

# Banging The Drum

*Heralding the message was never more important*

By Jim Gauntt

I gave an information paper at the most recent IRG50 in Quebec City (reprinted on pages 12-13). I was joined there by Bob Fronczak, assistant vice president environment and haz mat for the Association of American Railroads (AAR), and other industry members to participate in a special session on protecting our vital wood infrastructure.

Everything from ties to poles to piling—all industrial applications of treated wood—was discussed, including disposition issues and concerns.

The paper is partly a look back at the past 35 years of RTA's history as a way to describe the enormous impact that companies can bring to market when they work together with one voice. If 100 years of history is any guide, RTA's staying power seems to verify that we have done a pretty good job for our members and the treated wood tie.

Nevertheless, retelling the 2-cent-per-tie story in context helps to remind us how, beginning in 1984, the leaders of RTA developed and implemented a plan to reinvigorate our association. Today, thanks to them and the leadership since, RTA has matured into a powerhouse for our industry.

What 2-cents-per-tie did was to create the wherewithal to do vital product development research and empower us with the tools to quantify RTA's impact in the marketplace. I am referring, of course, to the development of the tie industry economic data and analysis, which is now held in such high regard by politicians, railroads, Wall Street analysts and our membership.

I can take some credit for this move toward data-driven market analysis, but certainly not all.

In 1996, I asked a good friend, a retired industrial utility economist, to fiddle with our data and see if we could learn anything about industry trends. I use the lighthearted term "fiddle with" because neither of us had any idea where, if anywhere, it might lead.

As it turns out, the fiddling generated a symphony in the form an econometric fore-

**Less than a day's running log inventory for major mid-South tie producer June 6, 2019.**



casting model for tie demand. Furthermore, PricewaterhouseCooper (PwC) has now verified the model's output as part of the 2018 ASLRRRA economic impact study.

RTA has been asserting when the 45G tax credit is in effect that the result is approximately 1 million more ties sold by our members annually. And, according to PwC, we were right. How many associations can boast that they have provided a means to quantify this kind of economic impact for its members. Moreover, that analysis has helped ASLRRRA lead the charge on Capitol Hill to enact successive years of 45G from 2005-2018.

Think about that for a moment. At an average of \$100 cost per installed tie, that's an economic boon of \$100 million more in tie installations every year! It's roughly 5 percent more of the total market for new wood ties each year. For short lines alone it meant the ability to install 15-20 percent more ties annually. That's a major impact on the market if ever there was one.

With my friend now officially retired, RTA's economic work is now led by another friend. Petr Ledvina's brilliant economic work and analysis has resulted in improvements throughout the modeling and reporting of our industry's data.

Our industry analytics is the envy of many associations. Few have the prowess that RTA does when it comes to telling our story with hard verifiable facts.

But, that's only part of the story.

As you will read in the IRG paper that follows, 2-cents-per-tie generated funding

for multiple research and development projects and real-life commercialized product improvements to address early tie failure in high-decay zones. And, that work continues today with ongoing wood protection tests designed to find even more preservatives that could help wood last even longer. It has also allowed RTA to continue its ongoing work on tie disposition efforts and many other projects the paper, unfortunately, did not have the space to cover in greater depth.

At the moment, however, the data and economic analysis do not provide the best short-term prognosis for our industry. Railroading is strong. That's not the problem. The treated wood tie retains a 95 percent share of all new ties installed annually. That's not the problem.

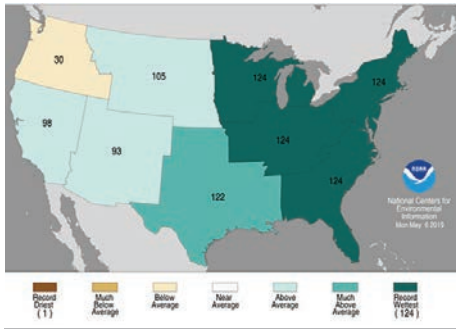
Supply is the problem. Less than optimal supply appears to be on the horizon for as far as the eye can see.

