

# **Surface Transportation Board – Rail Energy Transportation Advisory Committee Meeting**

## **Performance Measures Subcommittee Update**



April 6, 2017

## **Using EIA, AAR and individual railroad data sources, a data table is assimilated, and from it.....**

### **Seven coal-related dashboards, organized as follows:**

1. Coal Production, Consumption, and Inventories Dashboard
2. Net Generation by Fuel Type Dashboard
3. Coal Exports Dashboard
4. Western Rail Coal Carloads Dashboard
5. Eastern Rail Coal Carloads Dashboard
6. Canadian Rail Coal Carloads Dashboard
7. Railroad Coal Train Speed Dashboard

Most dashboards have three sections:

- a. Left - historical and forecasted data (no forecasts of rail metrics)
- b. Middle - comparison for the most recent quarter (Q3 or Q4 as noted)
- c. Right - current YTD comparison versus the 5-year range

## Performance Summary

<b>Coal Production</b> (2016 vs 2015)			
Appalachia:	Decreased 39.5 million tons		<b>(-18%)</b>
Interior:	Decreased 18 million tons		<b>(-11%)</b>
Western:	Decreased 101.1 million tons		<b>(-20%)</b>
Total Production:	Decreased 158.4 million tons		<b>(-18%)</b>

<b>Coal Consumption</b> (2016 vs 2015)			
Electricity/Power	Decreased 61.2 million tons		<b>(-8%)</b>
Retail/Other	Decreased 5.3 million tons		<b>(-13%)</b>
Met/Coke	Decreased 1.9 million tons		<b>(-10%)</b>
Total Consumption	Decreased 68.5 million tons		<b>(-9%)</b>

<b>Coal Exports</b> (2016 vs 2015)			
Met Coal:	Decreased 4.9 million net tons		<b>(-11%)</b>
Steam Coal:	Decreased 8.6 million tons		<b>(-31%)</b>
Total Exports:	Decreased 13.7 million tons		<b>(-19%)</b>

Coal Production MM Tons				
2015	Appalachia	Interior	Western	Total
Q1	62.4	45.2	132.7	240.3
Q2	54.7	39.8	118.0	212.5
Q3	56.7	45.1	135.3	237.0
Q4	48.2	37.5	121.5	207.2
Sum:	222.0	167.6	507.5	897.0
2016	Appalachia	Interior	Western	Total
Q1	44.3	36.9	91.8	173.0
Q2	43.2	34.4	82.8	160.5
Q3	44.8	35.7	114.6	195.1
Q4	50.2	42.6	117.2	210.0
Sum:	182.5	149.6	406.4	738.6
Tonnage	-39.5	-18.0	-101.1	-158.4
Percent	-18%	-11%	-20%	-18%

Coal Consumption MM Tons				
2015	Electric Pwr	Other	Coke	Total
Q1	196.7	11.0	5.2	212.8
Q2	174.4	9.6	5.0	189.0
Q3	214.8	9.6	5.0	229.4
Q4	152.6	9.8	4.5	167.0
Sum:	738.5	40.0	19.7	798.2
2016	Electric Pwr	Other	Coke	Total
Q1	152.2	9.4	4.3	165.9
Q2	147.2	8.5	4.2	159.9
Q3	210.3	8.4	4.3	223.0
Q4	167.6	8.4	5.0	180.9
Sum:	677.3	34.7	17.8	729.7
Tonnage	-61.2	-5.3	-1.9	-68.5
Percent	-8%	-13%	-10%	-9%

Coal Inventories MM Tons				
2015 YTD	Electric Pwr	Bit	Sub-Bit	Total
Q1	154.3	200.2	241.8	596.3
Q2	166.4	218.1	273.3	657.8
Q3	162.1	206.3	255.9	624.3
Q4	195.5	238.5	306.9	740.9
Sum:	678.3	863.1	1,077.9	2619.3
2016 YTD	Electric Pwr	Bit	Sub-Bit	Total
Q1	192.3	233.9	319.4	745.6
Q2	183.2	243.7	311.8	738.7
Q3	158.2	207.7	267.2	633.1
Q4	163.9	208.8	277.5	650.2
Sum:	697.6	894.1	1,175.9	2,767.6
Tonnage	19.3	31.0	98.0	148.3
Percent	3%	4%	9%	6%

Coal Exports MM Tons			
2015	Met	Steam	Total
Q1	13.5	8.5	22.0
Q2	12.7	7.0	19.8
Q3	10.3	6.6	16.9
Q4	9.4	5.9	15.3
Sum:	45.9	28.0	74.0
2016	Met	Steam	Total
Q1	10.2	4.0	14.2
Q2	10.1	4.2	14.2
Q3	9.1	3.5	12.6
Q4	11.6	7.7	19.3
Sum:	41.0	19.4	60.3
Tonnage	-4.9	-8.6	-13.7
Percent	-11%	-31%	-19%

