

ASSOCIATION  
OF AMERICAN  
RAILROADS

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Senior Vice President - Policy & Economics

December 5, 2013

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 2014 All-Inclusive Index and Rail Cost Adjustment Factor, filed in Ex Parte No. 290 (Sub-No. 5) (2014-1) *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 2014 results on the fourth quarter 2012 base, and shows the percentage changes from the previous quarter.

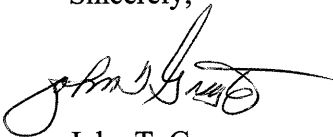
	<u>2013Q4r</u>	<u>2014Q1</u>	<u>% Change</u>
All-Inclusive Index	100.1	98.4	-1.7
Preliminary RCAF	1.001	0.984	-1.7
Forecast Error Adjustment	-0.026	-0.004	
RCAF (Unadjusted)	0.975	0.980	0.5
Productivity Adjustment Factor	2.3059	2.3110	
RCAF (Adjusted)	0.423	0.424	0.2
PAF-5	2.4426	2.4480	
RCAF-5	0.399	0.400	0.3

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.

During 2013, two railroads revised their annual reports for 2010, 2011, and 2012. In a decision served November 27, 2013, the STB directed the AAR to "restate the 2011, 2012, and 2013 RCAFs using BNSF's and UP's revised R-1 reports in its next quarterly submission." The restated RCAFs are listed in Appendix AD of this filing. See Appendices AA, AB, and AC for more detail. Because the revisions affected the 2012Q4=100 basing factor, Appendix AE contains historical RCAFs converted to the revised fourth quarter 2012 base. The AAR's recommended method for converting to another base is shown in the same attachment, as well as factors and indices necessary to make those calculations.

We have notified Paul Aguiar, in the STB office handling this proceeding, of our plan to e-file the submission and the non-proprietary work papers in accordance with the ICC's order in Ex Parte No. 290 (Sub-No. 2), *Railroad Cost Recovery Procedures*, (served February 8, 1990). A second copy of the submission and non-proprietary work papers, plus selected highly confidential work papers, will be hand-delivered to a member of Mr. Aguiar's Data Collection and Auditing Team. All workpapers are available for STB inspection. Questions should be directed to me or Clyde Crimmel (202 639-2309) of this office.

Sincerely,



John T. Gray

Attachments

**First Quarter 2014  
All-Inclusive Index**

**Ex Parte No. 290 (Sub-No. 5) (2014-1)**

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

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

**December 5, 2013**

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## Introduction

On January 2, 1985, the Interstate Commerce Commission (ICC) [now the Surface Transportation Board (STB)] adopted the All-Inclusive Index of Railroad Costs 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 (but does not endorse) the RCAF-5, which was instituted by an STB decision served October 3, 1996 in Ex Parte No. 290 (Sub-No. 7), *Productivity Adjustment - Implementation*. This quarter's projection of railroad costs is for the first quarter 2014.

In a decision (Docket No. FD 35506) served July 25, 2013, the STB ordered BNSF to "refile its R-1 report for 2010, 2011, and 2012...." The AAR received the revised data on October 23, and promptly updated its annual report database. Union Pacific's interest expense revisions (July 2013) for 2010 and 2011 were also added to the database in addition to the revision for 2012 that had been added earlier. The AAR has examined the impact of the revisions, and found that they caused numerous small changes. Because the revisions include data for 2010 through 2012, RCAFs for 2011Q4 through 2013Q4 are affected. The 2011Q4 index was the first RCAF to use 2010 data (for weights, labor benchmarks, and the calculation of the Interest Index component of the RCAF's All-Inclusive Index). More detail on our findings can be found in appendices AA, AB and AC. In a decision served November 27, 2013, the STB directed the AAR "to restate the 2011, 2012, and 2013 RCAFs using BNSF's and UP's revised R-1 reports in its next quarterly submission." The restated RCAFs are listed in Appendix AD. One of the more significant changes is a change in the 2012Q4=100 basing factor, from 297.5 to 297.6. Appendix AE contains historical data, originally calculated using different bases, restated to the corrected base for comparison purposes.

RCAF calculations beginning with this 2014Q1 filing use the corrected weights, benchmarks, basing factors, and component indices. The calculation for 2014Q1 has been made as if corrected data has always been used – meaning the 2013Q4 "Previous Forecast" on page 3 uses restated data, and will not match the original filing. The "Forecast vs. Actual" calculation on page 4 also uses the restated forecast instead of an as-filed forecast, and compares to an Actual that uses all corrected data.

## 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.

In a decision (Docket No. FD 35506) served July 25, 2013, the Surface Transportation Board ordered BNSF Railway to "refile its R-1 report for 2010, 2011, and 2012...." In addition, Union Pacific Railroad revised its interest expense for years 2010 through 2012 during the same month. The BNSF revisions became available in late October 2013. The revisions caused changes to the weights used by the RCAF's All-Inclusive Index. Weights for all three years are listed below. Assuming the STB will decide (in its December 20 decision) to restate past indices, the "With Revisions" will become the correct weights.

<b>Weights for RCAF's All-Inclusive Index</b>						
	As Originally Filed			With Revisions		
	2010	2011	2012	2010	2011	2012
Labor	33.3 %	31.3 %	31.2 %	33.4 %	31.4 %	31.3 %
Fuel	18.0	22.5	22.4	18.1	22.6	22.4
Materials & Supplies	5.0	5.1	4.9	5.0	5.1	4.9
Equipment Rents	6.2	5.6	5.6	6.2	5.6	5.6
Depreciation	12.8	11.6	12.1	12.7	11.5	11.9
Interest	2.9	2.5	1.9	2.9	2.3	2.0
Other	<u>21.8</u>	<u>21.4</u>	<u>21.9</u>	<u>21.7</u>	<u>21.5</u>	<u>21.9</u>
Total	100.0	100.0	100.0	100.0	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 2014

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.

	2012r Weights	Forecast		Percent Change
		Previous 2013Q4r	Current 2014Q1	
1. Labor	31.3%	387.1	386.2	-0.2 %
2. Fuel	22.4%	399.6	377.9	-5.4
3. M&S	4.9%	261.4	265.9	1.7
4. Equipment Rents	5.6%	207.7	208.7	0.5
5. Depreciation	11.9%	221.0	217.8	-1.4
6. Interest	2.0%	76.6	76.6	0.0
7. Other	21.9%	220.0	220.5	0.2
8. Weighted Average				
a. 1980 = 100		311.1	306.0	
b. 1980 = 100 (linked)		297.8	292.9 <sup>1</sup>	
c. 4Q12 = 100		100.1	98.4 <sup>2</sup>	-1.7

Weights have been restated to include recent revisions made by one railroad. "Previous", in this case, is the restated version (not the September 5 filing) as directed by the Board in its November 27, 2013, decision. The 4Q12 Basing Factor has also been restated from 297.5 to 297.6. See Appendix AA and AC.

$$\begin{aligned}
 &^1 \text{ Index}_{80} = (\text{Current Index} / \text{Previous Index}) * \text{the Previous Quarter Linked Index} \\
 &= (306.0 / 311.1) \times 297.8 \\
 &= 292.9
 \end{aligned}$$

<sup>2</sup> To calculate the 4Q12 = 100 index:

$$\begin{aligned}
 \text{Index}_{4Q12} &= (\text{Current Linked Index} / \text{4Q12 Basing Factor}) * 100 \\
 &= 292.9 \text{ divided by } 297.6 \text{ times } 100 \\
 &= 98.4
 \end{aligned}$$

Indexes based on other periods:

- 4Q07 based index = 292.9 / 245.9 x 100 = 119.1
- 4Q02 based index = 292.9 / 192.1 x 100 = 152.5
- 4Q97 based index = 292.9 / 173.2 x 100 = 169.1
- 4Q92 based index = 292.9 / 156.9 x 100 = 186.7
- 4Q87 based index = 292.9 / 132.2 x 100 = 221.6

## Forecast vs. Actual All-Inclusive Index Third Quarter 2013r

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 98.5 is 0.4 index points below the forecast value of 98.9. Therefore, the forecast error adjustment for first quarter 2014 is -0.4 index points.

	2011r Weights	Third Quarter 2013r		Amt Difference
		Forecast	Actual	
1. Labor	31.4%	391.3	391.3	
2. Fuel	22.6%	375.6	376.0	
3. M&S	5.1%	264.2	264.2	
4. Equipment Rents <sup>1</sup>	5.6%	208.0	207.6	
5. Depreciation	11.5%	218.9	217.8	
6. Interest	2.3%	87.3	87.3	
7. Other	21.5%	221.4	218.8	
8. Weighted Average				
a. 1980 = 100		307.7	307.0	
b. 1980 = 100 (linked)		294.4	293.1 <sup>2</sup>	
c. 4Q12 = 100 <sup>3</sup>		98.9	98.5	-0.4

**Forecast error** → -0.4 index points

Weights have been restated to include revent revisions made by two railroads. Q3 Forecast and Actual are the restated versions (not from the original filings) as directed by the Board in its November 27, 2013, decision. The 4Q12 Basing Factor has also been restated from 297.5 to 297.6. See Appendix AA and AC.

