ASSOCIATION
OF AMERICAN
RAILROADS

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March 5, 2018

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 2018 All-Inclusive Index and Rail Cost Adjustment Factor, filed in Ex Parte No. 290 (Sub-No. 5) (2018-2) *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 2018 results and compares to the previous quarter. Both quarters are shown on the new **4Q\2017=100 base**. The productivity-adjusted versions of 2018Q1 use the Board's revised/final 2015 productivity change data.

	2018Q1	2018Q2	% Change
All-Inclusive Index	103.8	103.9	0.1
Preliminary RCAF	1.038	1.039	0.1
Forecast Error Adjustment	-0.011	0.002	
RCAF (Unadjusted)	1.027	1.041	1.4
Productivity Adjustment Factor	2.3689 r	2.3665	
RCAF (Adjusted)	0.434 r	0.440	1.4
PAF-5	2.5374 r	2.5336	
RCAF-5	0.405 r	0.411	1.5

r - revised as directed in *Quarterly Rail Cost Adjustment Factor* - Ex Parte 290 (Sub-No. 5) served January 29, 2018.

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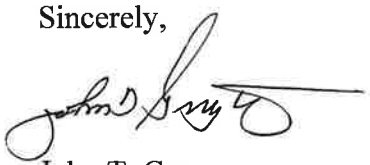
On January 29, 2018, the Board served two decisions affecting the RCAF. First, a final productivity change for 2015 was adopted that differed from the original used in the past four quarters. Page 5A in this submission is devoted to the revised productivity change and the resulting productivity adjustment factors. Second, the Board directed the AAR to recalculate and submit in this filing the RCAF figures affected by the change. The revised numbers are listed on page 5B.

As required every five years, the AAR rebased the RCAF in the previous quarter filing. Due to the fact that many people may need to compare the current RCAF to an older version that was calculated using a different base, the AAR provided an Attachment A that contained historical RCAFs converted to the new (4Q2017) base – similar to what was done in previous rebasings. Because the revised productivity change causes changes to five of the productivity-adjusted versions of the RCAF, we have included a new Attachment A for the convenience of all users.

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 includes a calculation of the RCAF-5 in its quarterly RCAF filings. The AAR and its members, however, do not believe the publication of a second productivity-adjusted RCAF is required or permitted by the applicable statute (49 U.S.C. § 10708) and do not endorse its publication.

We have notified Pedro Ramirez, 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. 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,



John T. Gray

Attachments

Rail Cost Adjustment Factor — 2017Q4 Base

Yr/Qtr	Preliminary RCAF	Forecast Error Adjustment	RCAF (Unadjusted)	Productivity-Adjusted RCAF: Productivity Adjustment Factor	Productivity-Adjusted RCAF: RCAF (Adjusted)	STB's 2nd Productivity-Adjusted RCAF (Not endorsed by AAR): PAF-5	STB's 2nd Productivity-Adjusted RCAF (Not endorsed by AAR): RCAF-5
(Col 1)	(Col 2)	(Col. 3)	(Col 4)	(Col 5)	(Col 6)	(Col 7)	(Col 8)
2007 Q1	0.869	0.007	0.876	2.1259	0.412	2.2351	0.392
Q2	0.870	-0.036	0.834	2.1348	0.391	2.2456	0.371
Q3	0.885	-0.015	0.870	2.1438	0.406	2.2562	0.386
Q4	0.914	0.015	0.929	2.1528	0.432	2.2668	0.410
2008 Q1	0.962	0.014	0.976	2.1618	0.451	2.2763	0.429
Q2	0.986	0.015	1.001	2.1683	0.462	2.2859	0.438
Q3	1.075	-0.008	1.067	2.1748	0.491	2.2955	0.465
Q4	1.074	0.041	1.115	2.1813	0.511	2.3051	0.484
2009 Q1	0.937	0.013	0.950	2.1878	0.434	2.3120	0.411
Q2	0.882	-0.092	0.790	2.1944	0.360	2.3189	0.341
Q3	0.927	-0.055	0.872	2.2010	0.396	2.3259	0.375
Q4	0.928	-0.002	0.926	2.2076	0.419	2.3329	0.397
2010 Q1	0.971	-0.005	0.966	2.2142	0.436	2.3399	0.413
Q2	0.971	0.015	0.986	2.2208	0.444	2.3469	0.420
Q3	0.991	0.003	0.994	2.2275	0.446	2.3539	0.422
Q4	0.994	0.032	1.026	2.2342	0.459	2.3610	0.435
2011 Q1	1.030	-0.014	1.016	2.2409	0.453	2.3681	0.429
Q2	1.075	0.017	1.092	2.2487	0.486	2.3752	0.460
Q3	1.103	0.019	1.122	2.2566	0.497	2.3823	0.471
Q4	1.100	0.025	1.125	2.2645	0.497	2.3894	0.471
2012 Q1	1.095	-0.007	1.088	2.2724	0.479	2.3978	0.454
Q2	1.123	-0.020	1.103	2.2769	0.484	2.4062	0.458
Q3	1.095	-0.006	1.089	2.2815	0.477	2.4146	0.451
Q4	1.131	-0.006	1.125	2.2861	0.492	2.4231	0.464
2013 Q1	1.124	-0.002	1.122	2.2907	0.490	2.4279	0.462
Q2	1.129	0.004	1.133	2.2957	0.494	2.4328	0.466
Q3	1.113	-0.014	1.099	2.3008	0.478	2.4377	0.451
Q4	1.126	-0.029	1.097	2.3059	0.476	2.4426	0.449
2014 Q1	1.108	-0.004	1.104	2.3110	0.478	2.4480	0.451
Q2	1.122	-0.025	1.097	2.3168	0.473	2.4534	0.447
Q3	1.119	-0.011	1.108	2.3226	0.477	2.4588	0.451
Q4	1.109	-0.009	1.100	2.3284	0.472	2.4642	0.446
2015 Q1	1.074	-0.010	1.064	2.3342	0.456	2.4704	0.431
Q2	1.025	-0.036	0.989	2.3382	0.423	2.4766	0.399
Q3	1.020	-0.086	0.934	2.3422	0.399	2.4828	0.376
Q4	0.996	-0.025	0.971	2.3462	0.414	2.4890	0.390
2016 Q1	0.992	-0.020	0.972	2.3502	0.414	2.4932	0.390
Q2	0.959	-0.014	0.945	2.3584	0.401	2.4974	0.378
Q3	0.994	-0.046	0.948	2.3667	0.401	2.5016	0.379
Q4	0.985	0.005	0.990	2.3750	0.417	2.5059	0.395
2017 Q1	1.011	-0.012	0.999	2.3833	0.419	2.5147	0.397
Q2	1.021	-0.004	1.017	2.3797 *	0.427 *	2.5235	0.403
Q3	1.016	0.000	1.016	2.3761 *	0.428 *	2.5323	0.401
Q4	1.010	-0.010	**1.000**	2.3725 *	0.421 *	2.5412	0.394
2018 Q1	1.038	-0.011	1.027	2.3689 *	0.434 *	2.5374 *	0.405 *
Q2	1.039	0.002	1.041	2.3665	0.440	2.5336	0.411

* The Productivity Adjustment Factors for 2017Q2-2018Q1, and the PAF-5 for 2018Q1, were revised after the Surface Transportation Board served a revised productivity change on January 29, 2018. See *Railroad Cost Recovery Procedures - Productivity Adjustment*, Ex Parte 290 (Sub-No. 4), (STB served January 29, 2018). On the same day, the Board directed the AAR to recalculate and submit, in its next quarterly RCAF submission, the 2017 and 2018 RCAF figures affected by the revised productivity. See *Quarterly Rail Cost Adjustment Factor*, Ex Parte 290 (Sub-No. 5), (STB served January 29, 2018).

