

ASSOCIATION
OF AMERICAN
RAILROADS

John T. Gray
Senior Vice President - Policy & Economics

December 5, 2016

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

Dear Ms. Brown:

This submission is the AAR forecast of the first quarter 2017 All-Inclusive Index and Rail Cost Adjustment Factor, filed in Ex Parte No. 290 (Sub-No. 5) (2017-1) *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 2017 results on the fourth quarter 2012 base, and shows the percentage changes from the previous quarter.

	<u>2016Q4</u>	<u>2017Q1</u>	<u>% Change</u>
All-Inclusive Index	87.6	89.9	2.6
Preliminary RCAF	0.876	0.899	2.6
Forecast Error Adjustment	0.005	-0.011	
RCAF (Unadjusted)	0.881	0.888	0.8
Productivity Adjustment Factor	2.3750	2.3833	
RCAF (Adjusted)	0.371	0.373	0.5
PAF-5	2.5059	2.5147	
RCAF-5	0.352	0.353	0.3

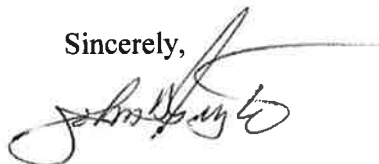
Page 2

December 5, 2016

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 hand-delivered to Mr. Ramirez's Data Collection and Auditing Team. All work papers are available for STB inspection. Questions should be directed to me or Clyde Crimmel (202 639-2309) of this office.

Sincerely,

A handwritten signature in black ink, appearing to read "John T. Gray", with a long, sweeping horizontal line extending to the right.

John T. Gray

Attachments

**First Quarter 2017
All-Inclusive Index**

Ex Parte No. 290 (Sub-No. 5) (2017-1)

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

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

December 5, 2016

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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 2017. Each year's first quarter calculation utilizes new health & 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.

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 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 2015 (current) and 2014 (previous) weights are shown below. Weights calculated from 2014 data were used for the fourth quarter of 2015 through the third quarter of 2016. Beginning with the fourth quarter of 2016, weights calculated using 2015 data are used. Traffic and fuel prices were down in 2015, causing fuel expenses to decline substantially in both amount and as a percentage. Because of the huge drop in fuel expenses, the weight for the Fuel Index decreased considerably, while the weights for all of the other categories increased. Labor, Other, and Depreciation had the largest weight increases, as expenses in those categories were lower by small percentages compared to the other categories. The Other category consists of Purchased Services, Taxes (other than income and payroll), Casualties & Insurance, Loss & Damage, and General & Administrative expenses. The weight for Labor, 35.0 percent, is the highest it has been since it was 35.3 percent in 2005.

Weights for RCAF's All-Inclusive Index		
	2015	2014
Labor	35.0 %	31.7 %
Fuel	13.4	20.9
Materials & Supplies	5.4	5.2
Equipment Rents	5.8	5.4
Depreciation	13.9	12.6
Interest	1.9	1.5
Other	24.6	22.7
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 2017

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.

	2015 Weights	Forecast		Percent Change
		Previous 2016Q4	Current 2017Q1	
1. Labor	35.0%	405.1	421.2	4.0 %
2. Fuel	13.4%	200.1	197.2	-1.4
3. M&S	5.4%	245.8	274.3	11.6
4. Equipment Rents	5.8%	223.4	224.3	0.4
5. Depreciation	13.9%	225.1	225.3	0.1
6. Interest	1.9%	60.6	60.6	0.0
7. Other	24.6%	216.9	218.4	0.7
8. Weighted Average				
a. 1980 = 100		280.6	287.9	
b. 1980 = 100 (linked)		260.6	267.4 ¹	
c. 4Q12 = 100		87.6	89.9 ²	2.6

¹ Index80 = (Current Index / Previous Index) * the Previous Quarter Linked Index
= (287.9 / 280.6) x 260.6
= 267.4

² To calculate the 4Q12 = 100 index:
Index4Q12 = (Current Linked Index / 4Q12 Basing Factor) * 100
= 267.4 divided by 297.6 times 100
= 89.9

Indexes based on other periods: 4Q07 based index = 267.4 / 245.9 x 100 = 108.7
4Q02 based index = 267.4 / 192.1 x 100 = 139.2
4Q97 based index = 267.4 / 173.2 x 100 = 154.4
4Q92 based index = 267.4 / 156.9 x 100 = 170.4
4Q87 based index = 267.4 / 132.2 x 100 = 202.3

Forecast vs. Actual All-Inclusive Index Third Quarter 2016

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 87.3 is 1.1 index points below the forecast value of 88.4. Therefore, the forecast error adjustment for first quarter 2017 is -1.1 index points.