	2011r Weights	Third Quarter 2013r	
		Forecast	Actual
Car-Hire	48.7%	178.3	179.7
Lease Rentals	51.3%	221.4	218.8
Weighted Average		200.4	199.8
Weighted Average (linked)		208.0	207.6

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

$$293.1 = 307.0 / 304.7 \times 290.9$$

<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 11, 2013, the Surface Transportation Board (STB) served a decision in Ex Parte 290 (Sub-No. 4) which added the year 2011 to the Productivity Adjustment Factor (PAF) and removed the year 2006. This creates a geometric average annual productivity change, for the five-year period 2007 through 2011, of 0.9 percent per year. The components of this average annual value are shown on the following table in ratio format – therefore, 1.009 is the same as an increase of 0.9 percent. Productivity changes are calculated by multiplying each of the five productivity changes together and taking the result to the one-fifth power. The quarter productivity adjustment factors (PAF) 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>2007 - 2011</b>			
Year	Output Index (1)	Input Index (2)	Productivity <sup>1</sup> Changes (3)
2007	1.000	0.996	1.004
2008	0.990	0.970	1.021
2009	0.847	0.861	0.984
2010	1.109	1.070	1.036
2011	1.041	1.041	1.000
<b>Average</b>			<b>1.009</b>
Previous Average (2006-2010)			1.008

<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 2007-2011, use fourth root of avg. productivity change = 1.0022			
For 2006-2010, use fourth root of avg. productivity change = 1.0020			
Quarter	Year	PAF	PAF-5
Q1	2013	2.2907	2.4279
Q2	2013	2.2957	2.4328
Q3	2013	2.3008	2.4377
Q4	2013	2.3059	2.4426
Q1	2014	2.3110	2.4480

## Rail Cost Adjustment Factor First Quarter 2014

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 2013Q4r	Current 2014Q1	Percent Change
All-Inclusive Index <sup>1</sup>	100.1	98.4	-1.7
Preliminary RCAF <sup>2</sup>	1.001	0.984	-1.7
Forecast Error Adjustment <sup>3</sup>	-0.026	-0.004	
RCAF (Unadjusted) <sup>4</sup>	0.975	0.980	0.5
Productivity Adjustment Factor <sup>5</sup>	2.3059	2.3110	
RCAF (Adjusted) <sup>6</sup>	0.423	0.424	0.2
PAF-5 <sup>7</sup>	2.4426	2.4480	
RCAF-5 <sup>8</sup>	0.399	0.400	0.3

<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.

See Appendix AA for discussion of revised data.

# Appendixes

## Labor

### First Quarter 2014

The first quarter 2014 Labor Index is forecast to decrease 0.2 percent from the revised version of the previous quarter. The decrease was caused by lower costs for health & welfare.

#### Wage Rate Index

The Wage Rate Index portion of the Labor Index increased 1.0 percent. The major changes were a 3 percent wage increase applied to non-union employees and independent wage increases that ranged from 2 to 3.8 percent.

**Wage Increases:** No wage increases are scheduled for the first quarter in the national union labor agreements. Following past index procedure, non-union employees were assigned a general wage increase (3.0 percent) similar to the increase received by most unions last July. Some independent labor agreements have general wage increases (typically 3 percent) scheduled for January 1. This included some larger unions such as the BLET. Additionally, a few independent unions are still receiving cost-of-living adjustments.

**Lump Sums:** The first quarter lump sum rate changed little from the previous quarter, decreasing \$0.003. Two small lump sums were fully amortized and removed from the index, while two small amounts were added.

**Back Pay:** The first quarter back pay rate decreased 1.4 cents, as one back pay amount became completely amortized and removed from the rate. There were no new additions to the rate. The current rate continues to be negative because of the second quarter change where one railroad's conductors were rebenchmarked from national-agreement to independent.

**Other:** In wages, "Other" contains the amortization of incentive payments that a railroad makes each year to its dispatchers, yardmasters, and engineers. The current amount is for a payment made in early 2013, and it is unchanged.

#### Supplements Index

The Supplements Index decreased because of lower health & welfare costs, as new health insurance premiums become effective January 1 (see pages 4 and 5).

**Health & Welfare:** The Health & Welfare rate decreased 5.7 percent (or 45.7 cents) from the restated previous quarter. Lower employer contributions (lower premiums) will go into effect January 1. Employee health & welfare cost sharing was unchanged. Benchmark data used to calculate the rate has been adjusted for restated data, as required by the Surface Transportation Board's decision.

**Railroad Retirement:** The Railroad Retirement rate increased 1.6 percent. The increase was caused by a combination of higher taxable earnings and higher maximum taxable earnings that go into effect January 1. Page 4 of this appendix lists tax rates and maximum taxable earnings for 2012 through 2014. Employer tax rates for Tier I and Tier II did not change for 2014.

## Labor

### First Quarter 2014

**Unemployment Insurance:** The Unemployment Insurance rate increased 0.2 cents as maximum taxable earnings increased effective January 1. The weighted average tax rate also had a very slight increase, moving from 0.67 percent to 0.68 – as shown on page 4 of this appendix.

**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 first quarter, the rate increased 4.4 cents mostly because of one railroad's perfect attendance stock award.

### Labor Index Calculation

As shown in Table A-1 on the next page, the 1.0 percent increase in the Wage Rate Index and the 1.8 percent decrease in the Supplements Index combined to cause a 0.2 percent decrease in the Labor Index. The linked first quarter 2014 Labor Index is 386.2, and was calculated as if all revisions made by railroads during 2013 (to annual report data from 2010 through 2012) were used in original calculations. For more information on the revised data, see the page 1 introduction and Appendices AA through AD.

## Labor First Quarter 2014

**Table A-1 Labor Index**

	2013Q4r	2014Q1	Change	
			Percent	Amount
<u>Base Wage</u> – Straight Time & Pay For Time Not Worked	\$38.344	\$38.724	1.0%	\$0.380
Adjustments:				
Lump Sum	0.217	0.214	-1.4%	-\$0.003
Back Pay	-0.063	-0.077	22.2%	-\$0.014
Other	0.208	0.208	0.0%	\$0.000
<b>Total Wages</b>	<u>38.706</u>	<u>39.069</u>	0.9%	\$0.363
Health & Welfare Benefits	8.080	7.623	-5.7%	-\$0.457
RR Retirement & Medicare	7.613	7.736	1.6%	\$0.123
Unemployment Insurance	0.057	0.059	3.5%	\$0.002
Other	0.103	0.147	42.7%	\$0.044
<b>Total Supplements</b>	<u>\$15.853</u>	<u>\$15.565</u>	-1.8%	-\$0.288
Total Labor	\$54.559	\$54.634		
<b>Wage Index<sup>1</sup></b>	331.2	334.4	1.0%	
<b>Supplements Index<sup>2</sup></b>	585.8	575.2	-1.8%	
Total labor Index, 2012r Weights <sup>3</sup>	409.6	408.6		
<b>Labor Index (linked)<sup>4</sup></b>	<b>387.1</b>	<b>386.2</b>	-0.2%	

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

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

<sup>3</sup> 2012r weights: wages, supplements 69.2% 30.8%

<sup>4</sup> 2014Q1 linked Index = 2013Q4r linked x (2014Q1 / 2013Q4r)  
= 387.1 x 408.6 / 409.6

**Labor**  
**First Quarter 2014**

**Supplement Comparisons**

**Health and Welfare Rates**

Plan	Railroad Contribution Per Employee Per Month				
	2012	2013	2014	Change	
				'12-'13	'13-'14
Group Health & Life	\$1,349.77	\$1,350.36	\$1,285.74	0.0%	-4.8%
Early Retirement Major Medical	154.49	139.04	127.92	-10.0%	-8.0%
Group Dental	55.90	55.90	53.00	0.0%	-5.2%
Group Vision	10.71	8.37	8.39	-21.8%	0.2%
Supplemental Sickness					
Maintenance of Way	36.52	32.87	32.87	-10.0%	0.0%
Shop Crafts	48.28	48.28	48.28	0.0%	0.0%
Signalmen	25.62	30.74	30.74	20.0%	0.0%
Yardmasters	34.95	34.95	34.96	0.0%	0.0%

**Railroad Retirement and Medicare**

	Earnings Base			Employer Rate		
	2012	2013	2014	2012	2013	2014
Tier I	\$110,100	\$113,700	\$117,000	6.20%	6.20%	6.20%
Tier II	81,900	84,300	87,000	12.10%	12.60%	12.60%
Medicare	no limit	no limit	no limit	1.45%	1.45%	1.45%

**Unemployment Insurance**

Monthly Taxable Earnings Base			Weighted Avg. Class I Rate		
2012	2013	2014	2012	2013	2014
\$1,365	\$1,405	\$1,440	5.00%	0.67%	0.68%



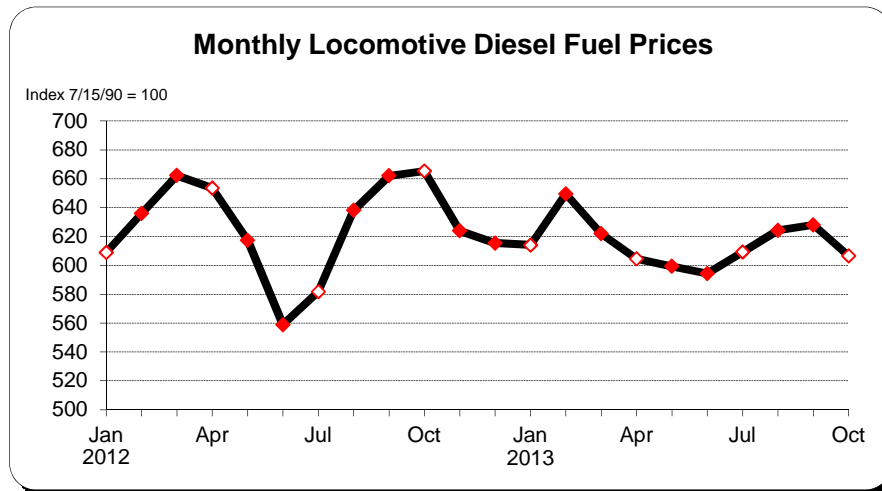


## Fuel First Quarter 2014

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 is used to represent each quarter.

While the latest average prices for locomotive diesel fuel are available only through October (see chart below), data through most of November are available for related fuel types. Crude oil\* was thought to be in equilibrium in early December, and futures prices were stable throughout November. Residential heating oil\*\* prices rose slightly during the last week of November.

Locomotive diesel fuel prices increased in August and September, but moved back down close to the July level in October. The chart below shows the AAR's Monthly Locomotive Diesel Fuel Price Index from January 2012 through October 2013. Railroads believe prices for January 2014 (Q1) will be 5.4 percent below the fourth quarter forecast (represented by October 2013), and 1 percent higher than the average price actually paid in October.



Forecast Fuel Index (1980 = 100)	377.9
Change from previous quarter forecast	-5.4%
Change from previous quarter actual	1.0%

\* Diesel fuel used by locomotives is made from refined crude oil, and therefore usually has some price correlation.

\*\* Heating oil 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 2014

The first quarter 2014 Materials & Supplies Index increased 1.7 percent from the previous quarter. The change was caused by increases in prices in the Miscellaneous Products and Forest Products categories. Prices in the Metal Products category did not change much.