## Performance Summary

### Railroad Carloads (2016 estimate versus 2015)

Burlington (BNSF):	Decreased 478,847 carloads	<b>(-21%)</b>
Union Pacific:	Decreased 267,567 carloads	<b>(-21%)</b>
Kansas City Southern:	Decreased 10,878 carloads	<b>(-6%)</b>
Norfolk Southern:	Decreased 139,359 carloads	<b>(-18%)</b>
CSX Transportation:	Decreased 123,823 carloads	<b>(-17%)</b>
Canadian National:	Decreased 54,593 carloads	<b>(-32%)</b>
Canadian Pacific:	Decreased 9,114 carloads	<b>(-4%)</b>
<b>Total Carloads:</b>	<b>Decreased 1,065,953 carloads</b>	<b>(-19%)</b>

### Car Originations / \*KCS Receipts (000 Carloads)

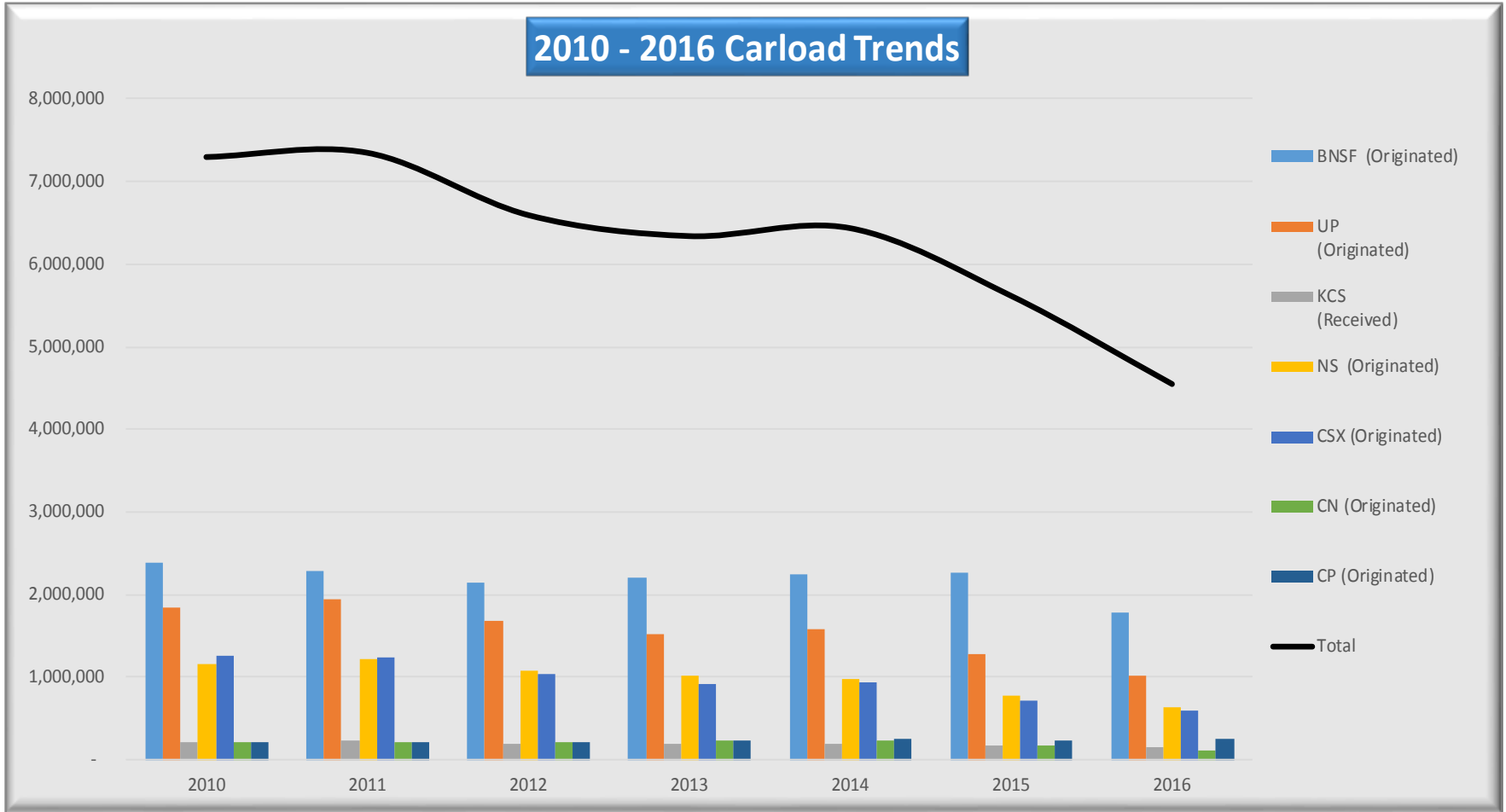
2015	BNSF	UP	*KCS	NS	CSX	CN	CP	Total
Q1	601,488	354,565	40,777	208,679	201,616	45,192	64,210	1,516,527
Q2	540,883	268,667	25,494	199,907	188,477	40,923	61,334	1,325,685
Q3	586,826	352,351	49,609	204,939	183,143	42,239	56,760	1,475,867
Q4	535,919	304,113	51,643	172,337	139,557	42,379	57,103	1,303,051
Sum:	2,265,116	1,279,696	167,523	785,862	712,793	170,733	239,407	5,621,130
2016	BNSF	UP	*KCS	NS	CSX	CN	CP	Total
Q1	396,864	224,275	30,652	159,914	137,474	29,740	62,626	1,041,545
Q2	361,143	216,018	26,608	152,573	132,856	31,037	60,233	980,468
Q3	511,231	294,663	52,857	167,397	148,752	26,945	63,665	1,265,510
Q4	517,031	277,173	46,528	166,619	169,888	28,418	61,997	1,267,654
Sum:	1,786,269	1,012,129	156,645	646,503	588,970	116,140	248,521	4,555,177
Carloads	-478,847	-267,567	-10,878	-139,359	-123,823	-54,593	9,114	-1,065,953
Percent	-21%	-21%	-6%	-18%	-17%	-32%	4%	-19%