When the analysis of RTA's April data showed a further dip in the Inventory-to-Sales Ratio (ISR) to 0.64, it confirmed something we have been talking about for over a year.

Even in the face of a slowdown in tie purchases, which we believe to be only temporary, inventory has continued to plummet. Maybe the biggest concern is that air-dry inventories are so low and not rebuilding. Reports suggest that some regions are doing better, but I'm not so sure. Certainly, from what I saw during the Annual RTA Field Trip in Arkansas, the picture isn't pretty.

Wet weather is continuing to take its toll on log decks and production. And, if you ►

### Precipitation Ranking for the last 12-months including % above normal.



have seen any of our recent blasts, you know that there are some hardwood mills facing even greater impacts from China tariffs. For the first time since the Great Recession of 2007-2010 the cries of permanent, significant capacity loss are ramping up. By the time this is published, we will likely have seen a few more closures.

For more than a year, the data showed this as a probability rather than an abstract possibility.

Of course, no one could have predicted the turn of events that have brought the trade war to a stalemate. However, we have

been religiously pointing out the dangers of low air-dry inventories, in the face of continuing changes in weather patterns, to anyone who would listen.

Forget about why the weather is the way it is. Note only that since 2013 almost every single year has seen record-breaking rainfall in almost all of our major tie procurement regions. I have placed NOAA maps chronicling this phenomenon in my industry presentations since 2013. And, it hasn't really changed much since then (see map).

Yet, here we are. Lumber markets are drying up while we drown in the woods.

We are now seeing stop-orders on timber purchases. With drastically reduced lumber markets, sawmills can't afford to cut the logs they bid for. If the mill offers a lower price, the timber owner says, "I'll pass; I don't need to sell it that bad [at that price]."

What happens to timber availability when the owner decides to wait it out?

What will the logger have available to cut is now becoming as much a question as, "when can we get back in the woods?" The answer will be different in different regions,

but it is yet another constraint that could work its way into the supply equation.

We will revisit this in our next issue when we share photos and details from last week's RTA Field Trip to the Texarkana area. What we saw and learned from that networking event was tough to wrap one's head around.

One of the 50+ sawmillers in attendance who was asked to provide a welcome to the attendees was so emotional that he almost couldn't get any words out. He called it the worst time for hardwood sawmilling in history. In history! It was a sobering message.

Maybe six to eight weeks of drier weather will bring enough logs to help the mills and tie procurement limp by. Maybe the trade war will become a thing of the past tomorrow.

One industry friend noted that supply would always conform to demand. The question is how much pain is inflicted along the way and when will equilibrium be reached.

Even if the next presidential tweet resolves a lot of issues, tie supply will be stuck in the mud for some time to come. ■

## On The Subject Of Modeling...

Some people operate under the assumption that using an econometric model to develop a forecast does not require maintenance. However, models are living entities. They are constantly reviewed and adjusted as new data comes in.

As reliable as the RTA econometric model has been over the years, some often get a false sense of security that what the model outputs for tie demand is what that tie purchases will be. And with good reason. Often, predicted demand correlates very well with actual purchases.

However, there are times when 'factors unexpected' change the way we have to look at things.

An example is the addition of the 45G Tax Credit for short line infrastructure investment. When it came into existence, we all hoped for a positive impact on tie demand.

But how could a data-driven computer model account for how much? We finally gathered enough data, because it was in effect long enough, that we were able to

model that, too. But there for a while, tie purchases were higher than the pre-45G model predicted because 45G created a new, significant and "unexpected" impact.

Another example is weather. Try to model that. Then, try to model what impact short tie supply, due to weather or other unexpected factors, will do to purchases. You can sell only what you have.