	2014 Weights	Third Quarter 2016		Amt Difference
		Forecast	Actual	
1. Labor	31.7%	415.2	415.2	
2. Fuel	20.9%	195.6	183.1	
3. M&S	5.2%	240.6	240.6	
4. Equipment Rents ¹	5.4%	216.8	217.6	
5. Depreciation	12.6%	226.5	225.6	
6. Interest	1.5%	57.5	57.5	
7. Other	22.7%	217.4	217.3	
8. Weighted Average				
a. 1980 = 100		275.5	272.8	
b. 1980 = 100 (linked)		263.0	259.7 ²	
c. 4Q12 = 100 ³		88.4	87.3	-1.1

Forecast error —————> **-1.1 index points**

1	2014 Weights	Third Quarter 2016	
		Forecast	Actual
Car-Hire	56.5%	198.0	199.0
Lease Rentals	43.5%	217.4	217.3
Weighted Average		206.4	207.0
Weighted Average (linked)		216.8	217.6

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

$$259.7 = 272.8 / 267.9 \times 255.0$$

³ The 4Q12 based indexes are 1980 based indexes divided by the 4Q12 basing factor (297.6/100).
 Other basing factors are: 4Q07 = 245.9; 4Q02 = 192.1; 4Q97 = 173.2; 4Q92 = 156.9; and 4Q87 = 132.2.

Productivity

On February 12, 2016, the Surface Transportation Board (STB) served a decision in Ex Parte 290 (Sub-No. 4) which added the year 2014 to the Productivity Adjustment Factor (PAF) and removed the year 2009. This creates a geometric average annual productivity change, for the five-year period 2010 through 2014, of 1.4 percent per year. The components of this average annual value are shown on the following table in ratio format – therefore, 1.014 is the same as an increase of 1.4 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			
2010 - 2014			
Year	Output Index (1)	Input Index (2)	Productivity ¹ Changes (3)
2010	1.109	1.070	1.037
2011	1.041	1.039	1.001
2012	1.007	0.999	1.008
2013	1.022	1.018	1.004
2014	1.055	1.036	1.018
Average			1.014
Previous Average (2009-2013)			1.007

¹ The values shown in Column 3 are based on full float calculations and may not exactly match numbers calculated using the rounded numbers displayed in Columns 1 and 2.

Calculation of PAF and PAF-5			
For 2010-2014, use fourth root of avg. productivity change = 1.0035			
For 2009-2013, use fourth root of avg. productivity change = 1.0017			
Quarter	Year	PAF	PAF-5
Q1	2016	2.3502	2.4932
Q2	2016	2.3584	2.4974
Q3	2016	2.3667	2.5016
Q4	2016	2.3750	2.5059
Q1	2017	2.3833	2.5147

Rail Cost Adjustment Factor First Quarter 2017

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 2013Q1, the All-Inclusive Index is on a 2012Q4=100 basis.

	Previous 2016Q4	Current 2017Q1	Percent Change
All-Inclusive Index ¹	87.6	89.9	2.6
Preliminary RCAF ²	0.876	0.899	2.6
Forecast Error Adjustment ³	<u>0.005</u>	<u>-0.011</u>	
RCAF (Unadjusted) ⁴	0.881	0.888	0.8
Productivity Adjustment Factor ⁵	<u>2.3750</u>	<u>2.3833</u>	
RCAF (Adjusted) ⁶	0.371	0.373	0.5
PAF-5 ⁷	2.5059	2.5147	
RCAF-5 ⁸	0.352	0.353	0.3

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 2017

The first quarter 2017 Labor Index rose 4.0 percent from the previous quarter. New health & welfare premiums were the biggest contributor to the change.

Wage Rate Index

Tiny increases in base wages, lump sums, and back pay caused the Wage Rate Index to increase by only 0.1 percent.

Wage Increases: No wage increases are currently scheduled for the first quarter in the national labor agreements. One independent labor agreement has a general increase effective January 1, and some additional independent labor agreements have cost-of-living-allowances (COLAs) effective at the start of the year. Two new independent labor agreements were received in November, and have been added to the index. The total impact of all independent adjustments was an increase of one cent.

