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Creating Forest Sector Solutions

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Saskatchewan Forest Fibre Optimization Initiative

March 2011

This periodic bulletin provides up-to-date information on projects related to a Saskatchewan initiative that address the need of the provincial forest sector to become more globally competitive and diversified. The Initiative supports research on new opportunities for a changing marketplace and transitioning our forestry sector to address emerging opportunities.

FPInnovations and the Saskatchewan Research Council (SRC) are working together to identify gaps in knowledge in the areas of markets, forest energy, forest management, fibre utilization and manufacturing competitiveness.

Bio-Pathways – The Emerging Bio-Revolution

The Bio-Pathways partnership between FPInnovations, the Forest Products Association Canada (FPAC), and the Canadian Forest Service (CFS), which has been supported by the government of Saskatchewan, has reached a new milestone with the February release of "The New Face of the Canadian Forest Industry: The Emerging Bio-Revolution". The series of reports provide a path forward for the Canadian forest industry which will allow it to take advantage of a $200 billion global market for bio-energy, bio-chemicals, and bio-materials that can be extracted or produced through investments that are complementary to traditional forest sector manufacturing processes. Extracting additional economic value from timber already being harvested is fundamental to the industry transformation strategies presented in the reports.

Saskatchewan has been localising the information from the reports by implementing economic models with costs and market parameters that are specific to Saskatchewan's resources and infrastructure. Preliminary model results have been shared with Saskatchewan industry's decision-makers. During the upcoming year Saskatchewan and FPInnovations will work with individual companies to further customize model outputs. The resulting economic analyses will identify best-fit solutions for Saskatchewan companies which will allow them to isolate market opportunities best suited to their businesses.

With respect to the recently released reports, Avrim Lazar, the President and CEO of FPAC, says "This study's roadmap shows that if we get it right, there is immense economic potential. It's now time to invest and embrace these prospects so that one of Canada's oldest industries can become a vital player in one of the newest sectors, the bio-economy." FPInnovations, The Government of Saskatchewan, and Saskatchewan's forest industry are working towards realizing this potential. For more information see: http://www.fpinnovations.ca/en_bio-pathways.htm

Opportunities to Improve the Efficiency of Transporting Finished Forest Products by Truck in Saskatchewan

Evaluating the safety and efficiency of increased payloads is the objective of a study examining forest products transportation issues. The stability and handling assessment, which is primarily safety focused, employs the UMTRI yaw/roll model to determine the performance of configurations against standards contained in the inter-provincial MOU. An assessment was completed for 8, 9 and 10-axle B-trains currently being used to haul pulp. The 9 and 10-axle B-trains having heavier payloads than what the 8-axle B-trains currently in use do. The assessment showed that the 9 and 10-axle B-trains failed to meet the minimum performance measures, and as a result further assessments are being conducted to identify what payload reduction levels are required to satisfactorily improve their performance measures. Other work being conducted as part of the study includes a stability and handling assessment for 9 and 10-axle B-trains hauling OSB, a pavement impact analysis, and further refinement of the truck costing model.

Capturing Additional Value from an FSC Certified Saskatchewan Forest Resource

Identifying specific market opportunities available to Saskatchewan producers is the objective of a study that looked at the added value potential for Forest Stewardship Council (FSC) certified wood products from Saskatchewan's forests. The project provided an assessment of what market opportunities are associated with FSC certification - without any assessment of the economic or ecological merits of implementing FSC on a land base.

"Green Building" is a hot topic and there is an abundance of web-based information available on eco-friendly building systems, new building materials, and organizations that promote the green building movement. While the common goal of reducing the construction industry's carbon footprint appears to be firmly established, there continues to be a great deal of debate on how this end goal can be best achieved. Wood products have been front and center in this debate for a number of years. Today, wood products are re-emerging as a very sensible, environmentally friendly building material choice. New research highlights the natural carbon capture and storage properties of wood, and third party certified forestry practices and "life cycle analyses" measure and compare the carbon footprint of various products from the first stages of production to final disposal of used materials.

Within this framework of an evolving new attitude towards wood products in the construction industry, the project focuses specifically on FSC certification of lumber products. With a better understanding of the market value of FSC lumber, ways in which producers in Saskatchewan can capture potential increased margins are being explored.

* *It should be noted that The Ministries of Environment and Energy and Resources are supportive of all certification programs and this specific report should not be seen as an endorsement for FSC*

Improving the Efficiency of Harvesting Operations in Saskatchewan

FPInnovations researchers have conducted interviews with forest managers and harvesting contractors within the province to document harvesting systems and practices currently being used by the Saskatchewan forest sector, and to identify external trends that are expected to influence local harvesting operations in the foreseeable future (5-10 years ahead).