Thus, demand is not reflected in actual purchases. Demand is a fundamental output of what should be purchased based on past information. It isn't a predictor of what the rail industry will be able to do with its capital when faced with unexpected concomitant events.

Yet another example is PSR. We all have seen when a railroad adopts a PSR-style operating mantra that it can have a temporary negative impact on tie purchases from that railroad. But how much? And when does the demand return to meet or even exceed it as has been in the case with CN?

It should be clear from these examples that a model can only forecast what

demand should look like and is reliant on the quality of data and assumptions made for the input variables.

While the model is continually monitored throughout any given year, May/June is when RTA recalibrates it based on AAR Class 1 install data for the previous year. It's the time to do a deep-dive on the equations and variables used. And often, we have the mid-year update with the recalibrated model's forecast ready for this issue.

The analysis this year, in light of the many "factors unexpected," is taking a little longer to complete. Thus, the analysis and new forecast for 2019 and 2020 will have to wait until the next issue.

We can, however, give you a glimpse into what it will contain.

Remember the significant impact 45G has on tie demand? And, remember that it seems like forever that 45G is retroactively renewed and then also extended for a year?

Well, in early 2018 the retroactive part happened, but the extension did not. ►



Did we have a kneejerk reaction? No. And did we do what seemingly we have been doing forever—did we include 45G's effect on demand in our 2018-2020 forecast? Yes, we did. And by the time it became clear we would not see a retroactive renewal of 45G, it was already 2019.

When we recognized this in early January, we did not have enough data to go on to do a restatement of the 2018 forecast. We did what we usually do. Gather more data and recalibrate it once the AAR installation data, usually provided in April of each year, is received.

As usual, our 2018 Class 1 forecast was spot on. But, as we all could see from 2018 year-end data, the smaller segment of the market, which includes short lines, did not produce the demand we would normally expect when 45G is in effect.

Thus, in our updated forecast, members will see a retroactive downward restatement of 2018's forecast that takes out the 45G effect. And, we will now not include the 45G effect going forward in the 2019 or 2020 forecast. This will require a significant downward adjustment of the demand forecast.

None of this should be a big surprise if you look at the data that we have through April (the most current at the time of this writing). To date, the 12-month rolling total of purchases is tracking at 20.7 million ties, not 22+ million.

Also, there are other factors in play that have had an effect and that we may be able to capture and use in the model. That's why the revisions are taking a little longer this year.

Track mileage is down nominally, for example, and the Dakota Access pipeline may be having an effect on crude-by-rail traffic and revenue planning. There may be other factors as well. The takeaway is that the small market equations are undergoing a rebuild to include the most reliable inputs that affect demand.

The most important thing to note from all of this is that it's just revising the forecast numbers. Reality is still reality. The actual reported monthly data is what it is, and the model's output will reflect the new landscape.

If you start recalibrating your thinking to a tie demand for 2019 closer to 21 million ties you'll be in the ballpark. ■

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# Economic & Alternative Preservative Research With Overview Of North American Wood Tie Market Dynamics

by Jim Gauntt

*The following was prepared for the IRG50 Scientific Conference on Wood Protection, held May 12-16, 2019, in Quebec City, Quebec, Canada.*

**R**TA has tracked wood tie usage for 100 years. By 1987, the need for RTA to accelerate both economic and wood preservation research reached a critical point as a result of increasing competition from alternative tie materials. This ramp-up in initiatives was made possible largely due to the advent and impact of the 2-cent-per-tie dues structure where members voluntarily reported confidential production data on a monthly basis and paid their dues accordingly. With this new funding mechanism in place, and monthly member reports providing consistent production information, partnerships with the *Hardwood Market Report* (HMR) and the Association of American Railroads (AAR) were formed. These partnerships allowed the use of proprietary historical pricing and tie installation data to develop highly correlated tie demand models.