Following past index procedure, non-union employees are normally assigned a general wage increase similar to the increase received by most labor unions. However, most labor unions have not received a general wage increase since January 1, 2015. We believe it is highly unlikely that non-union employees will not receive a wage increase at the start of 2017, and an increase of 2 to 3 percent would be an appropriate amount based on the few independent wage increases that occurred in July. However, no non-union wage increase has been applied.

Lump Sums: The first quarter lump sum rate is 1.3 cents higher from the prior quarter. Since no amounts became fully amortized and removed, the addition of one new bonus caused the entire change. The new bonus amount is one railroad's quarterly incentive bonus given to locomotive engineers that achieve certain goals. This quarterly bonus began in 2016, and was first captured in the 2016Q3 RCAF with the bonus paid in the second quarter for performance in the first quarter. The amount added in this 2017Q1 filing is for the bonus paid in the fourth quarter for performance in the third quarter.

Back Pay: Two new independent labor agreements that featured retroactive wage increases back to 2010 were added to the index. They added one cent to the rate. No back pay amounts became fully-amortized and removed.

Other: In wages, "Other" contains the amortization of incentive payments that a railroad makes each year to its dispatchers, yardmasters, and engineers. This amount is unchanged from the previous quarter.

Supplements Index

The Supplements Index climbed 9.7 percent, mostly because of higher health & welfare premiums.

Health & Welfare: The Health & Welfare rate jumped 17.2 percent. Higher payment rates will go into effect January 1, reflecting higher contract rates and less assistance available from the trust. (See pages 4 and 5 of this appendix.) National agreement employee health & welfare cost sharing is unchanged since the July 2016 increase.

Labor

First Quarter 2017

Railroad Retirement: The Railroad Retirement rate rose 2.2 percent. This change was caused by the small increase in taxable earnings and higher maximum taxable earnings effective January 1. As shown on page 4 of this appendix, the maximum taxable earnings for Railroad Retirement's Tier I and Tier II both increased for 2017. Employer tax rates did not change.

Unemployment Insurance: The Unemployment Insurance rate jumped 30.5 percent (7.5 cents) from the previous quarter. Maximum taxable earnings and the tax rate both increased for 2017. Basic tax rates range from a minimum of 0.65 percent to a maximum of 12 percent. However, if the Railroad Unemployment Insurance Account balance falls below a certain threshold, a surcharge can be imposed. For 2017 (like 2016 and 2015), a surcharge of 1.5 percent will be used – meaning that no railroad will have a tax rate less than 2.15 percent. The tax rate is experience-rated, and monthly Class I railroad employee counts from January through October have been 13 to 21 thousand less than they were in 2015 – meaning higher unemployment. The weighted average Class I railroad rate for 2017 will be 3.37 percent compared to 2.73 percent for 2016. Page 4 of this appendix lists tax rates and maximum taxable earnings for 2015 through 2017. The last year with no surcharge was 2014.

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 climbed 2.9 cents. The higher rate was caused mostly by 401(k) bonus matches.

Labor Index Calculation

As shown in Table A-1 on the next page, the 0.1 percent increase in the Wage Rate Index and the 9.7 percent growth in the Supplements Index combined to cause the Labor Index to rise 4.0 percent from the previous quarter. The linked first quarter 2017 index is 421.2, and it is only 0.8 percent higher than it was one year ago.

Labor First Quarter 2017

Table A-1 Labor Index

	2016Q4	2017Q1	Change	
			Percent	Amount
<u>Base Wage</u> – Straight Time & Pay For Time Not Worked	\$40.680	\$40.690	0.0%	\$0.010
Adjustments:				
Lump Sum	0.171	0.184	7.6%	\$0.013
Back Pay	0.068	0.078	14.7%	\$0.010
Other	0.148	0.148	0.0%	\$0.000
Total Wages	<u>41.067</u>	<u>41.100</u>	0.1%	\$0.033
Health & Welfare Benefits	7.551	8.851	17.2%	\$1.300
RR Retirement & Medicare	8.366	8.548	2.2%	\$0.182
Unemployment Insurance	0.246	0.321	30.5%	\$0.075
Other	0.114	0.143	25.4%	\$0.029
Total Supplements	<u>\$16.277</u>	<u>\$17.863</u>	9.7%	\$1.586
Total Labor (as info only)	\$57.344	\$58.963		
Wage Index¹	351.5	351.7	0.1%	
Supplements Index²	601.5	660.1	9.7%	
Total labor Index, 2015 Weights ³	422.8	439.6		
Labor Index (linked)⁴	405.1	421.2	4.0%	

