

ASSOCIATION  
OF AMERICAN  
RAILROADS

**John T. Gray**  
Senior Vice President - Policy & Economics

March 3, 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 second quarter 2016 All-Inclusive Index and Rail Cost Adjustment Factor, filed in Ex Parte No. 290 (Sub-No. 5) (2016-2) *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 second quarter 2016 results on the fourth quarter 2012 base, and shows the percentage changes from the previous quarter.

	<u>2016Q1</u>	<u>2016Q2</u>	<u>% Change</u>
All-Inclusive Index	88.2	85.2	-3.4
Preliminary RCAF	0.882	0.852	-3.4
Forecast Error Adjustment	-0.018	-0.012	
RCAF (Unadjusted)	0.864	0.840	-2.8
Productivity Adjustment Factor	2.3502	2.3584	
RCAF (Adjusted)	0.368	0.356	-3.3
PAF-5	2.4932	2.4974	
RCAF-5	0.347	0.336	-3.2

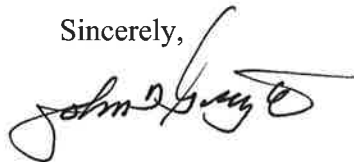
Page 2

March 3, 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". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

John T. Gray

Attachments

**Second Quarter 2016  
All-Inclusive Index**

**Ex Parte No. 290 (Sub-No. 5) (2016-2)**

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

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

**March 3, 2016**

# Table of Contents

<b>Subject</b>	<b>Page</b>
Introduction. . . . .	1
Index Weights. . . . .	2
All-Inclusive Index - Second Quarter 2016 . . . . .	3
Forecast vs. Actual All Inclusive Index - Fourth Quarter 2015 . . . . .	4
Productivity. . . . .	5
Rail Cost Adjustment Factor - Second Quarter 2016. . . . .	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 second quarter 2016. Calculations utilize the Surface Transportation Board's latest Productivity Adjustment decision, which was served in a late release on February 12, 2016.

## 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 2014 (current) and 2013 (previous) weights are shown below. Weights calculated from 2013 data were used for the fourth quarter of 2014 through the third quarter of 2015. Beginning with the fourth quarter of 2015, weights calculated using 2014 data are used. Fuel and Interest expenses were down in 2014, and those decreases are reflected in their lower weights. Depreciation expenses increased at about double the rate of total expenses, possibly caused by record capital expenditures for new equipment and infrastructure. The weight for Depreciation increased by 0.6 percentage points, as did the weight for Other – which consists of Purchased Services, Taxes (other than income and payroll), Casualties & Insurance, Loss & Damage, and General & Administrative expenses. Other increases were 0.3 for Materials & Supplies, and 0.1 for Labor. Expenses for Materials & Supplies were probably more affected by higher volumes than prices. The weight for Equipment Rents was unchanged.

<b>Weights for RCAF's All-Inclusive Index</b>		
	<b>2014</b>	<b>2013</b>
Labor	31.7 %	31.6 %
Fuel	20.9	22.1
Materials & Supplies	5.2	4.9
Equipment Rents	5.4	5.4
Depreciation	12.6	12.0
Interest	1.5	1.9
Other	22.7	22.1
<b>Total</b>	<b>100.0</b>	<b>100.0</b>

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 Second Quarter 2016

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.

	2014 Weights	Forecast		Percent Change
		Previous 2016Q1	Current 2016Q2	
1. Labor	31.7%	417.7	416.4	-0.3 %
2. Fuel	20.9%	191.2	148.7	-22.2
3. M&S	5.2%	246.9	246.9	0.0
4. Equipment Rents	5.4%	214.3	215.1	0.4
5. Depreciation	12.6%	226.0	227.2	0.5
6. Interest	1.5%	57.5	57.5	0.0
7. Other	22.7%	215.5	215.1	-0.2
8. Weighted Average				
a. 1980 = 100		275.0	265.8	
b. 1980 = 100 (linked)		262.5	253.7 <sup>1</sup>	
c. 4Q12 = 100		88.2	85.2 <sup>2</sup>	-3.4

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<sup>1</sup> Index80 = (Current Index / Previous Index) \* the Previous Quarter Linked Index  
= (265.8 / 275.0) x 262.5  
= 253.7

