



BNA District Heating Project

Bingwi Neyaashi Anishinaabek (Sand Point First Nation)

Jordan Hatton, Director of Economic Development

BNA History

- The people of Bingwi Neyaashi Anishinaabek – formerly known as Sand Point First Nation – have been occupying the southeast shores of Lake Nipigon since time immemorial
- Once a thriving community, the people of Sand Point worked as commercial fishermen, trappers and fur traders
- Flooding of Lake Nipigon due to a series of dams and diversions throughout the watershed, which destroyed the community;
- Destruction of the community and displacement of the membership by the Province to make way for the creation of the Lake Nipigon Provincial Park
- BNA reclaimed its community lands at a ceremony in April 2012.



BNA Today



Papasay Sawmill



- The vision of the Sawmill is to be an on-reserve anchor project, providing jobs to members and lumber for their homes
- We commenced operations in 2017 with 3 employees; Art Gladu is Papasay's Sawmill Manager
- Currently producing rough-sawn, air-dried lumber
- There is a Business Plan in place and we are currently expanding the operation to include the production of value-added lumber and products
- This is being done with the support of Federal partners FedNor and NRCan



Biomass Project to Heat Sawmill in Winter



- NRCan-Supported Project
- Poured 28x30ft concrete pad
- Sawmill Insulated
- 20ft Seacan insulated
- Fuel is by-product from Papasay Sawmill operation
- The Froling T4 150kw Boiler uses high-quality wood chips from the Sawmill's wood residue.
- Wood Chip Storage
- Pezzolato Chipper for slabs
- Additional Equipment purchased for future biomass developments



BNA District Heating System

- BNA is in the process of building – we have 13 homes, 2 duplexes, and 2 four-plexes nearly completed. We continue to build yearly.
- BNA Government Office, Roundhouse, Elder’s Complex and other buildings that will be constructed must be biomass compatible
- We now have a “critical mass” of infrastructure at BNA which can hook into a **District Heating System**
- Regular supply of fuel from Sawmill wood residue on-reserve
- BNA envisions a clean, green community run on renewable energy, utilizing its wood waste from its economic driver – the Sawmill - to heat its homes and buildings



Miigwetch!

