

# Outlook For 2018 Narrows

## Tie Demand May Continue To Lag Improvement In Rail Traffic

By Petr Ledvina

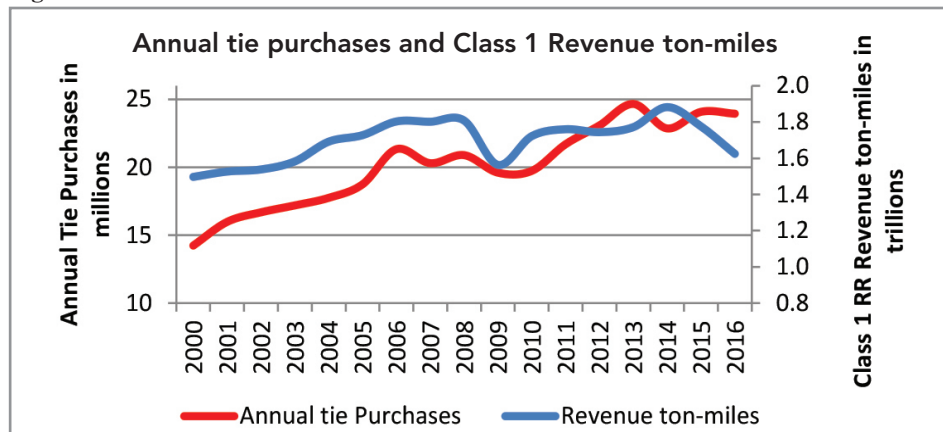
Rail traffic in 2016 was the second lowest recorded in the last 10 years as measured by revenue ton-miles; yet tie demand compared to last year was only 500,000 ties lower from its peak in 2013 (Figure 1). To explain this, the RTA economic team felt that gathering new data for 2016 and reviewing the available metrics for rail in 2017 was in order. That process led to a revision in the forecast model itself which will be outlined below. First, a look at this year's rail traffic data.

In comparison to last year, the amount of freight on rail has increased in 2017. As of early June, Class 1 freight volume in carloads increased by 4.5 percent YTD, and regional railroad volume beat that, up 4.9 percent (AAR and RMI weekly reports).

The largest contribution for the Class 1 rebound is coal increasing by 20 percent, and nonmetallic minerals by 8 percent. Metallic ores and minerals also contributed with an increase of 4 percent, and there was incremental improvement in intermodal shipments of 2.3 percent. Similarly, regional roads experienced an increase in carloads with coal up 15 percent, stone, clay and aggregates (including fracking sand) by 20 percent, petroleum and coke by 9 percent, and intermodal by 7.8 percent.

On the other hand, there were laggards. Freight categories that are underperforming to date, for both freight railroad sectors,

Figure 1



Source: RTA, AAR

include chemicals, forest products and lumber. Class 1's were the only railroad sector that saw a decline in CBR. Is this surprising? First a look at coal; then, onto CBR.

The recent rise in coal demand is a positive development for railroads. At this point, it seems that this trend will continue in the short term based on three factors.

First, according to the Energy Information Agency (EIA) the coal stockpiles at power plants as of March 2017 were down by an average of 15 percent versus those in March 2016. Second, the number of days of burn, which is a forward-looking estimate of coal supply given a power plant's current stockpile and past consumption patterns, decreased by 4 percent for the same time

period (Figure 2, page 10). Third, the 90-day temperature forecast for the United States by the National Oceanic and Atmospheric Administration (NOAA) indicates the probability of an above average temperature for most of the country. Consequently, power plants may maintain higher demand for coal in the near future.

However, even with the emphasis on deregulation and the recent decision to withdraw from the Paris climate agreement, power plants may still be reluctant to switch back to coal in any significant way. This was recently expressed by the Tennessee Valley Authority's chief executive Bill Johnson. In his comments, Johnson cited relatively cheap natural gas as a major factor that undermines



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\*Strength: Adam M. Taylor, Barbara Jordan, and Jeffrey D. Lloyd. 2013. Pretreatment Decay, Strength Loss and their Prevention in Railroad Ties. Proceedings of the annual meeting of the International Research Group on Wood Protection. IRG/WP\_13-30610

Longevity: The Amburgey Tie Test as reported in CrossTies, March/April, 2010.



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higher coal demand in the midterm (Figure 3). Considering the average annual natural gas price for electric power generation declined by 12 percent from 2015 to 2016, these comments are understandable.

Plus, EIA's coal production forecast seems to agree. While EIA predicts an increase of 5 percent this year, the net expected increase is only 1 percent for 2018. But, then, the rising demand for metallurgical coal with mines opening in Pennsylvania, West Virginia and Alabama to accommodate the requirements of the steel industry could boost coal shipment growth (source: Bloomberg News). The question is when and by how much.