<sup>2</sup> To calculate the 4Q12 = 100 index:  
Index4Q12 = (Current Linked Index / 4Q12 Basing Factor) \* 100  
= 253.7 divided by 297.6 times 100  
= 85.2

Indexes based on other periods:

- 4Q07 based index = 253.7 / 245.9 x 100 = 103.2
- 4Q02 based index = 253.7 / 192.1 x 100 = 132.1
- 4Q97 based index = 253.7 / 173.2 x 100 = 146.5
- 4Q92 based index = 253.7 / 156.9 x 100 = 161.7
- 4Q87 based index = 253.7 / 132.2 x 100 = 191.9

## Forecast vs. Actual All-Inclusive Index Fourth Quarter 2015

Because of data availability, the forecast error adjustment has a two-quarter lag from each filing. As shown below, the fourth quarter actual index of 87.3 is 1.2 index points below the forecast value of 88.5. Therefore, the forecast error adjustment for second quarter 2016 is -1.2 index points.

	2014 Weights	Fourth Quarter 2015		Amt Difference
		Forecast	Actual	
1. Labor	31.7%	403.6	403.6	
2. Fuel	20.9%	210.8	198.5	
3. M&S	5.2%	264.8	264.8	
4. Equipment Rents <sup>1</sup>	5.4%	214.7	214.3	
5. Depreciation	12.6%	223.5	225.6	
6. Interest	1.5%	57.5	57.5	
7. Other	22.7%	218.2	215.8	
8. Weighted Average				
a. 1980 = 100		275.9	273.0	
b. 1980 = 100 (linked)		263.4	259.8 <sup>2</sup>	
c. 4Q12 = 100 <sup>3</sup>		88.5	87.3	-1.2

**Forecast error**       $\longrightarrow$  **-1.2 index points**

**Note:** The standard linking procedure has been used to eliminate any changes to indexes that would be caused by updating weights. The Q3 unlinked weighted averages for the All-Inclusive Indexes (forecast and actual) and for Equipment Rents (forecast and actual) were recalculated using the new (2014) weights.

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1	2014 Weights	Fourth Quarter 2015	
		Forecast	Actual
Car-Hire	56.5%	193.8	194.8
Lease Rentals	43.5%	218.2	215.8
Weighted Average		204.4	203.9
Weighted Average (linked)		214.7	214.3

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

$$259.8 = 273.0 / 277.8 \times 264.4$$

<sup>3</sup> 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.

<b>Comparison of Output, Input, &amp; Productivity</b>			
<b>2010 - 2014</b>			
Year	Output Index (1)	Input Index (2)	Productivity <sup>1</sup> 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
<b>Average</b>			<b>1.014</b>
Previous Average (2009-2013)			1.007

<sup>1</sup> 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.

<b>Calculation of PAF and PAF-5</b>			
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 Second Quarter 2016

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 2016Q1	Current 2016Q2	Percent Change
All-Inclusive Index <sup>1</sup>	88.2	85.2	-3.4
Preliminary RCAF <sup>2</sup>	0.882	0.852	-3.4
Forecast Error Adjustment <sup>3</sup>	<u>-0.018</u>	<u>-0.012</u>	
RCAF (Unadjusted) <sup>4</sup>	0.864	0.840	-2.8
Productivity Adjustment Factor <sup>5</sup>	<u>2.3502</u>	<u>2.3584</u>	
RCAF (Adjusted) <sup>6</sup>	0.368	0.356	-3.3
PAF-5 <sup>7</sup>	2.4932	2.4974	
RCAF-5 <sup>8</sup>	0.347	0.336	-3.2

<sup>1</sup> See All-Inclusive Index on page 3.

<sup>2</sup> All-Inclusive Index divided by the All-Inclusive Index in the base period (100.0).

<sup>3</sup> 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.

<sup>4</sup> Preliminary RCAF plus the forecast error adjustment.

<sup>5</sup> See Productivity on page 5.

<sup>6</sup> RCAF (Unadjusted) divided by the Productivity Adjustment Factor (PAF).

<sup>7</sup> See Productivity on page 5.

<sup>8</sup> RCAF (Unadjusted) divided by the PAF-5.

# Appendixes

## Labor

### Second Quarter 2016

The second quarter 2016 Labor Index is forecast to decrease 0.3 percent from the previous quarter. Much of the decrease can be attributed to a few lump sum amounts becoming fully amortized and removed from the index. Nearly all other changes were very small.

