

# BIOMASS MAGAZINE

The World of Biomass at Your Fingertips



From the April 2009 issue

## The Politics of 'Dirty' Wood

Pressure-treated and painted, or what is commonly referred to as "dirty" wood, is often off limits for productive reuse and relegated to landfills. Stakeholders in the construction and demolition industries talk about the politics and economics holding back the potential these prolific waste streams possess in the renewable energy sector and, more importantly, what can be done to make use of this resource.

by Ron Korbba

New Hampshire banned the use of construction and demolition (C&D) waste, whether it's clean, unadulterated wood waste generated at construction sites or "dirty" wood—the pressure-treated and painted variety of lumber. In Massachusetts there is a moratorium on using C&D waste. In Portland, Ore., the city prohibits any use of painted or pressure-treated woods except in "incidental" quantities. In New York, the state court of appeals shot down an appeal from a biomass plant that wanted to burn clean wood chips in the case of Laidlaw Energy & Environmental Inc. v. Town of Ellicottville. The appellate court upheld the trial court's refusal to accept the biomass plant status in permitting as being "carbon neutral" because the company did not have a "sustainable fuel source management plan" in place; and the court argued that the distance the chips had to be transported hadn't been considered in the company's revelation of the plant's carbon footprint. Obstacles exist prohibiting the use of dirty wood—and in the Laidlaw case clean wood—in local and state regulations across the United States. Despite these prohibitions on the combustion or burning of these types of materials, the C&D industries keep generating it. So what should be done with all this wood?

According to Jim Taylor, president and chief executive officer of Taylor Biomass Energy LLC and head of the Construction Materials Recycling Association, the material received by a C&D facility, where sorting and separating mixed debris occurs, on average is about one-third clean and unadulterated wood; one-third glued and pressed boards; and one-third pressure-treated and painted woods. For Taylor, the politics behind the limited outlets for dirty wood are more than just regulatory in nature. As a businessman, Taylor has personal politics to contend with, and as president of the CMRA he must consider the politics of the industry he represents.

His company is expecting to break ground this spring on a state-of-the-art biomass gasification plant in Montgomery, N.Y. Unlike the oxygen-rich combustion of dirty wood for energy in a boiler or incinerating it at a burn plant, gasification holds a lot of promise for increased utilization of dirty woods. The anaerobic or oxygen-free environment significantly reduces emissions, which is much less costly than controlling emissions at the back end of the plant. "I know many of my industry counterparts are capable of burning or combusting painted or pressure-treated wood," he says. Even so, Taylor says he's made a personal choice not to use dirty wood to fuel his new gasification facility. "We wanted to develop the most environmentally sound process out there today and, by keeping pressure-treated and painted woods out, we believe we can do that," Taylor says. "From our approach, we are voluntarily staying out of the pressure-treated and painted woods market." He says it's not a decision based on regulations, or policy. "It's a personal decision."

Taylor tells Biomass Magazine, "Our waste chronology is to reduce, reuse, recycle and recover the energy content, and landfill or incinerate last. That's how I drive my business."

### Dangerous Emissions?

Shane Carpenter with Continental Biomass Industries Inc., a company in New Hampshire that engineers and sells industrial biomass processing equipment, says even though emissions from gasification are much less abundant and dangerous than effluent from combustion or incineration, there is a deficiency in gasification technologies proven to work on a large enough scale to process more than a thousand tons a day. And, with a growth-stunting recession in full swing, the cost is definitely a concern. Tad Wollenhaupt, president of Massachusetts-based All One Inc., a company that develops industrial dust and odor control systems, says to build a 200-plus ton per day gasification plant it could cost more than \$100 million. "For these projects it is about economics—that's my opinion," Wollenhaupt says. Carpenter adds to this, saying, "Economics is a big factor, yes, but we probably have not focused enough on the politics involved, the local politics. People are saying, 'I don't want this stuff being burned in my backyard.' I think there's this feeling that the emissions coming from utilizing this type of dirty wood are very dangerous."

In September 2007, the University of New Hampshire published a comprehensive paper on the life-cycle analyses of C&D woods, in which the authors leveraged existing research along with data from Greg Wilsen of Green Seal Environmental Inc. to profile the emissions from clean and dirty C&D woods in different applications. "A facility with an advanced air pollution control system combusting 10 percent C&D derived biomass mixed with virgin wood had lower dioxin emissions than a facility combusting 100 percent virgin wood," the authors wrote. "Furthermore, the levels of arsenic and dioxin emissions were well below levels found at municipal solid waste combustors and below all applicable regulations."

Arsenic is used when manufacturing pressure-treated wood, and is one of the concerns about using that material. In addition, the UNH study cited University of Maine test data that compared emissions from burning three different concoctions of fuel: 100 percent clean wood; 90 percent clean wood with 10 percent C&D wood and "penta (PCP)-treated" wood; and 50 percent "penta (PCP)-treated" wood and 50 percent C&D wood. "In all cases, the stack emissions during the trial burns were far below Maine's ambient air guidelines and

New Hampshire stack emission limits," the UNH paper states. "A facility equipped with an advanced emissions control system combusting 10 percent C&D wood with 90 percent virgin wood had levels of arsenic and dioxin emissions "well below" levels detected at municipal solid waste (MSW) combustion plants "and below all applicable regulations."

"From a [British thermal unit] basis, you need 2 tons of whole tree chips per 1 ton of C&D," Wilsen says. "So there's actually the potential for more emissions using whole tree chips," because twice as much needs to be burned to produce the same amount of energy.

### New Ways to Use an Old Problem

Taylor, who has decided to exclude pressure-treated and painted woods from his commercial-scale gasification plant once it is operational, says he will still use woods with crosscut and glue, and he has a plan to deal with the dirty wood. "We're going to find new uses for pressure-treated and painted wood in a new wood product," he says. "We're finding another recycling avenue for pressure-treated and painted woods." When asked for specifics, Taylor says, "Talk with me again in three months." Perhaps one avenue for these materials is to chip them up and, with the application of glue, make press board.

In places like Maine, where Wilsen says some pulp and paper mills with the right pollution controls can burn dirty wood—"hogged fuel" as it's called because the wood is ground up in a "hog" grinder—the solution could very well be dilution. Wollenhaupt backs this up in reference specifically to MSW-to-energy plants. "You could mix C&D wood into these trash-to-energy plants and gain some energy value out of it," Wollenhaupt says.

"That's a whole different industry," Carpenter says, referring to MSW plants. "Maybe they're slow in wanting to commingle their solid waste with the wood we're talking about, but I think a mixture would be great. And I think it would really alleviate a lot of questions as to where this wood should go. Ultimately we could really sort of loosen up some of the restrictions and get some of these MSW plants onboard—and there's like 70 or 80 of them around the country. If we started looking at what they could do with some of this material, it would help to alleviate some of the strain these C&D process facilities have on them; specifically the transportation costs that are included with having to get rid of this material—it's huge. But we're not there yet. It would be great to create some conversation between these waste-to-energy facilities and the recycling associations—the CMRA—about creating a fuel that would make sense for both entities."

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