



OVERVIEW

CEC Scope:

*Project Conceptualization
Project Development Support
Electrical & Control System Design
EIC Equipment Procurement
Transmission Line Design
Utility Interconnection
Commissioning & Start-up*

Capacity (each plant):

*13 MW (ORC)
80 GWh Annually*

Capital Budget:

Confidential

Project Duration:

48 Months

HIGHLIGHTS

- *Largest implementation of biomass fuelled ORC technology globally*
- *Achieved nameplate performance shortly after start-up*

PROFILE

In 2012, West Fraser constructed two innovative bioenergy plants adjacent to their Chetwynd and Fraser Lake sawmills. Their objectives were to generate power using sawmill and logging residuals and to reduce air emissions by eliminating the beehive burners. The projects each consist of two refractory-lined, reciprocating grate furnaces with thermal oil heat exchangers, two 6.5 MW Organic Rankine Cycle (ORC) turbogenerators, and the associated fuel, water, and environmental systems.

Clean Energy Consulting was responsible for electrical, instrumentation, and controls design and engineering. The scope included preliminary and detailed design, integration of vendor supplied systems, equipment procurement, and inspections during construction. Our team was also responsible for electrical and controls commissioning, start-up assistance, and liaising with BC Hydro for coordination and compliance.

The ORC technology uses an organic fluid in a closed loop system rather than steam to generate electricity from thermal sources such as biomass. These projects successfully demonstrate the advantages of ORC over steam including reduced operating requirements, lower maintenance costs, and high turn-down capability. The bioenergy plants achieve significant environmental benefits by reducing emissions and particulate matter as well as enhancing the sawmill economics by converting a waste stream into valuable energy. The combined facility fully utilizes the harvested fibre onsite, eliminating the need to transport residuals to distant markets.

