233.2	233.7	0.5	0%	PPI-RE
Interest	2.7%	51.1	51.1	0.0	0%	* actual=forecast
Other	27.0%	302.4	289.7	-12.7	-4%	PPI-LF
Weighted Avg	100.0%					
1980 = 100		350.8	349.7			calculated
1980 = 100 (linked)		321.5	311.6			calculated
4Q17 = 100	2.645	121.6	117.8			calculated
4Q12 = 100	2.976	108.0	104.7			calculated
4Q07 = 100	2.459	130.7	126.7			calculated
4Q02 = 100	1.921	167.4	162.2			calculated
4Q97 = 100	1.732	185.6	179.9			calculated
Forecast Error		-3.8				calculated
						-0.038 = RCAF adj.
Prior Quarter						
1980 = 100		334.9	346.6 **			
1980 = 100 (linked)		306.9	308.8			
4Q17 = 100		116.0	116.7			calculated
4Q12 = 100		103.1	103.8			calculated
4Q07 = 100		124.8	125.6			calculated
4Q02 = 100		159.8	160.7			calculated
4Q97 = 100		177.2	178.3			calculated
Equipment Rents						
Car Hire	64.7%	206.5	207.1			from Equipment Rents/CHARM
Lease Rentals	35.3%	302.4	289.7			(equals PPI-LF from above)
Weighted Average		240.4	236.3			calculated
Linked		255.8	251.4			calculated
Prior Quarter						
Weighted Average		236.0	236.5 **			
Linked		251.1	251.6			
Sum of Weights	ok					** if fourth quarter, weighted avg for prior needs to use new weights, linked is ok
Sum of ER Wt.	ok					

Factors to change from
1982=100 to 1980 = 100

0.9040

0.8920