### Average Train Speeds (MPH)

2015	BNSF	UP	KCS	NS	CSX	CN	Avg
Q1	18.9	26.2	26.3	16.1	17.8	25.6	21.8
Q2	20.3	25.7	26.8	16.1	17.8	25.8	22.1
Q3	21.8	26.3	23.2	16.9	17.8	26.0	22.0
Q4	23.5	28.6	26.3	17.8	18.1	25.9	23.4
2016	BNSF	UP	KCS	NS	CSX	CN	Avg
Q1	26.2	29.8	27.8	18	17.9	25.9	24.3
Q2	24.7	27.3	28.3	17.8	17.6	25.9	23.6
Q3	21.8	26.4	26.3	17.1	17.5	25.6	22.5
Q4	23.5	27.0	26.1	17.6	17	25.1	22.7

# Carload Summary

2010 - 2016 Carload Trends

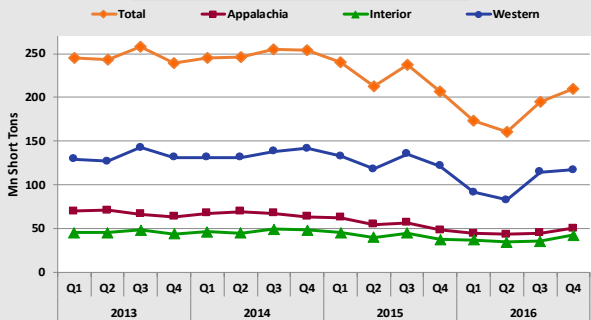


Source Data: AAR

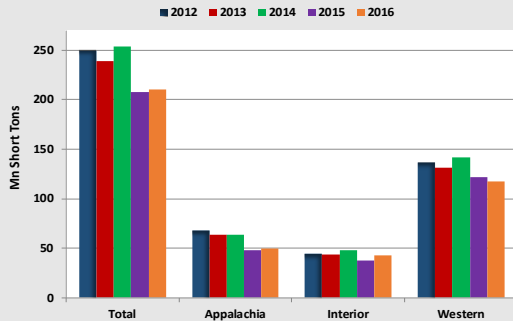
In 7 years Coal carloads are down 2.7M and 37.6%. Only two years in the last seven have seen a slight increase in traffic while three years have seen an over 10% decline.

# U.S. COAL PRODUCTION, CONSUMPTION, AND INVENTORIES DASHBOARD

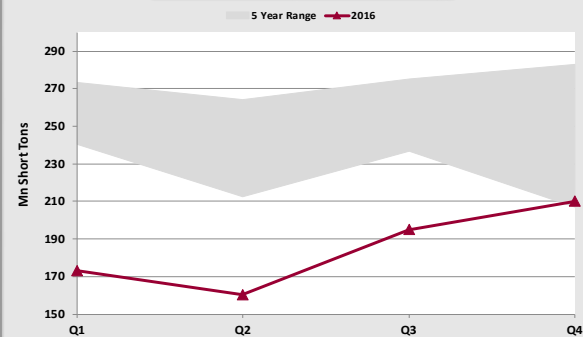
### Historical and Forecasted Production



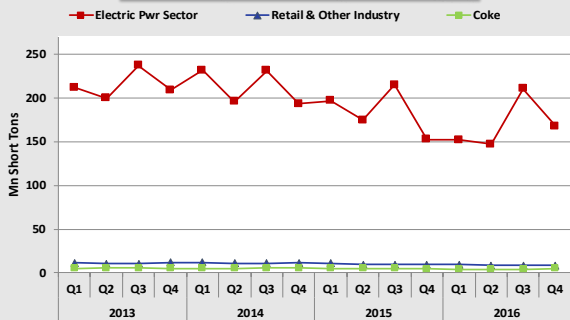
### Q4 Production Comparison



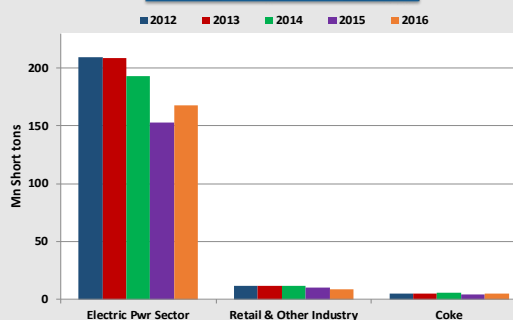
### 2016 Production vs 5-Year Range



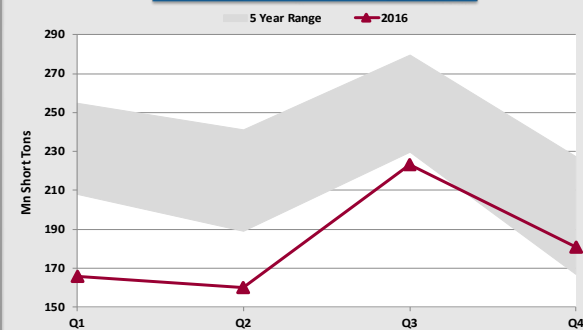
### Historical and Forecasted Consumption



