

Forest products industry leverages energy efficiency

New heat exchangers and better measurement make West Fraser more competitive



Reducing energy costs in the pulp and paper sector

In the highly competitive global pulp industry, energy efficiency is providing an edge. Pulp production is energy intensive and Canada has tougher environmental standards than many other major pulp-producing countries. Staying globally competitive requires industry to anticipate environmental standards and find operational efficiencies. West Fraser's Alberta facilities are facing this challenge head on and seeing results.

Achieving more efficient biogas use

The team at West Fraser's Slave Lake Pulp mill has worked to reduce the energy intensity of their operations for many years. In 2016, they launched into the clean

energy space by commissioning an anaerobic digester to break down organic waste material created by the mill. The resulting biogas can generate electricity to power the plant's operations. But by 2018, only 60 per cent of biogas produced was used in electricity generation, with the rest unused.

With support through Strategic Energy Management, the Slave Lake Pulp team created a new system to measure all forms of energy use. The facility then improved the scrubber operations and defined key performance indicators to reduce how much natural gas was purchased to supplement the biogas to power the plant. By the end of 2019, biogas use had increased from 60 to 76 per cent, delivering the most energy efficient production in the 30-year history of the facility. The increased biogas use directly offsets greenhouse gas (GHG) emissions by displacing carbon-intensive grid electricity while also reducing natural gas use.



Stephen Newton, one of the energy champions, standing beside the heat exchangers.

Realizing further emissions reductions

Late in 2019, the Slave Lake Pulp team took it a step further. With support through the Custom Energy Solutions program, they invested in three new glycol heat exchangers to capture waste heat from the electricity generators. The investment now saves the mill 8,000 gigajoules of natural gas monthly and, over the long run, is expected to result in lifetime GHG emissions reductions of 32,064 tCO₂e (tonnes Carbon Dioxide equivalent).

“The Custom Energy Solutions program helped us identify and address a key opportunity to reduce heat loss at the mill and improve operating efficiency. Adopting energy-efficient solutions like these glycol heat exchangers reduces not only emissions but operating costs, which helps keep rural employers like us in business.” – Slave Lake Pulp

Learning from energy managers

West Fraser has also dedicated two full-time On-site Energy Managers to identify energy conservation projects at its Alberta Plywood (in Edmonton) and Ranger Board (in Blue Ridge, AB) facilities. In the first year alone, the sites have seen reductions of 146 tonnes CO₂ (1.0%) and 258 tonnes CO₂ (1.8%), respectively.