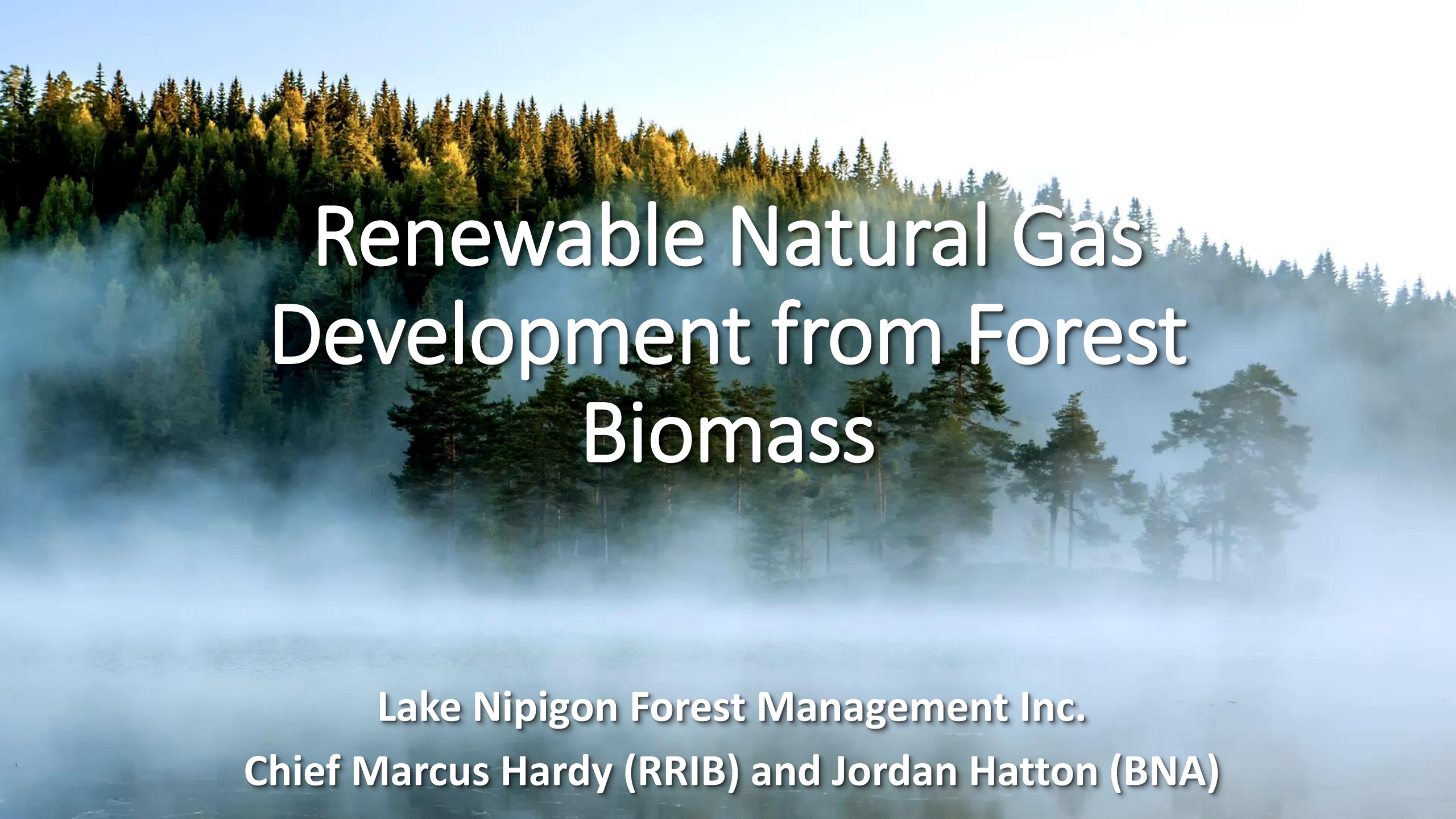


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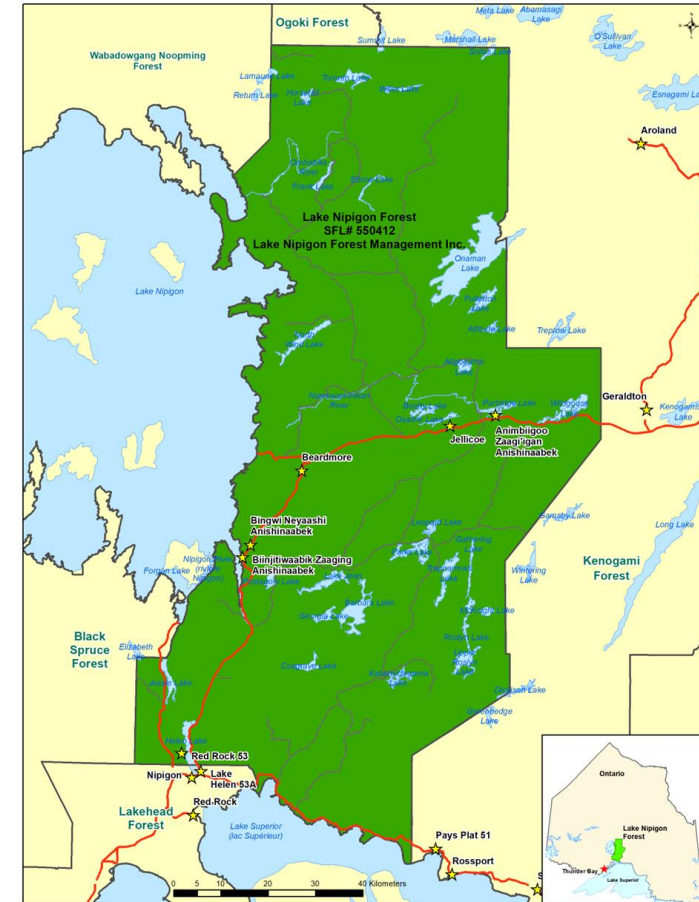


Renewable Natural Gas Development from Forest Biomass

Lake Nipigon Forest Management Inc.
Chief Marcus Hardy (RRIB) and Jordan Hatton (BNA)

Background on LNFMI

- Forest Management company holding the Sustainable Forest License (SFL) on the Lake Nipigon Forest
- Initially was a Co-Op between multiple mills and harvesters
- In the 2007-10 recession, all Facilities and the largest harvester shareholder went bankrupt, into receivership or exited the area
- First Nation harvesters became the only shareholders to survive



Background on LNFMI



- Four Shareholder Communities are:

- Animbiigoo Zaagi igan Anishinaabek
- Bingwi Neyaashi Anishinaabek
- Biinjitiwaabik Zaaging Anishinaabek
- Red Rock Indian Band



Bingwi Neyaashi
Anishinaabek



**RED ROCK
INDIAN BAND**

Strength. Tradition. Empowerment.

LNFMi's Growth



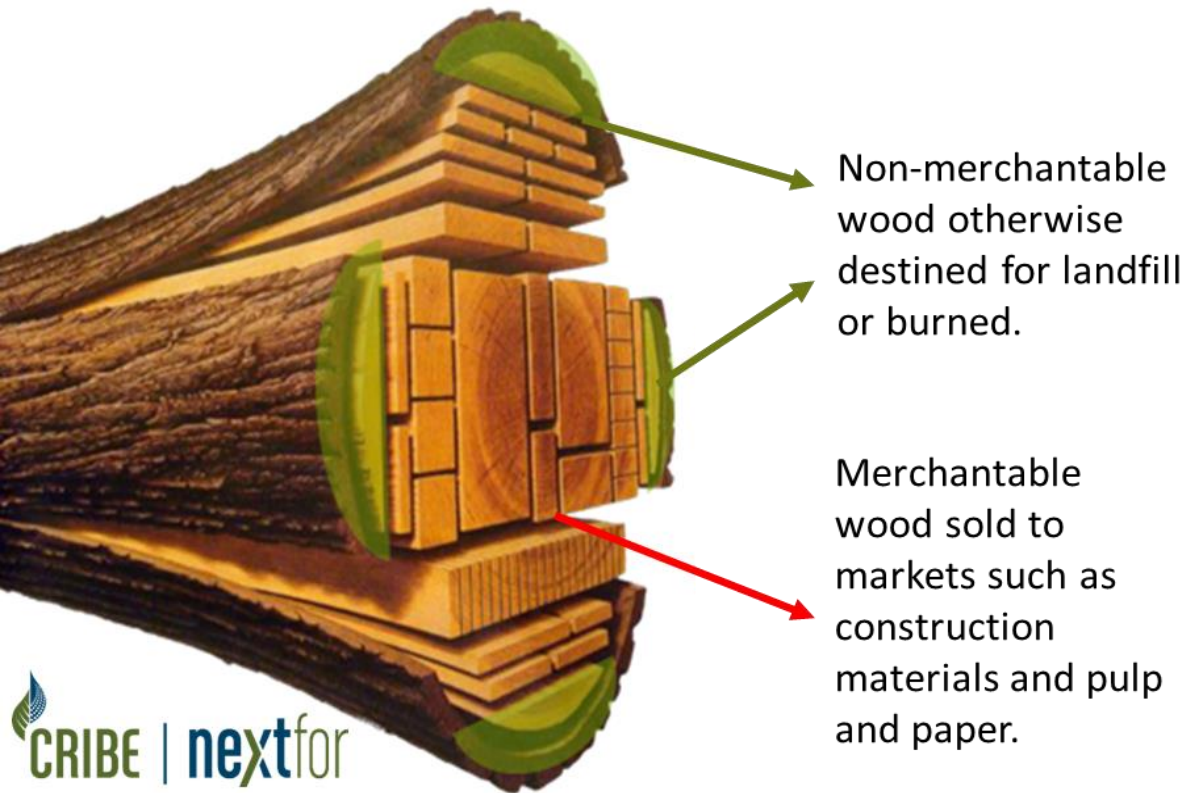
- Prior to 2012
 - Very limited harvesting capacity of $\sim 60,000\text{m}^3/\text{yr}$
 - Small tree plant programs of $\sim 50,000$ trees/yr
- 2022
 - Harvest $\sim 50\%$ of the fiber ($\sim 300,000\text{m}^3$)
 - Plant 1.6 million Trees/year
 - Brush saw thinning 200ha/year of plantation
 - Enhanced Road Construction and Maintenance
 - Support of Niche Mills (Papasay Value Added Wood Products)



