

Proper Tie Disposal And Reuse Practices Hinge On **Cradle-To-Grave** Approach

By Alison Mitchell

Editor's Note: This is the second in a series of articles addressing the issue of tie disposal and reuse. The efforts of three Class 1 railroads—Canadian Pacific, Burlington Northern Santa Fe and Norfolk Southern—are discussed below.

Tie disposal and reuse is an issue that faces the railroad industry daily. As the nation's Class 1 railroads replace spent ties in track, they must find ways to dispose of them in a manner that is both economically and environmentally sound. Many railroads, such as Canadian Pacific Railway (CP), have instituted "cradle-to-grave" solutions for managing scrap tie disposal. These programs set forth a plan for managing crossties from their placement in track until their disposal, ensure compliance with state and federal regulations, and benefit the railroad economically as well.

Methods Of Tie Disposal And Reuse

T. Preston Painter, engineer of track and materials for Norfolk Southern (NS) railroad, said that the issue of tie disposal and reuse has changed during his tenure. "It used to be that we got rid of old ties by selling them to anybody; many methods were used," he said. "Now, there are more environmental concerns to consider. Our company complies with the environmental standards set to handle scrap ties."

"In the past decade, more parties have become interested in scrap ties for fuel, and



Continental Biomass Industries' Magnum Force grinders, such as the one shown above, help tie processing companies convert old railroad ties into usable material for cogeneration plants.

there has been an increase in the number of facilities established or modified to burn creosote-treated wood," said Don Johnston, system material manager – projects for Burlington Northern Santa Fe (BNSF) railroad. "BNSF has investigated the use of these crossties for landscaping timbers and has vendors/purchasers that will sort the removed ties into categories for reuse. The other category is ties that will be used as alternative fuels."

According to Johnston, approximately 35 percent of ties removed from BNSF track go to landscape companies, while the remainder are sent to cogeneration facilities where they are converted into fuel. "Several commercial operations use wood and wood

"Because the used crossties are all being reused in some fashion, they never become a regulated solid waste."

wastes for fuel. With proper air permit modifications and, in many cases, little equipment modification, the ties can be burned to supply heat or steam for a facility. Those facilities could be coal fired electrical generators, timber companies, cogeneration plants, cement kilns and other similar operations," he said.

Johnston continued, "Systems have been established to collect, sort and transport the used crossties to various destinations across the BNSF system. They are delivered to the various operating facilities as fuel. Because the used crossties are all being reused in some fashion, they never become a regulated solid waste."

Johnston said that BNSF has investigated the disposal activities and costs associated with managing, handling, transporting and disposing of used crossties and solid waste. "The concern of extensive

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future liability for disposing of the used crossties in landfills has become a significant driving factor," he said. "When a municipal landfill encounters environmental problems like leeching pollutants in groundwater, the environmental agencies look to industrial contributors to clean up the solid waste landfills. Costs for clean up are generally divided based on tons of waste for each contributor. It only takes 13 to 14 crossties to make a ton. These clean-up costs can be in the millions of dollars."

Motivated by a greater awareness of environmental impact and difficulties in mitigating the liabilities associated with mismanagement of ties by contractors, CP decided to discontinue selling or giving away spent ties for landscape purposes or other non-railway uses, according to Marie McNeil, asset disposal specialist. "All rail ties that can no longer be used in a railway track are shipped to cogeneration facilities for use as a supplemental fuel. This 'waste-to-energy' program not only minimizes the use of landfills but is a win-win and an economically viable solution for both CP and cogeneration facilities," she said.

Increasing Use Of Spent Ties As Fuel Source

Johnston, McNeil and Painter all said that they expect ties to increasingly be used as a fuel source in the future. "Ties as a potential source of fuel for cogeneration facilities have become much more viable as costs for gas and coal have increased," Johnston said.

"However, in order for them to be viable, the cost of pick up and transportation to the cogeneration facility must be covered in the price vendors are willing to pay for the tie as a fuel source."

According to McNeil, transportation and logistics are two great obstacles to tie dis-

and logistics are just part of the daily work that has to be done on a railroad.

"Transportation and logistics are both problems for the railroad in terms of tie disposal and reuse," he said. NS uses a contractor to pick up, sort and transport discarded ties to various facilities, but NS does provide rail cars to transport ties to grinding facilities.

Solutions And Conclusions

Railroad officials said that mobile services or possibly several regional entities that could burn or dispose of ties might be the solution to transportation challenges.


"Several regional entities would reduce costs," McNeil said.

"The development of cooperative agreements between Class 1s for transportation of treated ties would further reduce costs by ensuring that those facilities that are permitted to burn treated ties and are located off-line are accessible at a reasonable cost."


Johnston said, "Ideally, there would be several cogeneration facilities located throughout the United States that are capable of burning ties that have access to scrap ties from all railroads in the area. They must have some kind of consistent supply."

All agreed that ties appear to be a great renewable source of energy as long as

logistics can be streamlined and disposal facilities can be closely matched. As Johnston said, "This is true, as long as wood remains the primary material of which crossties are made and disposal by cogeneration remains the chief means of disposal." §




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