#### Wage Rate Index

The Wage Rate Index portion of the Labor Index decreased 0.4 percent. A drop in the lump sum rate was mostly offset by small increases in hourly wages and back pay.

**Wage Increases:** No wage increases are currently scheduled for the second quarter in any national or independent labor agreements. One independent contract snapped back to the national agreement, causing a small increase.

**Lump Sums:** The second quarter lump sum rate decreased by 24.6 cents as six amounts from last year became fully amortized and were removed from the index. Two new amounts were added to the index. Two of the four amounts that were not replaced were the result of independent labor agreements rejoining national agreements (referred to as a "snap back") that do not feature bonuses. The other two amounts not replaced were one-time signing bonuses related to new independent labor agreements.

**Back Pay:** The second quarter back pay rate increased by 2.7 cents. This change was the net result of four amounts from last year being fully amortized and removed plus two new back pay amounts being added. One of the new back pay amounts was related to a snap back, as explained above.

**Other:** In wages, "Other" contains the amortization of incentive payments that a railroad makes each year to its dispatchers, yardmasters, and engineers. The current incentive payment amount is for a payment made in early 2015 for performance in 2014. This amount is unchanged. For the next quarter, this amount will be fully amortized and replaced with the 2016 incentive payment.

#### Supplements Index

The Supplements Index decreased 0.2 percent, or 3.7 cents. Three of the four supplements categories had small decreases, while one did not change.

**Health & Welfare:** The Health & Welfare rate decreased by 0.1 cents. The change was caused by increased employee health & welfare cost sharing, which lowers employer costs, for one small railroad.

**Railroad Retirement:** The Railroad Retirement rate decreased 0.3 percent (or 2.2 cents). The decrease was caused by slightly lower taxable earnings.

**Unemployment Insurance:** The Unemployment Insurance rate did not change from the previous quarter.

## **Labor**

### **Second Quarter 2016**

**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. For the second quarter, the rate dropped 8.5 percent – but this is a decrease of only 1.4 cents in the rate. The decrease was caused mostly by lower employer matches to employee 401(k) accounts.

### **Labor Index Calculation**

As shown in Table A-1 on the next page, the 0.4 percent decrease in the Wage Rate Index and the 0.2 percent decrease in the Supplements Index combined to cause a 0.3 percent decrease in the Labor Index. The linked second quarter 2016 index is 416.4.

**Labor**  
**Second Quarter 2016**

**Table A-1 Labor Index**

	2016Q1	2016Q2	Change	
			Percent	Amount
<u>Base Wage</u> – Straight Time & Pay For Time Not Worked	\$41.402	\$41.465	0.2%	\$0.063
Adjustments:				
Lump Sum	0.392	0.146	-62.8%	-\$0.246
Back Pay	0.131	0.158	20.6%	\$0.027
Other	0.157	0.157	0.0%	\$0.000
<b>Total Wages</b>	<u>42.082</u>	<u>41.926</u>	-0.4%	-\$0.156
Health & Welfare Benefits	8.043	8.042	0.0%	-\$0.001
RR Retirement & Medicare	8.496	8.474	-0.3%	-\$0.022
Unemployment Insurance	0.240	0.240	0.0%	\$0.000
Other	0.164	0.150	-8.5%	-\$0.014
<b>Total Supplements</b>	<u>\$16.943</u>	<u>\$16.906</u>	-0.2%	-\$0.037
Total Labor (as info only)	\$59.025	\$58.832		
<b>Wage Index<sup>1</sup></b>	360.1	358.8	-0.4%	
<b>Supplements Index<sup>2</sup></b>	626.1	624.8	-0.2%	
Total labor Index, 2014 Weights <sup>3</sup>	434.3	433.0		
<b>Labor Index (linked)<sup>4</sup></b>	<b>417.7</b>	<b>416.4</b>	-0.3%	

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<sup>1</sup> 1980 wage rate \$11.685