¹ 1980 wage rate \$11.685

² 1980 supplements rate \$2.706

³ 2015 weights: wages, supplements 71.5% 28.5%

⁴ 2017Q1 linked Index = 2016Q4 linked x (2017Q1 / 2016Q4)
= 405.1 x 439.6 / 422.8

Labor
First Quarter 2017

Supplement Comparisons

Health and Welfare Rates

Plan	Railroad Payment Per Employee Per Month				
	2015	2016	2017	Change	
				'15-'16	'16-'17
Group Health & Welfare	\$1,298.28	\$1,481.05	\$1,693.72	14.1%	14.4%
Early Retirement Major Medical	109.90	134.70	166.75	22.6%	23.8%
Group Dental	50.83	56.97	65.12	12.1%	14.3%
Group Vision	8.41	8.41	8.44	0.0%	0.4%
Supplemental Sickness					
Maintenance of Way	32.87	32.87	40.00	0.0%	21.7%
Shop Crafts	53.18	49.11	60.00	-7.7%	22.2%
Signalmen	30.74	29.48	37.00	-4.1%	25.5%
Yardmasters	34.78	34.22	34.22	-1.6%	0.0%

Railroad Retirement and Medicare

	Earnings Base			Employer Rate		
	2015	2016	2017	2015	2016	2017
Tier I	\$118,500	\$118,500	\$127,200	6.20%	6.20%	6.20%
Tier II	88,200	88,200	94,500	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		
2015	2016	2017	2015	2016	2017
\$1,455	\$1,455	\$1,545	2.31%	2.73%	3.37%

Labor

First Quarter 2017

NATIONAL RAILWAY LABOR CONFERENCE EMPLOYEE BENEFITS DEPARTMENT

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November 22, 2016

Mr. Clyde Crimmel
Director Statistical Information
Policy & Communications Department
AAR-5th Floor
50 F Street N.W.
Washington, D.C. 20009


Dear Mr. Crimmel:

The revised employer Payment Rates which are effective January 1, 2017 are as follows:

Railroad Employees National Health & Welfare Plan & National Railway Carriers/United Transportation Union H&W Plan Non-Hospital Road	\$1,693.72
Railroad Employees National Early Retirement Major Medical Benefit Plan Non-Hospital Road	\$ 166.75
Aetna - National Dental Plan	\$ 65.12
Aetna - Supplemental Sickness Plans	
Shop Crafts	\$ 60.00
Signalmen	\$ 37.00
Maintenance of Way	\$ 40.00
Trustmark - Supplemental Sickness Plans Yardmasters	\$ 34.22
EyeMed - National Vision Plan	\$ 8.44

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

Very truly yours,



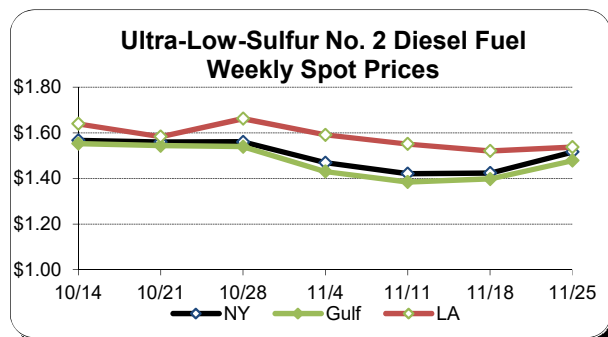
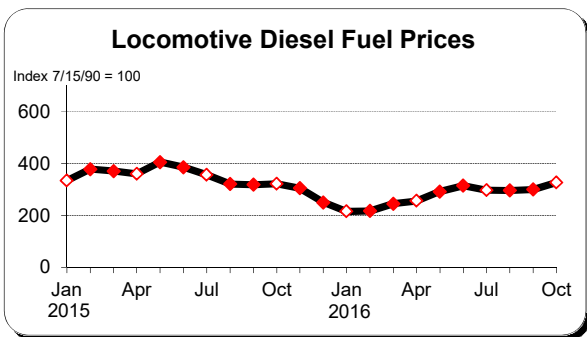
Susan E. Parks