The interviews focused on the following themes; harvest system description and annual volume, including form of delivered

wood (hardwood / softwood, short logs / long logs), contractor skill sets, sizes and ages/condition of equipment, what factors influence the form of delivered wood, what factors influence or limit harvesting efficiency, and what factors limit the performance of the Saskatchewan industry.

Based on these interviews, work has begun on identifying key technological improvements to harvesting equipment and systems and estimating their productivity impacts.

One of the challenges in utilizing the forest resource is the cost of collecting and then delivering the biomass to a processing location.

Determining the Forest Feedstock Volume Potential

Reducing the uncertainty surrounding bioenergy investment is the objective of a study that supports the emergence of a forest-derived energy industry. Modeling the availability of biomass (i.e. volumes and costs) and comparing conversion technologies is one of the focus areas of the Saskatchewan Initiative. One of the challenges in utilizing the forest resource is the cost of collecting and then delivering the biomass to a processing location. Decision makers require information on the amount of harvest residuals available at specific cutblocks - and the cost of transporting the comminuted residuals to specific centres - in order to evaluate the feasibility of new biomass developments. FPInnovations' spatial biomass and supply model, FPInterface-BiOS, provides the platform for this information. The project currently underway is developing an FPInterface-BiOS version for Saskatchewan's Northern Forest. Information from the model has been used to project biomass supplies and costs from 20-year harvest plans developed 5 years ago. As the forest industry in northern Saskatchewan develops new plans for forest operations, the cutting plans can be input into FPInterface-BiOS(SK) and biomass supply and cost information can be revised. Information generated from FPInterface-BiOS(SK) can also be used by the new bio-industries to assist them in scheduling biomass deliveries from harvest residuals, in identifying opportunities to reduce feedstock costs, and in pointing out alternative delivery programs (and their consequences on delivery prices) when planned schedules need to be revised.

Update on Wood Pellet Heating Demonstration Project for Meadow Lake Tribal Council

Progress continues on the implementation of the Meadow Lake Tribal Council (MLTC) Wood Pellet Heating Demonstration project. Two demonstration sites have been selected for the retrofit of existing heating systems to accommodate wood pellet heating systems. The Island Lake First Nation will be the demonstration site for the integration of a Portage & Main ML42 pellet heating system into a school. In addition, a Pelco 1520 pellet heating system will be implemented for a residential application in the Canoe Lake First Nation. The detailed engineering designs for both of these sites have been completed and the boilers have been purchased. The boilers are currently being mounted within enclosed containers that will enable the portability as well as safe operation of the heating systems. It is anticipated that the boilers will be moved to the two sites and installed in the coming months. Each of these sites will be monitored closely to determine the efficiency of the wood pellet heating systems. Reliability, performance issues, and other barriers will also be identified.

MLTC is also leading a related project that will include two additional demonstration sites for the implementation of wood pellet heating systems in more industrial building applications. The knowledge and expertise gained throughout these demonstrations will pave the way for implementing other wood pellet heating applications that could reduce heating costs, reduce environmental impacts and support value-added business opportunities in the forest sector.

Wood First!

Provincial governments across Canada are supporting programs which encourage or require the use of wood in multi-family residential and light industrial / commercial applications. British Columbia and Quebec have both passed legislation which requires that wood be considered as a first choice building material for publicly funded buildings. The Canada Wood Council is leading a campaign supported by the federal and provincial governments to increase the use of wood in commercial, industrial and institutional construction. The successful program, called Wood Works!, has been rolled out in BC, Alberta, Ontario, and Quebec

Following up on a seminar held in Saskatoon last fall, FPInnovations and Saskatchewan will continue to promote the increased use of wood in the Saskatchewan construction industry. In the upcoming year builders, architects and engineers will be introduced to new design elements and building materials that are taking advantage of the economic and environmental advantages of building with wood.

Bio-Energy Action Plan for La Ronge Region

An action plan is being developed for implementing a wood based bio-energy initiative in northern Saskatchewan that utilizes residual saw mill material, and/or low demand/ low value woody biomass associated with forests and communities.

The Bio-Energy Action Plan will assist bio-energy business opportunities by making detailed and relevant data available to potential investors, operators, and other stakeholders in bio-energy. The action plan will be an informative document that will provide useful information for bio-energy initiatives, thereby reducing front end costs related to background and scoping assessments, economic modelling, stakeholder identification and consultation, and preliminary engineering.

For more information on these projects and other work undertaken within the Initiative, please contact
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FPInnovations is a not-for-profit world leader which specializes in the creation of scientific solutions in support of the Canadian forest sector's global competitiveness.

FPInnovations works toward optimizing the forest sector value chain. It capitalizes on Canada's fibre attributes and it develops new products and market opportunities within a framework of environmental sustainability.

SRC's mission is to help the people of Saskatchewan strengthen the economy with quality jobs and a secure environment through research, development, and the transfer of innovative scientific and technological solutions, applications and services.

Government of Saskatchewan