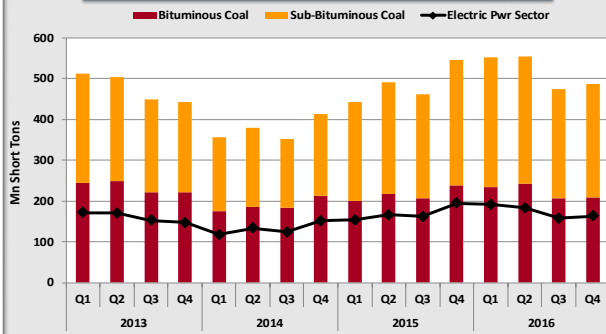
### Q4 Consumption Comparison



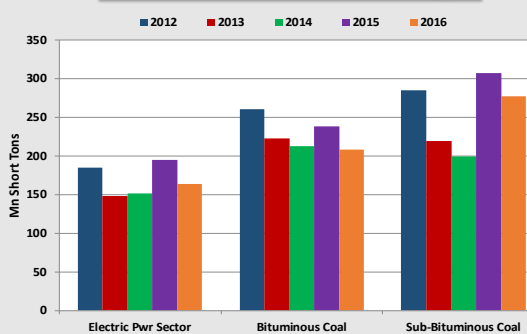
### 2016 Consumption vs 5-Year Range



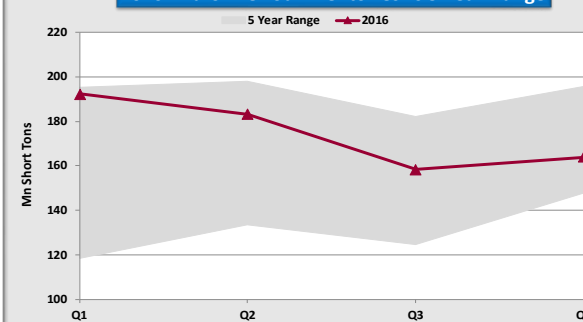
### Historical and Forecasted End-of-Period Inventories



### Q4 End-of-Period Inventories Comparison



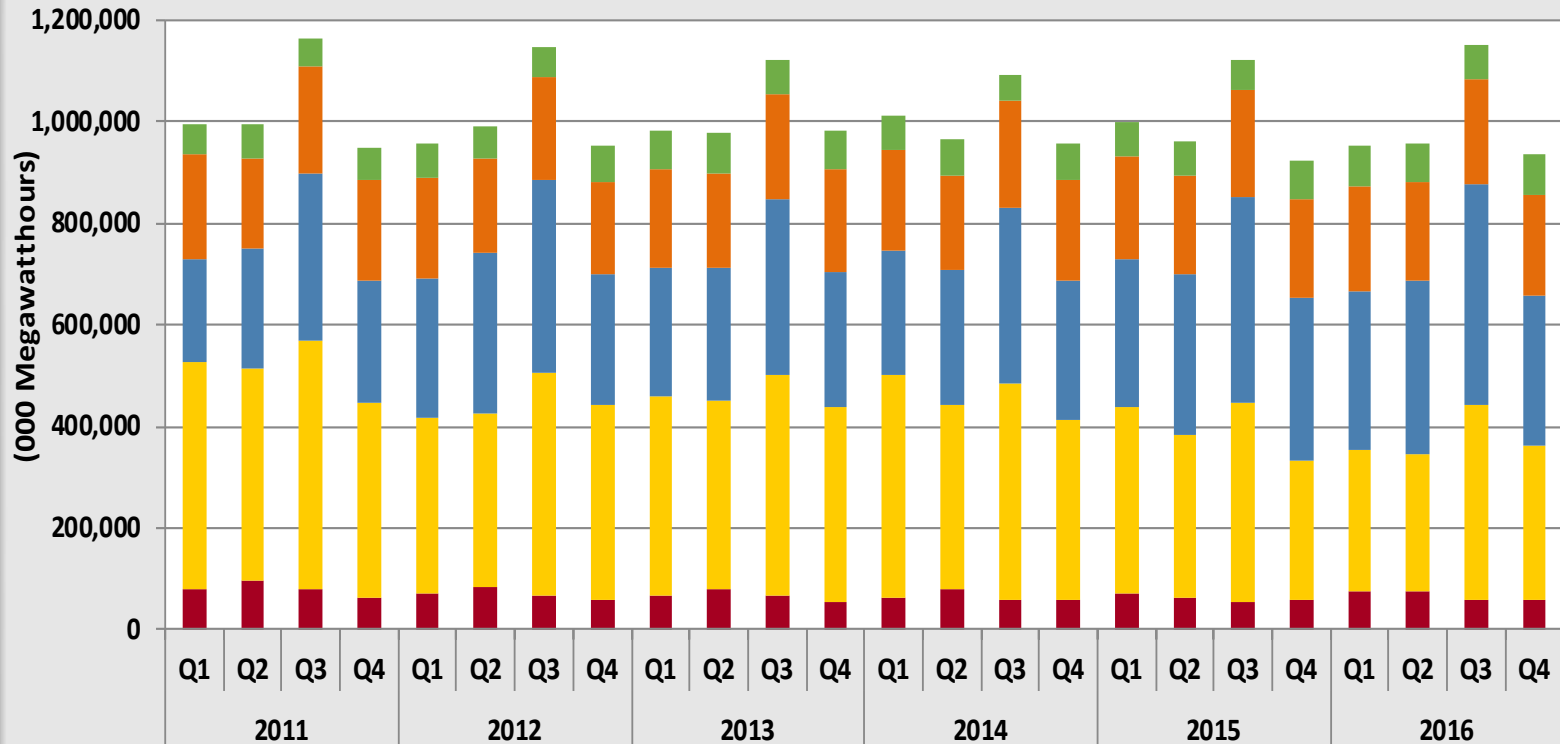
### 2016 End-of-Period Inventories vs 5-Year Range