cc: Glen Williams

Fuel First Quarter 2017

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 for January 2016 was the lowest in over 10 years. Since that time, prices have trended upward. While average prices for locomotive diesel fuel are available only through October 2016, data through four weeks of November are available for related fuel types. According to the Energy Information Administration, weekly spot prices for Ultra-Low-Sulfur Diesel Fuel* were lower for the week ended November 25 than they were at mid-October. The chart below (on left) shows the AAR's Monthly Locomotive Diesel Fuel Price Index from January 2015 through October 2016. The second chart (on right) shows recent spot prices for Ultra-Low-Sulfur No. 2 Diesel Fuel as reported by the Energy Information Administration.



A November 30 OPEC deal to limit oil production has complicated forecasting, as this deal initially sent oil prices higher. In the following days, some skeptics stated that the increased oil prices will be short-lived because 1) the production cuts are not enough; 2) Russia will be making its cut from its November output, which was its largest ever; and 3) non-OPEC producers may increase their output in response to temporarily higher prices. At this time, recent weekly Ultra-Low-Sulfur spot prices are 3 to 6 percent lower than they were in mid-October, and distillate inventories are above their five-year average. Railroads expect Q1 (January 2017) locomotive diesel fuel prices to be 1.4 percent lower than the forecast for Q4 (October), and 2.3 percent lower than the average price railroads actually paid in October.

Forecast Fuel Index (1980 = 100)	197.2
Change from previous quarter forecast	-1.4%
Change from previous quarter actual	-2.3%

* 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 2017

The first quarter 2017 Materials & Supplies Index is up 11.6 percent. Indexes for Forest Products and Miscellaneous Products increased – especially Miscellaneous Products. A huge increase for the Miscellaneous Products category was related to Hurricane Matthew. Despite the double-digit percentage increase, which may be temporary, the Materials & Supplies Index remains below its values for 2014Q4 and 2015Q1.

2017Q1 Materials & Supplies Index = 274.3

2016Q4 Materials & Supplies Index = 245.8

Difference	28.5 basis points
	or
	11.6 %

Equipment Rents First Quarter 2017

The Equipment Rents Index consists of two components – car hire and lease rentals. The methodology 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. In each fourth quarter filing, new weights for the four categories are used based on annual report data. The standard linking procedure is used to eliminate any changes to the Car Hire Index that would be caused solely by changing weights.

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

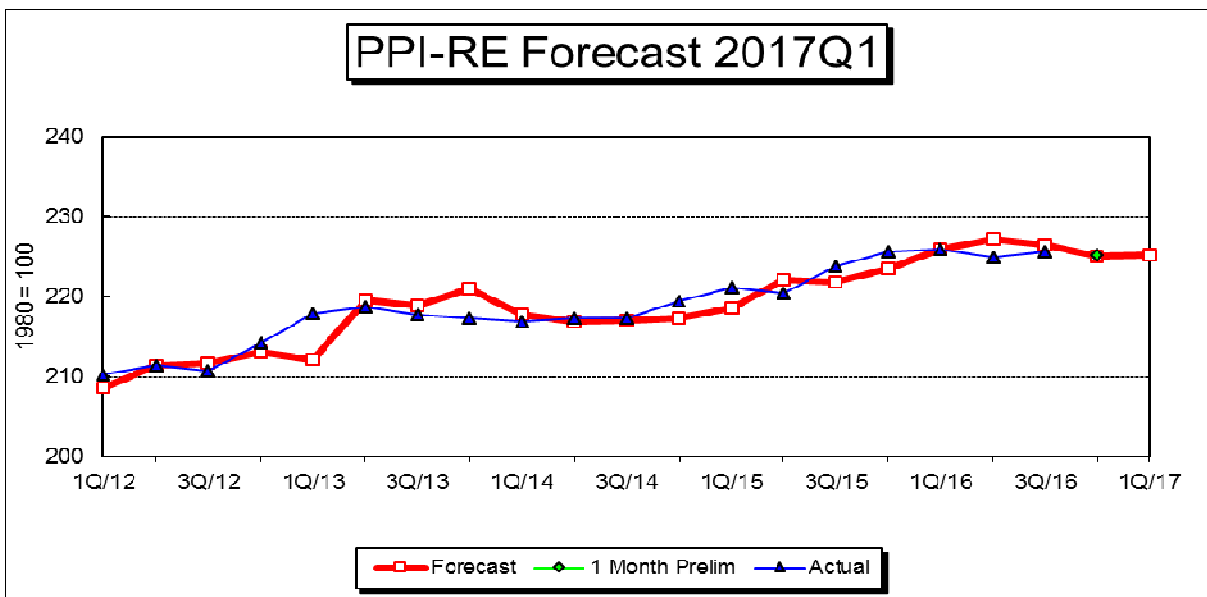
The table below calculates the Equipment Rents Index. The first quarter Car Hire portion of the Index increased 0.2 percent because of small increases in rates for privately owned cars. A 0.7 percent increase in the projected PPI-LF (See Appendix G) used as a proxy for Lease Rentals, combined with the 0.2 percent increase for Car Hire, caused the Equipment Rents Index to increase 0.4 percent.

