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Features Pellets

Positioned for success: Pinnacle upgrades its Williams Lake plant

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A view of the bed dryer infeed at Pinnacle's Williams Lake, B.C. plant, showing the infeed conveyor and metering bin supplied by Continental Conveyors. Photos courtesy Pinnacle Renewable Energy.

In the past year-and-a-half, the available fibre supply for pellet plants in B.C., has changed significantly. In 2019, multiple sawmills in the province took downtime or shut down completely due to weak lumber prices and dwindling fibre supply caused by pests and wildfire. Then, when COVID-19 hit in the spring this year, more sawmills took downtime or shut down thanks to weak lumber demand.

These difficulties for B.C. sawmills created a ripple effect for wood pellet producers. Pellet plants that have long-relied on sawmill residuals found their supply dwindling, even as demand for wood pellets remained steady or even increased.

As a result, many pellet producers had to turn to alternative sources of fibre, such as bush residuals and hog fuel. However, some pellet plants are not built to handle a diverse fibre diet. This was the case with Pinnacle Renewable Energy's Williams Lake,

B.C., pellet plant.

To combat this issue, in Q1 2019, the company decided to move forward with plans to upgrade the dryer at the Williams Lake facility, transitioning from a rotary dryer to a Stela bed dryer. Work on the project began in in Q4 2019. Despite some delays caused by COVID-19, the upgrade was completed late this summer.

Greater flexibility

Originally, the plant, which was built in 2006, was designed to run purely on sawmill residuals from neighbouring sawmills, including West Fraser and Tolko, Jason Fisher, Pinnacle's vice-president of strategic partnerships and corporate responsibility, explains.

But with the new Stela bed dryer, the plant can now run a wider array of fibre types because it increases the amount of water that can be evaporated from the available fibre, Fisher says. This allows the facility to consume more sawdust, hog and bush grind.

Consuming a wider variety of fibre, improving the plant's environmental footprint and upgrading the safety systems were the main motivations for installing the new dryer, he adds.

"We wanted to make sure that, as we see the continued consolidation in the forest sector, we're able to adapt and move away from a diet that was primarily sawmill residuals and be able to use harvest residuals as well," he says.

The company chose to install a Stela bed dryer because of their experience working with the company, Scott Bax, COO of Pinnacle Renewable Energy, explains.

“This is our third installation and fourth dryer that we have with Stela,” he says. “We installed the first-ever biomass bed dryer in North America with Stela. We’ve been with them since 2015 when we built our Lavington facility. We put two bed dryers in there, and one in our Smithers facility.”

Stela, based in Germany, is “a really reliable company to work with,” Bax adds. “They’re able to deliver a really solid product.”

Along with the new bed dryer, Pinnacle added two new CSE Bliss hammer mills at the facility to handle a wider range of fibre types.

The project was part of Pinnacle’s $30 million Cariboo Upgrade Project, which consisted of two projects: the dryer and fibre breakdown upgrades at the Williams Lake plant, and a new emissions control device at the company’s Meadowbank facility, Bax shares. Of the $30 million, more than $20 million was allocated to the Williams Lake project.

As a result of these upgrades, the Williams Lake plant can now process 50,000 more metric tonnes per year, for a total production capacity of 230,000 tonnes per year. This is close to the plant’s original production capacity.

“As we saw our fibre supply change over time, production definitely dipped as a result of that,” Fisher explains. “So, this is Pinnacle getting back to where the plant was designed to be and making us more efficient and flexible from a production standpoint.”

Inside the plant

The plant itself consists of a mix of older and newer technology. Fibre first goes through one of two infeeds – one for green, wet material and one for shavings.

“The point of having a shavings-only infeed is that material doesn’t need to go through the dryer; it’s dry enough, and we’ll mix it with what comes out of the dryer,” Bax explains.

From the green infeed, the biomass goes through a primary fibre breakdown unit. This unit is old custom technology, similar to a large hammermill, Bax says.

The fibre then goes to the Stela bed dryer through conveyors from Quebec-based Continental Conveyors.