# NET GENERATION BY FUEL TYPE DASHBOARD

## Historical Net Generation by Fuel Type

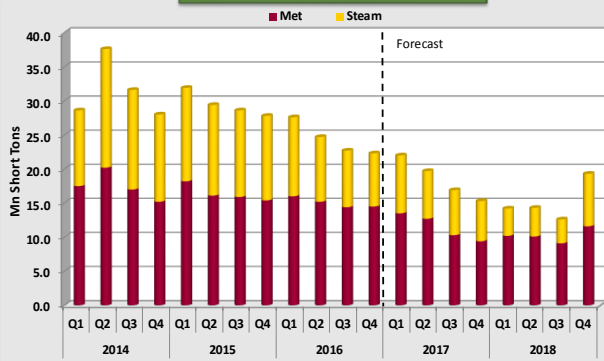
Hydroelectric Coal Natural Gas Nuclear Renewables



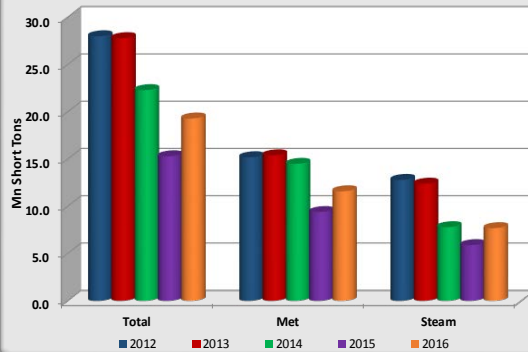
Source Data: EIA

## U.S. COAL EXPORTS DASHBOARD

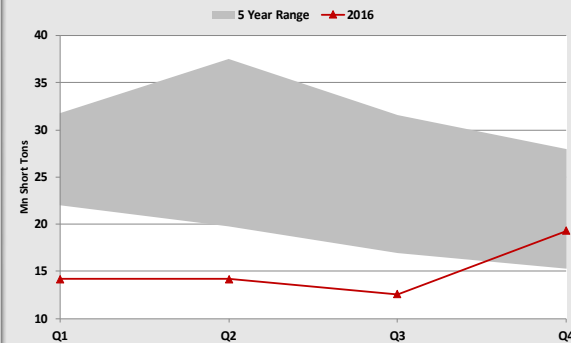
### Historical and Forecasted Exports



### Q4 Exports Comparison



### 2016 Exports vs 5-Year Range

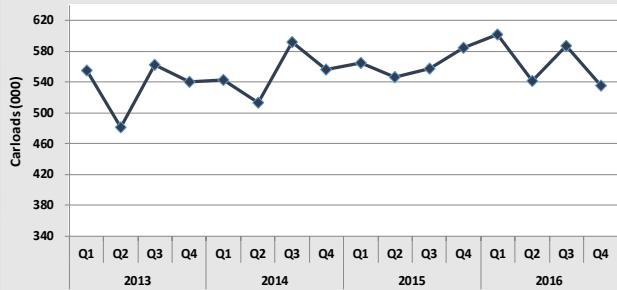


Source Data: EIA

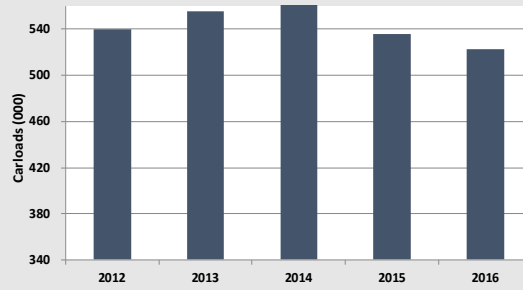


