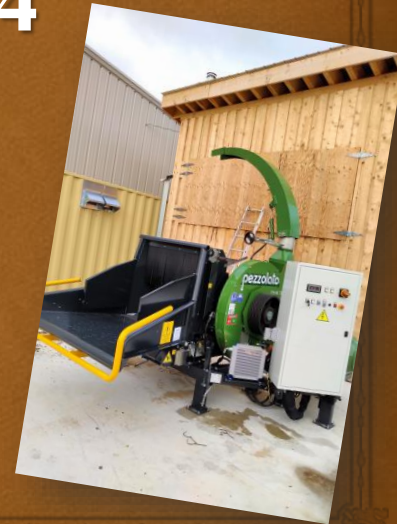


Bingwi Neyaashi Anishinaabek Bio-Heat Project



Solid Wood Bioheat Webinar #4
“PROJECT PLANNING”
February 25th, 2021



Today's Presentation

- History of BNA and our developments to date, including the Papasay Sawmill
- Walk through the stages of Planning and Development that made up the BNA Bioheat Project, including:
 - “The Idea” Phase;
 - “Building Support for this Idea” Phase;
 - “Developing the Team to carry out this Project” Phase; and,
 - Describing the Project and its progress over two years
- BNA's future bioheat plans
- Discuss Project Benefits, and Lessons Learned



BNA HISTORY



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
- Despite the fact that Sand Point was a First Nation community that was deserving of a reserve in its own right, the Federal Government did not move ahead with the creation of the reserve, and wouldn't until the 21st century.



BNA History Cont.

➤ A series of events occurred in the 20th century that led to the displacement of the Sand Point people:



- First was the Flooding of Lake Nipigon due to a series of dams and diversions throughout the watershed, which destroyed the community;
- Second was the 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



BNA Today



BNA Develops

- 2008-2020: Series of Developments
- 2009: Papasay - BNA's Ec Dev Corp, owned 100% by BNA, is formed
- 2010-12: Surveying and clearing of Lot A of the BNA Industrial Park
- 2012: BNA Capital Plan is developed
- 2012: BNA and Canada sign the Framework Agreement on First Nation Land Management. In March 2014, the BNA membership ratified its Land Code, removing BNA from 25% of the Indian Act
- 2018: Housing construction commences at BNA on 2 duplexes, followed by 3 individual homes
- 2019: First member moves to the land



Papasay Sawmill



- The vision of the Sawmill is to be an on-reserve anchor project, providing jobs to members and lumber for their homes
- 12,000 sq ft building erected in 2013 in the BNA Industrial Park
- Equipment was acquired over the years
- We commenced operations in 2017 with 3 employees; Art Gladu is current Sawmill Manager
- 3-phase power was installed for the equipment in 2018, supported by NRCan
- Currently producing rough-sawn, air-dried lumber
- There is a Business Plan in place: we plan to expand to value-added products as soon as possible



PROJECT PLANNING #1



THE IDEA

The Heating of the Sawmill



- The Sawmill was operating year-round....yet had no heat
- Workers continued to work in -40C temperatures in the wintertime. They only stopped if the equipment froze.
- Resolute had provided Papasay with 2 Herman-Nelson diesel heaters to assist with the heating of the Sawmill in the winter months, however:
 - Diesel is a dirty, polluting fuel - they had to be piped outside
 - Extremely expensive to run



IDEA: Displace Diesel with Sawmill Wood Waste!

- BNA can displace the diesel fuel used by the dirty, polluting Herman-Nelson heaters with the wood-waste generated from our Sawmill operation
- This would solve several problems:
 - 1) Provide a comfortable, safe facility for the workers operating in the wintertime;
 - 2) Utilize the wood-waste that was piling up in the Industrial Park, and find a use for future waste;
 - 3) Eliminate diesel as a heating source, improving the environment in the process.



Location is Key

- BNA is located in the heart of the Lake Nipigon Forest.
- BNA, along with AZA, BZA and RRIB First Nations manage the Forest through Lake Nipigon Forest Management Inc.
- No shortage of fuel in the region for Bioheat Project



