
# Constrained Growth In the Crosstie Market

By Fred Norrell

This past year was unusual in that modest supply appears to have put a limitation on the wood tie market, contributing to a decline in purchases of about 7 percent. Although Class 1 track miles showed little change, Class 1 freight was up about 6 percent, so tie demand should have been robust.

Year to date May 2015, overall tie purchases are down about 1.7 percent from the previous 12-month period. But at this point, there are signs of weakness in demand. The Energy Information Administration (EIA) predicts U.S. coal production will decline by about 7.5 percent this year. Based on this, RTA's model predicts a 10 percent decline in coal shipments by rail.

EIA's prediction calls for a leveling off in coal production in 2016, but this scenario could be upset by rapid industrial switching from coal to natural gas.

Crude by rail was up by a modest 2 percent in 2014, but that was from a pretty high level. Crude oil (WTI) price plunged from an average of $84 last year, to about $50 now, and not much change is expected in the next several months. U.S. oil production is forecast by EIA to continue to grow (by 8.6 percent) through the current year but suffer a decline of 1.6 percent in 2016.

RTA's model predicts crude by rail shipments will follow a path very similar to production. North American Class 1 intermodal units are up 3.4 percent as of week 28 this year, but other freight is down by the same degree, resulting in a slight decline in total traffic. RTA predicts total Class 1 freight will remain weak through the current year, ending in a 1.4 percent decline. Standard & Poors forecasts economic growth to accelerate from 2.3 percent in 2015 to 2.7 percent the following year. This pushes RTA's freight forecast up 5.5 percent in 2016.

RTA's forecast of new wood tie purchases generally follows the economic growth forecast: slow in 2015, a little faster in 2016, as the table shows.

Tie purchases in the current year are especially slow due in part to lingering supply constraints. As of May, the inventory-to-sales ratio was 0.68 compared to an average of 0.79 for the most recent five-year period.

Although tie supply is not part of the RTA forecast model, constrained recent purchases represent an important variable. The Class 1 tie purchases forecast for 2016 reflects a recovery from supply constraints. On the other hand, the small market tie forecast suggests a maturing of gas and oil markets.

Crude by rail is predicted to have reached a peak in the near term. Summarizing, after a significant decline in 2014, RTA members should see a slowly recovering market in the current year, followed by a more robust market next year. ■

**NEW WOOD CROSSTIES (IN THOUSANDS)**

| Year approx | Real GDP | Class 1 Purchases | Small Market Purchases | Total Purchases | Pct |
|---|---|---|---|---|---|
| 2011 | 1.6% | 16,525 | 5,363 | 21,888 | 11.8% |
| 2012 | 2.3% | 16,968 | 6,054 | 23,023 | 5.2% |
| 2013 | 2.2% | 17,131 | 7,317 | 24,448 | 6.2% |
| 2014 | 2.4% | 15,931 | 7,083 | 23,014 | -5.9% |
| 2015 | 2.3% | 16,576 | 6,781 | 23,357 | 1.5% |
| 2016 | 2.7% | 17,528 | 6,623 | 24,151 | 3.4% |

# Purchases & Installs What Does It All Mean?

By Jim Gauntt

In an upcoming issue of *Crossties*, readers will learn that Class 1 railroads installed a little more than 1 million ties less in 2014 than in 2013. So, not only did purchases see a decline in 2014, actual installations of wood ties did also (Note: Alternative tie installations increased in 2014 modestly). Can all of that be blamed on short supply, or are other factors involved?

Installations are certainly affected by supply, but other factors can play significant roles as well. Some of these factors are capital reallocation to projects such as Positive Train Control expenditures and availability of maintenance and construction windows. To explain the latter, take as a hypothetical example that if a railroad deploys its available maintenance and construction forces in the Northern part of the country more exclusively, where the work season is shorter, it could affect overall installations.

While it might not be possible to completely rationalize all the factors for all railroads without detailed investigation, the fact is that lack of supply must play at least part of the role in reduced installations. This is especially true if one reviews RTA statistics for dramatic reductions in inventories that started in 2013, and considering that competing product installations actually improved in 2013. If this is the case, RTA members can most likely expect a little more of the same by the end of 2015.

While wood tie supply has improved in the Eastern United States, out West the story has been another year of incredibly difficult log supply due to continued heavy rains for much of the first part of the year. Many tie suppliers believe that the situation will begin to improve significantly with an improvement in the weather, but building air-dry inventories to healthy levels will take many more months. More on this in *Crossties* issues to come, but the photo here does give one an idea of what Western producers have had their fill of for most of 2015. Will constrained supply affect 2015 installs as well? We'll know more in early 2016, but it is hard to imagine a scenario where it wouldn't. ■

Any idea how wet its been in early 2015 and how it affects logging? This photo of a log truck, located 12 miles North of Camden Ark., somewhere near the Ouachita River, should answer any questions.

# RTA, University Of Delaware Announce Online Railroad Engineering Short Courses

The University of Delaware's Professional Engineering Outreach short course on Railroad Engineering, developed in collaboration with the Railway Tie Association, is now available.

These special online railroad and transit training modules have been produced so that students can absorb information at their own pace. Students are able to earn PDHs for completion of each module.

Busy professionals can log onto the course website any time of day or night during the course period to view the six archived course presentations.

Students can interact with other course participants and the course presenter will be available to answer questions via e-mail.

## The Modules

The first module is an introductory course. Course topics are broken into two parts. Part 1 addresses types of railway operations, including passenger and mixed; railway terminology; and AAR vs. UIC railroads. Part two will address the key elements of the rail system; railroad operations; locomotives; locomotive/train braking and supplemental systems; railway cars and coaches; freight cars; specialized passenger car systems and subsystems; and track rail and turnout.

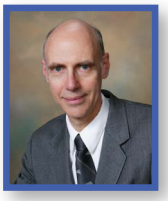
The second module addresses the function of railroad crossties. Course topics include an overview of railroad track structure; the role of the crosstie; the functions of the crosstie; the relationships between tie and ballast; key performance requirements for the crosstie; timber, concrete, steel and plastic/composite crossties and their failure rate; and differences in maintenance requirements and strategies.

The third module addresses engineering and design issues with the crosstie. Course topics will cover the engineering function of the crosstie and strengths and weaknesses and design of wood, concrete, steel and plastic/composite ties.

The fourth module will address degradation and failure modes for wood ties. Course topics will cover failure modes for timber tie track; life of timber crossties as a function of key track and traffic parameters (curvature, tonnage, climate, etc.); forest products failure distribution curve; determination of the rate of failure of timber ties; and the prediction of tie replacement requirements.

The fifth module will address the railroad load environment and the engineering of crossties. Course topics will cover railroad load environment; loading of the track structure in general; loading of the crosstie; vertical loads; load transfer from rail to tie; load transfer from tie to ballast; lateral loads; lateral forces on curves; longitudinal mechanical load; longitudinal thermal loads; magnitude of the loads on track; magnitude of loads on the crosstie; and the effects of these loads on the crosstie.

## The Presenter



Dr. Allan Zarembski joined the University of Delaware faculty several years ago as research professor and director of the new Railroad Engineering and Safety Program.

An internationally recognized authority in the fields of track and vehicle/track systems analysis, railway component failure analysis, track strength and maintenance planning, Dr. Zarembski founded and served as president of ZETA-TECH Associates Inc., a technical consulting and applied technology company in 1984, now an independent business unit of Harsco Rail. He is also author or co-author of more than 170 technical papers, 120 technical articles and two books.

For more information on accessing the modules and the special pricing for RTA members, contact RTA at ties@rta.org. ■