Rail Cost Adjustment Factor — 2017Q4 Base

Yr/Qtr	Preliminary RCAF	Forecast Error Adjustment	RCAF (Unadjusted)	Productivity-Adjusted RCAF: Productivity Adjustment Factor	Productivity-Adjusted RCAF: RCAF (Adjusted)	STB's 2nd Productivity-Adjusted RCAF (Not endorsed by AAR): PAF-5	STB's 2nd Productivity-Adjusted RCAF (Not endorsed by AAR): RCAF-5
(Col 1)	(Col 2)	(Col. 3)	(Col 4)	(Col 5)	(Col 6)	(Col 7)	(Col 8)
1996 Q1	0.635	-0.003	0.632	1.3624	0.464		
Q2	0.633	-0.003	0.630	1.3820	0.456	Did not exist.	
Q3	0.639	-0.001	0.638	1.4019	0.455		
Q4	0.644	0.004	0.648	1.4221	0.456		
1997 Q1	0.660	0.001	0.661	1.4426	0.458	1.4733	0.449
Q2	0.657	0.005	0.662	1.4603	0.453	1.4945	0.443
Q3	0.660	-0.001	0.659	1.4783	0.446	1.5160	0.435
Q4	0.655	0.000	0.655	1.4965	0.438	1.5378	0.426
1998 Q1	0.653	-0.001	0.652	1.5149	0.430	1.5567	0.419
Q2	0.648	0.004	0.652	1.5503	0.421	1.5758	0.414
Q3	0.656	-0.002	0.654	1.5866	0.412	1.5952	0.410
Q4	0.655	0.002	0.657	1.6237	0.405	1.6148	0.407
1999 Q1	0.654	-0.002	0.652	1.6617	0.392	1.6526	0.395
Q2	0.651	0.000	0.651	1.6850	0.386	1.6913	0.385
Q3	0.659	-0.003	0.656	1.7086	0.384	1.7309	0.379
Q4	0.658	0.004	0.662	1.7325	0.382	1.7714	0.374
2000 Q1	0.678	0.004	0.682	1.7568	0.388	1.7962	0.380
Q2	0.682	0.006	0.688	1.7719	0.388	1.8213	0.378
Q3	0.687	0.002	0.689	1.7871	0.386	1.8468	0.373
Q4	0.694	0.002	0.696	1.8025	0.386	1.8727	0.372
2001 Q1	0.707	0.003	0.710	1.8180	0.391	1.8888	0.376
Q2	0.702	0.002	0.704	1.8305	0.385	1.9050	0.370
Q3	0.707	-0.001	0.706	1.8431	0.383	1.9214	0.367
Q4	0.704	0.003	0.707	1.8558	0.381	1.9379	0.365
2002 Q1	0.705	-0.001	0.704	1.8686	0.377	1.9513	0.361
Q2	0.696	-0.002	0.694	1.8878	0.368	1.9648	0.353
Q3	0.702	-0.007	0.695	1.9072	0.364	1.9784	0.351
Q4	0.718	0.009	0.727	1.9268	0.377	1.9921	0.365
2003 Q1	0.721	0.003	0.724	1.9466	0.372	2.0126	0.360
Q2	0.735	0.007	0.742	1.9557	0.379	2.0333	0.365
Q3	0.731	0.010	0.741	1.9649	0.377	2.0542	0.361
Q4	0.741	-0.003	0.738	1.9741	0.374	2.0754	0.356
2004 Q1	0.740	0.005	0.745	1.9834	0.376	2.0852	0.357
Q2	0.745	0.005	0.750	1.9943	0.376	2.0950	0.358
Q3	0.766	0.011	0.777	2.0053	0.387	2.1048	0.369
Q4	0.781	0.016	0.797	2.0163	0.395	2.1147	0.377
2005 Q1	0.797	0.007	0.804	2.0274	0.397	2.1263	0.378
Q2	0.812	0.021	0.833	2.0420	0.408	2.1380	0.390
Q3	0.820	0.004	0.824	2.0567	0.401	2.1498	0.383
Q4	0.852	0.009	0.861	2.0715	0.416	2.1616	0.398
2006 Q1	0.847	0.009	0.856	2.0864	0.410	2.1772	0.393
Q2	0.846	0.009	0.855	2.0962	0.408	2.1929	0.390
Q3	0.870	-0.004	0.866	2.1061	0.411	2.2087	0.392
Q4	0.889	0.019	0.908	2.1160	0.429	2.2246	0.408

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.

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):
2016Q1 on a 4Q17 basis = 262.5 / 264.5 = 0.9924386 = 0.992
2016Q1 on a 4Q12 basis = 262.5 / 297.6 = 0.8820565 = 0.882
2016Q1 on a 4Q97 basis = 262.5 / 173.2 = 1.5155889 = 1.516

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 2016Q1 on a 4Q12 basis to a 4Q17 basis:
(297.6 / 264.5) x 0.882 = 0.9923750 = 0.992

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 2016Q1:
1. Use A-I Index from 2 quarters prior, 2015Q3: 264.4 = Actual, 269.7 = Forecast
2. Actual = 264.4 / 264.5 = 0.9996219 = 1.000
3. Forecast = 269.7 / 264.5 = 1.0196597 = 1.020
4. Forecast Error = 1.000 - 1.020 = -0.020

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 2015Q3 on a 4Q12 basis, which was used for 2016Q1, to a 4Q17 basis:
Forecast Error 4Q17 basis = (297.6 / 264.5) x -0.018 = -0.0202526 = -0.020

RCAF (Unadjusted)

RCAF (Unadjusted) = Preliminary RCAF + Forecast Error Adjustment.
Example for 2016Q1, on a 4Q17 basis: 0.992 + -0.020 = 0.972

Productivity Adjustment Factor

Use the Productivity Adjustment Factor as originally calculated for each quarter.
For 2016Q1, the Productivity Adjustment Factor is 2.3502.

RCAF (Adjusted)

RCAF (Adjusted) = RCAF (Unadjusted) / Productivity Adjustment Factor.
Example for 2016Q1, on a 4Q17 basis: 0.972 / 2.3502 = 0.4135818 = 0.414

PAF-5

Use the STB's alternative productivity adjustment factor, PAF-5, as originally calculated.
For 2016Q1, the Productivity Adjustment Factor is 2.4932.