2014Q1 Materials & Supplies Index = 265.9

2013Q4r Materials & Supplies Index = 261.4

Difference	4.5 basis points
	or
	1.7 %

## Equipment Rents First Quarter 2014

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

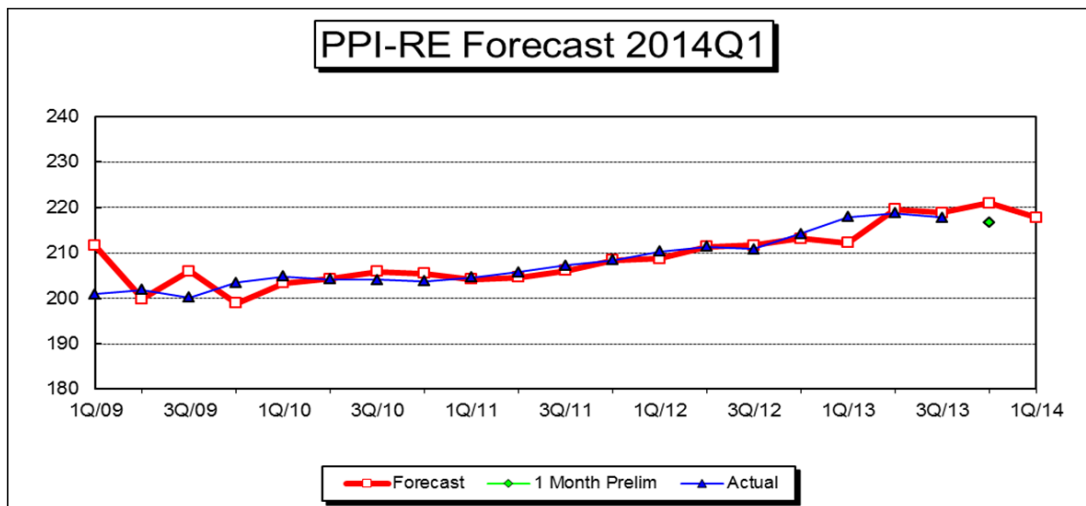
*During 2013, two railroads revised their annual reports for 2010, 2011, and 2012. See Appendix AA for more detail.* The table below calculates the Equipment Rent Index, and uses weights based on revised 2012 annual report data. The revised previous quarter index (2013Q4r) has been recalculated as if all revisions for 2010 through 2012 were available for the original filings. The first quarter Car Hire portion of the Index increased 0.8 percent because of higher rates mostly for privately-owned cars. A 0.2 percent increase for the projected PPI-LF (see Appendix G) used as a proxy for Lease Rentals, combined with the 0.8 percent increase for Car Hire, caused the Equipment Rent Index to increase by 0.5 percent.

	2012r Weight	2013Q4r	2014Q1	Percent Change
Car Hire	48.2%	179.1	180.6	0.8 %
Lease Rentals	51.8%	220.0	220.5	0.2
Weighted Average		200.3	201.3	0.5
Weighted Average (Linked)		207.7	208.7	0.5

## Depreciation First Quarter 2014

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 reflects monthly PPI-RE figures that dropped in the last two months to levels similar to those at the start of the year. The decrease from the previous quarter forecast is amplified by a previous quarter forecast that was probably too high.

Forecast of Depreciation Index (1982=100)	196.9
Forecast of Depreciation Index (1980=100)	217.8
Change from previous quarter forecast	-1.4%
Change from actual first month of previous quarter	0.6%
Change from same quarter of prior year (actual)	0.0%



## Depreciation First Quarter 2014

### PPI RAILROAD EQUIPMENT

Recommended model: Exponential Smoothing

Forecast Model for PPIRE

Holt exponential smoothing: Linear trend, No seasonality

Component	Smoothing Weight	Final Value
Level	0.64314	195.98
Trend	0.01644	0.23504

### Within-Sample Statistics

Sample size 72	Number of parameters 2
Mean 186.4	Standard deviation 5.788
R-square 0.9619	Adjusted R-square 0.9614
Durbin-Watson 1.99	Ljung-Box(18)=21.18 P=0.7296
Forecast error 1.138	BIC 1.19
MAPE 0.003988	RMSE 1.122
MAD 0.7466	

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

Date	Actual
2013-05	198.100
2013-06	196.300
2013-07	198.400
2013-08	197.200
2013-09	195.100
2013-10	195.800

### Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2013-11	193.884	196.217	198.551
2013-12	193.665	206.452	199.240
2014-01	193.510	196.687	199.865
2014-02	193.398	196.923	200.447
2014-03	193.317	197.158	200.998
<b>QTR AVG</b>	<b>193.408</b>	<b>196.923</b>	<b>200.437</b>

## Interest First Quarter 2014

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 available. Typically in the fourth quarter filing, the interest rate is updated to the new level. The source for interest expense is Schedule 210, column b, from the R-1 annual report. The lines used from current R-1 annual reports are listed below. The source for average total debt is Schedule 200 from the R-1 annual report. 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.

Beginning with fourth quarter 2013, the Interest Index was based on data for 2012, and included revisions to interest expense submitted by one railroad during July 2013. Beginning with the first quarter 2014, the Interest Index was based on data that also included revisions submitted by an additional railroad during October 2013, as ordered by the Surface Transportation Board.

### 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

2012	Interest Rate	6.01%
1980	Interest Rate	7.85%
<b>2014Q1</b>	<b>Interest Index</b>	<b>76.6</b>
2013Q4r	Interest Index	76.6
	Percent Change	0.0%

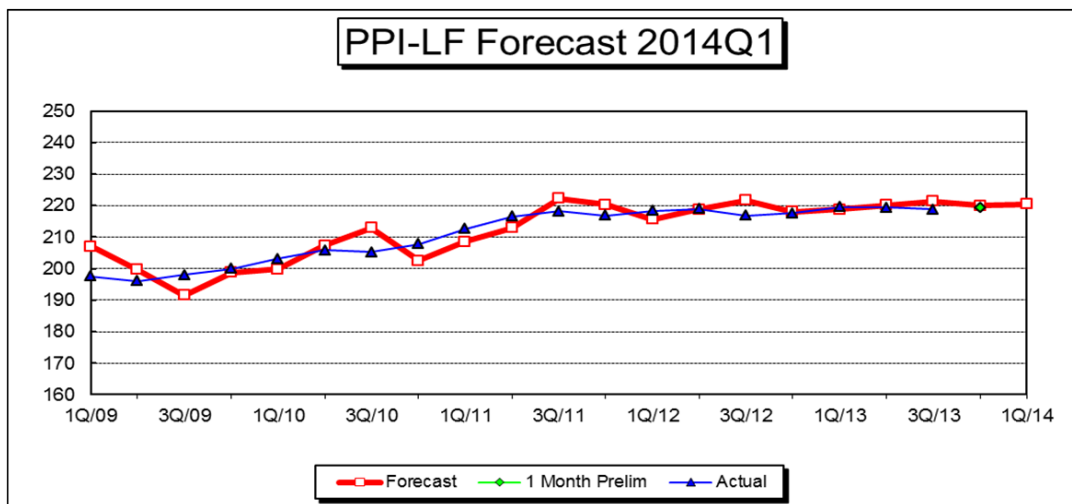
Interest Index of 76.6 includes revised annual report data submitted by 2 railroads during the Summer and Fall of 2013.

## Other Expenses First Quarter 2014

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 for the first quarter reflects monthly PPI-LF figures that are showing little change in the last 6 months.

Forecast of Other Expense Index (1982=100)	196.7
Forecast of Other Expense Index (1980=100)	220.5
Change from previous quarter forecast	0.2%
Change from actual first month of previous quarter	0.5%
Change from same quarter of prior year (actual)	0.5%



## Other Expenses First Quarter 2014

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

Recommended model: Exponential Smoothing  
 Forecast Model for PPILF  
 Holt exponential smoothing: Linear trend, No seasonality

Component	Smoothing Weight	Final Value
Level	1.00000	195.60
Trend	0.01616	0.26505

#### Within-Sample Statistics

Sample size 72	Number of parameters 2
Mean 186.6	Standard deviation 7.836
R-square 0.9806	Adjusted R-square 0.9803
Durbin-Watson 0.544	**Ljung-Box(18)=89.76 P=1
Forecast error 1.1	BIC 1.151
MAPE 0.004301	RMSE 1.084
MAD 0.7952	

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

Date	Actual
2013-05	195.500
2013-06	195.400
2013-07	195.100
2013-08	195.300
2013-09	195.200
2013-10	195.600

#### Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2013-11	193.610	195.865	198.121
2013-12	192.914	196.130	199.346
2014-01	192.446	196.395	200.344
2014-02	192.094	196.660	201.226
2014-03	191.817	196.925	202.034
<b>QTR AVG</b>	<b>192.119</b>	<b>196.660</b>	<b>201.201</b>



## Railroad and Union Abbreviations

### First Quarter 2014

#### *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.)
CSX	CSX Transportation
D&H	Delaware & Hudson (Canadian Pacific's U.S. operations, included beginning 2011Q4.)
DME	Dakota, Minnesota & Eastern (Canadian Pacific's U.S. operations, included beginning 2011Q4.)
DMIR	Duluth, Missabe & Iron Range Company (Part of CN's Grand Trunk Corp.)
DWP	Duluth, Winnipeg & Pacific Railway (Part of CN's Grand Trunk Corp.)
EJE	Elgin, Joliet & Eastern Railway (Part of CN's Grand Trunk Corp.)
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 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
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	United Transportation 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)

## Revised/Restated Data and the RCAF First Quarter 2014

*During 2013, two railroads revised R-1 data for 2010 through 2012, which affects the RCAFs calculated for 2011Q4 through 2013Q4 and the 2012Q4=100 basing factor.*

During July 2013, Union Pacific Railroad revised interest expense lines in Schedule 210 (and 510) in its Annual Report Form R-1 for the years 2010 through 2012. The revised 2012 data from Union Pacific were used to calculate the Interest Expense component of the RCAF's 2013Q4 All-Inclusive Index, and to calculate weights normally calculated in each September's filing. The revisions cause the Interest Index, and its weight, to go down – with corresponding small increases in weights for other components. The impact of UP's revisions on the previous 8 RCAFs was not determined in the September 5 filing.