# WESTERN RAILROAD COAL CARLOADS DASHBOARD

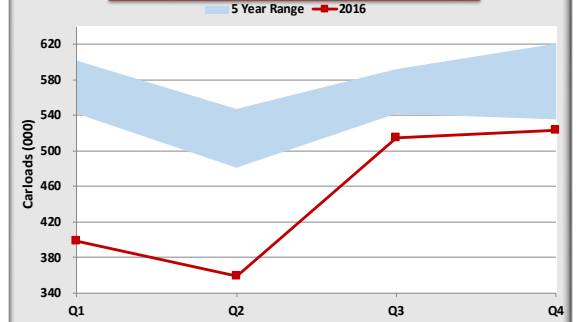
**BNSF Historical Originations**



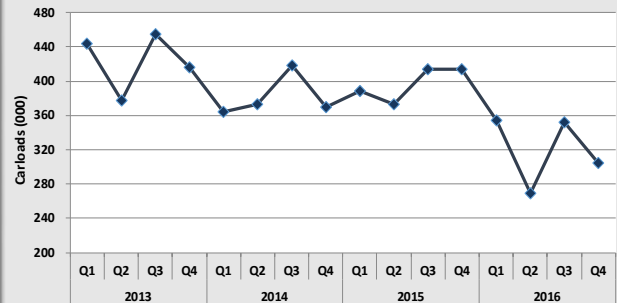
**BNSF Q4 Originations Comparison**



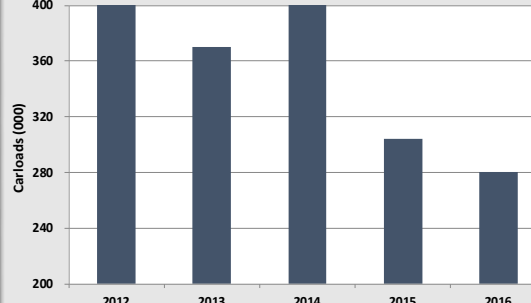
**2016 BNSF Originations vs 5-Year Range**



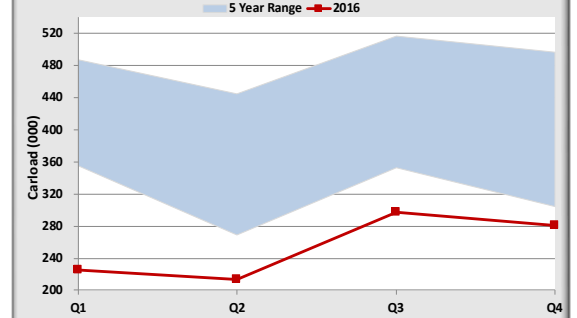
**UP Historical Originations**



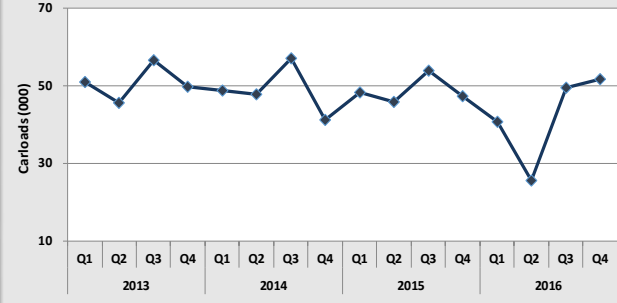
**UP Q4 Originations Comparison**



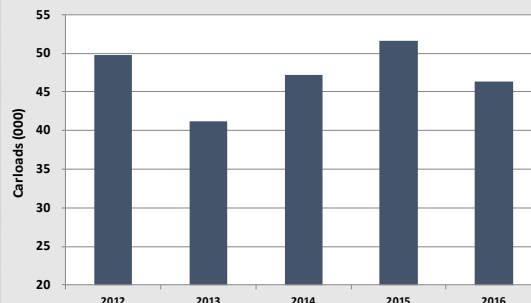
**2016 UP Originations vs 5-Year Range**