RCAF-5

RCAF-5 = RCAF (Unadjusted) / PAF-5
Example for 2016Q1, on a 4Q17 basis: 0.972 / 2.4932 = 0.3898604 = 0.390

Indexes & Factors for RCAF

Yr/Qtr		All-Inclusive Index 1980 = 100 Forecast	Actual	Prod. Adj. Factor	PAF-5	Original Basis Prelim RCAF	Forecast Error	Basing Factor
1991	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
1992	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
1993	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
1994	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
1995	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
1996	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
1997	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
1998	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
1999	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
2000	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
2001	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
2002	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
2003	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 Forecast	All-Inclusive Index 1980 = 100 Actual	Prod. Adj. Factor	PAF-5	Original Basis Prelim RCAF	Original Basis Forecast Error	Basing Factor
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 a	2.3189	0.949	-0.099	245.9
	Q3	245.3	243.8	2.2010 a	2.3259	0.998	-0.060	245.9
	Q4	245.5	249.4	2.2076 a	2.3329	0.998	-0.002	245.9
2010	Q1	256.9	257.6	2.2142 a	2.3399 a	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 b	285.7 b	2.2645	2.3894	1.183	0.026	245.9
2012	Q1	289.5 b	288.0 b	2.2724	2.3978	1.177	-0.007	245.9
	Q2	297.0 b	295.5 b	2.2769	2.4062	1.208	-0.021	245.9
	Q3	289.6 b	289.0 b	2.2815	2.4146	1.178	-0.006	245.9
	Q4	299.1 b	300.1 b	2.2861	2.4231	1.216	-0.006	245.9
2013	Q1	297.4 b	293.7 b	2.2907	2.4279	0.999	-0.002	297.6 b
	Q2	298.6 b	290.9 b	2.2957	2.4328	1.003	0.003	297.6 b
	Q3	294.4 b	293.2	2.3008	2.4377	0.989	-0.012	297.6 b
	Q4	297.9 c	291.3	2.3059	2.4426	1.001 b	-0.026	297.6 b
2014	Q1	293.0 d	290.2	2.3110	2.4480	0.985 d	-0.004	297.6
	Q2	296.8	294.4	2.3168	2.4534	0.997	-0.022	297.6
	Q3	296.1	293.4	2.3226	2.4588	0.995	-0.010	297.6
	Q4	293.2	283.9	2.3284	2.4642	0.985	-0.008	297.6

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

b - restated by AAR, as directed by STB, in EP No. EP 290 (Sub-No. 5)(2014-1) submitted December 5, 2013. STB approved in Docket No. EP 290 (Sub-No. 5)(2014-1) served December 20, 2013.

c - restated by AAR, as directed by STB, in EP No. EP 290 (Sub-No. 5)(2014-2) submitted March 18, 2014. This caused a change to number that had been restated in 2014-1 submission. STB approved in decision served March 20, 2014.

d - restated by AAR, as directed by STB, in EP No. EP 290 (Sub-No. 5)(2014-2) submitted March 18, 2014. STB approved in Docket No. EP 290 (Sub-No. 5)(2014-2) served March 20, 2014.

Indexes & Factors for RCAF

Yr/Qtr		All-Inclusive Index 1980 = 100 Forecast	All-Inclusive Index 1980 = 100 Actual	Prod. Adj. Factor	PAF-5	Original Basis Prelim RCAF	Original Basis Forecast Error	Basing Factor
2015	Q1	284.2	261.3	2.3342	2.4704	0.955	-0.009	297.6
	Q2	271.0	264.4	2.3382	2.4766	0.911	-0.031	297.6
	Q3	269.7	264.4	2.3422	2.4828	0.906	-0.077	297.6
	Q4	263.4	259.8	2.3462	2.4890	0.885	-0.023	297.6
2016	Q1	262.5	250.1	2.3502	2.4932	0.882	-0.018	297.6
	Q2	253.7	255.0	2.3584	2.4974	0.852	-0.012	297.6
	Q3	263.0	259.7	2.3667	2.5016	0.884	-0.042	297.6
	Q4	260.6	259.5	2.3750	2.5059	0.876	0.005	297.6
2017	Q1	267.4	267.5	2.3833	2.5147	0.899	-0.011	297.6
	Q2	270.1	267.4	2.3797 e	2.5235	0.908	-0.004	297.6
	Q3	268.7	265.7	2.3761 e	2.5323	0.903	0.000	297.6
	Q4	267.1	267.7	2.3725 e	2.5412	0.898	-0.009	297.6
2018	Q1	274.5		2.3689 e	2.5374 e	1.038	-0.011	264.5
	Q2	274.9		2.3665	2.5336	1.039	0.002	264.5

e - These productivity adjustment factors were revised because the STB revised its productivity change calculation.See Railroad Cost Recovery Prodedures - Productivity Adjustment, STB Ex Parte No. 290 (Sub-No. 4) served January 29, 2018. See also Quarterly Rail Cost Adjustment Factor, Ex Parte 290 (Sub-No. 5), served January 29, 2018.

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 Factors are always 4 digits after the decimal.

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
4Q/12r = 297.6
4Q/17 = 264.5

Second Quarter 2018
All-Inclusive Index

Ex Parte No. 290 (Sub-No. 5) (2018-2)

Quarterly Rail Cost Adjustment Factor
Surface Transportation Board

Policy and Economics Department
Association of American Railroads

March 5, 2018

Table of Contents

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 2018. Several more labor unions have ratified new labor agreements, and those have been added to the Labor Index component.

In a decision served January 29, 2018, the Board adopted a final productivity change for 2015 that differed from the original used with the previous four quarters of RCAF calculations. The revised productivity change (for 2015) and its impact on the productivity adjustment factors are addressed on page 5A herein.

In a second decision served January 29, 2018, the Board directed the AAR to recalculate and submit the productivity-adjusted RCAFs that were affected by the revised productivity change. The revised RCAFs are addressed on page 5B herein and a revised Attachment A.

In a decision served Feburary 8, 2018, the Board decided the productivity change for 2016 and the resulting five-year rolling geometric average annual productivity change. The 2016 productivity change is addressed on page 5, and the resulting productivity adjustment factors are based on the 2015 revised productivity changes updated to the appropriate quarter with the latest quarterly change.

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 2016 (current) and 2015 (previous) weights are shown below. Weights calculated from 2015 data were used for the fourth quarter of 2016 through the third quarter of 2017. Beginning with the fourth quarter of 2017, weights calculated using 2016 data are used.

Traffic and fuel prices were down again in 2016, causing expenses for most categories to decline. The Fuel and Materials & Supplies categories had double-digit percentage decreases in expenses, and this caused them to be the two categories that had decreases in weights. Depreciation and Interest, the two categories with increased expenses in 2016, had increases in their weights. While Labor, Equipment Rents, and Other all had 5 to 6 percent decreases in expenses, their weights increased because of the larger drops for Fuel and Materials & Supplies. Weights for Labor and Other are the highest they have been since 2004, while Fuel's weight is the lowest it has been since 2003. Depreciation's weight, perhaps pushed by recent spending for Positive Train Control, is the highest it has ever been.

Weights for RCAF's All-Inclusive Index

	2016	2015
Labor	35.6 %	35.0 %
Fuel	10.7	13.4
Materials & Supplies	5.0	5.4
Equipment Rents	5.9	5.8
Depreciation	15.6	13.9
Interest	2.2	1.9
Other	25.0	24.6
Total	100.0	100.0

Reweighting 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 2018

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.