In a decision served July 25, 2013, the Surface Transportation Board ordered BNSF Railway to "refile its R-1 report for 2010, 2011, and 2012...." BNSF responded to the Board's order, and refiled its 3 R-1 reports on October 23, 2013. The BNSF restatement caused changes in weights for the components in the RCAF's All-Inclusive Index, and changed numbers used to calculate the Interest Index. It also caused changes in internal weights for two components: Labor's Wage Rates and Wage Supplements, and Equipment Rents' Car Hire and Lease Rentals. The restatement also changed the Health & Welfare benchmark used to calculate the Health & Welfare portion of Wage Supplements. In summary, the BNSF restatement affects internal and external index weights, and the Interest, Labor and Equipment Rents indices.

The revisions presented the Surface Transportation Board with a dilemma: Should it revise its RCAF numbers for the affected quarters (2011Q4 through 2013Q4), or derive a special forecast error adjustment? The AAR planned to handle the revisions with a special forecast error adjustment spread over 4 quarters. However, in a decision served November 27, 2013, the Board directed the AAR "to restate the 2011, 2012, and 2013 RCAFs using BNSF's and UP's revised R-1 reports in its next quarterly submission."

Our first step in determining the revised indices was to construct a single spreadsheet that replicates all RCAF calculations for 2011Q4 through 2013Q4. Our review of the data changes indicated that the spreadsheet needed to have flexibility for health & welfare benchmarks, component indices, weights, and basing factors. Once this spreadsheet was completed, a copy was used to insert corrections caused by the revised data. The forecast error adjustment is also re-calculated to enable changes in the forecast to flow through to the forecast error adjustment. Material & Supplies indices, including subsequent revisions handled in the forecast error adjustment were treated the same way as filed – as was the revision to the 2010 wage statistics that affected Labor for 2011Q4. In summary, the corrected RCAFs for 2011Q4 through 2013Q4 were recalculated as if we had the revisions made in 2013 for the original filings. Appendix AB is a replication of the *original* filings. Appendix AC contains the revised/restated data and calculates the resulting RCAFs. Appendix AD lists the restated RCAFs, as ordered by the Board. Appendix AE contains historical data originally calculated on a different base, restated for comparison purposes using the corrected basing factor.



## Rail Cost Adjustment Factor Calculation

		Original Labor Component for RCAF's All-Inclusive Index																	
		Weights & Wt. Yr.-->			2009		2009	2010		2010		2010	2010	2010	2011	2011	2011	2011	2012
<i>Labor Index</i>		2010	2011	2012	2011Q2	2011Q3	2011Q3r	2011Q4	2011Q4r	2012Q1	2012Q2	2012Q2r	2012Q3	2012Q4	2013Q1	2013Q2	2013Q3	2013Q4	
<b>Wage Rate</b>		69.8%	68.5%	69.4%	311.4	313.8		303.7	304.2	311.5	319.0		331.6	332.0	333.4	328.0	331.4	331.2	
<b>Supplements</b>		30.2%	31.5%	30.6%	605.1	608.1		607.6	602.0	604.2	609.1		599.6	595.6	589.7	585.3	596.1	580.6	
<b>Labor</b>		100.0%	100.0%	100.0%	399.2	401.8		395.5	394.1	399.9	406.6		412.5	415.0	414.1	409.0	414.8	407.5	
<b>Labor with New Weights</b>						402.7							416.0				412.4		
<b>Linked 1980=100</b>					379.6	382.1	382.1	375.3	373.9	379.4	385.8	385.8	391.4	390.5	389.7	384.9	390.4	385.8	

### Supplement Hourly Rates

<b>H&amp;W</b>	\$8.631	\$8.631		\$8.640	\$8.558	\$8.554	\$8.554		\$7.985	\$7.871	\$7.765	\$7.764	\$7.965	\$7.938
<b>RR Ret &amp; Medicare</b>	\$6.963	\$7.002		\$7.105	\$7.037	\$7.228	\$7.363		\$7.588	\$7.709	\$7.988	\$7.893	\$7.952	\$7.613
<b>Unemp. Insurance</b>	\$0.606	\$0.606		\$0.599	\$0.599	\$0.433	\$0.433		\$0.434	\$0.431	\$0.059	\$0.059	\$0.059	\$0.057
<b>Other</b>	\$0.173	\$0.217		\$0.097	\$0.096	\$0.134	\$0.133		\$0.219	\$0.107	\$0.146	\$0.122	\$0.155	\$0.103
<b>Total (index = total divided by \$2.706)</b>	\$16.373	\$16.456		\$16.441	\$16.290	\$16.349	\$16.483		\$16.226	\$16.118	\$15.958	\$15.838	\$16.131	\$15.711

### Inputs for H&W Hourly Rate

<b>H&amp;W Update Ratio (from each original H&amp;W.xls)</b>				1.08144	1.08133	1.08092	1.08092		1.03545	0.95762	0.94512	0.94500	0.94508	0.98760
<b>H&amp;W Benchmark</b>				\$7.989	\$7.914	\$7.914	\$7.914		\$7.914	\$8.428	\$8.428	\$8.428	\$8.428	\$8.038
<b>Adj for H&amp;W Overpayment</b>				\$0.000	\$0.000	\$0.000	\$0.000		-\$0.210	-\$0.200	-\$0.200	-\$0.200	\$0.000	\$0.000

## Rail Cost Adjustment Factor - Forecast Error Adjustment Calculation

Rail Cost Adjustment Factor - Original Actual for Forecast Error Calculation

A-I index	Fcast Error Adj Qtr -->		2011Q4	2012Q1	2012Q2	2012Q3	2012Q4	2013Q1	2013Q2	2013Q3	2013Q4
	Weights & Wts Yr. -->		2009	2009	2010	2010	2010	2010	2011	2011	2011
	2010 Wts	2011 Wts	2011Q2	2011Q3	2011Q4	2012Q1	2012Q2	2012Q3	2012Q4	2013Q1	2013Q2
Labor	33.3%	31.3%	379.6	382.1	373.9	379.4	385.8	391.4	390.5	389.7	384.9
Fuel	18.0%	22.5%	408.3	387.0	375.4	375.7	403.2	359.0	410.6	378.8	373.1
Mat & Sup.	5.0%	5.1%	249.0	257.9	265.7	263.6	274.0	274.8	266.1	263.4	261.0
Equip. Rents	6.2%	5.6%	205.7	207.0	204.2	205.3	204.3	203.6	206.0	207.6	207.0
Depreciation	12.8%	11.6%	205.8	207.3	208.4	210.3	211.4	210.8	214.2	217.9	218.8
Interest	2.9%	2.5%	84.5	84.5	90.6	90.6	90.6	90.6	92.9	92.9	92.9
Other	21.8%	21.4%	216.6	218.2	216.9	218.3	218.9	216.8	217.6	219.5	219.4
<b>Total - Wt. Avg</b>	<b>100.0%</b>	<b>100.0%</b>	297.1	295.9	294.6	297.0	304.8	298.2	313.5	306.8	304.0
<b>Wt. Avg New Weights</b>				299.2				301.8			
<b>Linked 1980=100</b>			291.0	289.8	285.3	287.6	295.2	288.8	300.0	293.6	290.9
<b>4Q07 = 100</b>	<b>245.9</b>		118.3	117.9	116.0	117.0	120.0	117.4	122.0	119.4	118.3
Forecast			<u>115.7</u>	<u>118.6</u>	<u>118.2</u>	<u>117.6</u>	<u>120.7</u>	<u>117.7</u>	<u>121.6</u>	<u>120.9</u>	<u>121.4</u>
Difference			2.6	-0.7	-2.2	-0.6	-0.7	-0.3	0.4	-1.5	-3.1
Forecast Error Adj.			0.026	-0.007	-0.022	-0.006	-0.007	-0.003	0.004	-0.015	-0.031
<b>4Q12 = 100</b>	<b>297.5</b>		97.8	97.4	95.9	96.7	99.2	97.1	100.8	98.7	97.8
Forecast			<u>95.6</u>	<u>98.1</u>	<u>97.7</u>	<u>97.2</u>	<u>99.7</u>	<u>97.3</u>	<u>100.5</u>	<u>99.9</u>	<u>100.3</u>
Difference			2.2	-0.7	-1.8	-0.5	-0.5	-0.2	0.3	-1.2	-2.5
Forecast Error Adj.			0.022	-0.007	-0.018	-0.005	-0.005	-0.002	0.003	-0.012	-0.025

Note: 2011Q2 and 2011Q3 are based on benchmark data from 2009, so index components, weights, and the Linked 1980 = 100 index are not affected by revisions to 2010, 2011, and 2012.

Car Hire	45.8%	48.6%	178.9	179.8	175.5	176.2	173.3	174.3	178.1	179.1	178.0
Lease Rentals	54.2%	51.4%	216.6	218.2	216.9	218.3	218.9	216.8	217.6	219.5	219.4
Wtd. Avg.	100.0%	100.0%	200.7	202.0	197.9	199.0	198.0	197.3	198.4	199.9	199.3
New Wts.				200.6				196.1			
Linked Equip. Rents			205.7	207.0	204.2	205.3	204.3	203.6	206.0	207.6	207.0

### Notes:

Blue font numbers are formulas or lookups. Red font numbers are cases where the Forecast Error Adjustment was used to account for revised data.

Beginning 2013Q1, the RCAF changed to a 4Q2012=100 basis, meaning the Forecast Error Adjustment calculation switched to that basis beginning with data for 2012Q3. Forecast Error Adjustments for 2011Q4 through 2012Q2 are calculated using the 4Q12=100 basis (in addition to the 4Q07=100 basis) for comparison purposes.