<sup>2</sup> 1980 supplements rate \$2.706

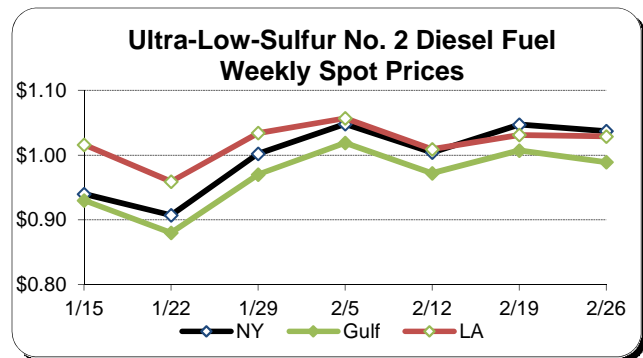
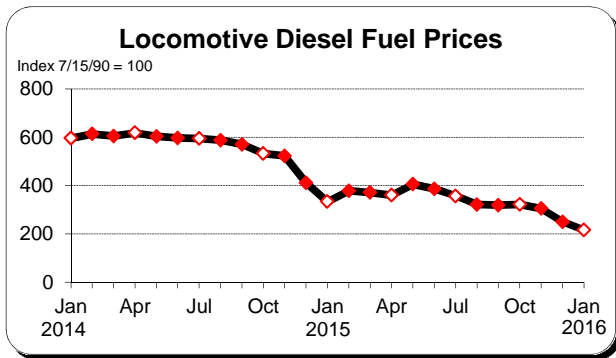
<sup>3</sup> 2014 weights: wages, supplements 72.1% 27.9%

<sup>4</sup> 2016Q2 linked Index = 2016Q1 linked x (2016Q2 / 2016Q1)  
= 417.7 x 433.0 / 434.3

## Fuel Second Quarter 2016

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.

Locomotive diesel fuel prices have been trending downward, and January 2016 was the lowest average in over 10 years. The chart below shows the AAR's Monthly Locomotive Diesel Fuel Price Index from January 2014 through January 2016. The average price for locomotive diesel fuel has fallen 63.9 percent during that period. The second chart shows spot prices for Ultra-Low-Sulfur No. 2 Diesel Fuel as reported by the Energy Information Administration.



While the latest average prices for locomotive diesel fuel are available only through January 2016, data through most of February are available for related fuel types. According to the Energy Information Administration, weekly spot prices for Ultra-Low-Sulfur Diesel Fuel\* have trended upward since reaching a recent low during January. Therefore, the railroads expect Q2 (April 2016) locomotive diesel fuel prices to be higher than the low number for Q1 (January). Although the expected average is lower than the forecast for the previous quarter, it is an increase from the average price actually paid (and now known) in January.

Forecast Fuel Index (1980 = 100)	148.7
Change from previous quarter forecast	-22.2%
Change from previous quarter actual	12.0%

\* 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

### Second Quarter 2016

The second quarter 2016 Materials & Supplies Index rounded to the same value as the previous period. The lack of a change (actually a very small decrease before rounding) was caused by a decrease in the average of prices for items in the Metal Products category being offset by increases in the Forest Products and Miscellaneous Products categories.

2016Q2 Materials & Supplies Index = 246.9

2016Q1 Materials & Supplies Index = 246.9

Difference	0.0 basis points
	or
	0.0 %



## Equipment Rents Second Quarter 2016

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 month available. For the first quarter, December 1 of the previous year is used. For the second, third and fourth quarters; March 1, June 1, and September 1 are used, respectively. Using data retrieved from the latest CHARM file, an average rate per car is developed. Next, those average rates are grouped into car type categories to create an overall summary of car hire rates. The summary rates are then compared from quarter to quarter 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

