

BC Coastal Hem-Fir Initiative – 2012/13

Project Title	Bioenergy Opportunities from Forest Residues on the BC Coast
Project Number	B.03
Project Leader	Stu Spencer
Project Team	Jack MacDonald
Total Budget	\$85,000

Need(s)

Forest harvesting residues can supply feedstock to the emerging bioeconomy, but their higher cost compared to sawmill residues has limited their use. In sites where forest residues have been recovered for industrial use, the process has been to have separate timber harvesting and biomass recovery operations. Recovering the biomass simultaneously with the harvested timber, so-called “single-pass harvesting”, may help reduce costs. This project will demonstrate cooperative planning between suppliers and consumers of forest feedstock, and innovative techniques for the timber harvesting and biomass recovery phases to reduce overall cost.

Objectives & Approach

Two methods for single-pass harvesting have been identified: hauling full-length stems from the cutblock to the sortyard where they are processed into stems and the residues ground into feedstock, or placing debris bins at the harvesting site to immediately collect the residues as they are produced. Demonstrating either method will help to understand the economics of single-pass harvesting. A forest company (biomass supplier) and a pulp and paper company (biomass consumer) have each indicated their desire for information about feedstock supply chains, and a willingness to participate in a demonstration, but details of the trial and expected contributions for the companies have not been finalized. Their commitment to contribute to the project is required.

The approach will start by identifying an appropriate cutblock to supply the feedstock. A bin trial could occur from a cutblock that is serviced by a public road, but the cutblock for an intact-stem trial must be located on an off-highway road system so that intact stems can be hauled the sortyard. In either case, the cutblock must be identified prior to timber harvesting. For the intact-stem trial, stems would be processed into logs at the dryland sort, and the tops and defective stem sections would be ground into hog fuel for delivery to the biomass consumer. A mobile, diesel-powered grinder would be used for grinding. Merchantable logs would be processed normally through the sortyard.

The residues from a bin trail would be collected during log processing, and delivered to a grinding facility. The grinding facility could be a mobile grinder located at a sortyard or other central location, or it could be a stationary grinder located at a sawmill or pulp mill. In such a case, the trial would only demonstrate the collection and transportation logistics of the supply chain.

Should single-pass recovery become operational at a future date, optimal handling of the logs will likely require different equipment and different techniques than conventional roadside grinding e.g. a stationary, electric-powered grinder instead of a mobile, diesel-powered grinder. However, to run a trial, mobile grinding equipment would be used for practicality, combined with the appropriate handling methods for

the stems and logs. Operating costs for stationary grinding equipment will be obtained from manufacturers, sawmills, or other operators of electric grinding equipment.

Benefits

Conducting a trial will demonstrate the feasibility of single-pass harvesting under operational conditions. Cost estimates based on current information show that single-pass harvesting and biomass recovery could reduce the combined costs by 2% compared to separate harvesting and roadside grinding. If 25% of the annual consumption of 100 000 ODt of feedstock required for a 17 MW power plant can be supplied from harvest residues, and based on the amount of harvested logs required to generate the residues, 2% cost reduction represents an annual savings of \$100 000.

Project Tasks and Outputs – Current fiscal year

Tasks / Outputs	Expected Delivery Date
Secure commitment from biomass supplier and consumer to contribute resources to the trial. Work with forestry company, pulp company, and their contractors to select appropriate trial area. Develop alternative harvesting method. Arrange equipment for demonstration.	June 2012
Monitor harvesting activities in cutblock, and grinding activities on dryland sort or at other site. Report results.	March 2013
Secure commitment from biomass supplier and consumer to contribute resources to the trial. Work with forestry company, pulp company, and their contractors to select appropriate trial area. Develop alternative harvesting method. Arrange equipment for demonstration.	June 2012

Status and Major Accomplishments – Previous year

- Evaluated seasonal variation in moisture content of roadside harvest residue on coastal BC and produced report.
 - All moisture lost during summer was regained in fall and winter
 - Off-the ground storage reduces moisture
- Produced summary of research learnings in forest feedstock recovery.

Performance Measures

Key Success Factor	Key Performance Indicator	Target	How the outcome of the Project supports the Program objectives
Forest feedstock viewed as viable option in coastal BC.	Cutblock identified, harvest system defined, contractor hired, and corporate commitment to proceed with trial.	Trial underway by June 30, 2012	Successful trial is required to accumulate feasibility data.
Cost reduction compared to alternatives.	Cost of biomass delivered to consumer	Delivered cost is less than cost for conventional roadside recovery.	Demonstrates economic feasibility of alternate methods for delivering biomass to consumer.

Communication Strategy for Information Dissemination

Field tour held during trial. Technical report of trial results distributed on Coastal Hem-Fir website.

Collaboration – Research Partners

- Western Forest Products, Ltd
- Catalyst Paper Corporation
- Grinding contractor