	2016 Weights	Forecast Previous 2018Q1	Forecast Current 2018Q2	Percent Change
1. Labor	35.6%	423.8	422.5	-0.3 %
2. Fuel	10.7%	248.4	248.9	0.2
3. M&S	5.0%	251.0	258.0	2.8
4. Equipment Rents	5.9%	226.7	228.9	1.0
5. Depreciation	15.6%	226.8	224.6	-1.0
6. Interest	2.2%	60.5	60.5	0.0
7. Other	25.0%	226.9	229.5	1.1
8. Weighted Average				
a. 1980 = 100		296.8	297.2	
b. 1980 = 100 (linked)		274.5	274.9 [1]	
c. 4Q17 = 100		103.8	103.9 [2]	0.1

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[1] Index80 = (Current Index / Previous Index) * the Previous Quarter Linked Index
= (297.2 / 296.8) x 274.5
= 274.9

[2] To calculate the 4Q17 = 100 index:
Index4Q17 = (Current Linked Index / 4Q17 Basing Factor) * 100
= 274.9 divided by 264.5 times 100
= 103.9

Indexes based on other periods:
4Q12 based index = 274.9 / 297.6 x 100 = 92.4
4Q07 based index = 274.9 / 245.9 x 100 = 111.8
4Q02 based index = 274.9 / 192.1 x 100 = 143.1
4Q97 based index = 274.9 / 173.2 x 100 = 158.7
4Q92 based index = 274.9 / 156.9 x 100 = 175.2

Forecast vs. Actual All-Inclusive Index
Fourth Quarter 2017

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 101.2 is 0.2 index points above the forecast value of 101.0. Therefore, the forecast error adjustment for second quarter 2018 is 0.2 index points.

	2016 Weights	Fourth Quarter 2017 Forecast	Fourth Quarter 2017 Actual	Amt Difference
1. Labor	35.6%	415.1	415.1	
2. Fuel	10.7%	215.5	233.3	
3. M&S	5.0%	254.8	254.8	
4. Equipment Rents[1]	5.9%	223.9	226.6	
5. Depreciation	15.6%	226.3	224.7	
6. Interest	2.2%	60.5	60.5	
7. Other	25.0%	221.4	225.8	
8. Weighted Average				
a. 1980 = 100		288.8	291.7	
b. 1980 = 100 (linked)		267.1	267.7 [2]	
c. 4Q17 = 100[3]		101.0	101.2	0.2

Forecast error ⟶ 0.2 index points

Notes: New weights have been utilized. 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 (2016) weights.

Because of the rebasing required every five years, Item 8c of the forecast will not match the original filing. Items 1 through 8b match because they are not affected by the rebasing.

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[1]

	2016 Weights	Fourth Quarter 2017 Forecast	Fourth Quarter 2017 Actual
Car-Hire	58.3%	206.9	207.5
Lease Rentals	41.7%	221.4	225.8
Weighted Average		212.9	215.1
Weighted Average (linked)		223.9	226.6

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

267.7 = 291.7 / 289.5 x 265.7

[3] The 4Q17 based indexes are 1980 based indexes divided by the 4Q17 basing factor (264.5/100). Other basing factors are: 4Q12 = 297.6; 4Q07 = 245.9; 4Q02 = 192.1; 4Q97 = 173.2; and 4Q92 = 156.9.

Productivity

On February 8, 2018, the Surface Transportation Board (STB) served a decision in Ex Parte 290 (Sub-No. 4) which proposed to adopt -0.4 percent as the geometric average productivity change for the five most recent years available. Their five year rolling geometric average calculation added the year 2016 and removed the year 2011. The components of this average annual value are shown on the following table in ratio format – therefore, 0.996 is the same as a decrease of 0.4 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. The revised 2018Q1 PAF and PAF-5 are discussed on page 5A.

Comparison of Output, Input, & Productivity
2012 - 2016

Year	Output Index (1)	Input Index (2)	Productivity Changes (3)
2012	1.007	0.999	1.008
2013	1.022	1.018	1.003
2014	1.055	1.036	1.018
2015	0.913 r	0.972	0.939 r
2016	0.955	0.941	1.015
Average			**0.996**
Previous Average (2011-2015)			0.994 r

r - The STB revised the output index for 2015 in a decision served January 29, 2018. See next page.

Calculation of PAF and PAF-5

For 2012-2016, use fourth root of avg. productivity change = 0.9990
For 2011-2015, use fourth root of avg. productivity change = 0.9985

Quarter	Year	PAF	PAF-5
Q1	2018	2.3689 r	2.5374 r
Q2	2018	2.3665	2.5336
Q3	2018	2.3641	2.5298
Q4	2018	2.3617	2.5260
Q1	2019	2.3593	2.5235

2011-2015

2012-2016

Revised Productivity

On January 29, 2018, the Surface Transportation Board (STB) served a decision in Ex Parte 290 (Sub-No. 4) which finalized a revised calculation proposed in a decision served September 29, 2017. The revised calculation resulted in a productivity change for 2015 of 0.939 (a decrease of 6.1 percent), and a five year rolling geometric average of 0.994 for 2011-2015 (a decrease of 0.6 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 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.

Comparison of Output, Input, & Productivity
2011 - 2015

Year	Output Index (1)	Input Index (2)	Productivity Changes (3)
2011	1.041	1.039	1.001
2012	1.007	0.999	1.008
2013	1.022	1.018	1.003
2014	1.055	1.036	1.018
2015	0.913 r	0.972	0.939 r
Average			**0.994** r
Previous Average (2010-2014)			1.014

r - revised 1/29/2018

Calculation of Revised PAF and PAF-5

For 2011-2015, use fourth root of avg. productivity change = 0.9985
For 2010-2014, use fourth root of avg. productivity change = 1.0035

Qtr	Year	PAF	PAF-5
Q1	2017	2.3833	2.5147
Q2	2017	**2.3797**	2.5235
Q3	2017	**2.3761**	2.5323
Q4	2017	**2.3725**	2.5412
Q1	2018	**2.3689**	**2.5374**

No Change 2010-2014

Revised 2011-2015

Also on January 29, 2018, the Surface Transportation Board served a decision in Ex Parte 290 (Sub-No. 5) that ordered the AAR to recalculate and submit the 2017 and 2018 RCAF figures that were affected by the new change in productivity. See next page.

Revised Rail Cost Adjustment Factor
Second Quarter 2018

In a decision served January 29, 2018, the Surface Transportation Board (STB) ordered the AAR to recalculate and submit the 2017 and 2018 RCAF figures that were affected by the productivity change for 2015 that was adopted in another decision served that day in Ex Parte 290 (Sub-No. 4). See previous page for revised productivity adjustment factors.

	Original 4Q/2012=100			Revised 4Q/2012=100		
	2017Q2	2017Q3	2017Q4	2017Q2	2017Q3	2017Q4
RCAF (Unadjusted)	0.904	0.903	0.889	no change	no change	no change
Productivity Adj. Factor	2.3952	2.4072	2.4192	2.3797	2.3761	2.3725
RCAF (Adjusted)	0.377	0.375	0.367	0.380	0.380	0.375
PAF-5	2.5235	2.5323	2.5412	no change	no change	no change
RCAF-5	0.358	0.357	0.350	no change	no change	no change

Note: Revised 2017Q2 and 2017Q3 RCAF-A round to the same number. 2017Q2 before rounding is 0.37988, while 2017Q3 is 0.38003.