Over the course of the next 20 years or so, the RTA econometric forecast model and data, which was reviewed and verified by PricewaterhouseCooper (PwC) in 2018 for the American Short Line and Regional Railroad Association (ASLRRRA), was refined and developed into a powerful legislative and economic tool. ASLRRRA's legislation initiatives to create tax incentives for railroad infrastructure investment were thus supported with RTA's hard data. This tax incentive legislation, known as 45G, has been consistently enacted with bipartisan support for over 10 years. Furthermore, 45G has boosted tie demand by approximately 1 million ties annually with a projected total economic impact in the marketplace now approaching \$1 billion (USD).

With a revitalized RTA also came the resources to conduct new product development research to address issues with early tie failure. Crossties, especially commercially important refractory species placed into service in high-biological deterioration regions, were failing in as few as eight to 12

years, rather than providing service in-track at the industry average life of 35 years. To address this, RTA partnered with Mississippi State University (MSU) and AAR in 1987 to research the application of disodium octaborate tetrahydrate (DOT, borate) as a pre-treatment for wood ties as part of a dual-treatment regime.

The positive outcome of this research led to initial large-scale commercialization in 2004 for two Class 1 railroads, with widespread adoption of B-C dual-treatments in 2010-2011.

As use of these and other iterations of dual-treatments expanded, RTA, wood preservative manufacturers, and railroads partnered in 2008 to initiate further research to explore more alternative standalone and combination wood preservative treatments. That research has continued with projected end-points in 15-20 years of the two phases.

In this research project, concurrent duplicative tests are being conducted with full-sized ties. One site is in American Wood Protection Association Decay Hazard Zone 4, where it is also inhabited by native subterranean termites, and the duplicate site is in Decay Hazard Zone 5. The Zone 5 site not only has native subterranean termites present, but also is infested with Formosan Subterranean Termites (FST). Over two dozen wood preservative systems using multiple deciduous species used by railroads are being investigated.

RTA's economic research has also continued and been further enhanced to create powerful tools for railroads and producers of ties. These tools are now presented in snapshots to illustrate how users and producers may more easily forecast and plan for future marketplace dynamics.

The economic research team at RTA also offers in this presentation a brief review of the economic value of larger-scale implementation of dual-treatment technologies 15 years ago. A 2011 paper by Dr. Allan Zarembski of ZETA-Tech and the University of Delaware, suggests that the net present value of widespread implementation of dual-treatment processes could be as high as \$13-15

billion (USD) over the ensuing decades.

Anecdotal evidence suggests that certain benefits of longer tie life in high-decay areas are now materializing. AAR's recent survey of end-of-life tie disposition practices revealed the major shift in crosstie purchases that has been occurring in the last 15-years. Over that time period, railroads have shifted approximately half of all their new tie installations from single-treatment preservation to dual-treatment processes. Furthermore, the anecdotal evidence suggests certain roads are beginning to reap the benefits of longer tie life. This becomes increasingly critical to the continent's overall economic growth as freight movement will expand in the United States alone by 37 percent over the next 20 years (source: U.S. Dept. of Transportation). If a nominal amount of CapEx spend begins to shift from maintenance to new construction projects because of these accruing benefits, it may help railroads meet the growing freight transportation needs across the entire continent over the next 20 years.

In many ways, it could be said that the wood tie industry, which still accounts for approximately 95 percent of all new ties annually purchased and installed, has played a role in the resurgence of the North American rail industry. In addition to assisting with the fight to deregulate railroads, resulting in the passage of The Staggers Rail Act of 1980, the economic impact RTA and its members' actions have delivered over the past 35 years on behalf of North American railroads are hard to understate. Improved technologies and tools that have been developed continue to provide producers and users measurable economic value that has been verified in independent studies.

Advancing new technologies, while also tracking the economic impact of their commercialization, is a prime mission of associations in general and RTA specifically. In this case, these new technologies allow wood to remain the most cost effective, robust eco-friendly tie material available now and for the foreseeable future. ■