## RCAF/All-Inclusive Index Weights 2010 - 2012

## Original Weights

	2010	Calculation	Rounded	Wts Used	
Labor	\$14,592,576	33.3262%	33.30%	33.30%	
Fuel	7,868,731	17.9704%	18.00%	18.00%	
Mat & Sup.	2,195,433	5.0139%	5.00%	5.00%	
Equip. Rents	2,730,382	6.2356%	6.20%	6.20%	
Depreciation	5,622,073	12.8396%	12.80%	12.80%	
Interest	1,252,528	2.8605%	2.90%	2.90%	
Other	9,525,407	21.7539%	21.80%	21.80%	
<b>Total</b>	<b>\$43,787,130</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	
Wages	10,180,101	69.7622%	69.80%	69.80%	
Wage Supp.	4,412,475	30.2378%	30.20%	30.20%	
<b>Total Labor</b>	<b>14,592,576</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	\$ Match
Car Hire	1,250,855	45.8125%	45.80%	45.80%	
Lease Rents	1,479,527	54.1875%	54.20%	54.20%	
<b>Total Eq Rent.</b>	<b>2,730,382</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	\$ Match

	2011	Calculation	Rounded	Wts Used	
Labor	\$15,764,774	31.3147%	31.30%	31.30%	
Fuel	11,342,822	22.5311%	22.50%	22.50%	
Mat & Sup.	2,554,746	5.0747%	5.10%	5.10%	
Equip. Rents	2,799,225	5.5603%	5.60%	5.60%	
Depreciation	5,853,920	11.6281%	11.60%	11.60%	
Interest	1,231,768	2.4467%	2.40%	<b>2.50%</b>	
Other	10,795,780	21.4444%	21.40%	21.40%	
<b>Total</b>	<b>\$50,343,035</b>	<b>100.0000%</b>	<b>99.90%</b>	<b>100.00%</b>	
Wages	10,793,221	68.4642%	68.50%	68.50%	
Wage Supp.	4,971,553	31.5358%	31.50%	31.50%	
<b>Total Labor</b>	<b>15,764,774</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	\$ Match
Car Hire	1,360,891	48.6167%	48.60%	48.60%	
Lease Rents	1,438,334	51.3833%	51.40%	51.40%	
<b>Total Eq Rent.</b>	<b>2,799,225</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	\$ Match

	2012	Calculation	Rounded	Wts Used	
Labor	\$16,026,085	31.2066%	31.20%	31.20%	
Fuel	11,480,653	22.3556%	22.40%	22.40%	
Mat & Sup.	2,508,163	4.8840%	4.90%	4.90%	
Equip. Rents	2,900,408	5.6478%	5.60%	5.60%	
Depreciation	6,206,925	12.0864%	12.10%	12.10%	
Interest	974,308	1.8972%	1.90%	1.90%	
Other	11,258,220	21.9224%	21.90%	21.90%	
<b>Total</b>	<b>\$51,354,762</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	
Wages	11,125,896	69.4237%	69.40%	69.40%	
Wage Supp.	4,900,189	30.5763%	30.60%	30.60%	
<b>Total Labor</b>	<b>16,026,085</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	\$ Match
Car Hire	1,398,523	48.2181%	48.20%	48.20%	
Lease Rents	1,501,885	51.7819%	51.80%	51.80%	
<b>Total Eq Rent.</b>	<b>2,900,408</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>	\$ Match

## Rebasing

### Original Calculation

#### Rebasing the Denominator of the RCAF to the Fourth Quarter 2012

1. Fourth Quarter 2012 Linked Index	299.0
2. Second Quarter 2012 Linked Index	
Calculated Using Actual Data	295.2
Calculated Using Forecasted Data	296.7
Difference	(1.5)
3. Fourth Quarter 2012 Linked Index	
Adjusted for Second Quarter 2012 Forecast Error	297.5
Rounding Adjustment to Force 1.000	Not necessary
<b>New Basing Factor for 2012Q4 = 100</b>	<b>297.5</b>

Note: Linked Indexes on this page refer to the All Inclusive Index, 1980=100 basis.

#### Test of Basing Factor Fourth Quarter 2012 = 100

1. Fourth Quarter 2012 Linked Index (1980 = 100)	299.0
Divided by 2012Q4 Basing Factor	297.5
<b>Fourth Quarter 2012 Linked Index (2012Q4 = 100)</b>	<b>1.005</b>
2. Second Quarter 2012 Linked Index	
Calculated Using Actual Data (1980 = 100)	295.2
Calculated Using Forecasted Data (1980 = 100)	296.7
Divide both by 2012Q4 Basing Factor	297.5
Calculated Using Actual Data (2012Q4 = 100)	0.992
Calculated Using Forecasted Data (2012Q4 = 100)	0.997
<b>Difference (Forecast Error Adjustment)</b>	<b>(0.005)</b>
3. Fourth Quarter 2012 Linked Index (2012Q4 = 100)	
<b>Adjusted for Second Quarter 2012 Forecast Error</b>	<b>1.000</b>

Note: Fourth Quarter 2012 Linked Index (2012Q4 = 100), after forecast error adjustment, must equal 1.000.





## Rail Cost Adjustment Factor Calculation

### Original Labor Component for RCAF's All-Inclusive Index with Changes for UP corrections and BNSF restatements

Labor Index	Weights & Wt. Yr.-->			2009		2009	2010		2010		2010	2011		2011	2012		
	2010	2011	2012	2011Q2	2011Q3	2011Q3r	2011Q4	2011Q4r	2012Q1	2012Q2	2012Q2r	2012Q3	2012Q4	2013Q1	2013Q2	2013Q3	2013Q4
Wage Rate	69.7%	68.3%	69.2%	311.4	313.8		303.7	304.2	311.5	319.0		331.6	332.0	333.4	328.0	331.4	331.2
Supplements	30.3%	31.7%	30.8%	605.1	608.1		610.8	605.2	607.4	612.4		602.7	599.3	593.3	588.9	599.7	585.8
Labor	100.0%	100.0%	100.0%	399.2	401.8		396.8	395.4	401.2	407.9		413.7	416.7	415.8	410.7	416.5	409.6
Labor with New Weights					403.0							417.5				414.0	
Linked 1980=100				379.6	382.1	382.1	376.2	374.9	380.4	386.8	386.8	392.3	391.5	390.7	385.9	391.3	387.1

#### Supplement Hourly Rates

H&W	\$8.631	\$8.631		\$8.728	\$8.645	\$8.642	\$8.642		\$8.068	\$7.969	\$7.863	\$7.862	\$8.062	\$8.080
RR Ret & Medicare	\$6.963	\$7.002		\$7.105	\$7.037	\$7.228	\$7.363		\$7.588	\$7.709	\$7.988	\$7.893	\$7.952	\$7.613
Unemp. Insurance	\$0.606	\$0.606		\$0.599	\$0.599	\$0.433	\$0.433		\$0.434	\$0.431	\$0.059	\$0.059	\$0.059	\$0.057
Other	\$0.173	\$0.217		\$0.097	\$0.096	\$0.134	\$0.133		\$0.219	\$0.107	\$0.146	\$0.122	\$0.155	\$0.103
Total (index = total divided by \$2.706)	\$16.373	\$16.456		\$16.529	\$16.377	\$16.437	\$16.571		\$16.309	\$16.216	\$16.056	\$15.936	\$16.228	\$15.853

#### Inputs for H&W Hourly Rate

H&W Update Ratio (from each original H&W.xls)				1.08144	1.08133	1.08092	1.08092		1.03545	0.95762	0.94512	0.94500	0.94508	0.98760
H&W Benchmark				\$8.071	\$7.995	\$7.995	\$7.995		\$7.995	\$8.531	\$8.531	\$8.531	\$8.531	\$8.181
Adj for H&W Overpayment				\$0.000	\$0.000	\$0.000	\$0.000		-\$0.210	-\$0.200	-\$0.200	-\$0.200	\$0.000	\$0.000

## Rail Cost Adjustment Factor - Forecast Error Adjustment Calculation

Rail Cost Adjustment Factor - Actual for Forecast Error Calculation with UP Revisions and BNSF Restatements											
	Fcast Error Adj Qtr -->		2011Q4	2012Q1	2012Q2	2012Q3	2012Q4	2013Q1	2013Q2	2013Q3	2013Q4
	Weights & Wts Yr. -->		2009	2009	2010	2010	2010	2010	2011	2011	2011
A-I index	2010 Wts	2011 Wts	2011Q2	2011Q3	2011Q4	2012Q1	2012Q2	2012Q3	2012Q4	2013Q1	2013Q2
Labor	33.4%	31.4%	379.6	382.1	374.9	380.4	386.8	392.3	391.5	390.7	385.9
Fuel	18.1%	22.6%	408.3	387.0	375.4	375.7	403.2	359.0	410.6	378.8	373.1
Mat & Sup.	5.0%	5.1%	249.0	257.9	265.7	263.6	274.0	274.8	266.1	263.4	261.0
Equip. Rents	6.2%	5.6%	205.7	207.0	204.3	205.3	204.3	203.7	206.1	207.6	207.0
Depreciation	12.7%	11.5%	205.8	207.3	208.4	210.3	211.4	210.8	214.2	217.9	218.8
Interest	2.9%	2.3%	84.5	84.5	91.2	91.2	91.2	91.2	87.3	87.3	87.3
Other	21.7%	21.5%	216.6	218.2	216.9	218.3	218.9	216.8	217.6	219.5	219.4
<b>Total - Wt. Avg</b>	<b>100.0%</b>	<b>100.0%</b>	297.1	295.9	295.3	297.7	305.5	298.8	314.3	307.6	304.7
<b>Wt. Avg New Weights</b>				299.5				302.7			
<b>Linked 1980=100</b>			291.0	289.8	285.7	288.0	295.5	289.0	300.1	293.7	290.9
<b>4Q07 = 100</b>	<b>245.9</b>		118.3	117.9	116.2	117.1	120.2	117.5	122.0	119.4	118.3
Forecast			<u>115.7</u>	<u>118.6</u>	<u>118.3</u>	<u>117.7</u>	<u>120.8</u>	<u>117.8</u>	<u>121.6</u>	<u>120.9</u>	<u>121.4</u>
Difference			2.6	-0.7	-2.1	-0.6	-0.6	-0.3	0.4	-1.5	-3.1
Forecast Error Adj.			0.026	-0.007	-0.021	-0.006	-0.006	-0.003	0.004	-0.015	-0.031
<b>4Q12 = 100</b>	<b>297.6</b>		97.8	97.4	96.0	96.8	99.3	97.1	100.8	98.7	97.7
Forecast			<u>95.6</u>	<u>98.0</u>	<u>97.8</u>	<u>97.3</u>	<u>99.8</u>	<u>97.3</u>	<u>100.5</u>	<u>99.9</u>	<u>100.3</u>
Difference			2.2	-0.6	-1.8	-0.5	-0.5	-0.2	0.3	-1.2	-2.6
Forecast Error Adj.			0.022	-0.006	-0.018	-0.005	-0.005	-0.002	0.003	-0.012	-0.026

Note: 2011Q2 and 2011Q3 are based on benchmark data from 2009, so index components, weights, and the Linked 1980 = 100 index are not affected by revisions to 2010, 2011, and 2012.