	Original* 4Q/2017=100				Revised 4Q/2017=100			
	2017Q2	2017Q3	2017Q4	2018Q1	2017Q2	2017Q3	2017Q4	2018Q1
RCAF (Unadjusted)	1.017	1.016	1.000	1.027	no change	no change	no change	no change
Productivity Adj. Factor	2.3952	2.4072	2.4192	2.4313	2.3797	2.3761	2.3725	2.3689
RCAF (Adjusted)	0.425	0.422	0.413	0.422	0.427	0.428	0.421	0.434
PAF-5	2.5235	2.5323	2.5412	2.5539	no change	no change	no change	2.5374
RCAF-5	0.403	0.401	0.394	0.402	no change	no change	no change	0.405

* The RCAF is required to be rebased every five years. Beginning with 2018Q1, the RCAF was rebased to a 4Q/2017=100 basis. "Original" RCAF numbers for 2017Q2-2017Q4 (and earlier quarters) can be found in Attachment A of the AAR's 2018Q1 submission, where original numbers were restated to the new basis for comparison purposes. The 2017Q4 RCAF can also be found on the cover letter of that filing, where it is stated in the new base. For the convience of RCAF users, we have included a new Attachment A in this filing that also contains the revised numbers.

A summary of the revised RCAF values in their original basis is as follows:

2017Q2 RCAF-A, 4Q/12 basis, revised from 0.377 to 0.380
2017Q3 RCAF-A, 4Q/12 basis, revised from 0.375 to 0.380
2017Q4 RCAF-A, 4Q/12 basis, revised from 0.367 to 0.375
2018Q1 RCAF-A, 4Q/17 basis, revised from 0.422 to 0.434
2018Q1 RCAF-5, 4Q/17 basis, revised from 0.402 to 0.405

Rail Cost Adjustment Factor
Second Quarter 2018

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

	Previous 2018Q1		Current 2018Q2	Percent Change
All-Inclusive Index[1]	103.8		103.9	0.1
Preliminary RCAF[2]	1.038		1.039	0.1
Forecast Error Adjustment[3]	-0.011		0.002	
RCAF (Unadjusted)[4]	1.027		1.041	1.4
Productivity Adjustment Factor[5]	2.3689	r	2.3665	
RCAF (Adjusted)[6]	0.434	r	0.440	1.4
PAF-5[7]	2.5374	r	2.5336	
RCAF-5[8]	0.405	r	0.411	1.5

[1] See All-Inclusive Index on page 3.
[2] All-Inclusive Index divided by the All-Inclusive Index in the base period (100.0).
[3] The current figure is from Forecast vs. Actual All-Inclusive Index in this filing (page 4). The previous quarter figure is shown in a similar section of the previous quarter's filing.
[4] Preliminary RCAF plus the forecast error adjustment.
[5] See Productivity on page 5.
[6] RCAF (Unadjusted) divided by the Productivity Adjustment Factor (PAF).
[7] See Productivity on page 5.
[8] RCAF (Unadjusted) divided by the PAF-5.
[r] revised as directed in *Quarterly Rail Cost Adjustment Factor* - Ex Parte 290 (Sub-No. 5) served January 29, 2018.

Appendixes

Labor
Second Quarter 2018

The second quarter 2018 Labor Index decreased 0.3 percent from the previous quarter. The decrease was caused mostly by lower health & welfare costs.

Wage Rate Index

The Wage Rate Index portion of the Labor Index is up 1.0 percent. More new labor agreements with retroactive wage increases caused much of the increase.

New National Agreements: Shortly after the previous quarter RCAF filing, a second coalition of labor unions announced a tentative national agreement. In January, two of the unions from that group (TCU and BRC) ratified their agreements, and have been added to the Wage Rate. In addition, members of the NCFO (from the first coalition) ratified their agreement, and it has also been added to the Wage Rate. (For union abbreviations, see Appendix H.) Like the agreements ratified in the previous quarter, the new contracts have a wage increase, effective January 2015, that was received at that time, and was mutually negotiated to apply as the first increase in this new five-year agreement. The new agreements also have two retroactive (July 2016 and July 2017) wage increases of 2 percent. The future wage increases (July 2018 and July 2019) are for 2.5 and 3.0 percent, respectively. The newly added unions account for almost 11 percent of straight time hours, so they will not have as big of an impact as those added in the previous quarter.

Wage Increases: There are no national union wage increases scheduled for the second quarter 2018. However, the three newly-ratified national labor agreements have two retroactive general wage increases, and those have been applied to the index effective April 1, 2018. Only one new independent labor agreement, which was similar to the national agreements, was added to the index.[1]

Lump Sums: The second quarter lump sum rate is up by 7.7 cents from the previous quarter. Four amounts (one quarterly and three annual) were fully amortized and removed, but they were replaced by bonuses for the new year or quarter.[2] Although most of the new lump sums were similar to the amounts they replaced, one of the performance bonuses was better this year – and it was the main cause of the increase. A fifth lump sum, a one-time bonus for qualified non-executive employees, was also added – but it increased the lump sum rate by less than 0.3 cents, and was too small to have any impact on the Wage Rate Index or Labor Index.

Back Pay: The second quarter back pay rate increased from 61.5 cents to 79.9 cents because of the retroactive wage increases in the three new national labor agreements, plus one independent agreement. The back pay amounts were the result of a 2 percent wage increase retroactive to July 1, 2016, and a second increase retroactive to July 1, 2017.

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[1] The AAR benchmarked independent unions in independent groups in the Q4 rebenchmarking. Since that time, some formerly independent unions for certain railroads have joined the national agreement. Although those unions continue to be benchmarked in an independent group for index calculation purposes, their wage rates are being updated by the national agreement wage increases.

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

Labor
Second Quarter 2018

Other: In wages, "Other" contains the amortization of incentive compensation payments that one railroad (similar to lump sums) makes each year to its dispatchers, yardmasters, and locomotive engineers. This rate is unchanged from the previous quarter.

Supplements Index

The Supplements Index decreased 2.0 percent. The main cause of the decrease was lower rates for health & welfare.

Health & Welfare: On December 13, 2017, after the 2018Q1 RCAF had already been filed on December 5, the AAR received a revised schedule of health & welfare rates. The new rates reflect an unexpected cost savings caused by the ratification of new national labor agreements. The new rates (see pages 4 and 5 of this appendix) are utilized in this 2018Q2 filing. The forecast error adjustment for 2018Q3, which uses "actual" for 2018Q1, will have a Labor component calculated using the correct health & welfare rates. The 2018Q2 Health & Welfare rate is 4.9 percent lower.

Railroad Retirement: The Railroad Retirement rate increased 6.2 cents (or 0.7 percent). The change was caused by higher taxable earnings resulting from new labor agreements that increased wages and caused back pay. Tax rates and maximum taxable earnings were updated at the beginning of 2018, and have not changed in the second quarter. Page 4 of this appendix lists tax rates and maximum taxable earnings for 2016 through 2018.

Unemployment Insurance: The Unemployment Insurance tax rate is unchanged from the previous quarter. Page 4 of this appendix lists tax rates and maximum taxable earnings for 2016 through 2018.

Other: The "Other" category is a reflection of all other fringe benefits, and currently contains known employer contributions to employee 401(k) accounts and employer contributions to employee stock plans that are recorded as fringe benefits. The second quarter rate is 0.9 cents lower.

Labor Index Calculation

As shown in Table A-1 on the next page, a higher Wage Rate Index and a lower Supplements Index combined to cause a 0.3 percent decrease for the Labor Index. The linked second quarter 2018 Labor Index is 422.5, which is 0.3 percent higher than one year ago.