	2015	2016Q4	2017Q1	Percent
	Weight			Change
Car Hire	58.2%	209.1	209.6	0.2 %
Lease Rentals	41.8%	216.9	218.4	0.7
Weighted Average		212.4	213.3	0.4
Weighted Average (Linked)		223.4	224.3	0.4

Depreciation First Quarter 2017

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, a 0.1 percent increase from the previous quarter's forecast, reflects a monthly PPI-RE figure that has changed very little over the last eight months.

Forecast of Depreciation Index (1982=100)	203.7
Forecast of Depreciation Index (1980=100)	225.3
Change from previous quarter forecast	0.1%
Change from actual first month of previous quarter	0.0%
Change from same quarter of prior year (actual)	-0.3%



Depreciation First Quarter 2017

PPI RAILROAD EQUIPMENT

Using rule-based logic, the program narrowed down the choice to exponential smoothing or Box-Jenkins. The program performed an out-of-sample test to select between these two approaches. The cumulative MAD for Exponential smoothing was 1.72 and for Box-Jenkins was 0.61. The rolling out-of-sample test used a maximum horizon of 12 and generated 78 forecasts for each method.

Recommended model: Box-Jenkins
Forecast Model for PPIRE
ARIMA(0, 1, 0)

Within-Sample Statistics

Sample size	72	No. parameters	0
Mean	195.77	Std. deviation	6.06
R-square	0.97	Adj. R-square	0.97
Durbin-Watson	2.44	Ljung-Box(18)	24.50 P=0.86
Forecast error	1.01	BIC	1.01
MAPE	0.36	SMAPE	0.36
RMSE	1.01	MAD	0.71
MAD/Mean Ratio	0		

Actual Values for the Most Recent 6 Periods:

Date	Actual
2016-May	203.5
2016-Jun	203.5
2016-Jul	203.5
2016-Aug	203.5
2016-Sep	204.8
2016-Oct	203.7

Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2016-Nov	201.697	203.700	205.703
2016-Dec	200.867	203.700	206.533
2017-Jan	200.230	203.700	207.170
2017-Feb	199.694	203.700	207.706
2017-Mar	199.221	203.700	208.179
QTR AVG	199.715	203.700	207.685

Interest First Quarter 2017

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 2015 data, and was updated in this Q4 filing submitted on September 2, 2016. The Interest Index based on 2015 is higher than the version based on 2014 data, but lower than the figure based on 2013.

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 are listed below.

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	
30	Current Loans and Notes Payable
39	Equipment Obligations and Other Long Term Debt Due Within One Year
41	Funded Debt Unmatured - Non-Current
42	Equipment Obligations - Non-Current
43	Capitalized Lease Obligatons - Non-Current
44	Debt in Default - Non-Current
45	Accounts Payable: Affiliated Companies - Non-Current
46	Unamortized Debt Premium - Non-Current

