



Pushing pellet production up

An upgrade to the Enligna Canada wood pellet operation in Nova Scotia will deliver better efficiencies and result in an increase in production of 25,000 tonnes, a timely move since the demand for wood pellets remains strong.

By George Fullerton

For Enligna Canada, a recent upgrade to the company's wood pellet operation has already started delivering results.

Fraser Gray, the president of Enligna Canada, says that the \$2.4 million investment in improvements to their Musquidobit, Nova Scotia, plant will give them greater efficiencies and push their annual production from 80,000 metric tonnes to 105,000 tonnes. The timing for the increase in production is good, as the demand for wood pellets continues to be strong.

But Gray added that in addition to producing a valuable green energy product, the Enligna plant also plays an important part in the Nova Scotia forest sector by providing a market for low grade wood and underutilized species.

“Our operation provides a market for underutilized species and for logs that are not suitable for lumber and pulp mill consumption,” he explained. “We can utilize crooked and low grade wood that sawmills cannot use, wood that otherwise is very often left on the roadside.

“We are also important from a silviculture perspective because we are a market for those under-utilized species that otherwise are usually left in the woods—species that occupy land that might be growing a higher demand and higher valued species.”

Enligna received a \$2.4 million loan from Nova Scotia Business Inc. in 2009 and carefully invested that money in the facility, adding a fifth pelletizer, purchasing a new CBI horizontal grinder, a Liebherr loader, adding paving in the plant yard, and making general improvements to the plant.

Enligna is the third largest wood pellet producer in Nova Scotia, employing 58 people directly, and boasts an employment multiplier effect on that number in the range of 10 to 1.

The Enligna plant was originally built by MacTara Limited, which owned a sawmill (at one time the largest in eastern Canada) across the highway. MacTara built the pellet manufacturing operation to utilize mill residues from their lumber operation. Like so many Canadian sawmills, Mac Tara struggled with the market decline and financial challenges. The company ultimately ceased operations.

When officials from Enligna's headquarters in Germany were on an exploratory trip to eastern Canada looking for opportunities to invest in pellet manufacturing, they visited the MacTara facilities. They ended up buying the assets and taking over the pellet manufacturing operation.

While the short log and the long log lines sit idle, Enligna continues to operate the front end of the sawmill as a pulp chip manufacturing operation, purchasing around 100,000 tonnes of softwood and shipping the chips to the Northern Pulp



Nova Scotia mill at New Glasgow.

Residue from the softwood operation is sent by conveyor across the highway to the pellet operation. The total consumption for the chipping and pellet operation is more than 300,000 tonnes annually.

Miles Wright, vice-president of the Musquidobit operation, supervises the day to day operations of the pellet operation and oversaw the 2009 improvement project.

“The new CBI 6400T grinder does a terrific job of grinding whole logs, mostly hardwoods, to a fine and uniform product,” he says. “The CBI has a four-knife chipper head, and 1050 hp. The chip size is very small and is cut across the grain. This allows us to increase the volume through our hammermills.”

The CBI grinder currently produces 75 to 90 tonnes per hour, and operates 40 to 80 hours per week depending on the blend for pellets.

“The new Liebherr 904 unloads trucks and feeds the grinder,” Wright added. “The loader operator remotely controls the functions of the grinder, which makes things very efficient and productive”.

Material from the grinder is moved through the yard by Volvo L90 loaders with nine yard buckets to the infeed section of the plant, where it is mixed with residue (primarily bark) from the chipping operation. Loader operators mix the materials according to an assigned recipe according to the nature of the wood that is currently utilized.

The mixed material is hogged through an 800 hp Jeffrey hog and then moves to a MEC dryer. Heat for the dryer is supplied from a 65 million BTU wet fuel furnace, and the hot air enters the horizontal dryer at 1200 to 1300 degrees Fahrenheit.

The dry material is moved by screw conveyors from the dryer drop out box, and fines are pulled to collection cyclones. The dry material is de-stoned by a combination of vibrating screens and forced air. The clean dry material is transported by belt and screw conveyors to two 500 hp Sprout Andritz hammermills that ensure the particle size is less than two centimetres.

“The yard paving improves our overall production efficiencies and more importantly, helps us to keep logs and material from the CBI clean and dirt-free. If we keep the dirt and rocks out, we can spend less time eliminating them in the process,” explained Wright.

The improvement project included replacing one of the original four Andritz pelletizers and adding a fifth Andritz pelletizer. Horsepower on the original pelletizers was also increased from 400 to 500 horsepower in order to handle hardwood fibre, which currently makes up a larger portion of the fibre mix. Each pelletizer produces between four and five tonnes per hour.

Enligna also built a new cooling system to lower the temperature of the finished pellets before they go into the shipping bins.



“It takes only four or five people to operate the pellet mill,” said Wright. “I like it when I come in the control room and see the plant operator reading the newspaper, because then I know everything is working well.

“And when I visit the control room, I’m not surprised to see the loader operator sitting at the monitors running the plant. We try to cross train everyone, since it allows everyone to understand all aspects of the operation and it creates an atmosphere of co-operation, and a focus on safe, efficient operation of the plant.”

The improvement project also included installing multi-cyclones and explosion venting. Grecon spark detection zones were also added to the cooling system and to the conveyor leading to the 300 tonne pellet storage.

General safety—especially fire safety—has a very high priority with Enligna. Wright has made an effort to visit many pellet plants across North America and takes a special interest in scrutinizing fire and explosion avoidance systems.

“Our plant is quite spread out,” said Wright, “which is the design that the MacTara owners wanted. That was, in part, because they had experienced a sawmill fire and they decided that with a spread out plant, there is the opportunity to fight a fire in one section, without having the whole plant involved.

“If the whole plant is under one roof, there is a serious chance that the whole thing can be lost. Another thing MacTara built was a water reservoir on the high land behind the mill site—it can give us a lot of water at high volume with the turn of a valve.”

Enligna operates their plant on a 24 hour per day schedule, six and a half days per week, with Tuesday daylight hours set aside for maintenance.

Pellets are hauled by Gerald Battist Trucking which uses bulk grain B-trains that deliver 40 tonne loads to the Port of Halifax grain terminal about 100 km away. Typically Battist runs three trucks through the day and two through the night.

“Our typical shipment is a six thousand tonne load on a smaller carrier,” said Wright. “A lot of our European customers are power plants that have facilities that can handle smaller ships and have limited storage capacity.”

Company president Fraser Gray sees a positive future for wood biomass pellets, both as an export product and also for domestic use. He also realizes that keeping the industry focused on a green philosophy and operating standards is very important.

Gray feels that Enligna’s Musquidobit operation has currently reached an optimum capacity for the regional wood basket.

“We utilize low value fibre and there is not enough value in the business model to ship low value fibre long distances,” he said. “I think expansion of the pellet industry in Nova Scotia would be better served by building small plants across the province, rather than trying to build large operations and not be able to transport the raw material economically.

“We want to help ensure our pellet business remains green at both ends. We are selling a product that is promoted as green