Forest Biomass Opportunities



LNFM's market for wood is almost exclusively spruce & pine for area sawmills with a limited poplar market



Unutilized Biomass Opportunity

- From Harvest Blocks
 - Roadside slash
 - Diseased or malformed trees
 - Currently unmarketable species
- Additional Biomass Sources
 - Thinned vegetation from plantations
 - Pre-commercial harvest volumes
 - Fiber from roads and utility lines right-of-way clearing, residential sources and industrial sites
 - Forest fire salvage
 - Landfilled wood waste (construction, brush and storm cleanup)

Quantifying the Opportunity



- Wood supply modelling identifies that over the next 40 years, LNFMI can supply $\sim 700,000\text{m}^3$ of undersized, defective or currently unmarketable wood annually (or 14,000 truck loads/year)
- Ideally interested in options to maintain a local ownership structure
- Feasibility Study indicated multiple medium sized facilities would be the best fit for the area



Partnership Selection



- Met with potential partners to understand their abilities, assets and alignment with LNFMI's values
- Advanced discussions with 2 companies, REN Energy and CHAR
- Moving forward with CHAR



LNFM/CHAR Facility



- CHAR Technologies designed
- Modular Build (comes in 37,500gmt lines)
- Initially, 2 lines are planned with total consumption of ~75,000gmt
- ~\$48.5 Million Investment
- Will result in ~10 new full time positions in the facility along with increased biomass supply employment

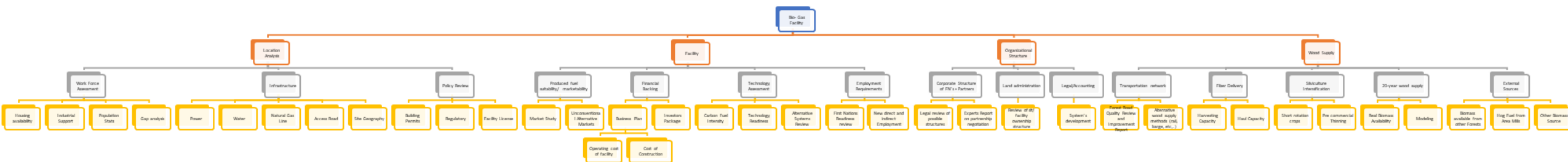


CHAR
technologies

Delegation of Responsibilities



- Both partners bring their own specialties for a symbiotic relationship
 - CHAR Technologies understand the engineering, CapX/Operating costs, product sales and RNG Industry
 - LNFMI understands efficient biomass harvest/acquisition and logistics, capacity building and local community engagement