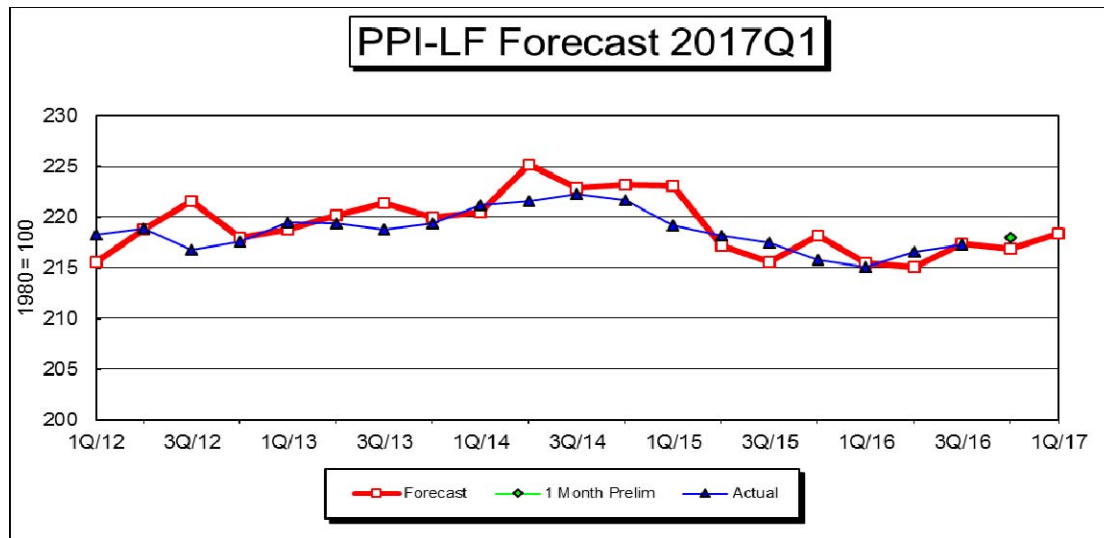
2015	Interest Rate	4.76%
1980	Interest Rate	7.85%
2017Q1	Interest Index	60.6
2016Q4	Interest Index	60.6
	Percent Change	0.0%

Other Expenses First Quarter 2017

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. Monthly PPI-LF figures increased by small amounts over the last three months. The forecast for 2017Q1 is 0.7 percent above the previous quarter forecast, and the previous forecast may have been too low.

Forecast of Other Expense Index (1982=100)	194.8
Forecast of Other Expense Index (1980=100)	218.4
Change from previous quarter forecast	0.7%
Change from actual first month of previous quarter	0.2%
Change from same quarter of prior year (actual)	1.5%



Other Expenses First Quarter 2017

PPI INDUSTRIAL COMMODITIES LESS FUELS AND RELATED PRODUCTS AND POWER

Using rule-based logic, program narrowed down the choice to exponential smoothing or Box-Jenkins. Program performed an out-of-sample test to select between these two approaches. The cumulative MAD for Exponential smoothing was 2.06 and for Box-Jenkins was 1.03. The rolling out-of-sample test used a maximum horizon of 12 & generated 78 forecasts for each method.

Recommended model: Box-Jenkins
Forecast Model for PPILF
ARIMA(1, 0, 1)

Model Details

Term	Coefficient	Std. Error	t-Statistic	Significance
a[1]	0.9918	0.01036	95.76	1.000
b[1]	-0.5329	0.1	-5.328	1.000
_CONST	1.601			

Within-Sample Statistics

Sample size	72	No. parameters	2
Mean	194.42	Std. deviation	2.43
R-square	0.95	Adj. R-square	0.95
Durbin-Watson	1.61	Ljung-Box(18)	25.40 P=0.88
Forecast error	0.55	BIC	0.58
MAPE	0.21	SMAPE	0.21
RMSE	0.54	MAD	0.4
MAD/Mean Ratio	0		

Actual Values for the Most Recent 6 Periods:

Date	Actual
2016-May	193.4
2016-Jun	193.7
2016-Jul	193.5
2016-Aug	193.8
2016-Sep	194.0
2016-Oct	194.5

Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2016-Nov	193.707	194.775	195.842
2016-Dec	192.825	194.772	196.718
2017-Jan	192.240	194.769	197.297
2017-Feb	191.773	194.766	197.759
2017-Mar	191.375	194.763	198.151
QTR AVG	191.796	194.766	197.736

Railroad and Union Abbreviations

First Quarter 2017

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.)
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.)

Note: A portion of the DM&E was sold during 2014.

Note: The sale of the southern portion of the D&H received regulatory approval on May 15, 2015.

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	Sheet Metal Air Rail Transportation - Transportation Division*
SMW	Sheet Metal Workers' International Association
TCU	Transportation Communication International Union
TCU-Carmen	Brotherhood of Railway Carmen Division of the Transportation Communications International Union
UTU-Yard	United Transportation Union Yardmaster Department (also noted as UTU-YMD)

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)
UTU	United Transportation Union (merged into SMART)

* Typically represents employees formerly represented by the UTU (conductors and brakemen).