



Quesnel Forestry Think Tank

The Forest Bioeconomy

May 2, 2023

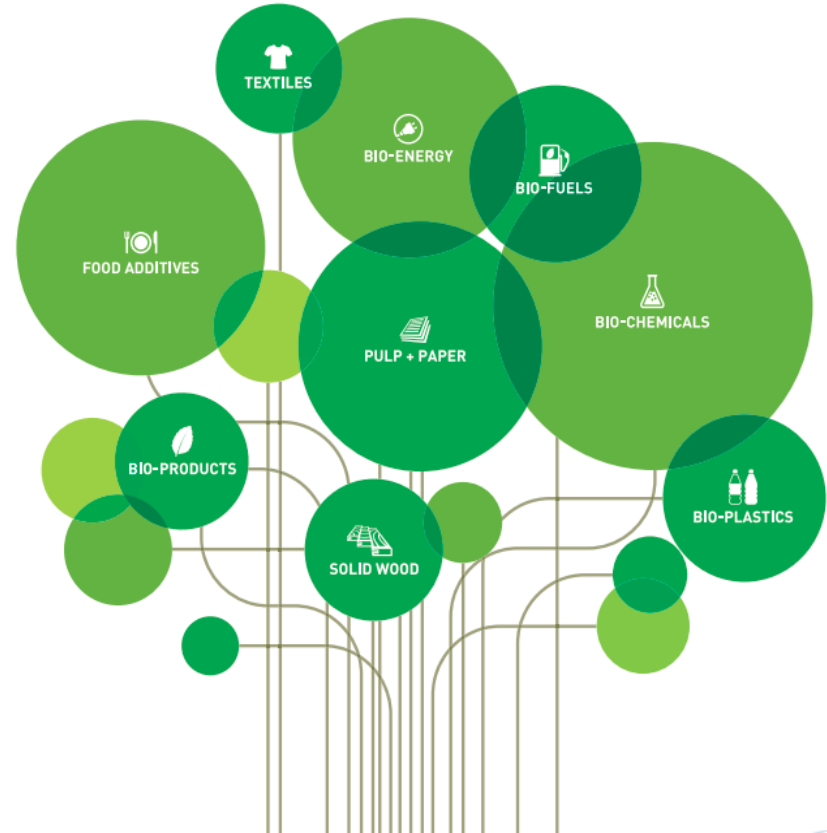
Sandy Ferguson

sferguson@foresightcac.com



Forest Bioeconomy – Canadian Council of Forest Ministers

The forest bioeconomy refers to economic activity generated by converting sustainably managed renewable forest-based resources, primarily woody biomass and nontimber forest products, into value-added products and services using novel and repurposed processes. Although there is no single, accepted definition of the bioeconomy, it is generally recognized that the key attribute of a healthy bioeconomy is the knowledge-based, competitive, and innovative production and sustainable use of biological resources, processes, and principles to provide eco-friendly goods and services.



The Canadian Forest Bioeconomy is alive and thriving

- Traditional bioeconomy sectors (forestry and agriculture) represent more than 900 processing companies, employ 2 million people and generate sales of \$300 billion/year.
- Cornerstone of Canada's economy - 231 forest dependent communities
- Already a climate change mitigation partner sustainable feedstock supply, established infrastructure sites
- *With new investment, more jobs, continued engagement with Indigenous peoples, new technologies, and better supply inventory and modelling, the forest industry can sustain its history of innovation, sustainability, and competitiveness*

Canada's Forest Biomass

Feedstock represents 40–60% of overall bioproducts project costs.

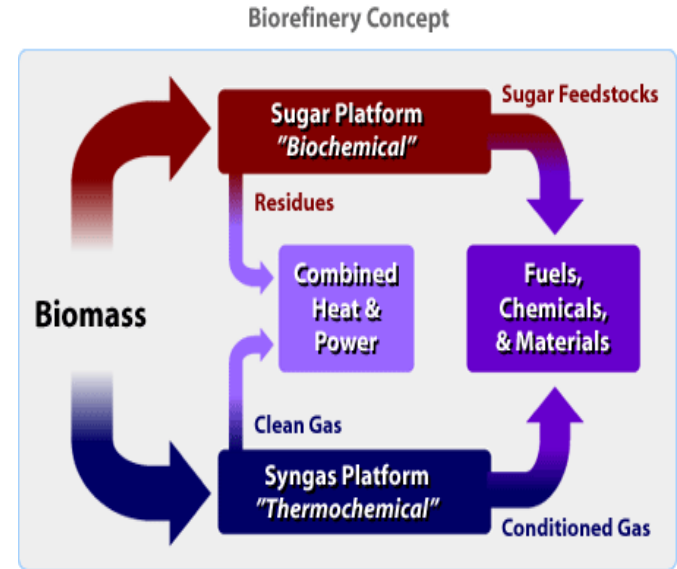
Key sources of forest biomass

- residues or by-products left over from manufacturing processes
– most common today
- harvest residues, also called slash piles - huge opportunity!
- trees and branches removed during the thinning of forest stands
- biomass plantations (for example, fast-growing willow or poplar species)
- construction and demolition waste
- trees damaged by natural disturbances - fire, insects, disease