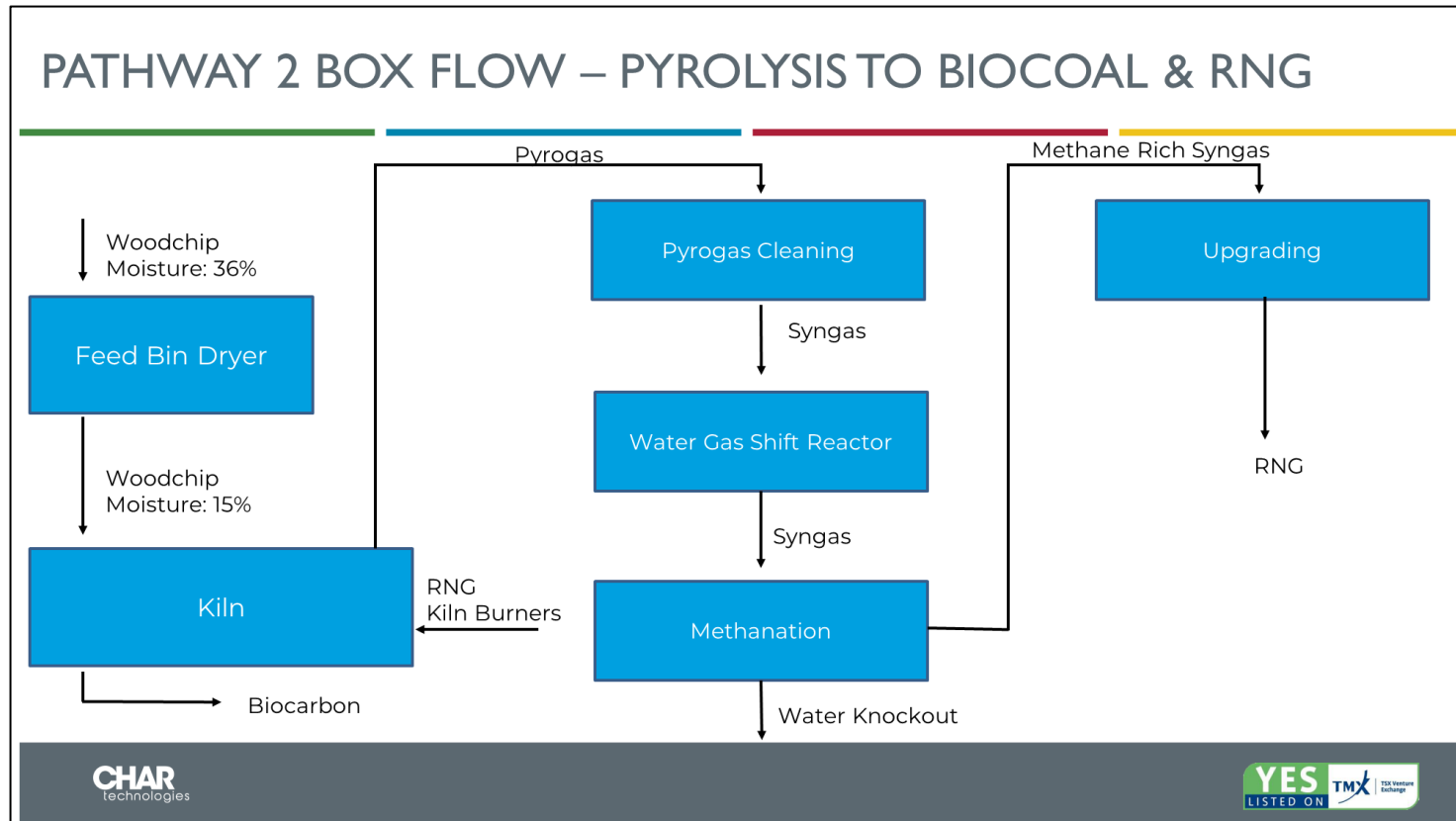


RNG Production Process



Inputs into the system:

- Woody Biomass – processed to <2inch (<1% tramp)
- “Green” Electricity – i.e. solar, wind or hydro



Outputs from the process:

- Renewable Natural Gas – CI - 6.8gCO₂e/MJ or -87gCO₂e/MJ with CO₂ capture
- Biochar/Biocoal
- Pure form Carbon Dioxide
- Water

Facility Site Requirements



- ~15-25ha of land between the Facility and wood storage
- Access to Natural Gas Pipeline infrastructure
- Access to “Green” power supply (1.8Mw to 3.6Mw)
- Biomass Supply
- Workforce

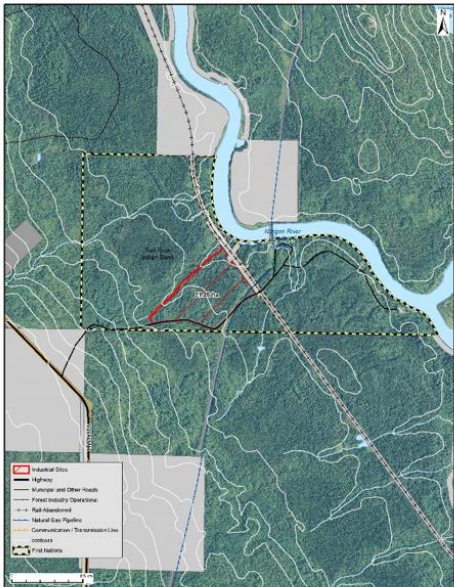


Figure 1. Location of Site 5- RRIB

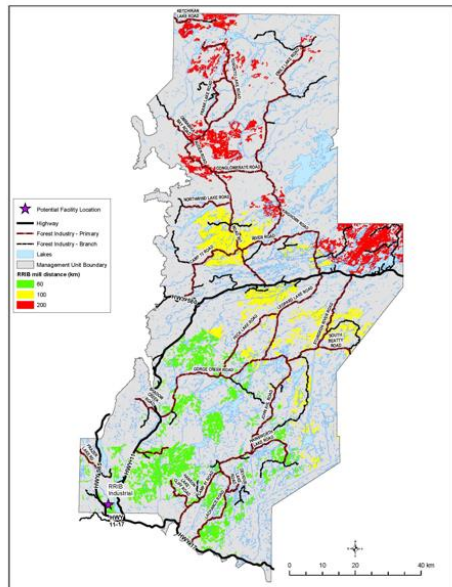
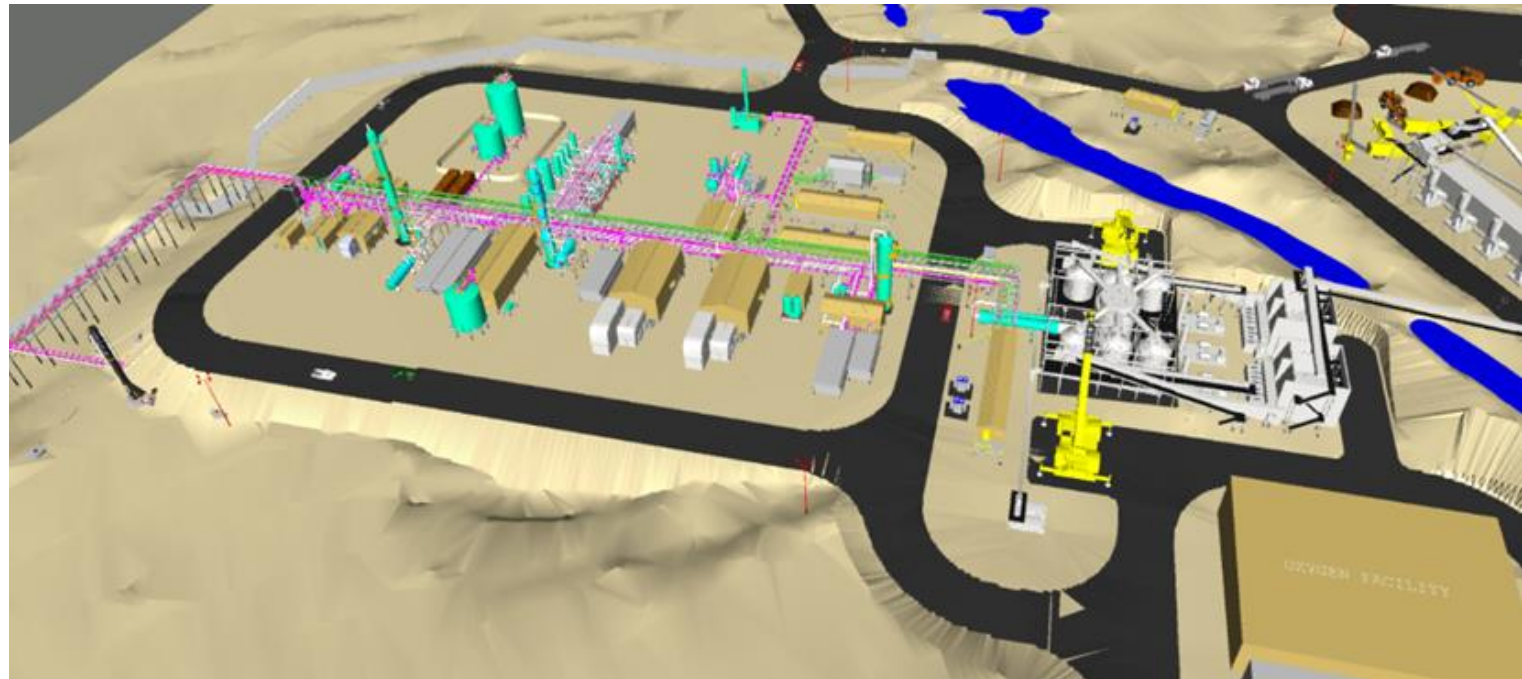