Car Hire	46.0%	48.7%	178.9	179.8	175.5	176.2	173.3	174.3	178.1	179.1	178.0
Lease Rentals	54.0%	51.3%	216.6	218.2	216.9	218.3	218.9	216.8	217.6	219.5	219.4
Wtd. Avg.	100.0%	100.0%	200.7	202.0	197.9	198.9	197.9	197.3	198.4	199.8	199.2
New Wts.				200.5				196.1			
Linked Equip. Rents			205.7	207.0	204.3	205.3	204.3	203.7	206.1	207.6	207.0

### Notes:

Blue font numbers are formulas or lookups. Red font numbers are cases where the Forecast Error Adjustment was used to account for revised data.

Beginning 2013Q1, the RCAF changed to a 4Q2012=100 basis, meaning the Forecast Error Adjustment calculation switched to that basis beginning with data for 2012Q3. Forecast Error Adjustments for 2011Q4 through 2012Q2 are calculated using the 4Q12=100 basis (in addition to the 4Q07=100 basis) for comparison purposes.

**RCAF/All-Inclusive Index Weights 2010 - 2012**  
With UP Revisions and BNSF Restatements

	2010	Calculation	Rounded	Wts Used
Labor	\$14,616,069	33.4047%	33.40%	33.40%
Fuel	7,917,413	18.0950%	18.10%	18.10%
Mat & Sup.	2,195,433	5.0176%	5.00%	5.00%
Equip. Rents	2,717,797	6.2115%	6.20%	6.20%
Depreciation	5,551,231	12.6872%	12.70%	12.70%
Interest	1,253,875	2.8657%	2.90%	2.90%
Other	9,502,769	21.7183%	21.70%	21.70%
<b>Total</b>	<b>\$43,754,587</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>
Wages	10,180,101	69.6501%	69.70%	69.70%
Wage Supp.	4,435,968	30.3499%	30.30%	30.30%
<b>Total Labor</b>	<b>14,616,069</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00% \$ Match</b>
Car Hire	1,250,855	46.0246%	46.00%	46.00%
Lease Rents	1,466,942	53.9754%	54.00%	54.00%
<b>Total Eq Rent.</b>	<b>2,717,797</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00% \$ Match</b>

	2011	Calculation	Rounded	Wts Used
Labor	\$15,796,305	31.4526%	31.50%	31.40%
Fuel	11,362,525	22.6244%	22.60%	22.60%
Mat & Sup.	2,554,746	5.0869%	5.10%	5.10%
Equip. Rents	2,795,535	5.5663%	5.60%	5.60%
Depreciation	5,769,830	11.4885%	11.50%	11.50%
Interest	1,145,221	2.2803%	2.30%	2.30%
Other	10,798,348	21.5010%	21.50%	21.50%
<b>Total</b>	<b>\$50,222,510</b>	<b>100.0000%</b>	<b>100.10%</b>	<b>100.00%</b>
Wages	10,793,221	68.3275%	68.30%	68.30%
Wage Supp.	5,003,084	31.6725%	31.70%	31.70%
<b>Total Labor</b>	<b>15,796,305</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00% \$ Match</b>
Car Hire	1,360,891	48.6809%	48.70%	48.70%
Lease Rents	1,434,644	51.3191%	51.30%	51.30%
<b>Total Eq Rent.</b>	<b>2,795,535</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00% \$ Match</b>

	2012	Calculation	Rounded	Wts Used
Labor	\$16,070,783	31.2969%	31.30%	31.30%
Fuel	11,477,236	22.3513%	22.40%	22.40%
Mat & Sup.	2,508,163	4.8845%	4.90%	4.90%
Equip. Rents	2,900,229	5.6480%	5.60%	5.60%
Depreciation	6,128,615	11.9351%	11.90%	11.90%
Interest	1,005,611	1.9584%	2.00%	2.00%
Other	11,258,755	21.9258%	21.90%	21.90%
<b>Total</b>	<b>\$51,349,392</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00%</b>
Wages	11,125,896	69.2306%	69.20%	69.20%
Wage Supp.	4,944,887	30.7694%	30.80%	30.80%
<b>Total Labor</b>	<b>16,070,783</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00% \$ Match</b>
Car Hire	1,398,523	48.2211%	48.20%	48.20%
Lease Rents	1,501,706	51.7789%	51.80%	51.80%
<b>Total Eq Rent.</b>	<b>2,900,229</b>	<b>100.0000%</b>	<b>100.00%</b>	<b>100.00% \$ Match</b>

## Rebasing

Includes Changes for UP and BNSF

### Rebasing the Denominator of the RCAF to the Fourth Quarter 2012

1. Fourth Quarter 2012 Linked Index	299.1
2. Second Quarter 2012 Linked Index	
Calculated Using Actual Data	295.5
Calculated Using Forecasted Data	297.0
Difference	(1.5)
3. Fourth Quarter 2012 Linked Index	
Adjusted for Second Quarter 2012 Forecast Error	297.6
Rounding Adjustment to Force 1.000	Not necessary
<b>New Basing Factor for 2012Q4 = 100</b>	<b>297.6</b>

Original = 297.5

Note: Linked Indexes on this page refer to the All Inclusive Index, 1980=100 basis.

### Test of Basing Factor Fourth Quarter 2012 = 100

1. Fourth Quarter 2012 Linked Index (1980 = 100)	299.1
Divided by 2012Q4 Basing Factor	297.6
<b>Fourth Quarter 2012 Linked Index (2012Q4 = 100)</b>	<b>1.005</b>
2. Second Quarter 2012 Linked Index	
Calculated Using Actual Data (1980 = 100)	295.5
Calculated Using Forecasted Data (1980 = 100)	297.0
Divide both by 2012Q4 Basing Factor	297.6
Calculated Using Actual Data (2012Q4 = 100)	0.993
Calculated Using Forecasted Data (2012Q4 = 100)	0.998
<b>Difference (Forecast Error Adjustment)</b>	<b>(0.005)</b>
3. Fourth Quarter 2012 Linked Index (2012Q4 = 100)	
<b>Adjusted for Second Quarter 2012 Forecast Error</b>	<b>1.000</b>

Note: Fourth Quarter 2012 Linked Index (2012Q4 = 100), after forecast error adjustment, must equal 1.000.

## Restated RCAFs

In a decision served November 27, 2013, the Surface Transportation Board directed the AAR "to restate the 2011, 2012, and 2013 RCAFs using BNSF's and UP's revised R-1 reports in its next quarterly submission." The AAR has complied and recalculated all RCAFs that used the revised 2010, 2011, or 2012 Annual Report Form R-1 data for both railroads. The calculations were treated as if the revised annual reports were available at the time of the original filings. Original and restated data are shown in the table below. The RCAFs for the first three quarters of 2011 relied upon data from the 2009 R-1 for weights, benchmarks, and the Interest Index – and are therefore unaffected. More detail on the calculations are presented in Appendix AC and the AAR's workpapers. The 2012Q4=100 basing factor was also affected.

	PAF	PAF-5	Original			Restated			Difference		
			RCAF	RCAF	RCAF	RCAF	RCAF	RCAF	RCAF	RCAF	RCAF
			Unadj.	Adj.	RCAF-5	Unadj.	Adj.	RCAF-5	Unadj.	Adj.	RCAF-5
<b>2007Q4=100</b>											
2011Q4	2.2645	2.3894	1.208	0.533	0.506	1.209	0.534	0.506	0.001	0.001	0.000
2012Q1	2.2724	2.3978	1.169	0.514	0.488	1.170	0.515	0.488	0.001	0.001	0.000
2012Q2	2.2769	2.4062	1.185	0.520	0.492	1.187	0.521	0.493	0.002	0.001	0.001
2012Q3	2.2815	2.4146	1.171	0.513	0.485	1.172	0.514	0.485	0.001	0.001	0.000
2012Q4	2.2861	2.4231	1.209	0.529	0.499	1.210	0.529	0.499	0.001	0.000	0.000
<b>2012Q4=100</b>											
2013Q1	2.2907	2.4279	0.997	0.435	0.411	0.997	0.435	0.411	0.000	0.000	0.000
2013Q2	2.2957	2.4328	1.006	0.438	0.414	1.006	0.438	0.414	0.000	0.000	0.000
2013Q3	2.3008	2.4377	0.977	0.425	0.401	0.977	0.425	0.401	0.000	0.000	0.000
2013Q4	2.3059	2.4426	0.975	0.423	0.399	0.975	0.423	0.399	0.000	0.000	0.000
<b>2012Q4=100 Basing Factor</b>			297.5			297.6			0.1		