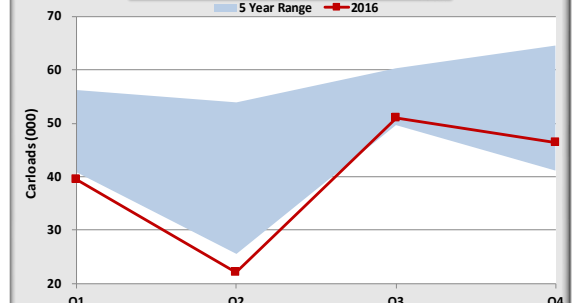
**KCS Historical Receipts**



**KCS Q4 Receipts Comparison**



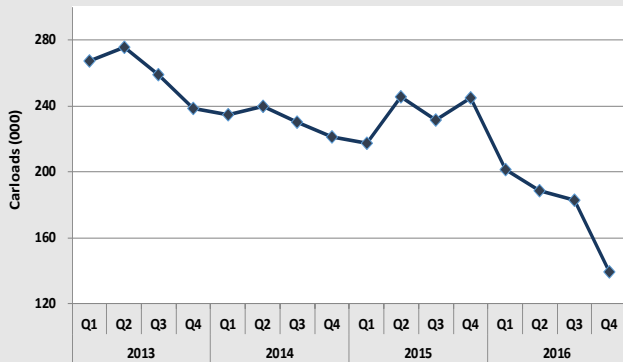
**2016 KCS Receipts vs 5-Year Range**



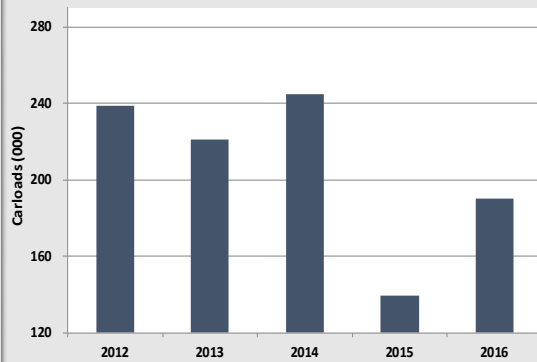
Source Data: AAR, BNSF, UP, KCS

# EASTERN RAILROAD COAL CARLOADS DASHBOARD

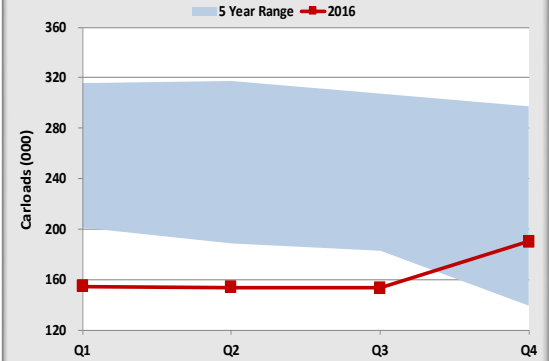
**CSX Historical Originations**



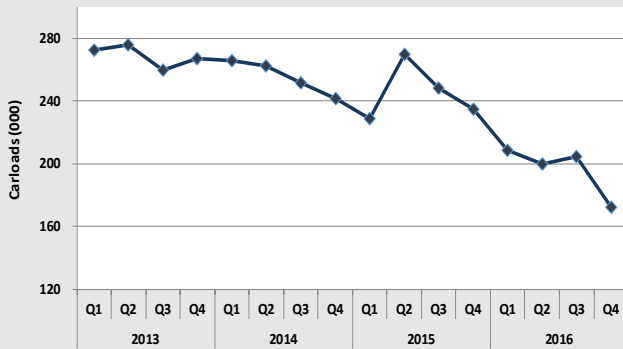
**CSX Q4 Originations Comparison**



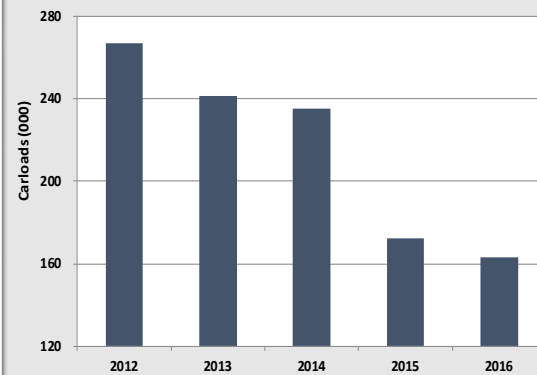
**2016 CSX Originations vs 5-Year Range**



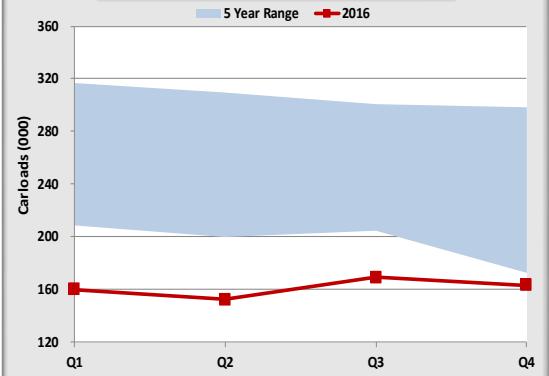
**NS Historical Originations**



**NS Q4 Originations Comparison**



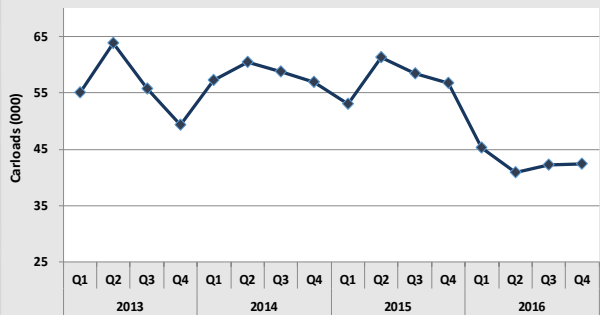
**2016 NS Originations vs 5-Year Range**