Figure 2. Distance of wood allocation compared to site location



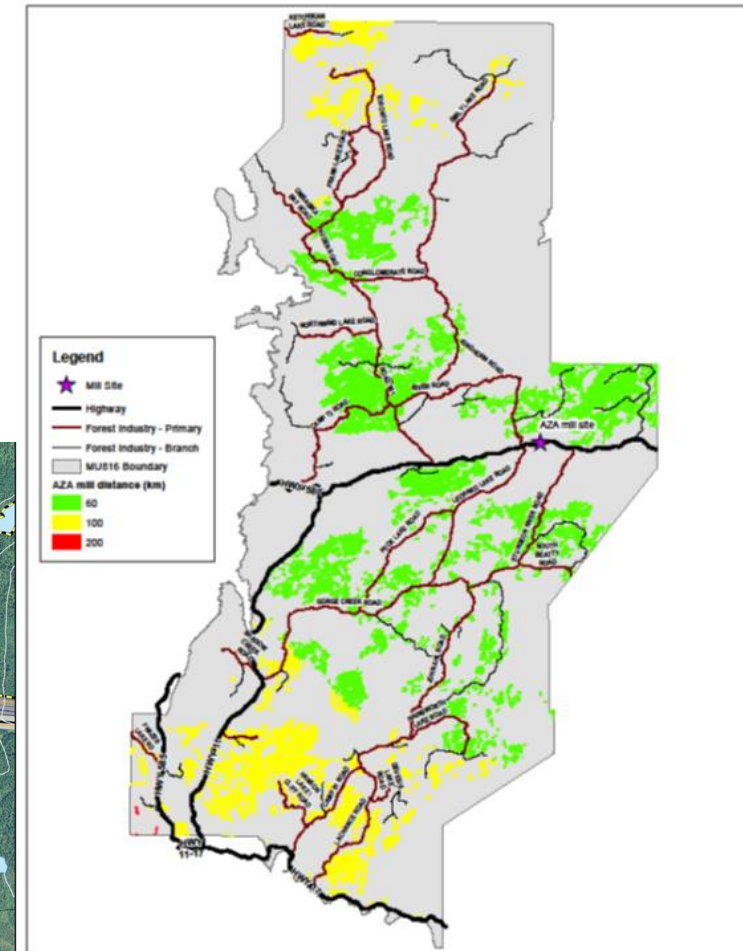
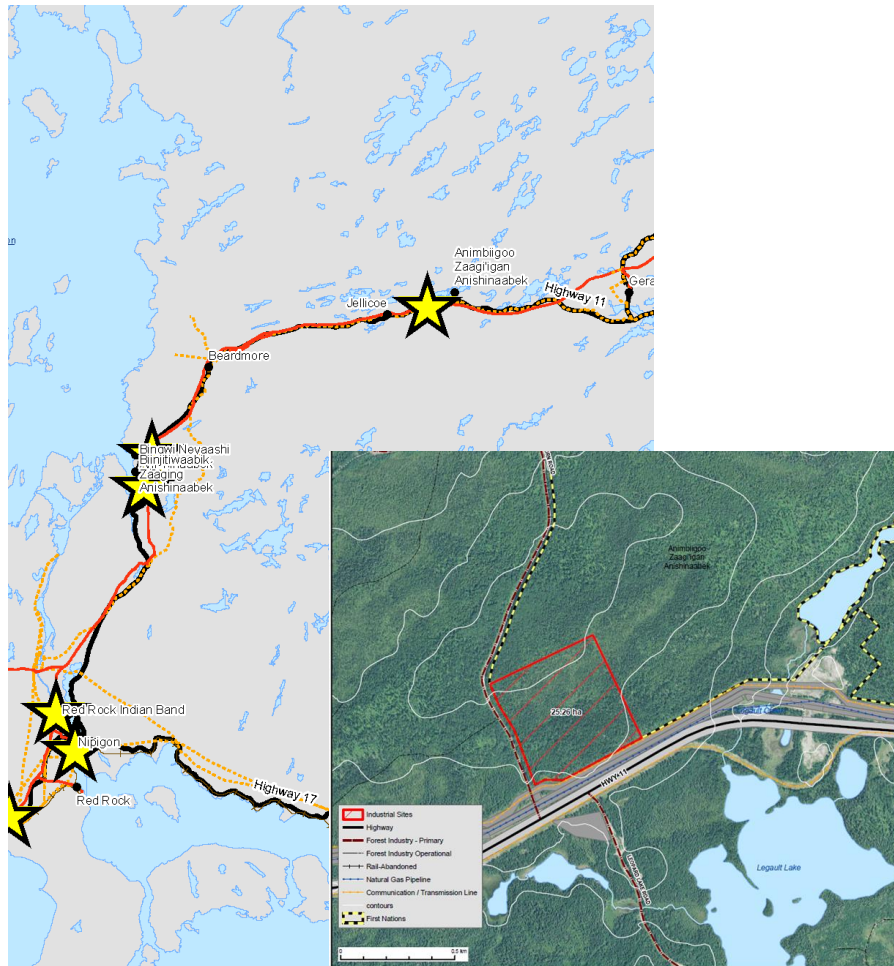
Site Selection