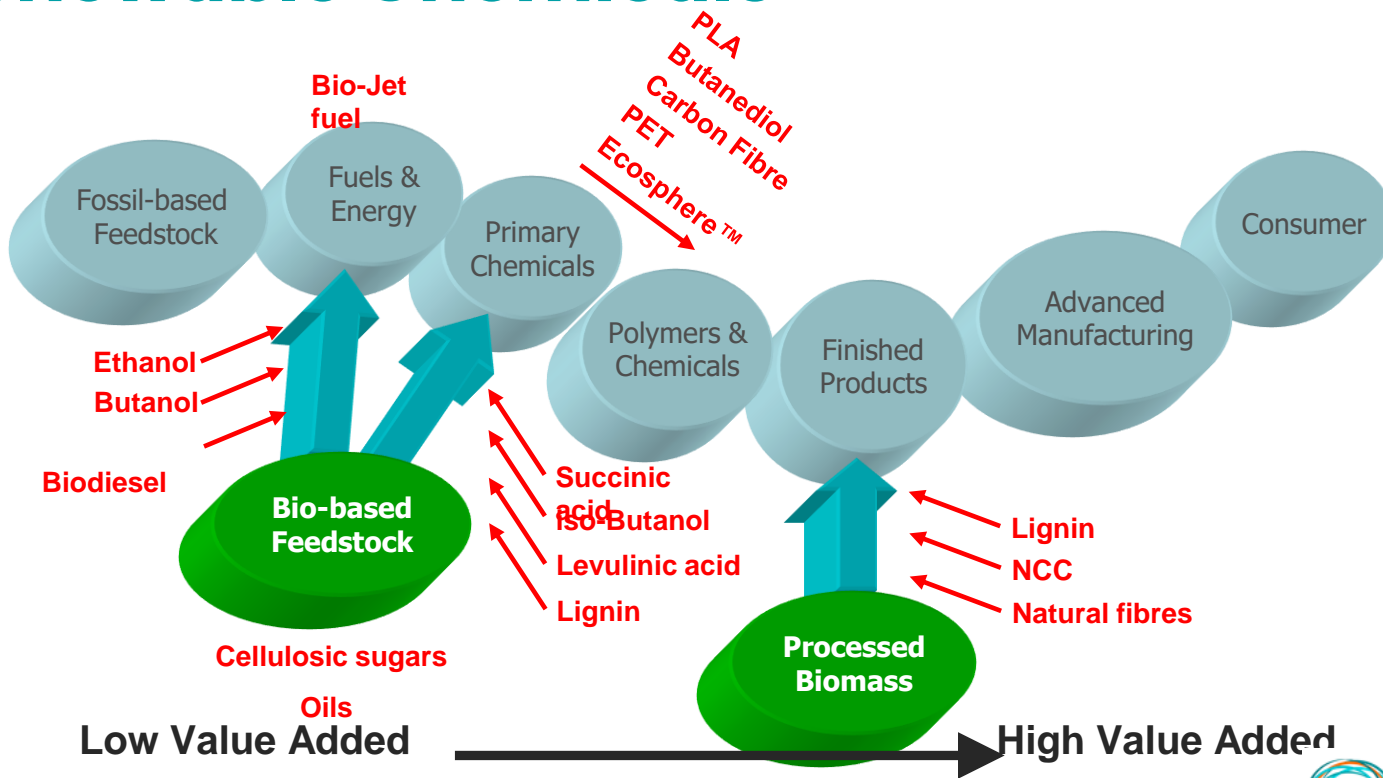


Forest Bioeconomy Activity

- Biomass co-gen/power , wood pellets
- Biochar – soil amendment
- Mass Timber Building
- Lignin/resins
 - Crude tall oil, adhesives, bioplastics, activated carbon
- Biopolymers
 - sugars as intermediates for biochemicals
- Cellulose filaments and cellulosic nanocrystals
 - wide variety of consumer and industrial applications
- Advanced biomaterials (lignin, cellulose, pulp)
 - platform products used in bioplasticsbuilding, packaging industries
- Biofuels - Biodiesel, synthetic diesel, cellulosic ethanol, aviation fuel



