



Energy

Bioenergy Investigation

Bioenergy Investigation in the RDCK

In the RDCK, underutilized wood fiber sources include forest-based and manufacturing wood waste, logging, wildfire fuel mitigation residue and regional and municipal wood waste management programs. The RDCK understands that there are several elements that determine how wood waste is maintained and monitored and is currently seeking opportunities to improve localized management for the benefit of its communities. The elements include, but are not limited to, a balance of low carbon economic development, ecological protection and social opportunity.

Over the course of 2020, the RDCK investigated the question of whether matching residual biomass with the right-sized technology and an appropriate business model could support greater economic and social capacity in rural communities. The RDCK Bioenergy Study sought to identify low carbon renewable energy opportunities to increase resilience in rural communities where thermal and electrical energy options are few, travel distances are long and economic prospects are limited.

Torchlight Bioresources and Kerr Wood Leidal were contracted to conduct a study to analyze the business case potential; assess the best process for maximum utilization; determine the role for local government; and conduct review of innovative rural and remote bioenergy projects relevant to the RDCK.

The resulting report, [Bioenergy Opportunities in the Regional District of Central Kootenay](#) clarifies the most appropriate bioenergy applications for the RDCK based on scale, density of settlements and available feedstock. Industrial heating (Mercer Celgar), individual building heat (via pellet boilers), and District Energy systems (in the rural communities or Castlegar, Creston or Nelson) heated with centralized bioheat or combined heat and power plants, are the most viable approaches for bioenergy generation in the RDCK.

The report also identifies, but does not investigate, that a highly localized micro response is possible to make better use of supply chains. They could be applicable to forestry operations in the Creston Valley and Yaqan Nukiy, the north end of Kootenay Lake, the Eastshore of Kootenay Lake, Harrop-Procter and the Slocan Valley. Opportunities to support local operations to be more efficient and make better use of local supply chains such as pellet or biochar production, could be further investigated.

For more information

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The Investigations Key Considerations

Ecosystem based planning

Forest health and the integrity of ecosystems must guide all land use decisions, including the possible increased extraction of residual forest fiber. The ecological functioning of forest must “be retained or regenerated”.^[1] A whole watershed/ecosystem-based planning approach that includes consideration of the land (trees and soil), and water (surface and ground) while also effectively engaging all people and parties involved to promote robust and sustainable economic development must be used.^[2]

Grid stabilization

In order to support CleanBC’s electrification targets and support greater rural livability, addressing extended power outages, which can last in excess of 24 hours, is a priority for the RDCK. The areas most prone to outages include the north end and Eastshore of Kootenay Lake, Harrop-Procter, the Slocan Valley, and both shores of the Arrow Lakes. Because these communities have very small electricity loads and biopower technologies at the scale required are far from economical on the BC electricity grid, small scale biopower generation is not a viable option for stabilizing the electrical grid.

Instead, the following actions are recommended for improving reliable distribution:

- a. Improved Vegetation Management
- b. Underground Transmission/Distribution Lines
- c. Additional Power Generation - adding electrical generation to Duncan Dam located at the north of
- d. Kootenay Lake & support for distributed community and residential generation
- e. Looping Existing Radial Power Lines for the Slocan Valley
- f. Storage/Backup – support for battery storage of grid electricity would serve as backup in the event of an outage as an alternative to gasoline/diesel generators at an individual building or community level

District energy

There is significant potential for district energy (DE) in the RDCK. An investment (supported by private, provincial and federal funding) in district energy systems could provide regional benefit in the form of local skilled jobs (pipe fitters, boiler makers, operations, maintenance and repairs) in renewable energy, improved energy security, decarbonization of the energy market and more affordable energy option for rural residents.

[1] A Blueprint for Watershed Governance in British Columbia - POLIS, 2012 p14

[2] Ecosystem-based planning focuses first on what to protect and then on what to use. First priority: protect or restore ecological integrity and second priority: provide for balanced ecosystem use across the landscape. Hammond, Herb. Maintaining Whole Systems on Earth's Crown. 2009, Silva Forest Foundation, Slocan Park