Five sites were initially evaluated with a 6th added afterward:

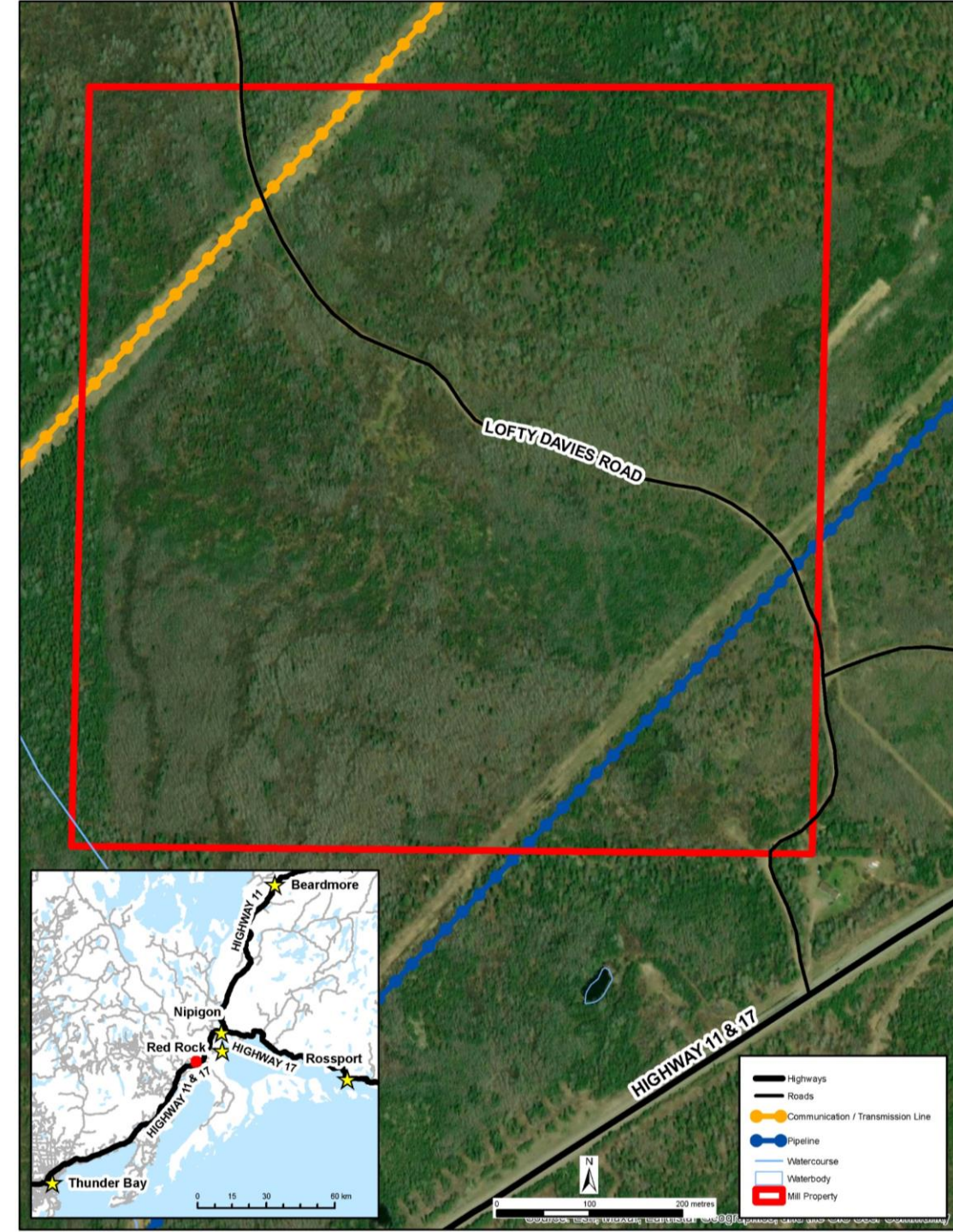
- AZA
- BNA
- BZA
- RRIB
- Former Nipigon Multiply Site
- Hurkett

Pre-feasibility study conducted looking at fiber supply. From the initial evaluation, 2 Sites (Nipigon Multiply and Hurkett) were selected as candidates for the first facility