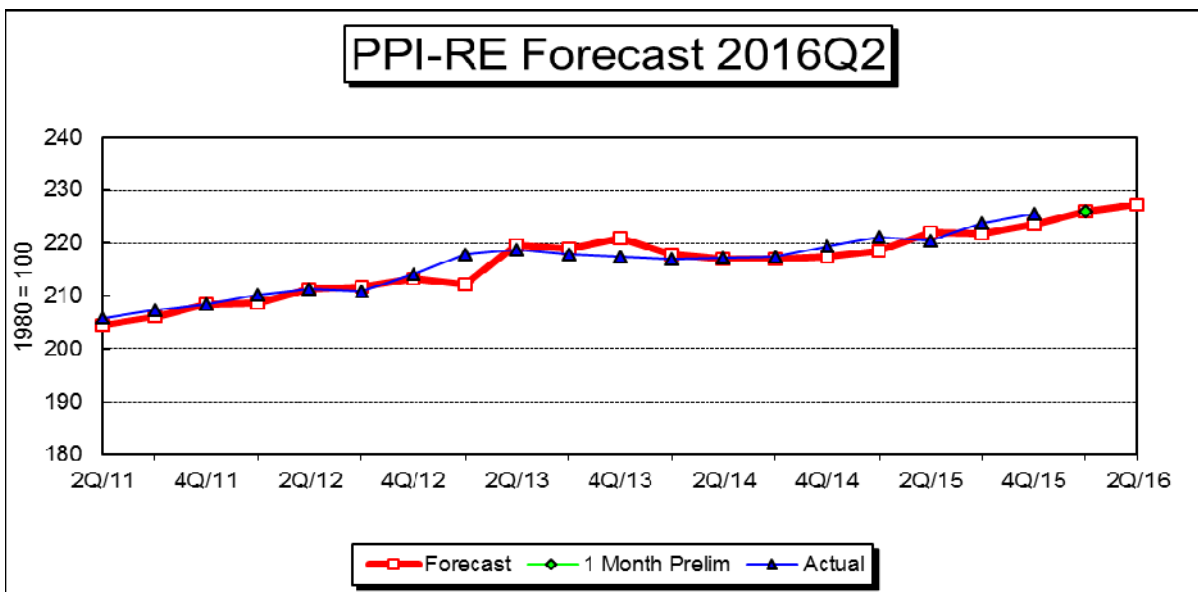
The table below calculates the Equipment Rents Index. The second quarter Car Hire portion of the Index increased 0.9 percent because of increases in rates for railroad-owned mileage rates and privately-owned cars that occurred over the last three months. A 0.2 percent decrease in the projected PPI-LF (See Appendix G) used as a proxy for Lease Rentals, combined with the 0.9 percent increase for Car Hire, caused the Equipment Rents Index to increase 0.4 percent.

	2014	2016Q1	2016Q2	Percent
	Weight			Change
Car Hire	56.5%	195.1	196.9	0.9 %
Lease Rentals	43.5%	215.5	215.1	-0.2
Weighted Average		204.0	204.8	0.4
Weighted Average (Linked)		214.3	215.1	0.4

## Depreciation Second Quarter 2016

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 0.5 percent increase from the previous quarter's forecast, reflects monthly PPI-RE figures that have been increasing at a low rate over the past year.

Forecast of Depreciation Index (1982=100)	205.4
Forecast of Depreciation Index (1980=100)	227.2
Change from previous quarter forecast	0.5%
Change from actual first month of previous quarter	0.6%
Change from same quarter of prior year (actual)	3.1%



## Depreciation Second Quarter 2016

### PPI RAILROAD EQUIPMENT

Exponential smoothing outperforms Box-Jenkins by 1.020 to 2.010 out-of-sample Mean Absolute Deviation. I tried 78 forecasts up to a maximum horizon 12. For Box-Jenkins, I used a log transform.

Series is trended and nonseasonal.

Recommended model: Exponential Smoothing

Forecast Model for PPIRE

Holt exponential smoothing: Linear trend, No seasonality

Component	Smoothing Weight	Final Value
Level	0.64719	204.35
Trend	0.02035	0.2748

#### Within-Sample Statistics

Sample size 72	Number of parameters 2
Mean 193.4	Standard deviation 6.227
R-square 0.9793	Adjusted R-square 0.979
Durbin-Watson 1.973	Ljung-Box(18)=19.49 P=0.6376
Forecast error 0.9021	BIC 0.9439
MAPE 0.003092	RMSE 0.8895
MAD 0.6015	

#### Actual Values for the Most Recent 6 Periods:

Date	Actual
2015-08	202.8
2015-09	202.8
2015-10	203.3
2015-11	203.9
2015-12	204.5
2016-01	204.2

#### Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2016-02	202.770	204.620	206.470
2016-03	202.678	204.895	207.112
2016-04	202.638	205.170	207.701
2016-05	202.634	205.445	208.255
2016-06	202.655	205.719	208.784
<b>QTR AVG</b>	202.642	205.445	208.2467

## Interest Second Quarter 2016

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 2014 data, and was updated in this Q4 filing submitted on September 4, 2015.