With the slump in oil prices and a decline in oil rig counts in 2016, it was the consensus that U.S. oil production would fall precipitously and with it crude by rail (CBR). While U.S. oil production declined only moderately, CBR surprisingly dropped by half (Figure 4).

One of the reasons for the more moderate decline in oil production was the improvement in efficiency of fracking wells, as well as price discounts offered by service providers to the oil companies (Forbes.com). In addition, many oil producers hedged against falling oil prices (Reuters), which boosted profits. Now, with annual average oil prices predicted to rise by 16% in 2017 and oil production surpassing its 2015 peak in 2018, the question remains whether the CBR and the fracking sand shipments will rebound.

So far this year, there is an increase in carloads of fracking sand for Class 1 and regional railroads, as indicated in the AAR and RMI weekly reports. Based on reports from Class 1 railroad conference calls by a leading industry analyst, increased levels of fracking sand should remain.

However, the increase of CBR is expected to be minimal. One of the reasons is that the Dakota Access Pipeline became operational in March in addition to other pipelines finished last year. The Dakota Access Pipeline is about 1,200 miles long and connects the Williston Basin/Bakken region fracking wells to a hub near Patoka, Ill., and through to the gulf coast and Eastern U.S., according to EIA.

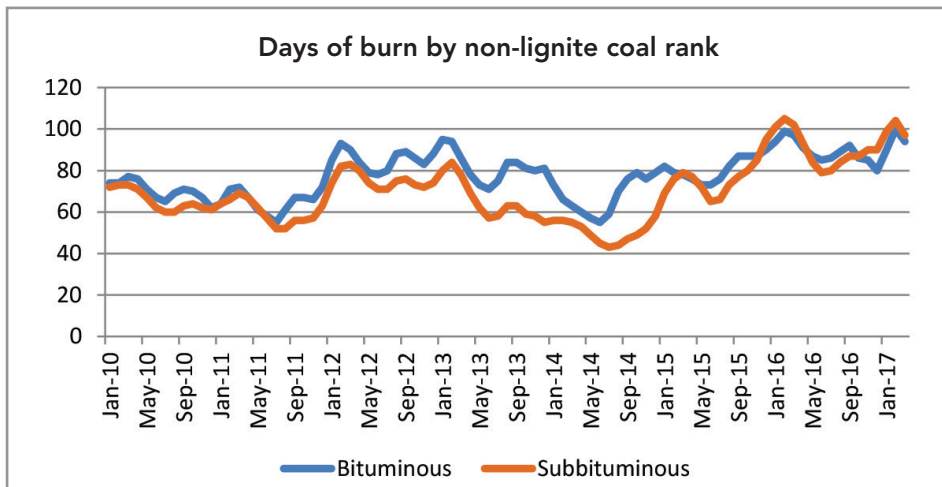
A research paper "U.S. Rail Crude Oil Traffic" by AAR indicates that over the last year the total pipeline capacity in North Dakota has increased from 31 percent in

2014 to 57 percent in 2016. As a consequence, CBR's share decreased from 62 percent to 32 percent. This points to another reason the production of oil hasn't declined.

With oil producers able to ship crude oil via pipeline instead of rail, their net margins

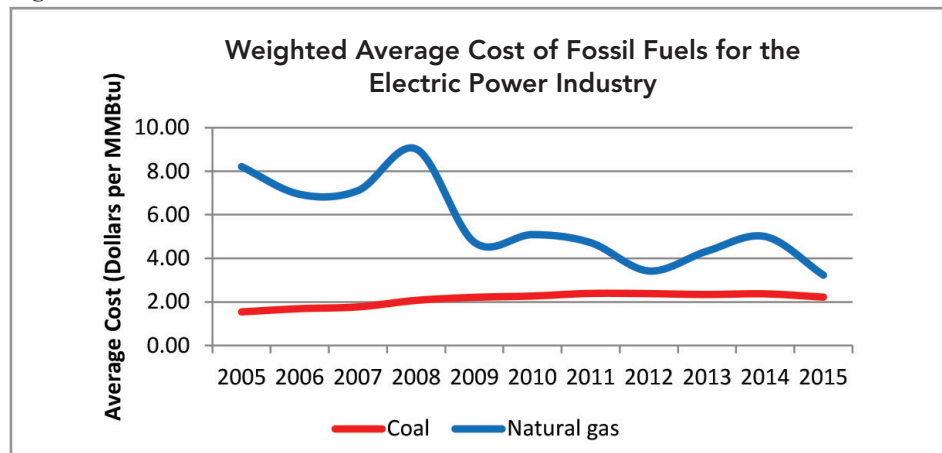
increased in range of \$1.5 to \$3.5 per barrel, according to an article titled "Dakota Access Pipeline Started Up With 50,000-b/d More Crude Oil Capacity" in Hellenic Shipping News Worldwide. The increase in operational pipelines, and the cost efficiencies