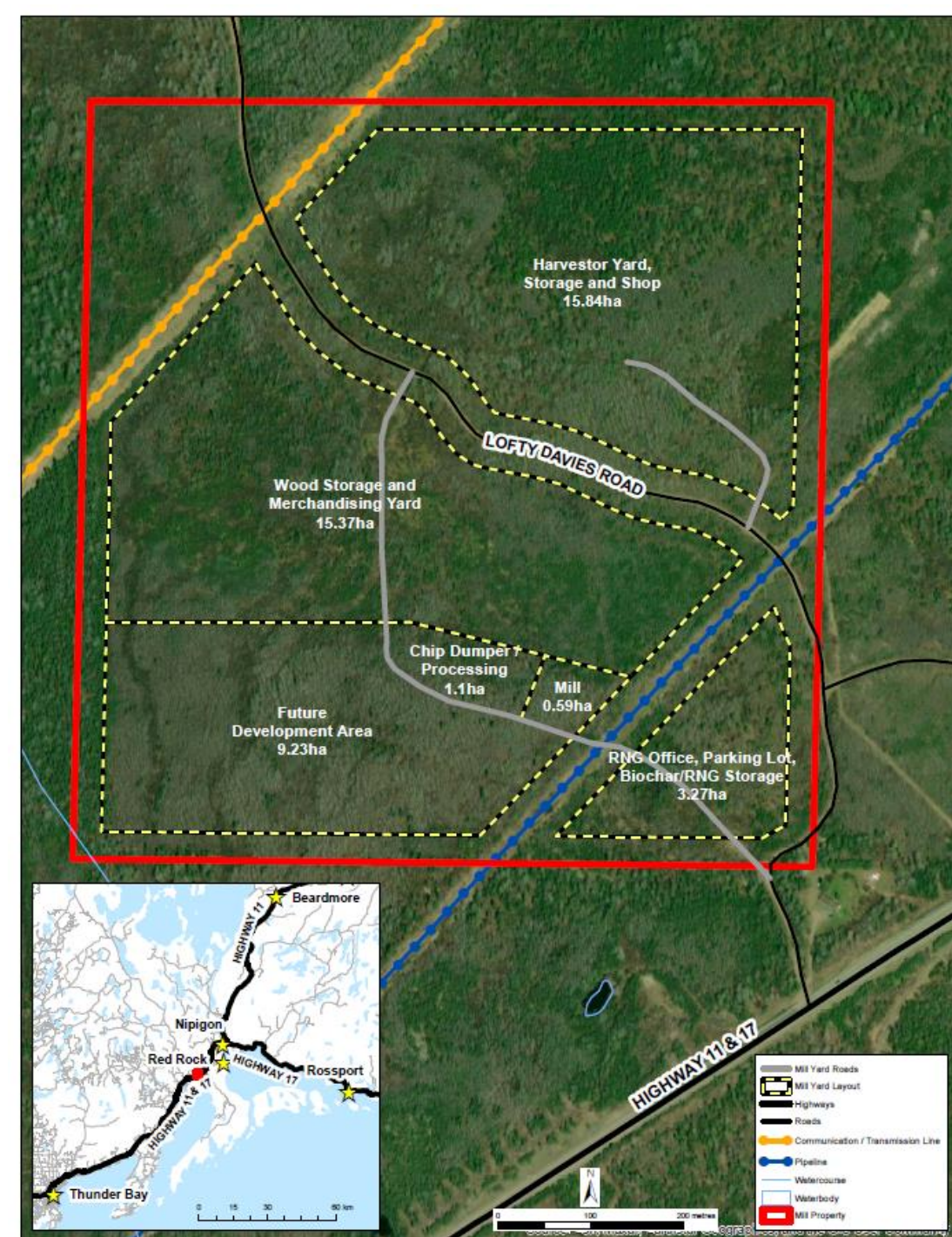
Hurkett Site

- Vacant Land >500m from nearest residential building
- 65ha in size leaving much room for development
- Unorganized Township
- Phase I Environmental Site Assessment identified no contaminations or concerns



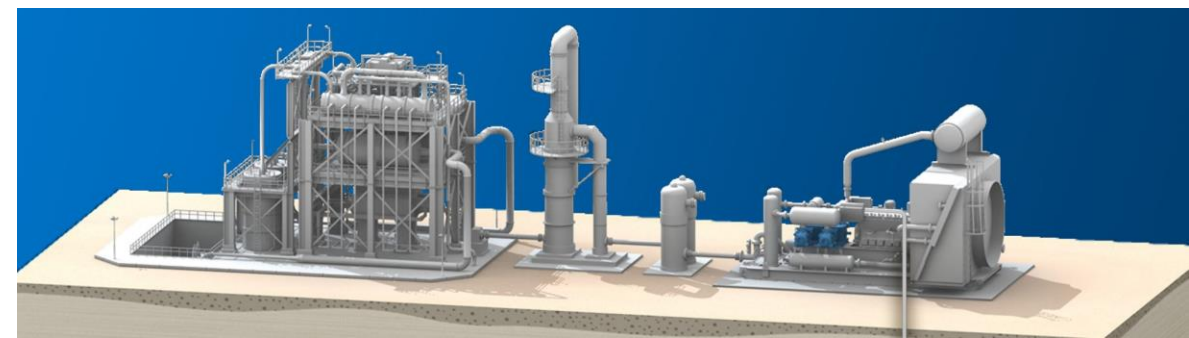
Hurkett Site

- Site selected for RNG Plant Construction
- Additionally, a wood merchandizing yard is being built adjacent to the plant
- Site layout and planning is occurring
- Plans to clear the property, construct roads and level the area have started. Looking to complete work this fall.



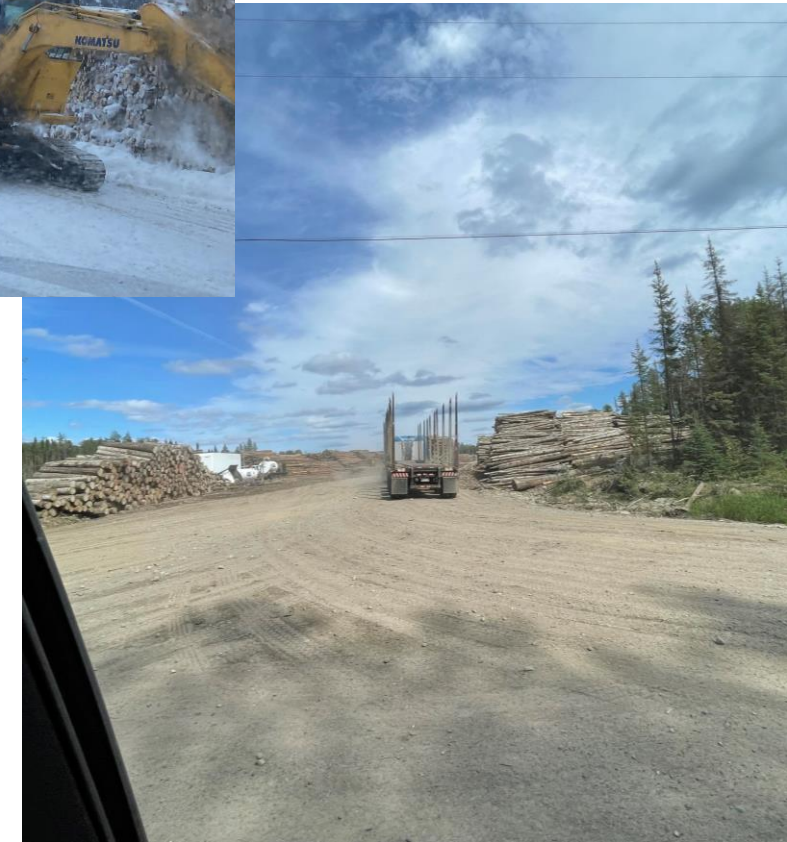
Hurkett Site

- Infrastructure to be built
 - 200'x400' Structure
 - Small office building
 - Weigh scales
 - Chip dumpers
 - Natural Gas Compression and Injection Plant
 - Backup power plant



Hurkett Site

- In future will become part of the RNG Facilities wood yard
- Process tree length conifer and hardwood into value added products
 - Sawlogs
 - Veneer
 - OSB Logs
 - Pulp Chips
 - Hog fuel
- Electronic logbooks make it economical for this site to be built



Biomass Supply

1. Excess volumes created by the wood merchandising yard in Hurkett, which is located directly adjacent to the LNFMI/CHAR RNG Facility.
2. Slash and debris from forest harvesting operations.
3. Historic slash piles.
4. Unmarketable hardwood volume.
5. Utility right-of-way clearing, other infrastructure development and natural disturbances.



