Innovative Forest-Based Solutions

Centre for Research & Innovation in the Bio-Economy

CRIBE: The Centre For Research and Innovation in the Bio-Economy

Our mission is to create and support a dynamic, collaborative network of stakeholders in Ontario's forest bio-economy, acting as a catalyst to accelerate innovation, productivity, sustainability and profitability in the sector.

Support net zero goals

Drive job creation and investment

Commercialize made-in-Ontario

The Centre for Research and Innovation in the Bio-Economy (CRIBE) is Ontario's leading forest-based innovation accelerator.

We are a trusted facilitator, funder and supporter of Ontario's bio-economy ecosystem; helping industry partner, innovate, and commercialize.

We bring the forest resources from Northern Ontario to innovative industries in Southern Ontario through our collaboration network.

We enable and accelerate the creation of jobs and investments needed to realize Ontario's forest bio-economy opportunity.

CRIBE

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Initiatives

Project Support

CRIBE facilitates the deployment of first-in-kind, commercial-ready forest-based technologies and products through it's **project support and targeted funding challenges.**

Nextfor is CRIBE's collaboration network. With over 350 individuals engaged, Nextfor brings innovators together to build cross-sectoral partnerships and to identify opportunities for Ontario's forest bio-economy.

The Forest EDGE is a geospatially enabled set of tools developed by CRIBE to promote economic development & investment opportunities in Ontario, and to provide investors with information related to the province's forest resources.

Our Vision
A sustainable, socially responsible and profitable forest bio-economy in Ontario.

Our Mission
To create and support a dynamic, collaborative network of stakeholders in Ontario's forest bio-economy, acting as a catalyst to accelerate innovation, productivity, sustainability and profitability in the sector.

Our Strategic Priorities

Goal 1: Demonstrate

In partnership with research and academic institutions, CRIBE will support industry-led and -supported research, development and pilot projects in emerging forest-based products and technologies.

Goal 2: Lead

CRIBE will drive economic development and foster a culture of innovation through the use of open collaboration and data- and information-sharing.

Goal 3: Deploy

CRIBE will facilitate deployment of first-in-kind, commercial-ready forest-based technologies and products.

Goal 4: Sustain

CRIBE will be a high-performing organization through strong governance, management and financial sustainability.

Current CRIBE Initiatives
2023

Funding Support
Innovation Challenges

Through our funding challenges, CRIBE facilitates the deployment of first-in-kind, commercial-ready forest-based technologies and products.

$29M
Total Innovation Funding Deployed to Date

37
Projects Funded to Date

Nordic Colab

We have strong relationships with Nordic innovation agencies and companies and are actively working on inbound and outbound investment opportunities.

Our International Collaborative Partners

Nextfor
Our Collaboration Network

Nextfor is Canada's only industry-led collaboration network. Nextfor supports investment and growth through open collaboration and information sharing across value chains.

27
Forums Held

23
Case Studies Launched

115+
Participating Organizations

145+
Individuals Engaged

Forest Economic Development Geospatial Engine (EDGE)

The ForestEDGE is a first-in-kind, free set of geo-spatial tools that allow interested parties to map and cost Ontario's forest resources, supporting investment attraction.

We developed the ForestEDGE to help potential proponents answer the questions: what type of forest fibre is available, where is it available, how much is available and at what cost.

Our geo-spatial tools place forestry data at your fingertips.

How much?
Where?
What?

FOREST EDGE
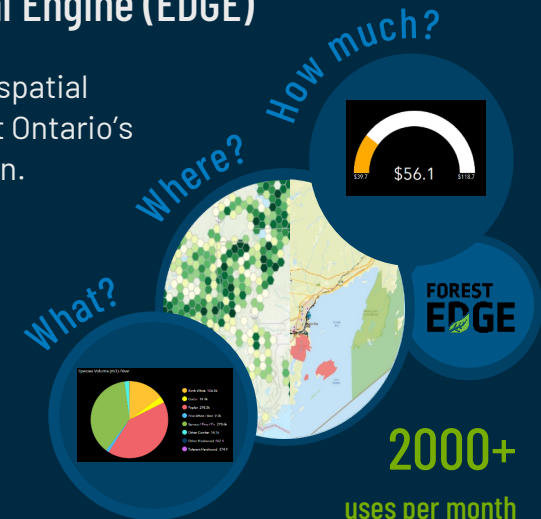
2000+
uses per month

Use Cases

Potential Investor or Technology Provider
Uses Forest EDGE as a pre-feasibility site selection tool.

Regional Economic Development Officer
Uses Forest EDGE to identify regional opportunities within the forest bio-economy.

We help industry partner, innovate, and commercialize.

Meet the Network
Highlight of active Nextfor participants

nextfor

Biocarbon for Heavy Industry

Supporting Ontario's Heavy Industry and their net zero goals.

ALGOMA STEEL INC.

STELCO
The Steel Company of Canada

walker

MOHAWK COLLEGE

CARMEUSE

CHAR technologies

ArcelorMittal

Composites and Biomaterials

Identifying and developing low-carbon solutions for everyday products.