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 Obligations - Non-Current
44	Debt in Default - Non-Current
45	Accounts Payable: Affiliated Companies - Non-Current
46	Unamortized Debt Premium - Non-Current

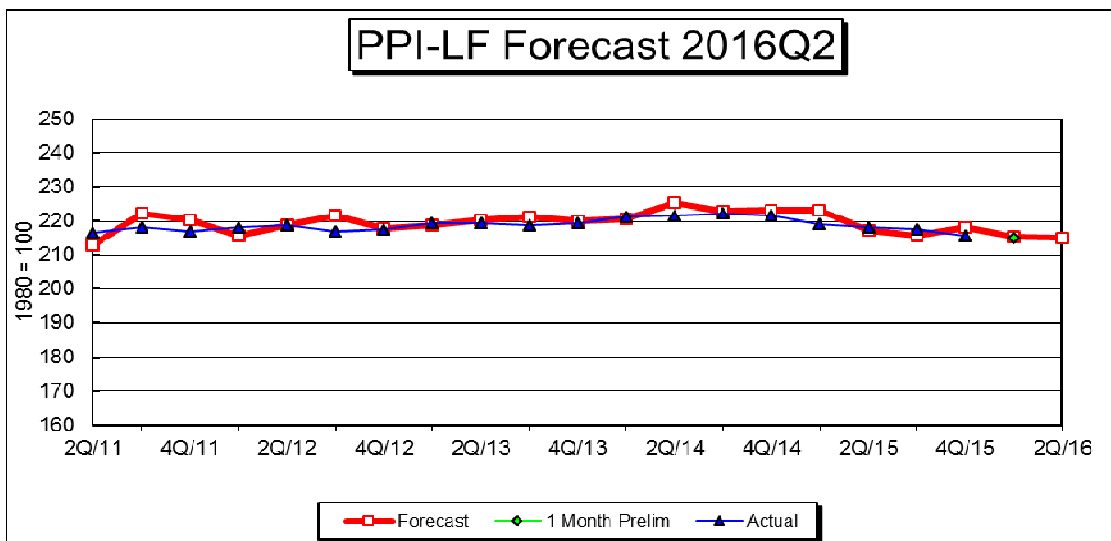
2014	Interest Rate	4.51%
1980	Interest Rate	7.85%
<b>2016Q2</b>	<b>Interest Index</b>	<b>57.5</b>
2016Q1	Interest Index	57.5
	Percent Change	0.0%

## Other Expenses Second Quarter 2016

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 have fallen, mostly by small percentages, in 14 out of the last 17 months. The forecast for 2016Q2 is 0.2 percent below the previous quarter.

Forecast of Other Expense Index (1982=100)	191.9
Forecast of Other Expense Index (1980=100)	215.1
Change from previous quarter forecast	-0.2%
Change from actual first month of previous quarter	0.0% (-0.0465% rounded)
Change from same quarter of prior year (actual)	-1.4%



## Other Expenses Second Quarter 2016

**PPI INDUSTRIAL COMMODITIES LESS FUELS  
AND RELATED PRODUCTS AND POWER**

Box-Jenkins outperforms exponential smoothing by 1.076 to 1.578 out-of-sample Mean Absolute Deviation. I tried 78 forecasts up to a maximum horizon 12.

Series is nonstationary and seasonal.

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

Term	Coefficient	Std. Error	t-Statistic	Significance
a[1]	0.6579	0.0885	7.4325	1.0000
A[12]	0.4402	0.0974	4.5210	1.0000

Sample size 72	Number of parameters 2
Mean 193.2	Standard deviation 4.494
R-square 0.9875	Adjusted R-square 0.9873
Durbin-Watson 2.026	Ljung-Box(18)=18.23 P=0.5594
Forecast error 0.5056	BIC 0.5291
MAPE 0.002042	RMSE 0.4985
MAD 0.3941	

**Actual Values for the Most Recent 6 Periods:**

Date	Actual
2015-08	193.9
2015-09	193.1
2015-10	193.1
2015-11	192.4
2015-12	192.1
2016-01	192.0

**Forecasted Values**

Date	2.5 Lower	Forecast	97.5 Upper
2016-02	190.889	191.873	192.857
2016-03	189.882	191.787	193.692
2016-04	188.954	191.758	194.562
2016-05	188.191	191.841	195.491
2016-06	187.562	191.999	196.435
QTR AVG	188.236	191.866	195.496

## Railroad and Union Abbreviations

### Second Quarter 2016

#### ***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: A proposal was made in November 2014 to sell a portion of the D&H pending regulatory approval.

#### ***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).