Labor
Second Quarter 2018

Table A-1 Labor Index

	2018Q1	2018Q2	Change Percent	Change Amount
Base Wage – Straight Time & Pay For Time Not Worked	$40.852	$40.997	0.4%	$0.145
Adjustments:				
Lump Sum	0.313	0.390	24.6%	$0.077
Back Pay	0.615	0.799	29.9%	$0.184
Other	0.136	0.136	0.0%	$0.000
Total Wages	41.916	42.322	1.0%	$0.406
Health & Welfare Benefits	8.515	8.101	-4.9%	-$0.414
RR Retirement & Medicare	8.584	8.646	0.7%	$0.062
Unemployment Insurance	0.364	0.364	0.0%	$0.000
Other	0.199	0.190	-4.5%	-$0.009
Total Supplements	$17.662	$17.301	-2.0%	-$0.361
Total Labor (as info only)	$59.578	$59.623		
Wage Index[1]	358.7	362.2	1.0%	
Supplements Index[2]	652.7	639.4	-2.0%	
Total labor Index, 2016 Weights[3]	444.5	443.1		
Labor Index (linked)[4]	**423.8**	**422.5**	-0.3%	

[1] 1980 wage rate $11.685

[2] 1980 supplements rate $2.706

[3] 2016 weights: wages, supplements 70.8% 29.2%

[4] 2018Q2 linked Index = 2018Q1 linked x (2018Q2 / 2018Q1)
= 423.8 x 443.1 / 444.5

Labor

Second Quarter 2018

Supplement Comparisons

Health and Welfare Rates

Plan	Railroad Payment Per Employee Per Month			Change	
	2016	2017	2018	'16-'17	'17-'18
Group Health & Welfare	$1,481.05	$1,693.72	$1,584.71 r	14.4%	-6.4%
Early Retirement Major Medical	134.70	166.75	135.96 r	23.8%	-18.5%
Group Dental	56.97	65.12	63.67	14.3%	-2.2%
Group Vision	8.41	8.44	8.44	0.4%	0.0%
Supplemental Sickness					
Maintenance of Way	32.87	40.00	51.63	21.7%	29.1%
Shop Crafts	49.11	60.00	75.48	22.2%	25.8%
Signalmen	29.48	37.00	44.34	25.5%	19.8%
Yardmasters	34.22	34.22	34.22	0.0%	0.0%

Railroad Retirement and Medicare

	Earnings Base			Employer Rate		
	2016	2017	2018	2016	2017	2018
Tier I	$118,500	$127,200	$128,700	6.20%	6.20%	6.20%
Tier II	88,200	94,500	95,400	13.10%	13.10%	13.10%
Medicare	no limit	no limit	no limit	1.45%	1.45%	1.45%

Unemployment Insurance

Monthly Taxable Earnings Base			Weighted Avg. Class I Rate		
2016	2017	2018	2016	2017	2018
$1,455	$1,545	$1,560	2.73%	3.37%	3.76%

Labor
Second Quarter 2018

NATIONAL RAILWAY LABOR CONFERENCE
EMPLOYEE BENEFITS DEPARTMENT
251 – 18th Street, South, Suite 750, Arlington, VA 22202 ~~~ PHONE: (571) 336-7600

David B. Marcus
Director Employee Benefits
(571) 336-7596
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Benefits Administrator
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December 13, 2017

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

Dear Mr. Crimmel:

The revised employer Payment Rates which are effective January 1, 2018 are as follows:

Railroad Employees National Health & Welfare Plan & National Railway Carriers/United Transportation Union H&W Plan	
Non-Hospital Road	**$1,584.71**
Railroad Employees National Early Retirement Major Medical Benefit Plan	
Non-Hospital Road	**$ 135.96**
Aetna - National Dental Plan	$ 63.67
Aetna - Supplemental Sickness Plans	
ShopCrafts	$ 75.48
Signalmen	$ 44.34
Maintenance of Way	$ 51.63
Trustmark - Supplemental Sickness Plans	
Yardmasters	$ 34.22
EyeMed - National Vision Plan	$ 8.44

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

Very truly yours,

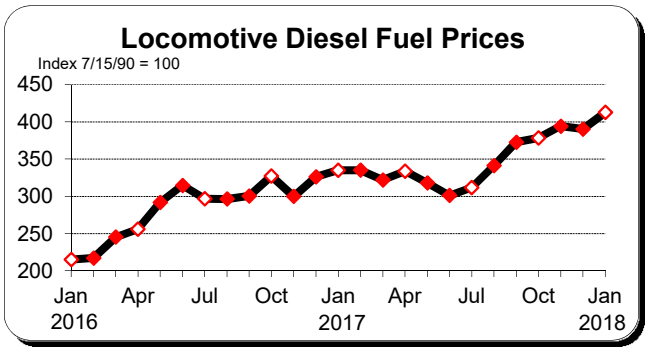
Susan E. Parks

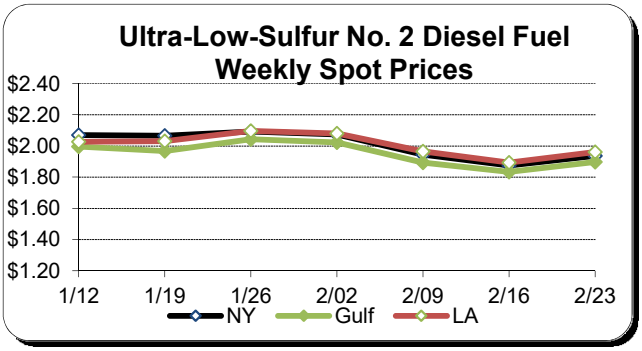
cc: Glen Williams

Fuel
Second Quarter 2018

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

The average locomotive diesel fuel price for January 2016 was the lowest in over 10 years. Since that time, prices have trended upward. While average prices for locomotive diesel fuel are available only through January 2018, data through four weeks of February are available for related fuel types. According to the Energy Information Administration, weekly spot prices for Ultra-Low-Sulfur Diesel Fuel* for the week ended February 23 are 3 to 6 percent lower than they were in mid-January. Heating oil prices are also down.* The chart below (on left) shows the AAR's Monthly Locomotive Diesel Fuel Price Index from January 2016 through January 2018. The second chart (on right) shows recent spot prices for Ultra-Low-Sulfur No. 2 Diesel Fuel as reported by the Energy Information Administration.





Increases in U.S. crude oil production has held down prices in 2018.** Recent daily spot prices for Ultra-Low-Sulfur No. 2 diesel fuel are 1 to 4 percent lower than their January average, depending on the region. Railroads expect lower prices for locomotive diesel fuel. Prices for Q2 (April 2018) are expected to be 2.2 percent lower than the average price railroads actually paid in January. Because the Q1 (January) forecast was too low, the Q2 forecast is 0.2 percent higher than the previous (Q1) forecast.