Cpk INTERIOR PRODUCTS

HALIBURTON FOREST BIOCHAR

Western
in cooperation with
Fraunhofer

WOODBRIDGE

Ckdpack.com
Global Packaging & Logistics

Forest Innovation

Enabling the advancement of Ontario's Primary Forest Industry.

FPAC.ca APFC.ca

resolute Forest Products

woodWORKS!
A Canadian Wood Council Program

FPInnovations

columbia FOREST PRODUCTS

FIRST RESOURCE MANAGEMENT GROUP

FORSITE
Forest Management Specialists

High Performance Lignin

Bringing sustainable, lignin-based fossil fuel alternatives to market.

West Fraser

Lakehead UNIVERSITY

MICHIGAN STATE UNIVERSITY

Nextfor Case Studies

Thunder Bay District Energy Prefeasibility Study

District Energy Webinar Series

Economic Wood Flow Modelling

OWA identifying data and resources for province-wide private land inventory

Strategic LCA of Transport Options for Biomass Movement in Ontario

Supply chain Logistics Study for Biomass Movement in Ontario

Hard Carbon from Forest Biomass: Technology Benchmark, Opportunity "Whitepaper"

OWA forest co-op economic project

OWA private land LiDAR trial project

Where will Mass Timber and Solid/Composite Wood Products be in 2030?

Drone Remote Sensing Project with Innovative Long Flight System and Biomass Pile Estimation

Characterization of Residual Biomass with ICFAR at Western University

GFI Biofibre Assessment & Forest Inventory Volume Validation for Low Quality Hardwood Stands in NW Ontario

Investigation of low carbon heat options for natural gas access buildings

Biomass Development Zone Risk Rating Pilot Project

Sault Ste Marie Sustainable Development

Sweden-Ontario start up opportunity mapping

CLT Modular Housing with Relay

CEDC Mass Timber for resource development

Nextfor Case Studies

- Thunder Bay District Energy Prefeasibility Study
- District Energy Webinar Series
- Economic Wood Flow Modelling
- OWA identifying data and resources for province-wide private land inventory
- Strategic LCA of Transport Options for Biomass Movement in Ontario
- Supply chain Logistics Study for Biomass Movement in Ontario
- Hard Carbon from Forest Biomass: Technology Benchmark, Opportunity "Whitepaper"
- OWA forest co-op economic project
- OWA private land LiDAR trial project
- Where will Mass Timber and Solid/Composite Wood Products be in 2030?
- Drone Remote Sensing Project with Innovative Long Flight System and Biomass Pile Estimation
- Characterization of Residual Biomass with ICFAR at Western University
- GFI Biofibre Assessment & Forest Inventory Volume Validation for Low Quality Hardwood Stands in NW Ontario
- Investigation of low carbon heat options for natural gas access buildings
- Biomass Development Zone Risk Rating Pilot Project
- Sault Ste Marie Sustainable Development
- Sweden-Ontario start up opportunity mapping
- CLT Modular Housing with Relay
- CEDC Mass Timber for resource development

Thunder Bay Regional Narrative

- Working with regional partners to support economic development
  - Thunder Bay Community Economic Development Corporation (CEDC) identified specific ways to address gaps
  - Key guidance on how best to display demographic information and required information for investors
  - Collaborated on ForestEDGE dashboard
  - Refining wood and biomass supply data
  - Showcasing research and institutional assets
- Collaborated with Thunder Bay CEDC to develop a Bio-Economy focused web page
  - https://gotothunderbay.ca/key-sectors/bioeconomy/

OPPORTUNITIES FOR THUNDER BAY'S BIOECONOMY

Wood Supply – Underutilization of Birch and Poplar

The supply of wood in the region is considered adequate for SPF species, but there is an underutilisation of birch and poplar, in particular, in the immediate areas surrounding Thunder Bay.

There appears to be a lack of processing capacity for birch and poplar in the area. As the principal industrial forestry processing capacity is more focused on SPF (White and Black Spruce, Jack Pine and Balsam Fir), birch and poplar are not as sought out but must be harvested as part of SPF harvesting operations. This results in an oversupply and comparative lack of processing capacity for specific species.

Because there is not enough processing capacity, the surplus of birch and poplar are problematic from a supply chain management point of view (e.g., be "used" once harvested). Therefore, the surplus is an important

High Performance Lignin – Pathways Project

- Project to support past and current CRIBE investments in Lignin extraction and product development with a goal to document and communicate the following:

  - Market Pathways

    1. What are the current (short) term markets and market entry points for K-Lignin;

    2. What are the emerging (medium/long) term markets for K-Lignin and Hydrolysis Lignin (and sugars);

    3. Provide a conservative estimate of market size and value (Ontario context);

  - Scaling Up Pathways

    1. Provide a high-level capital cost estimate for the construction of an appropriately sized (based on market pathway) lignin extraction plant (Commercially available K-Lignin and H-Lignin technology);

    2. Identify benefits of an investment based on mill optimization, debottlenecking, pulp production, greater utilization of wood fibre etc;

Extracting Whole-Tree Value from Ontario's Forest Resource

to accelerate the creation and adoption of low-carbon, made-in-Ontario, forest-based products.