LNFMI/CHAR Facility



Work Completed to-date

1. Property was purchased
2. MOU with CHAR Technologies was signed
3. Terms Sheet and Roles/Responsibilities was negotiated
4. ArcelorMittal completed a Biocarbon Purchase Agreement with Char Technologies
5. Enbridge signed a Letter of Intent to purchase 1 Million Gigajoules of RNG from the LNFMI Facility
6. Technology has been reviewed by NRCan and received a grade of low risk
7. 3rd party Financial Model confirmed the profitability of the project with Loan Packages being offered to fund the project

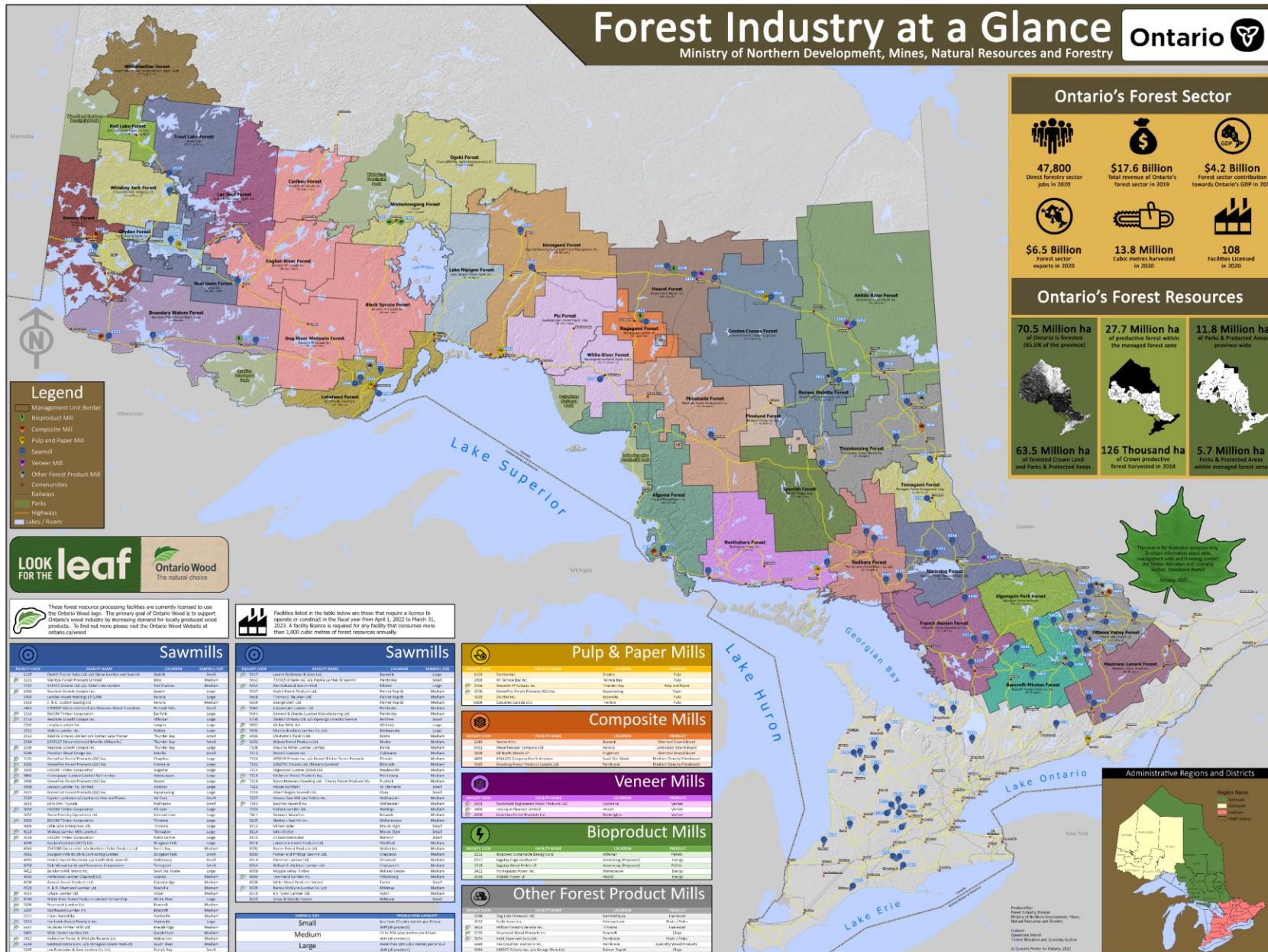
LNFMI/CHAR Facility



Next Steps with Tentative Timeline

1. Signing of an MOU that contains the formal partnership terms **(Complete)**
2. Finalize Location **(Completed)**
3. Complete a Detailed Partnership Agreement **(September)**
4. Groundwork to prepare yard **(End of October)**
5. Financial Close **(May 1, 2024)**
6. Front End Engineering and Design **(June 30, 2024)**
7. Regulatory Approval **(September 1, 2024)**
8. Ground Breaking on Facility **(September 2024)**

Forest Biomass Opportunities



<https://www.ontario.ca/files/2022-03/ndmnr-ontario-forest-industry-at-a-glance-map-en-2022-03-10.pdf>



Questions?