

# Growing Ontario: Opportunities and Investments

## Production of High-Performance Lignin Products in Ontario

Summary of opportunities identified in CRIBE's 2023 Lignin Roadmap Report

- **Ontario is well positioned to be a key player in supporting the shift to net-zero, bio-based products. Extracting lignin from existing kraft pulp mills is one opportunity in this shift – a move that enhances resilience and profitability in the pulp-and-paper sector.**
- **Lignin is a tree-based “glue” that can be used to displace petroleum-based chemicals and materials** in a wide range of products.
- **World demand for lignin is growing, but existing capacity can't keep up.** Recent mill sales or closures have limited world supply.
- A range of existing product pathways exist or are close to being commercial-ready. These include products ranging from low value, high-volume commodities (i.e. asphalt), to low volume, high value specialty products (i.e. resins). **There exist markets within Ontario for several of these products.**
- Currently two process technologies for extracting kraft lignin exist and have been implemented in commercial demonstration plants. **The technology used in one of the processes was developed in Thunder Bay with Ontario and Federal government support.**
- **“Biorefinery lignins” present further opportunity.** These are made using unmerchantable hardwood available in Northern Ontario. The are two commercial facilities in Germany and Estonia that manufacture biorefinery lignins.
- **For all these reasons, we need new capacity to support the green transition and meet growing demand.** Ontario is well placed to lead this transition.
- **Northern Ontario pulp mills could see potential annual revenues of up to \$100M/y** with investment in a \$60M plant.
- **To move forward, we need investment in the development, application, and marketing of lignin modification technologies.** Again, Ontario is well-placed to contribute and benefit.
- **Government support is critical!** We need **enabling policy for bio-based materials, continued development of a strong kraft lignin value chain in Ontario, and continued de-risking of product development.**
- ***But time is of the essence!*** Ontario needs to act on these opportunities to compete with our Nordic counterparts.
- Details from the AFRY Ontario Lignin Roadmap Report can be found on [nextfor.ca](https://nextfor.ca).