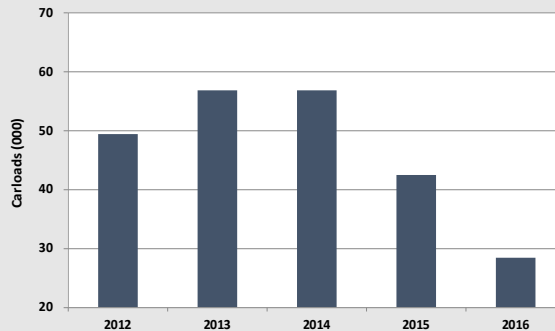
Source data: AAR, CSX, NS

## CANADIAN RAILROAD COAL CARLOADS DASHBOARD

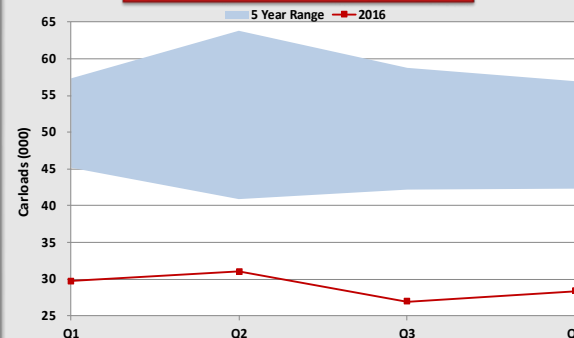
**CN Historical Originations**



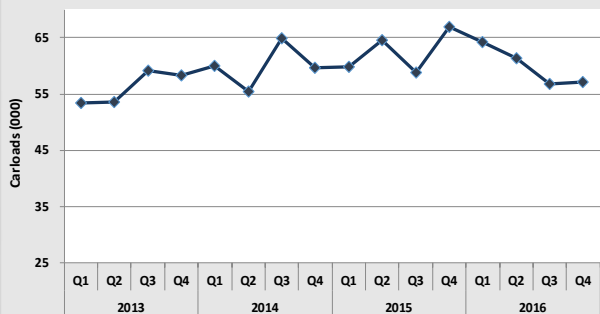
**CN Q4 Originations Comparison**



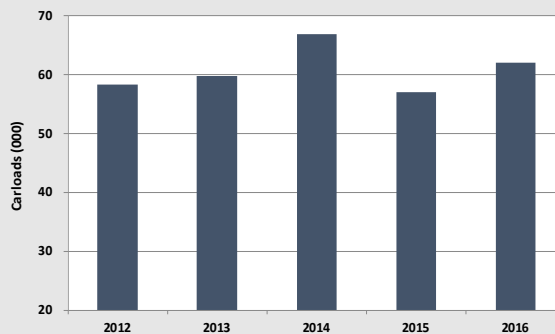
**2016 CN Originations vs 5-Year Range**



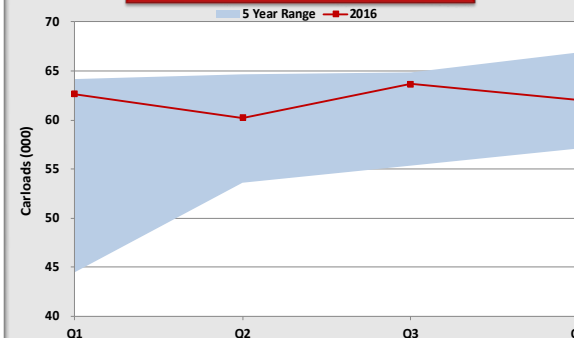
**CP Historical Originations**



**CP Q4 Originations Comparison**



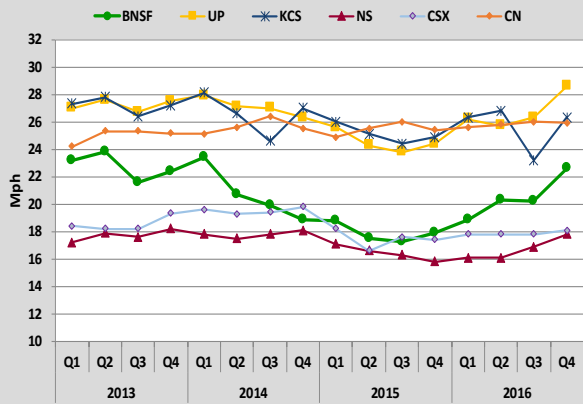
**2016 CP Originations vs 5-Year Range**



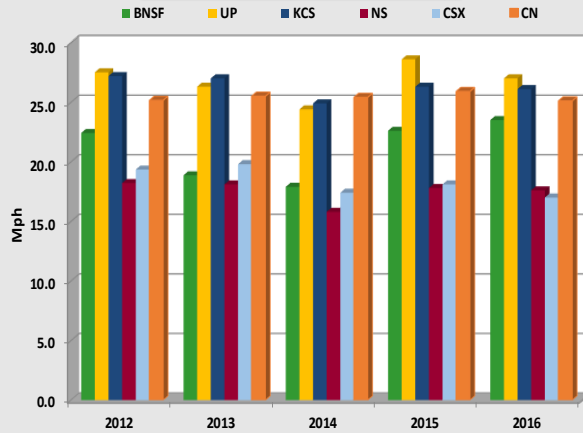
Source Data: AAR, CN, CP

## RAILROAD COAL TRAIN SPEED DASHBOARD

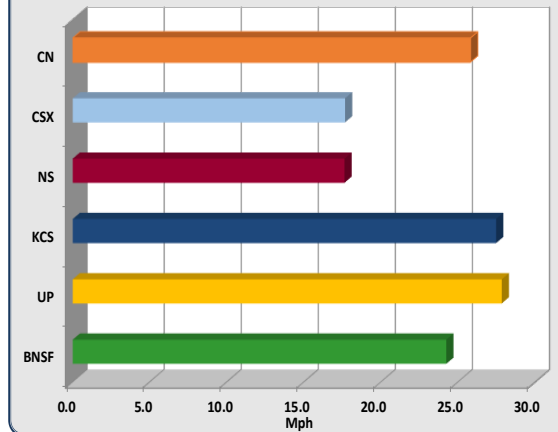
### Historical Coal Train Speed



### Q4 Coal Train Speed Comparison



### 2016 Average Coal Train Speeds



Source Data: AAR, BNSF, UP, KCS, NS, CSX, CN, CP