



Turning bug wood into bioenergy

B.C.'s Trace Resources is taking one heck of a lot of beetle-killed timber and turning it into fuel for the co-gen plant at the Domtar pulp mill in Kamloops.

By Paul MacDonald

A relatively new player in the British Columbia Interior is quietly taking a resource of little wood products value--mountain pine beetle killed-timber--and turning it into fuel that helps power the province's forest industry.

In the fall, the air in the B.C. Interior is usually thick with smoke, from the burning of slash piles that have accumulated for months. This has especially been the case in recent years, with the large amounts of wood killed by the mountain pine beetle.

But there was a bit less smoke floating around this past fall. For just over a year, Trace Resources of Merritt, B.C., has had its equipment on the job, two grinders that are methodically and efficiently chewing up beetle wood that would have been previously burned in the bush.

In the process, Trace Resources is producing biomass fuel that is used by the co-gen plant at the Domtar pulp mill in Kamloops, B.C. to produce electricity. And some of the fibre is also being used to heat vegetable greenhouses around the Vancouver area.

The two individuals who own Trace Resources--Ron Racine and Dan Eaton--have extensive industry experience. Racine has worked at several Ministry of Forests offices at the district level. And for the last decade, Eaton has run a logging contracting outfit in Merritt, Jaeden Resources.

Though they come from different parts of the industry, Racine and Eaton (who are long time friends), both saw the opportunity for producing biomass fuel in B.C.'s Southern Interior.

"We talked a lot about the opportunities before we set the grinder business up in the fall of 2008," says Racine. "We tracked developments in the industry--and we could see the direction the province is going, and the changing fibre needs of the industry."

There has been growing interest by provincial utility BC Hydro in using wood fibre to generate power. And with oil prices starting to nudge their way higher this year, there's growing interest in the private sector in tapping into wood energy.

Hit by the swings in the price of natural gas, B.C.'s growing greenhouse industry also has a high interest in burning residual wood to heat the greenhouses dotted around Greater Vancouver. The greenhouses got stuck in 2008 when natural gas prices hit the roof--peaking at more than \$13 per thousand cubic feet on futures markets.

Although prices have moderated considerably since then--natural gas was recently trading in the \$5 per thousand cubic feet range--the greenhouse industry remains interested in alternative forms of energy. Trace Resources currently has fibre supply contracts with two Lower Mainland greenhouse operations: Windset Farms of Delta and Rainbow Greenhouses of Chilliwack.

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But just as the demand for fibre for power is growing, the supply has actually diminished.

Due to poor lumber markets in the United States, B.C. sawmills have been struggling for the last several years. This has meant complete mill shutdowns in some areas, and fewer shifts at other mills. This all translates into less residual wood being available at sawmills.

The door seemed open for meeting market needs through an in-the-bush grinding operation.

“There are a number of factors at work in the market right now, some of which are complementary to what we are doing with our grinding operation, some of which are conflicting,” says Racine. “But at the base, it’s all about supply and demand.”

Racine says he and Eaton see natural gas prices going up. “That’s our thought--we know there is lots of natural gas supply right now, so it’s not going to spike in the short term. But our expectation is that those prices will go up.” All it takes, he notes, is a cold winter in eastern North America, and gas prices could shoot up.

In terms of supplying wood biomass for energy generation in the forest industry, Trace Resources has found a steady customer in the Domtar pulp mill in Kamloops. The mill had been facing a shortfall in supply due, in part, to the closure of a Weyerhaeuser sawmill right next door to the pulp mill.

“It wasn’t just the closure of one facility that caused the reduction in supply,” explains Racine. “It involved a number of mill facilities and the whole changing dynamic in B.C.’s southern Interior.”

In addition to producing ground biomass for the greenhouses and Domtar, the company also produces wood chips and other forest products. “I characterize Trace Resources as fibre margin maximizers,” explains Racine. “What we do is make sure the fibre we work with goes to the highest margin. If we can extract peelers from logs, that’s where the log will go if that is the highest margin. Some may go into the sawlog market. Then, the fibre market and the chip market.”

Trace Resources has been operating two portable grinders, both of them Bandit 3680 machines. One is tracked, the other on rubber wheels.

“Typically, the 3680 grinders are operating in the slash piles left over from primary logging, basically working with the tops that have been left behind.” All the sawlogs have been taken out; there may be some pulp logs, depending on the wood utilization at harvest.

The Bandit grinders have worked well for the company, Racine says, delivering good uptime. “Keeping on top of maintenance is key,” he added. “The grinders produce a lot of dust and that needs to be blown out of filters and rads on a regular basis. It takes almost two hours at the end of a shift to maintain the machinery so it’s up and ready to go the next time.”

This past November, the company added to its equipment line-up with the purchase of a Peterson 5710 grinder. Racine says the Peterson 5710’s reduced loading time--with its higher horsepower--is advantageous because it helps maximize the use of limited trucking resources, plus reduces trucking costs.



The majority of the wood they are working with in the bush is kind of bottom of the heap. In other words, it's typical slash. "The majority of it is beetle kill slash. It has its own characteristics--it's dry and cracked unlike green slash."

But dry is a good thing, says Racine. "The dry wood does create dust and you have to be careful your equipment does not start fires or gets set on fire, but dry is good from a fuel perspective."

When the dry biomass fuel is burned, it takes less energy to draw what little moisture remains before it's burned in the boilers. "Low moisture content is good," says Racine. "We call the really dry stuff we produce Rocket Fuel. And most of it is dry stuff."

While there is no shortage of fibre for potential fuel in B.C., the challenge remains the economics of transporting that fibre.

"Transportation is one of the biggest costs and challenges with slash," says Racine "It's exactly like any commodity; you can only economically transport it so far. If you're not close to a facility that can use that material, it's still going to be burned in the bush."

The line between economic and uneconomic transportation can vary, he adds. It would be different for each facility, depending on supply and demand.

Just as the areas of operation can be dynamic for biomass producers like Trace Resources, so can their operations. "We have the grinders basically working two shifts, but that depends on where we are and how we can use the grinders. The rubber-tired machine is a lot less mobile than the tracked machine."

Wherever the equipment is operating, they want it to be available as much as possible, which reinforces paying close attention to maintenance. "You have to have well maintained equipment, you have to have good equipment and you've got to have great operators," says Racine. "We're fortunate in that we have that mix."

Trace Resources has been able to build on the relationship that Dan Eaton's contacting operation, Jaeden Resources., already had in place with Aspen Planers, a mill operation located in Merritt, B.C. Jaeden Resources is Aspen Planers' largest logging contractor.

Working closely with Aspen Planers and Domtar is key to the success of Trace Resources, says Racine.

"This business is all about relationships," he says. "You need to do a great job on the landbase, whether it's using residual material for chipping or grinding. But you need to have good business relationships, and what you are doing needs to work for them." An example is making sure slash removal fits well with silviculture plans.

A big part of that is building the trust that--come hell or high water, equipment downtime or not--Trace Resources will deliver the goods to Domtar and other customers. "Domtar has a co-gen plant to fuel, and they can't be running out of fuel