FPInnovations

DEVELOPING THE BIO-ECONOMY WITH FPINNOVATIONS

We know that our forests are a key element in fighting climate change. In addition to sequestering carbon, their biomass can be used as a source of energy or raw material and a substitute for fossil fuel-based products. It is therefore not surprising that several projects involving bioenergy, biomaterials or biofuels are now emerging, placing forest biomass at the centre of the bio-economy.

Significant investments are required to establish a forest biomass supply chain. Any medium or large project needs a feasibility study to address fundamental issues such as long-term supply guarantees, competitive costs and financing considerations. FPInnovations has developed the tools and expertise to conduct this type of study and ensure that projects are viable in the long term.

Feasibility Study 101

A forest biomass supply system must ensure not only volumes and quality in the long term, but also efficient production using effective technologies. The feasibility study would help answer the following questions: What volumes are available? Are they accessible? What are their associated costs? What are the market conditions like? What quality criteria are necessary for the raw material? What are the future prospects and vision? Scientific rigour is essential considering the importance of their answers.

Available Volumes

Available volumes must be evaluated by species and type (logging residues or low value logs) within a given radius of the processing plant. It is important to keep in mind that biomass transport distance is a key factor since biomass value decreases rapidly when distances increase. The FPInterface software and the BiOS[1] module are perfect tools to evaluate these volumes at a given site. They consider the forest inventory, but also the technical availability, which means what is technically recoverable according to the harvesting system used (short wood, tree-length or full-tree)

Recovery Costs

The cost of getting the raw material to the mill will be calculated based on the forest supply source. The cost of recovering it in the forest will be calculated according to various scenarios that consider the type of cut (clearcut or partial), the harvesting systems and the cutblock layout.

CALL ON OUR EXPERTS:

The researchers at FPInnovations are experienced and have been involved with major projects such as the BELT project in the Mauricie region and the iHUB project in Nova Scotia.

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Will the recovery be integrated into current harvesting operations (preferable) or will it be done separately? How and where will the biomass be conditioned (shredded wood, wood chips, densification, pyrolysis)? Will it be in the forest or at the mill? What are the costs and benefits of each option? Added to these recovery costs are fees, diesel costs, road maintenance, transport logistics, indirect costs, etc.

Environmental Impact

When recovering biomass, it is important to consider environmental aspects such as soil fertility and biodiversity. Environmental impact assessments must therefore be conducted to determine what percentage can be taken and what mitigation measures are necessary. Furthermore, in a bio-economy, the carbon footprint must be evaluated. The carbon module, developed by FPInnovations, makes it possible to measure CO_2 emissions resulting from forest operations (harvesting, conditioning, transport) and also the carbon delivered to the mill.

Market Study

Lastly, a market study analyzes potential users, the competition, the prices offered and prospects for the product.

[1] – A mobile version of BiOS is available at the App Store or GooglePlay (version usable on an iOS or Android tablet) It calculates biomass volumes at roadside and the potential benefits when it comes to greenhouse gas.