Figure 2



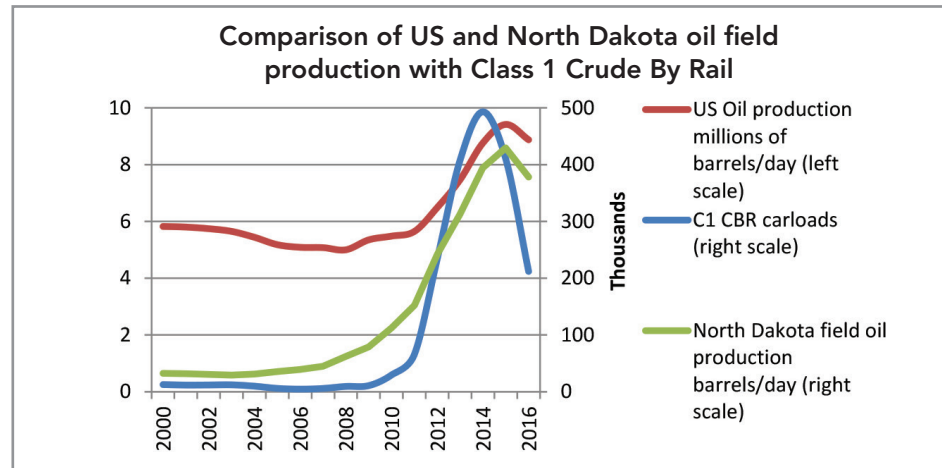
Source: EIA

Figure 3



Source: EIA

Figure 4



Source: EIA, AAR

they provide currently, could explain why CBR YTD declined for Class 1's even with rising oil production.

In the RTA forecast last year, the model predicted a total of at 23,026,000 ties purchased of which the Class 1 railroad portion was 16,557,000 and the regional railroad market portion was 6,449,000 ties. These numbers were similar in the forecast update of January 2017. However, the actual final purchases for 2016 were almost 1 million ties higher, according to RTA member reports. While the Class 1 demand prediction was well within the expectation, regional railroad market purchases accounted for the difference.

As a result, and as part of the forecasting process, the parameters in the small market equation were carefully analyzed. The RTA forecast team revised the econometric forecast model by adding a delay for the CBR equation to better align the model with real results. Table 1 shows the base case scenario forecast, and Tables 2 and 3 the upside and downside scenarios respectively. The new model suggests that although the 2017 forecasts remain largely unchanged, factors that could suppress growth in tie demand could continue to have an impact into 2018. ■

**BASE CASE TIE DEMAND FORECAST**

**New Wood Crossties (in thousands)**

Year	Real GDP	Class 1 Purchases	Small Market Purchases	Total Purchases	Pct
2013	1.7%	17,131	7,317	24,448	6.2%
2014	2.4%	15,931	7,083	23,014	-5.9%
2015	2.6%	16,566	7,417	23,983	4.2%
2016	1.6%	16,531	8,080	24,611	2.6%
2017	2.3%	16,013	6,545	22,558	-8.3%
2018	2.4%	16,652	6,496	23,147	2.6%

**UPSIDE SCENARIO**

**New Wood Crossties (in thousands)**

Year	Real GDP	Class 1 Purchases	Small Market Purchases	Total Purchases	Pct
2013	1.7%	17,131	7,317	24,448	6.2%
2014	2.4%	15,931	7,083	23,014	-5.9%
2015	2.6%	16,566	7,417	23,983	4.2%
2016	1.6%	16,531	8,080	24,611	2.6%
2017	2.4%	16,122	6,646	22,768	-7.5%
2018	2.9%	16,817	6,706	23,523	3.3%

**DOWNSIDE SCENARIO**

**New Wood Crossties (in thousands)**

Year	Real GDP	Class 1 Purchases	Small Market Purchases	Total Purchases	Pct
2013	1.7%	17,131	7,317	24,448	6.2%
2014	2.4%	15,931	7,083	23,014	-5.9%
2015	2.6%	16,566	7,417	23,983	4.2%
2016	1.6%	16,531	8,080	24,611	2.6%
2017	1.4%	15,833	6,430	22,263	-9.5%
2018	1.5%	16,294	6,262	22,556	1.3%

*Note: forecast is based on S&P's GDP, CPI, and oil price forecast, and on EIA oil and coal production forecast.*

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