# Rail Cost Adjustment Factor — 2012Q4r Base

Appendix AE  
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Yr/Qtr (Col 1)	Preliminary RCAF (Col 2)	Forecast Error Adjustment (Col. 3)	RCAF (Unad- justed) (Col 4)	Productivity-Adjusted RCAF		STB's 2nd Productivity- Adjusted RCAF (Not endorsed by AAR)	
				Productivity Adjustment Factor (Col 5)	RCAF (Adjusted) (Col 6)	PAF-5 (Col 7)	RCAF-5 (Col 8)
<b>2003</b> Q1	0.640	0.002	0.642	1.9466	0.330	2.0126	0.319
Q2	0.653	0.006	0.659	1.9557	0.337	2.0333	0.324
Q3	0.650	0.010	0.660	1.9649	0.336	2.0542	0.321
Q4	0.658	-0.002	0.656	1.9741	0.332	2.0754	0.316
<b>2004</b> Q1	0.657	0.004	0.661	1.9834	0.333	2.0852	0.317
Q2	0.662	0.005	0.667	1.9943	0.334	2.0950	0.318
Q3	0.681	0.011	0.692	2.0053	0.345	2.1048	0.329
Q4	0.694	0.014	0.708	2.0163	0.351	2.1147	0.335
<b>2005</b> Q1	0.708	0.006	0.714	2.0274	0.352	2.1263	0.336
Q2	0.722	0.019	0.741	2.0420	0.363	2.1380	0.347
Q3	0.729	0.004	0.733	2.0567	0.356	2.1498	0.341
Q4	0.757	0.008	0.765	2.0715	0.369	2.1616	0.354
<b>2006</b> Q1	0.752	0.008	0.760	2.0864	0.364	2.1772	0.349
Q2	0.752	0.008	0.760	2.0962	0.363	2.1929	0.347
Q3	0.773	-0.002	0.771	2.1061	0.366	2.2087	0.349
Q4	0.790	0.016	0.806	2.1160	0.381	2.2246	0.362
<b>2007</b> Q1	0.773	0.007	0.780	2.1259	0.367	2.2351	0.349
Q2	0.773	-0.032	0.741	2.1348	0.347	2.2456	0.330
Q3	0.786	-0.014	0.772	2.1438	0.360	2.2562	0.342
Q4	0.812	0.014	0.826	2.1528	0.384	2.2668	0.364
<b>2008</b> Q1	0.855	0.013	0.868	2.1618	0.402	2.2763	0.381
Q2	0.877	0.013	0.890	2.1683	0.410	2.2859	0.389
Q3	0.955	-0.007	0.948	2.1748	0.436	2.2955	0.413
Q4	0.955	0.036	0.991	2.1813	0.454	2.3051	0.430
<b>2009</b> Q1	0.833	0.012	0.845	2.1878	0.386	2.3120	0.365
Q2	0.784	-0.082	0.702	2.1944	0.320	2.3189	0.303
Q3	0.824	-0.049	0.775	2.2010	0.352	2.3259	0.333
Q4	0.825	-0.002	0.823	2.2076	0.373	2.3329	0.353
<b>2010</b> Q1	0.863	-0.005	0.858	2.2142	0.387	2.3399	0.367
Q2	0.863	0.013	0.876	2.2208	0.394	2.3469	0.373
Q3	0.880	0.003	0.883	2.2275	0.396	2.3539	0.375
Q4	0.883	0.028	0.911	2.2342	0.408	2.3610	0.386
<b>2011</b> Q1	0.915	-0.012	0.903	2.2409	0.403	2.3681	0.381
Q2	0.956	0.016	0.972	2.2487	0.432	2.3752	0.409
Q3	0.980	0.017	0.997	2.2566	0.442	2.3823	0.419
Q4	0.978	0.022	1.000	2.2645	0.442	2.3894	0.419
<b>2012</b> Q1	0.973	-0.006	0.967	2.2724	0.426	2.3978	0.403
Q2	0.998	-0.018	0.980	2.2769	0.430	2.4062	0.407
Q3	0.973	-0.005	0.968	2.2815	0.424	2.4146	0.401
Q4	1.005	-0.005	<b>1.000</b>	2.2861	0.437	2.4231	0.413
<b>2013</b> Q1	0.999	-0.002	0.997	2.2907	0.435	2.4279	0.411
Q2	1.003	0.003	1.006	2.2957	0.438	2.4328	0.414
Q3	0.989	-0.012	0.977	2.3008	0.425	2.4377	0.401
Q4	1.001	-0.026	0.975	2.3059	0.423	2.4426	0.399
<b>2014</b> Q1	0.984	-0.004	0.980	2.3110	0.424	2.4480	0.400

# Rail Cost Adjustment Factor — 2012Q4r Base

Yr/Qtr (Col 1)	Preliminary RCAF (Col 2)	Forecast Error Adjustment (Col. 3)	RCAF (Unad- justed) (Col 4)	Productivity-Adjusted RCAF		STB's 2nd Productivity- Adjusted RCAF (Not endorsed by AAR)		
				Productivity Adjustment Factor (Col 5)	RCAF (Adjusted) (Col 6)	PAF-5 (Col 7)	RCAF-5 (Col 8)	
1992	Q1	0.519	-0.001	0.518	1.1227	0.461	Beginning 1989Q2, a productivity adjustment was added to the RCAF. What was formerly called the RCAF is now called the "RCAF (Unadjusted)" because it does not have a productivity adjustment. The productivity-adjusted RCAF is called the "RCAF (Adjusted)".  In its October 3, 1996 decision, the Surface Transportation Board added another version of a productivity-adjusted RCAF called the "RCAF-5". This second productivity adjustment factor began being used with the 1997Q1 Rail Cost Adjustment Factor.	
	Q2	0.514	0.002	0.516	1.1348	0.455		
	Q3	0.516	-0.001	0.515	1.1471	0.449		
	Q4	0.525	0.002	0.527	1.1595	0.455		
1993	Q1	0.531	0.002	0.533	1.1720	0.455		
	Q2	0.529	0.001	0.530	1.1847	0.447		
	Q3	0.533	0.001	0.534	1.1975	0.446		
	Q4	0.540	0.000	0.540	1.2104	0.446		
1994	Q1	0.545	-0.002	0.543	1.2253	0.443		
	Q2	0.539	0.001	0.540	1.2404	0.435		
	Q3	0.551	0.000	0.551	1.2557	0.439		
	Q4	0.550	0.001	0.551	1.2711	0.433		
1995	Q1	0.556	0.002	0.558	1.2867	0.434		
	Q2	0.561	0.002	0.563	1.3052	0.431		
	Q3	0.567	0.002	0.569	1.3240	0.430		
	Q4	0.568	0.002	0.570	1.3431	0.424		
1996	Q1	0.565	-0.002	0.563	1.3624	0.413		
	Q2	0.563	-0.003	0.560	1.3820	0.405		
	Q3	0.568	-0.002	0.566	1.4019	0.404		
	Q4	0.573	0.003	0.576	1.4221	0.405		
1997	Q1	0.587	0.001	0.588	1.4426	0.408		
	Q2	0.584	0.004	0.588	1.4603	0.403		
	Q3	0.587	-0.001	0.586	1.4783	0.396		
	Q4	0.582	0.000	0.582	1.4965	0.389		
1998	Q1	0.580	-0.001	0.579	1.5149	0.382	1.5567	0.372
	Q2	0.576	0.003	0.579	1.5503	0.373	1.5758	0.367
	Q3	0.583	-0.002	0.581	1.5866	0.366	1.5952	0.364
	Q4	0.582	0.001	0.583	1.6237	0.359	1.6148	0.361
1999	Q1	0.581	-0.002	0.579	1.6617	0.348	1.6526	0.350
	Q2	0.578	0.000	0.578	1.6850	0.343	1.6913	0.342
	Q3	0.585	-0.002	0.583	1.7086	0.341	1.7309	0.337
	Q4	0.585	0.004	0.589	1.7325	0.340	1.7714	0.333
2000	Q1	0.603	0.004	0.607	1.7568	0.346	1.7962	0.338
	Q2	0.606	0.005	0.611	1.7719	0.345	1.8213	0.335
	Q3	0.610	0.001	0.611	1.7871	0.342	1.8468	0.331
	Q4	0.617	0.002	0.619	1.8025	0.343	1.8727	0.331
2001	Q1	0.628	0.003	0.631	1.8180	0.347	1.8888	0.334
	Q2	0.624	0.002	0.626	1.8305	0.342	1.9050	0.329
	Q3	0.628	0.000	0.628	1.8431	0.341	1.9214	0.327
	Q4	0.625	0.002	0.627	1.8558	0.338	1.9379	0.324
2002	Q1	0.626	0.000	0.626	1.8686	0.335	1.9513	0.321
	Q2	0.619	-0.001	0.618	1.8878	0.327	1.9648	0.315
	Q3	0.624	-0.005	0.619	1.9072	0.325	1.9784	0.313
	Q4	0.638	0.007	0.645	1.9268	0.335	1.9921	0.324

# Sample Rebasing Calculations

## **Preliminary RCAF:**

### **Recommended Method**

The All-Inclusive Index (AII) Forecast is divided by the appropriate Basing Factor.

Example calculations (AII and Basing Factors are listed on page 4):

$$2011Q1 \text{ on a } 4Q12 \text{ basis} = 272.4 / 297.6 = 0.9153226 = 0.915$$

$$2011Q1 \text{ on a } 4Q07 \text{ basis} = 272.4 / 245.9 = 1.1077674 = 1.108$$

$$2011Q1 \text{ on a } 4Q97 \text{ basis} = 272.4 / 173.2 = 1.5727483 = 1.573$$

### **Alternative Method**

An alternative method can be used to convert a Preliminary RCAF from one basis to another basis without knowing the All-Inclusive Index. This method will occasionally have small rounding differences, and is not recommended except as a "check" or as an approximation.

New Base Index = (Old Basing Factor / New Basing Factor) x Old Base Index.

Example for converting 2011Q1 on a 4Q07 basis to a 4Q12 basis:

$$(245.9 / 297.6) \times 1.108 = 0.9155148 = 0.916 \text{ (which is close, but not exact)}$$

## **Forecast Error Adjustment:**

### **Recommended Method**

1. Use the All-Inclusive Indexes (AII) for the two quarters prior to the quarter to be adjusted.
2. The All Actual is divided by the appropriate Basing Factor and rounded 3 digits after decimal.
3. The All Forecast is divided by the appropriate Basing Factor and rounded.
4. Take the result from step 2 and subtract the result from step 3.

Example calculation for 2011Q1:

$$1. \text{ Use A-I Index from 2 quarters prior, } 2010Q3: 258.3 = \text{Actual}, 262.0 = \text{Forecast}$$

$$2. \text{ Actual} = 258.3 / 297.6 = 0.8679435 = 0.868$$

$$3. \text{ Forecast} = 262.0 / 297.6 = 0.8803763 = 0.880$$

$$4. \text{ Forecast Error} = 0.868 - 0.880 = -0.012$$

### **Alternative Method**

This method has occasional rounding differences, and is not recommended except as a check or an approximation. The new base Forecast Error Adjustment equals:

(Old Basing Factor / New Basing Factor) x Old Forecast Error Adjustment.

Example for converting 2010Q3 on a 4Q07 basis, which was used for 2011Q1, to a 4Q12 basis:

$$\text{Forecast Error } 4Q12 \text{ basis} = (245.9 / 297.6) \times -0.015 = -0.0123942 = -0.012$$

## **RCAF (Unadjusted)**

RCAF (Unadjusted) = Preliminary RCAF + Forecast Error Adjustment.

Example for 2011Q1, on a 4Q12 basis:  $0.915 + -0.012 = 0.903$

## **Productivity Adjustment Factor**

Use the Productivity Adjustment Factor as originally calculated for each quarter.

For 2011Q1, the Productivity Adjustment Factor is 2.2409.

## **RCAF (Adjusted)**

RCAF (Adjusted) = RCAF (Unadjusted) / Productivity Adjustment Factor.