Forecast Fuel Index (1980 = 100)	248.9
Change from previous quarter forecast	0.2%
Change from previous quarter actual	-2.2%

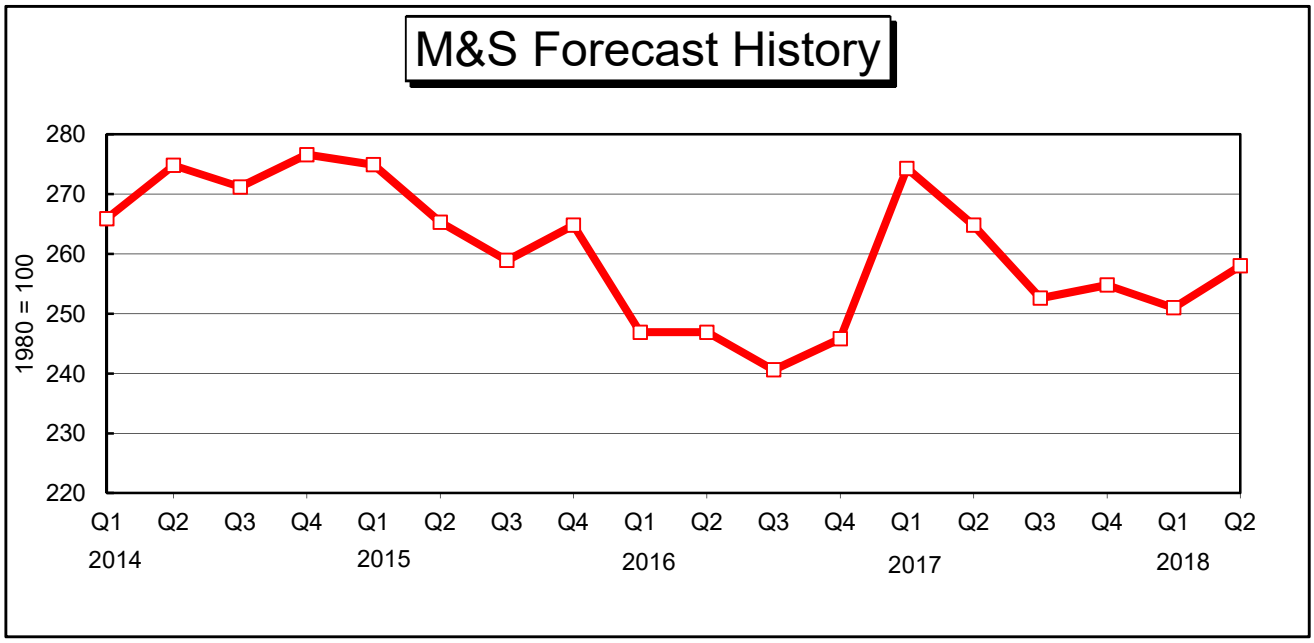
* Heating oil, Ultra-Low-Sulfur No. 2 Diesel Fuel, and locomotive diesel fuel are part of a group of closely related products, commonly labeled as distillates, that differ mostly by their sulfur content. Because of these similarities, these fuels are produced together and have similar pricing trends.

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

Materials & Supplies
Second Quarter 2018

The second quarter 2018 Materials & Supplies Index is up 2.8 percent from the previous quarter. Moving in the opposite directions compared to the first quarter, the Forest Products and Miscellaneous Products indices were up, while the Metal Products Index was down. The index for Forest Products rose 6.2 percent, while the Miscellaneous Products Index was up 5.5 percent. While those two components were higher, much of their growth was offset by a 1.4 percent decrease for Metal Products, which has the highest weight. Despite the increase, the Material & Supplies Index remains lower than its values for all of 2014 and 2015 except 2015's third quarter.

2018Q2	Materials & Supplies Index =	258.0
2018Q1	Materials & Supplies Index =	251.0
	Difference	7.0 basis points or 2.8 %



Equipment Rents
Second Quarter 2018

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

Car Hire

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

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

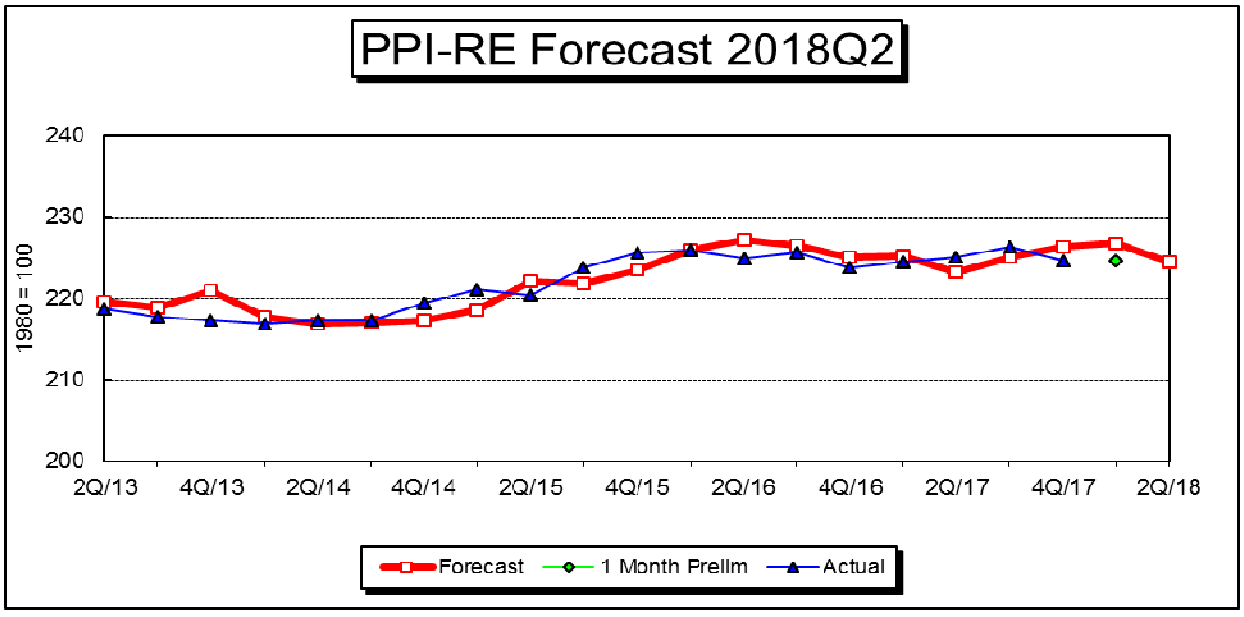
The table below shows the results of the Equipment Rents Index calculation. The second quarter Car Hire portion of the Index rose 0.8 percent because of higher rates for privately-owned cars. A 1.1 percent increase for the projected PPI-LF (See Appendix G) used as a proxy for Lease Rentals, combined with the 0.8 percent increase for Car Hire, caused the Equipment Rents Index to increase 1.0 percent.

	2016 Weight	2018Q1	2018Q2	Percent Change
Car Hire	58.3%	207.5	209.2	0.8 %
Lease Rentals	41.7%	226.9	229.5	1.1
Weighted Average		215.6	217.7	1.0
Weighted Average (Linked)		226.7	228.9	1.0

Depreciation
Second Quarter 2018

The Producer Price Index for Railroad Equipment (PPI-RE) is used to index depreciation expense. The PPI-RE is forecast using an ARIMA (Auto-Regressive Integrated Moving Average) process where a statistical package picks the model that best fits the historical data set (see next page), and that model is then used for the forecast. The historical data set contains 6 years of monthly data (a sample size of 72), where the most recent available data point is the first month of the quarter prior to the forecast quarter. For a first quarter forecast, the most recent month of data available would be for October of the prior year. For a second quarter forecast, January would normally be the most recent period available. April and July would be the most recent months available for third and fourth quarter forecasts, respectively. The output from the forecast model is shown on page 2 of this appendix on a 1982=100 basis. The figure forecast by the model is a 1.0 percent decrease from the previous quarter's forecast, and reflects monthly values where recent months are all lower than the August peak.