Traditional Lumber Products

Hemicellulose 23-32%

Lignin 15-25%

Cellulose 38-50%

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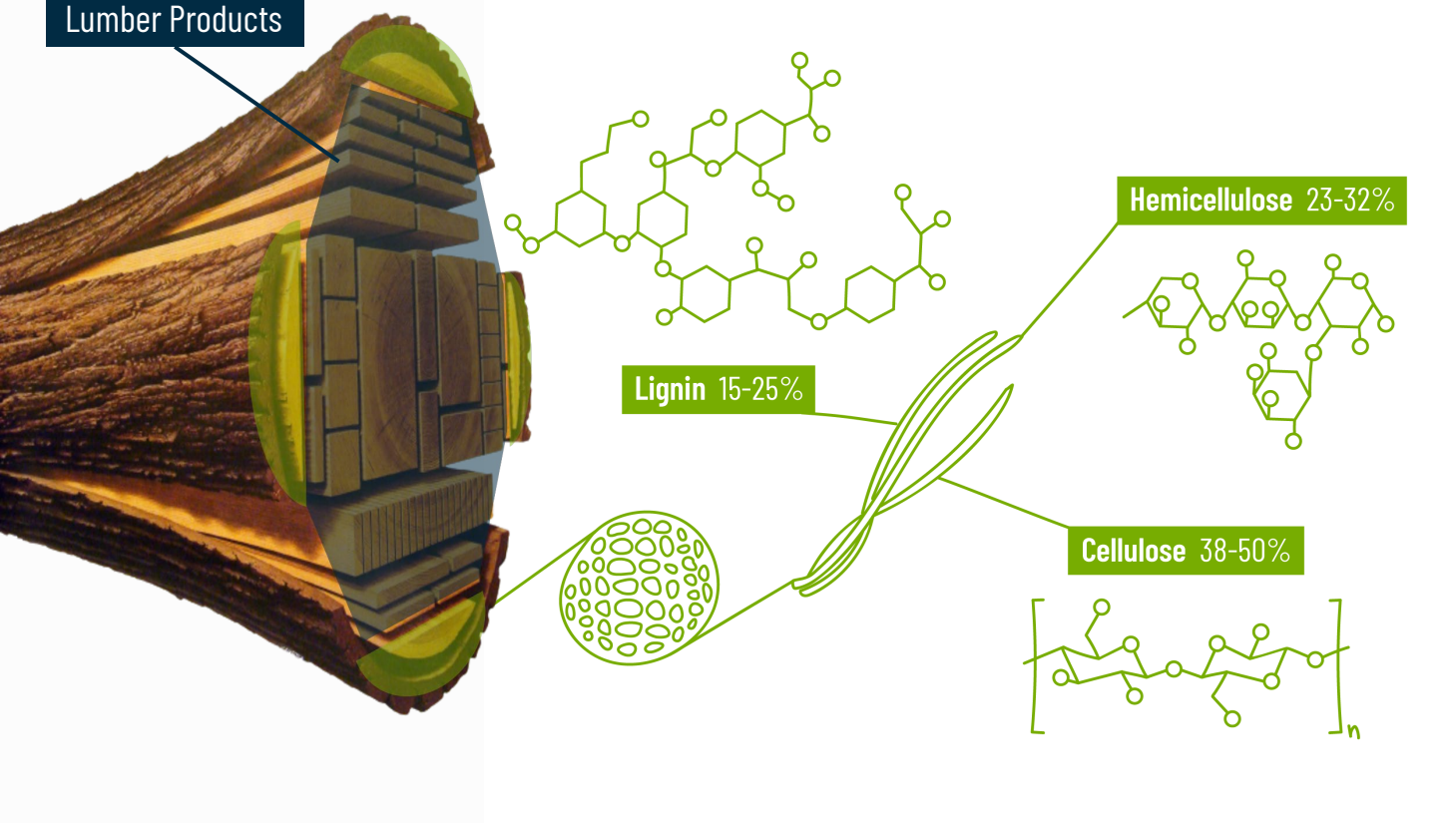
CRIBE Investments in Low-Carbon, Forest-Based Materials
Ontario's Opportunity

Wood product resins, adhesives and coatings

Dimensional and Composite Wood

Fire Protection Products

Mass Timber

Sustainable Roofing Solutions

Bioenergy and Heating
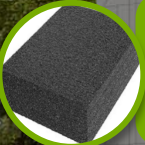
Flexible Foam and Rigid Foam Applications

Energy Storage (Potential opportunity)

Plastics and Packaging

Fuels

Asphalt

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Stay Engaged and Collaborate with Us!

1.   **Access information** by becoming a Nextfor user at www.nextfor.ca/register

2.   **Stay tuned** for Sustainable Building Solutions, Biocarbon, and Forest Innovation forums

   • **Upcoming Nextfor event –** May 4, 2023 in Toronto – RSVP at www.nextfor.ca/events

3.   **Contact us to talk about collaboration opportunities**

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