When the product comes out of the dryer, it is mixed with the shavings, and then goes to two CSE Bliss 4460 hammer mills.

From there, the material is conveyed again through Continental Conveyors to five Andritz 26LM pellet mills. The pellets then go into CSE Bliss coolers, and then across vibratory screens from Edem, an Optimil company, to screen out the fines. Finally, the pellets are conveyed to Pinnacle’s rail load-out system, ready to be shipped either to Pinnacle’s Westview Terminal in Prince Rupert, B.C. or FibreCo in Vancouver.

The pellets from the Williams Lake facility are bound either for Japan and South Korea or Europe (most often to Drax Group in the UK), Bax says.

CV Technology safety equipment is installed throughout the entire facility, along with GreCon spark detection equipment. An Allied Blower air system also pulls air off the hammermills and the CSE Bliss pellet coolers.

Pinnacle has a long history with all of these suppliers, Bax says.

“All of them were involved in other projects that Pinnacle has done,” he explains. “For example, Pinnacle is the world’s largest owner of Andritz wood biomass pelleters. Today, we have around 55 of them in service, with 10 more coming in the Demopolis, Ala., plant that we’re building right now.”

CSE Bliss equipment is also used at almost all of Pinnacle's pellet plants, along with Andritz, Continental Conveyors, GreCon, CV Technology and Allied Blower.

"They are all just really proven, great companies," Bax says.

A view of the new Stela bed dryer installed at Pinnacle's Williams Lake plant with the pelleter building and finished pellet storage silos shown in the background.

Community impact

These upgrades have been well-received by the community, local First Nations and forestry companies in the area, Bax adds.

The plant is located in the heart of Williams Lake. As the commercial district has built up around the facility, the company has worked to beautify the site and make it look less industrial. Pinnacle has also done paving work to control fugitive dust in response to concerns from the community, Fisher says.

“We’ve got wonderful support from the city; there’s a lot of local contractors that we use and we’re working extensively with local First Nations as suppliers and responding to their concerns,” he says.

Of course, the facility is also a big economic driver in the community, employing 30 people full-time and providing a home for wood fibre in the area. It also reduces the distance trucks need to travel transporting mill and bush residuals, Bax says.

The Williams Lake plant gets its fibre from harvesters in the region, mainly from Tsi Del Del Enterprises Ltd., a joint venture between Tsideldel First Nation and Tolko Industries (read more about their operations in Canadian Biomass’ Winer 2020 issue). Alkali Resource Management, owned by the Esk’etemc First Nation, also works with Tsi Del Del to supply fibre to the plant.

“It really provides the right balance to the milling capacities that exist in the larger Williams Lake area,” Bax says about the facility. “Now, there’s a natural home for a larger percentage of the residuals that are produced through the harvesting to the milling process, whether that be sawmilling or producing a particle board or something like that. We’re able to take what’s left over from them and utilize a larger part of that fibre supply chain.

“We’ve significantly upgraded the facility and really set it on the path where it’s well-suited for the available fibre supply in the area, and we have more flexibility there than we’ve ever had,” he adds.

Growth potential

This flexibility will be key for Pinnacle Renewable Energy’s operations moving forward as the wood pellet industry and market continues to grow, Bax says.

“The biggest challenge that we see for the industry as a whole and in British Columbia especially is the changing fibre supply and the need to have solutions that encompass the entire fibre supply chain. But, that’s really where our opportunities are going to exist,” he says. “We really are in lock-step with the mills in the region, so we’re going to continue to need to innovate and partner with First Nations and others to perform strong well into the future.”

Looking ahead to the next five to 10 years, Bax believes Pinnacle is well-positioned for future opportunities to meet demand from Asia and Europe.

The company is in the process of building a new facility in High Level, Alta., in partnership with Tolko, that is scheduled to start up in Q4 2020. Meanwhile, they are also building a pellet plant in Demopolis, Ala., that will start up in Q2 2021.

“We see the wood pellet market continuing to grow and having great growth potential as a market and as an industry,” Bax says. “Our belief is that there are opportunities to continue to grow as the demand is there.” •