Bioeconomy Supply Chain Example – Renewable Chemicals



Source: Bioindustrial Innovation Canada

Key Ecosystem Challenges

- Lack of certainty on publicly owned fibre supply: disease and wildfires have reduced harvest, mill curtailments and closures
- Government wants value add not volume
- Steady stream of evolving policy and regulation
- Focus on indigenous nations reconciliation
- 5 Provincial Ministries engaged in forest bioeconomy activities
–no cohesive strategy
- Limited collaboration and innovation culture
- Industry challenged to invest given uncertainty

Forest Bioproducts Leaders and Partnerships

Higher Value Add, More Transformation



UPM BioVerno



LignoForce



VentureSubsidiaries



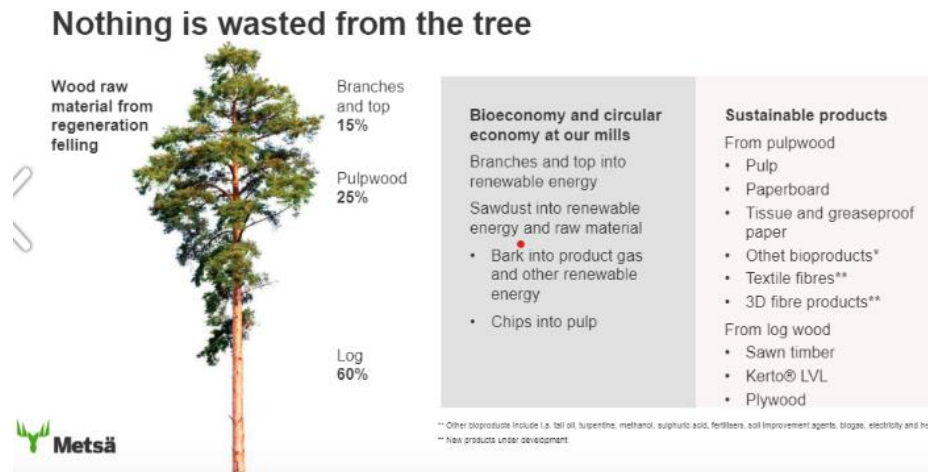
Stora Enso – A Renewable Materials Company

- Stora Enso's promise to the world is that everything which is made with fossil-based materials today can be made from a tree tomorrow. This forms the core of our strategy and is the foundation of our innovation growth agenda.



Food For Thought – Metsä Spring

- Innovation subsidiary of the Metsä Group.
- Provides strategic financing from its own balance sheet, both to external start-up companies and internal pilot/demo projects.
- Expanded in 2021, to take on ‘Group R&D’ function, to support and activate the R&D activities linked to Metsä Group’s existing business areas.



“We need innovation and research and development from both small and large companies. It is an innovation ecosystem – a network of companies and organisations working together.” Niklas von Weymarn, CEO

Foresight Clean Tech Accelerator

**Driving Development
& Scaling of Canadian
Bioeconomy Ventures**



**Engaging a Collaborative
Ecosystem**



**Leveraging Existing
Infrastructure**



**Identifying & Scaling
Bioeconomy Ventures**



**Driving Adoption of
Canadian Bioeconomy
Solutions**



**Positioning Canada as a
Global Leader**

BC Net Zero Innovation Network

- To support Clean BC plan, and Net Zero, including GHG reduction and economic development through advancing the forest bioeconomy
- Develop collaboration and effective clusters between small and medium-sized enterprises (SMEs), industry, academia, government, investors, and Indigenous partners

Potential Activities

- Innovation Challenges
- Ecosystem Mapping & Value Chain Analysis
- Venture Acceleration Cohorts
- Investment Opportunities
- Feasibility studies
- Grant Writing
- First Nations Collaboration
- Events and Connections



Priority Interests

Soft consultations have highlighted a number of challenges and opportunity areas to accelerating bioeconomy growth.

Priorities include:

- Fibre Flows/Access to Economic Fibre
- Value Added Products, including lignin processing/utilization, plastic/fossil fuel material replacement, mass timber
- Mill Asset Repurposing
- First Nations Collaboration
- End-User Markets
- Supply Chain Optimization

Quesnel

- Early discussions on how BCNZIN can support collaborative bioeconomy work in Quesnel
- Collaboration kick-start through Forestry Task Force,
- Looking for industry, gov't , municipal, research partnerships – good discussions with local partners
- Undertaking a Bioeconomy Development Opportunity Zone Risk Rating to better understand available underutilized biomass - potential to attract future projects



Our Future

Canada has a window now to become one of the world's most successful modern bioeconomies. It is important that governments, financial institutions and large corporations hasten the pace of policies, regulation, financing and adoption if the promise of the bioeconomy is to be fulfilled

Source: Canadian Bioeconomy Strategy

Thank you