Example for 2011Q1, on a 4Q12 basis:  $0.903 / 2.2409 = 0.4029631 = 0.403$

## **PAF-5**

Use the STB's alternative productivity adjustment factor, PAF-5, as originally calculated.

For 2011Q1, the Productivity Adjustment Factor is 2.3681.

## **RCAF-5**

RCAF-5 = RCAF (Unadjusted) / PAF-5

Example for 2011Q1, on a 4Q12 basis:  $0.903 / 2.3681 = 0.3813184 = 0.381$



# Indexes & Factors for RCAF

Yr/Qtr	All-Inclusive Index 1980 = 100		Prod. Adj. Factor	PAF-5	Original Prelim RCAF	Original Forecast Error	Basing Factor	
	Forecast	Actual						
<b>1991</b>	Q1	151.2	150.1	1.0755	-	1.144	0.001	132.2
	Q2	149.1	148.8	1.0871	-	1.128	0.015	132.2
	Q3	153.0	152.8	1.0988	-	1.157	-0.009	132.2
	Q4	155.5	156.1	1.1107	-	1.176	-0.002	132.2
<b>1992</b>	Q1	154.5	154.1	1.1227	-	1.169	-0.001	132.2
	Q2	152.9	153.7	1.1348	-	1.157	0.005	132.2
	Q3	153.5	154.1	1.1471	-	1.161	-0.003	132.2
	Q4	156.1	156.5	1.1595	-	1.181	0.006	132.2
<b>1993</b>	Q1	158.1	158.4	1.1720	-	1.008	0.004	156.9
	Q2	157.3	157.5	1.1847	-	1.003	0.002	156.9
	Q3	158.6	158.0	1.1975	-	1.011	0.002	156.9
	Q4	160.7	161.0	1.2104	-	1.024	0.001	156.9
<b>1994</b>	Q1	162.1	162.1	1.2253	-	1.033	-0.004	156.9
	Q2	160.4	160.7	1.2404	-	1.022	0.002	156.9
	Q3	164.1	164.6	1.2557	-	1.046	0.000	156.9
	Q4	163.7	164.4	1.2711	-	1.043	0.002	156.9
<b>1995</b>	Q1	165.5	166.2	1.2867	-	1.055	0.003	156.9
	Q2	167.1	167.6	1.3052	-	1.065	0.005	156.9
	Q3	168.8	168.0	1.3240	-	1.076	0.004	156.9
	Q4	168.9	168.2	1.3431	-	1.076	0.003	156.9
<b>1996</b>	Q1	168.0	167.6	1.3624	-	1.071	-0.005	156.9
	Q2	167.4	168.4	1.3820	-	1.067	-0.004	156.9
	Q3	169.0	169.4	1.4019	-	1.077	-0.003	156.9
	Q4	170.4	171.7	1.4221	-	1.086	0.006	156.9
<b>1997</b>	Q1	174.7	174.4	1.4426	1.4733	1.113	0.003	156.9
	Q2	173.7	173.7	1.4603	1.4945	1.107	0.008	156.9
	Q3	174.6	174.4	1.4783	1.5160	1.113	-0.001	156.9
	Q4	173.2	174.2	1.4965	1.5378	1.104	0.000	156.9
<b>1998</b>	Q1	172.7	172.1	1.5149	1.5567	0.997	-0.001	173.2
	Q2	171.5	171.8	1.5503	1.5758	0.990	0.006	173.2
	Q3	173.4	172.9	1.5866	1.5952	1.001	-0.003	173.2
	Q4	173.3	173.2	1.6237	1.6148	1.001	0.002	173.2
<b>1999</b>	Q1	173.0	172.3	1.6617	1.6526	0.999	-0.003	173.2
	Q2	172.1	173.2	1.6850	1.6913	0.994	-0.001	173.2
	Q3	174.2	175.4	1.7086	1.7309	1.006	-0.004	173.2
	Q4	174.1	175.6	1.7325	1.7714	1.005	0.006	173.2
<b>2000</b>	Q1	179.4	179.8	1.7568	1.7962	1.036	0.007	173.2
	Q2	180.3	180.8	1.7719	1.8213	1.041	0.009	173.2
	Q3	181.6	182.5	1.7871	1.8468	1.048	0.002	173.2
	Q4	183.5	184.1	1.8025	1.8727	1.059	0.003	173.2
<b>2001</b>	Q1	186.9	186.8	1.8180	1.8888	1.079	0.006	173.2
	Q2	185.6	186.4	1.8305	1.9050	1.072	0.004	173.2
	Q3	186.9	186.8	1.8431	1.9214	1.079	0.000	173.2
	Q4	186.1	185.7	1.8558	1.9379	1.074	0.004	173.2
<b>2002</b>	Q1	186.4	184.7	1.8686	1.9513	1.076	0.000	173.2
	Q2	184.2	186.4	1.8878	1.9648	1.064	-0.002	173.2
	Q3	185.6	186.4	1.9072	1.9784	1.072	-0.010	173.2
	Q4	189.9	191.7	1.9268	1.9921	1.096	0.012	173.2
<b>2003</b>	Q1	190.6	193.3	1.9466	2.0126	0.992	0.004	192.1
	Q2	194.3	193.6	1.9557	2.0333	1.011	0.009	192.1
	Q3	193.3	194.6	1.9649	2.0542	1.006	0.014	192.1
	Q4	195.9	197.2	1.9741	2.0754	1.020	-0.003	192.1

# Indexes & Factors for RCAF

Yr/Qtr	All-Inclusive Index 1980 = 100		Prod. Adj.	PAF-5	Original Prelim	Original Forecast	Basing Factor	
	Forecast	Actual	Factor		RCAF	Error		
2004	Q1	195.6	198.7	1.9834	2.0852	1.018	0.007	192.1
	Q2	197.1	201.3	1.9943	2.0950	1.026	0.007	192.1
	Q3	202.6	204.5	2.0053	2.1048	1.055	0.016	192.1
	Q4	206.5	212.2	2.0163	2.1147	1.075	0.022	192.1
2005	Q1	210.7	211.9	2.0274	2.1263	1.097	0.010	192.1
	Q2	214.9	217.2	2.0420	2.1380	1.119	0.030	192.1
	Q3	217.0	219.2	2.0567	2.1498	1.130	0.006	192.1
	Q4	225.3	227.8	2.0715	2.1616	1.173	0.012	192.1
2006	Q1	223.9	223.1	2.0864	2.1772	1.166	0.011	192.1
	Q2	223.8	228.7	2.0962	2.1929	1.165	0.013	192.1
	Q3	230.0	232.0	2.1061	2.2087	1.197	-0.005	192.1
	Q4	235.2	225.6	2.1160	2.2246	1.224	0.026	192.1
2007	Q1	229.9	226.0	2.1259	2.2351	1.197	0.011	192.1
	Q2	230.0	234.1	2.1348	2.2456	1.197	-0.050	192.1
	Q3	234.0	237.7	2.1438	2.2562	1.218	-0.021	192.1
	Q4	241.7	245.6	2.1528	2.2668	1.258	0.022	192.1
2008	Q1	254.4	252.3	2.1618	2.2763	1.035	0.015	245.9
	Q2	260.9	271.6	2.1683	2.2859	1.061	0.016	245.9
	Q3	284.3	287.8	2.1748	2.2955	1.156	-0.009	245.9
	Q4	284.1	259.7	2.1813	2.3051	1.155	0.044	245.9
2009	Q1	247.8	233.2	2.1878	2.3120	1.008	0.014	245.9
	Q2	233.4	232.8	2.1944 *	2.3189	0.949	-0.099	245.9
	Q3	245.3	243.8	2.2010 *	2.3259	0.998	-0.060	245.9
	Q4	245.5	249.4	2.2076 *	2.3329	0.998	-0.002	245.9
2010	Q1	256.9	257.6	2.2142 *	2.3399 *	1.045	-0.007	245.9
	Q2	256.8	265.3	2.2208	2.3469	1.044	0.016	245.9
	Q3	262.0	258.3	2.2275	2.3539	1.065	0.003	245.9
	Q4	262.9	267.5	2.2342	2.3610	1.069	0.035	245.9
2011	Q1	272.4	277.4	2.2409	2.3681	1.108	-0.015	245.9
	Q2	284.4	291.0	2.2487	2.3752	1.157	0.019	245.9
	Q3	291.7	289.8	2.2566	2.3823	1.186	0.020	245.9
	Q4	291.0	285.7	2.2645	2.3894	1.183	0.026	245.9
2012	Q1	289.5	288.0	2.2724	2.3978	1.177	-0.007	245.9
	Q2	297.0	295.5	2.2769	2.4062	1.208	-0.021	245.9
	Q3	289.6	289.0	2.2815	2.4146	1.178	-0.006	245.9
	Q4	299.1	300.1	2.2861	2.4231	1.216	-0.006	245.9
2013	Q1	297.4	293.7	2.2907	2.4279	0.999	-0.002	297.6
	Q2	298.6	290.9	2.2957	2.4328	1.003	0.003	297.6
	Q3	294.4	293.1	2.3008	2.4377	0.989	-0.012	297.6
	Q4	297.8	-	2.3059	2.4426	1.001	-0.026	297.6
2014	Q1	292.9	-	2.3110	2.4480	0.984	-0.004	297.6

**Preliminary RCAF** = All-Inclusive Index Forecast / Basing Factor  
**Forecast Error** = (A-II Actual/Basing Factor) - (A-II Forecast/Basing Factor)  
 where each is rounded to 3 digits after the decimal  
 where A-II for forecast error calculation is from 2 quarters earlier  
**RCAF Unadjusted** = Preliminary RCAF less Forecast Error  
**RCAF Adjusted** = RCAF Unadjusted / Productivity Adjustment Factor  
**RCAF-5** = RCAF Unadjusted / PAF-5

Note: Each RCAF is rounded to 3 digits after the decimal. Productivity Adjustment

### Basing Factors

10/1/80 = 102.7  
 10/1/82 = 120.9  
 4Q/87 = 132.2  
 4Q/92 = 156.9  
 4Q/97 = 173.2  
 4Q/02 = 192.1  
 4Q/07 = 245.9

\* restated by STB in Docket No. EP 290 (Sub-No. 4) served January 20, 2012.

Highlighted data from 2011Q4 through 2013Q4 were restated as directed by the STB on November 27, 2013.