Forecast of Depreciation Index (1982=100)	203.0
Forecast of Depreciation Index (1980=100)	224.6
Change from previous quarter forecast	-1.0%
Change from actual first month of previous quarter	0.0%
Change from same quarter of prior year (actual)	-0.2%



Depreciation
Second Quarter 2018

PPI RAILROAD EQUIPMENT

Using rule-based logic, the program narrowed down the choice to exponential smoothing or Box-Jenkins.
The program performed an out-of-sample test to select between these two approaches.
The rolling out-of-sample test used a maximum horizon of 12 and generated 78 forecasts for each method.
The cumulative MAD for Exponential smoothing was 0.83, and for Box-Jenkins was 0.87.

Based on the lower Mean Absolute Deviation, Exponential Smoothing was selected.

Forecast Model for PPIRE

Exponential smoothing: No trend, Additive seasonality
NA(0.785, 0.330)

Component	Smoothing Wgt		Final Value
Level	0.78540		203.0
Seasonal	0.32970		
Seasonal Indexes			
Jan - Mar	0.05934	0.25570	-0.17110
Apr - Jun	-0.15810	0.11930	0.10620
Jul - Sep	-0.00890	0.01814	-0.32380
Oct - Dec	0.38340	-0.22310	-0.05698

Within-Sample Statistics

Sample size	72	No. parameters	2	
Mean	199.18	Std. deviation	4.41	
R-square	0.95	Adj. R-square	0.95	
Durbin-Watson	2.03	Ljung-Box(18)	28.90	P=0.95
Forecast error	0.98	BIC	1.03	
MAPE	0.36	SMAPE	0.36	
RMSE	0.97	MAD	0.71	
MAD/Mean Ratio	0.00			

Actual Values for the Most Recent 6 Periods:

Date	Actual
2017-Aug	204.5
2017-Sep	203.8
2017-Oct	203.9
2017-Nov	202.8
2017-Dec	202.7
2018-Jan	203.1

Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2018-Feb	201.246	203.261	205.276
2018-Mar	200.272	202.834	205.396
2018-Apr	199.836	202.847	205.859
2018-May	199.723	203.125	206.527
2018-Jun	199.359	203.112	206.864
QTR AVG	199.639	203.028	206.417

Interest
Second Quarter 2018

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 2016 data, and was updated in the Q4 filing submitted on September 5, 2017. The Interest Index based on 2016 is at an all-time low. Although the index is based on embedded rates instead of entirely on current market conditions, it is no coincidence that rates for U.S. 20-year bonds were also at their lowest over the last 25 years.

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. Line numbers listed below will have some differences from previous years because the Surface Transportation Board changed some of the line numbers and account definitions.

Interest Expense (Schedule 210)

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

Average Total Debt (Schedule 200)

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

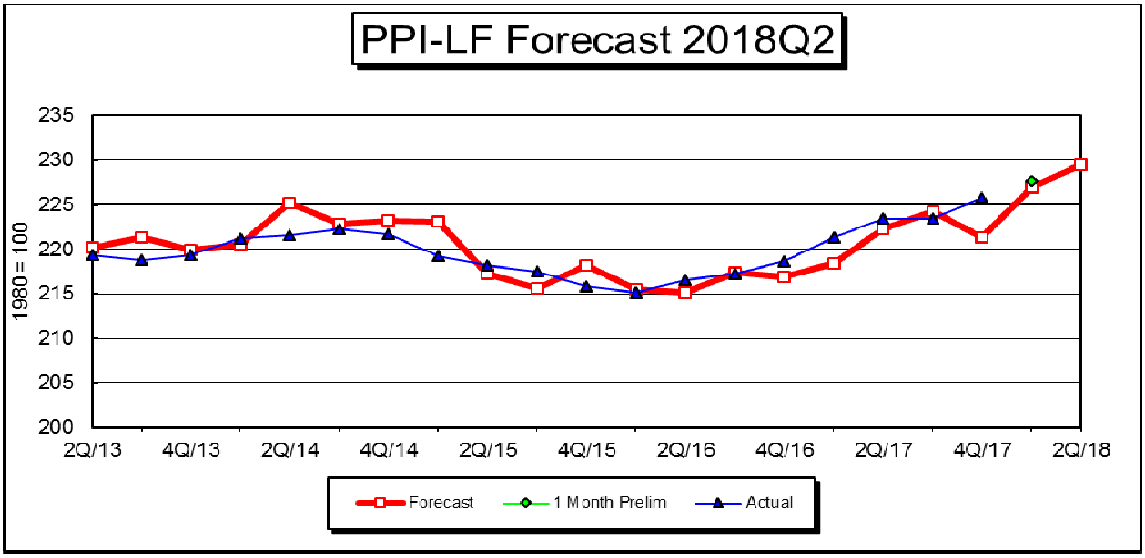
2016	Interest Rate	4.75%
1980	Interest Rate	7.85%
2018Q2	**Interest Index**	**60.5**
2018Q1	Interest Index	60.5
	Percent Change	0.0%

Other Expenses
Second Quarter 2018

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 been increasing at an accelerating rate, and this is reflected in the forecast.

Forecast of Other Expense Index (1982=100)	204.7
Forecast of Other Expense Index (1980=100)	229.5
Change from previous quarter forecast	1.1%
Change from actual first month of previous quarter	0.8%
Change from same quarter of prior year (actual)	2.7%



Other Expenses
Second Quarter 2018

PPI INDUSTRIAL COMMODITIES LESS FUELS AND RELATED PRODUCTS AND POWER

Using rule-based logic, the program narrowed down the choice to exponential smoothing or Box-Jenkins.
An out-of-sample test was used to select between these two approaches.
A rolling out-of-sample test used a maximum horizon of 12 and generated 78 forecasts for each method.
Cumulative MAD: Exponential smoothing = 2.26; Box-Jenkins = 1.27.

Based on the lower Mean Absolute Deviation, Box-Jenkins was selected.

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

Model Details

Term	Coefficient	Std. Error	t-Statistic	Significance
a[1]	0.6527	0.09054	7.209	1

Within-Sample Statistics

Sample size	72	No. parameters	1	
Mean	195.92	Std. deviation	2.51	
R-square	0.97	Adj. R-square	0.97	
Durbin-Watson	1.94	Ljung-Box(18)	18.7	P=0.59
Forecast error	0.44	BIC	0.45	
MAPE	0.17	SMAPE	0.17	
RMSE	0.43	MAD	0.34	
MAD/Mean Ratio	0			

Actual Values for the Most Recent 6 Periods:

Date	Actual
2017-Aug	199.7
2017-Sep	200.0
2017-Oct	200.9
2017-Nov	201.4
2017-Dec	201.9
2018-Jan	203.0

Forecasted Values

Date	2.5 Lower	Forecast	97.5 Upper
2018-Feb	202.860	203.718	204.576
2018-Mar	202.530	204.187	205.844
2018-Apr	202.058	204.493	206.927
2018-May	201.528	204.692	207.857
2018-Jun	200.981	204.823	208.664
QTR AVG	201.522	204.669	207.816

Railroad and Union Abbreviations

Second Quarter 2018

Railroads

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

Note: A portion of the DM&E was sold during 2014.
Note: The sale of the southern portion of the D&H received regulatory approval on May 15, 2015.

Major Unions Involved with Railroads

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

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)
UTU-YMD	United Transportation Union Yardmaster Department (see SMART-TD)

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