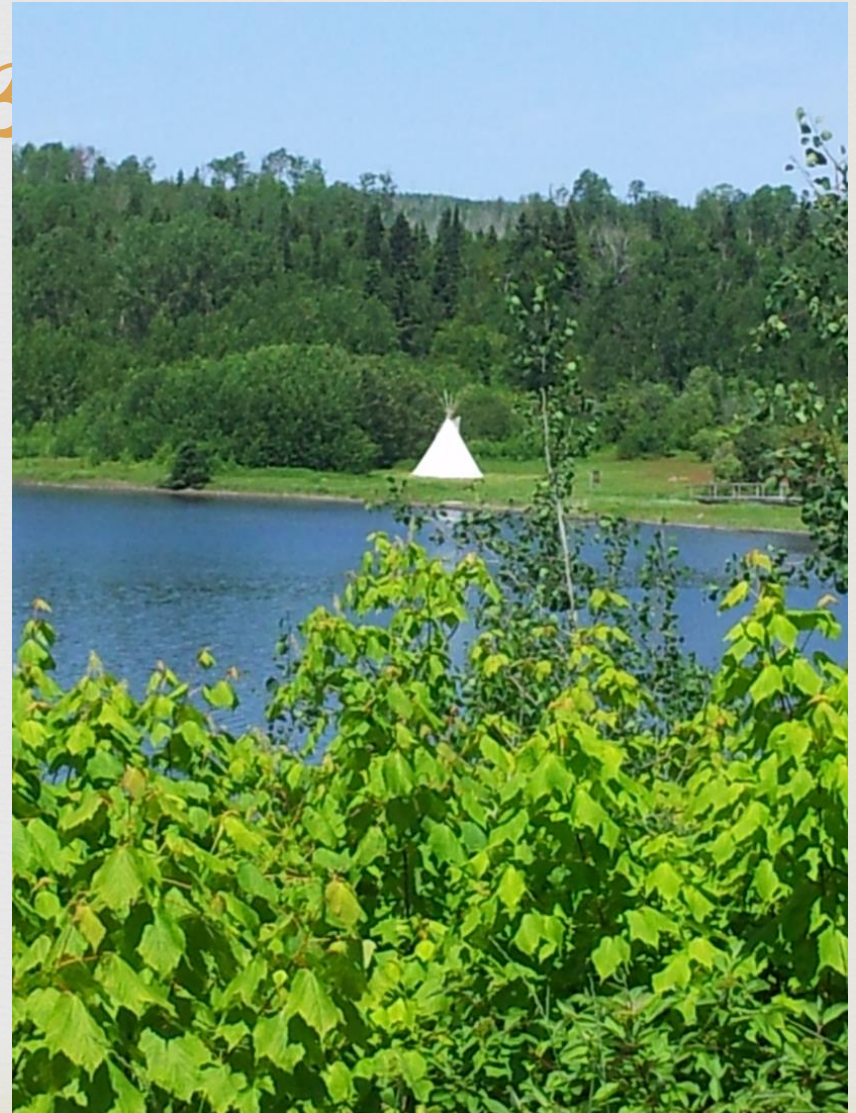
**PROJECT
PLANNING #2**



**BUILDING SUPPORT
FOR THE IDEA**

Building Support

- From BNA's Leadership: Chief and Council
- From the BNA membership
- From the Sawmill Manager and Employees
- Finally (and most critically): From the Funders!
 - Meetings with Funders to develop support for the Project idea
 - BNA's Application to Natural Resources Canada's Clean Energy for Rural and Remote Communities (CERRC) Fund in Spring of 2019
 - Due-Diligence Phase
 - Success!



PROJECT PLANNING #3



DEVELOPING THE TEAM

Developing the Team



- BNA: Project Lead and staff support
- Papasay: Sawmill Manager
- Biothermic: Boiler, Chipper, Electrical, Engineering, Installation
 - Due Diligence: Belluz Farm
- HME Enterprises: Regulations, Wood Supply, Fuel Management, Fuel Testing
- TBT Engineering: Project Management
- Regular Meetings!



PROJECT PLANNING #4



CARRYING OUT THE PROJECT

Concrete Pad



- The concrete pad is 28 feet by 30 feet.
- This is the foundation that the boiler stands on.



Insulation and Piping

- Board and baton was installed over the insulation.
- Piping installed inside the Sawmill in order for the movement of heat from inside the c-can into the Sawmill.



Placement of C-Can



- The c-can is a 20ft high, and is insulated.
- Inside the c- can includes:
 - mechanical piping and controls;
 - a wood chip fuel handling system;
 - a 60 amp sub panel;
 - lighting;
 - completed field wiring;
 - boiler;
 - air intake;
 - active over temp boiler room exhaust;
 - and a back-up electric heating system.



Froling T4 Boiler and Back-Up Electric Boiler

- The Froling T4 150kw Boiler uses high-quality wood chips from the Sawmill's wood waste.
- It is an advanced wood chip system that meets all standards for emissions and efficiency.
- It has sensors and multiple temperature probes to constantly adjust combustion parameters to ensure efficiency and low emissions.
- The back-up electric boiler is 120kw.



The Fuel: Sawmill Wood Waste

- The wood waste used for the Biomass heating system is the by-product of the Papasay Sawmill.
- To make sure that enough wood waste was available throughout the winter months, the Sawmill workers ensured wood slabs were collected and properly stacked for drying over the summer of 2020. The wood was placed into 20ft by 80ft piles.



Wood Chip Storage Bin



- The wood chip storage building has 2X6 stud wall construction and wood exterior.
- There is a wood chip agitator and auger for conveying fuel from the wood chip storage building to the Boiler.



The Wood Chipper Unit



- The Pezzolato Wood Chipper ensures that the sizes of the wood chips meet the requirements for the Boiler heating system.
- The wood chipper has a 55kw electronic motor.
- Slabs or logs can be fed into the chipper, and the fuel can then be blown directly into the wood chip storage bin.



Wood Chip Testing



- Wood chip testing for this project is important because of the standards that need to be met for ash and moisture content.
- LU conducted the tests for this Project.



District Heating and Portable Chipper



- BNA worked with NRCan to include additional important activities for this Biomass Project.
- This included building in heating systems for the new BNA homes that will eventually tie-in to a community district heating system, which would also be fueled by wood chips.
- BNA also acquired additional equipment – a tractor and mobile chipper – to move into the commercial biomass space.



Success!!



- The BNA Bioheat Project has been a huge success. While the chipper took longer to deliver due to overseas transfer of equipment and the COVID-19 Virus, all other aspects of the Project have been on-time and on-budget.
- BNA would like to thank Natural Resources Canada (NRCan) for their generous support, and for making this important Project a reality for BNA.



Natural Resources
Canada

Ressources naturelles
Canada

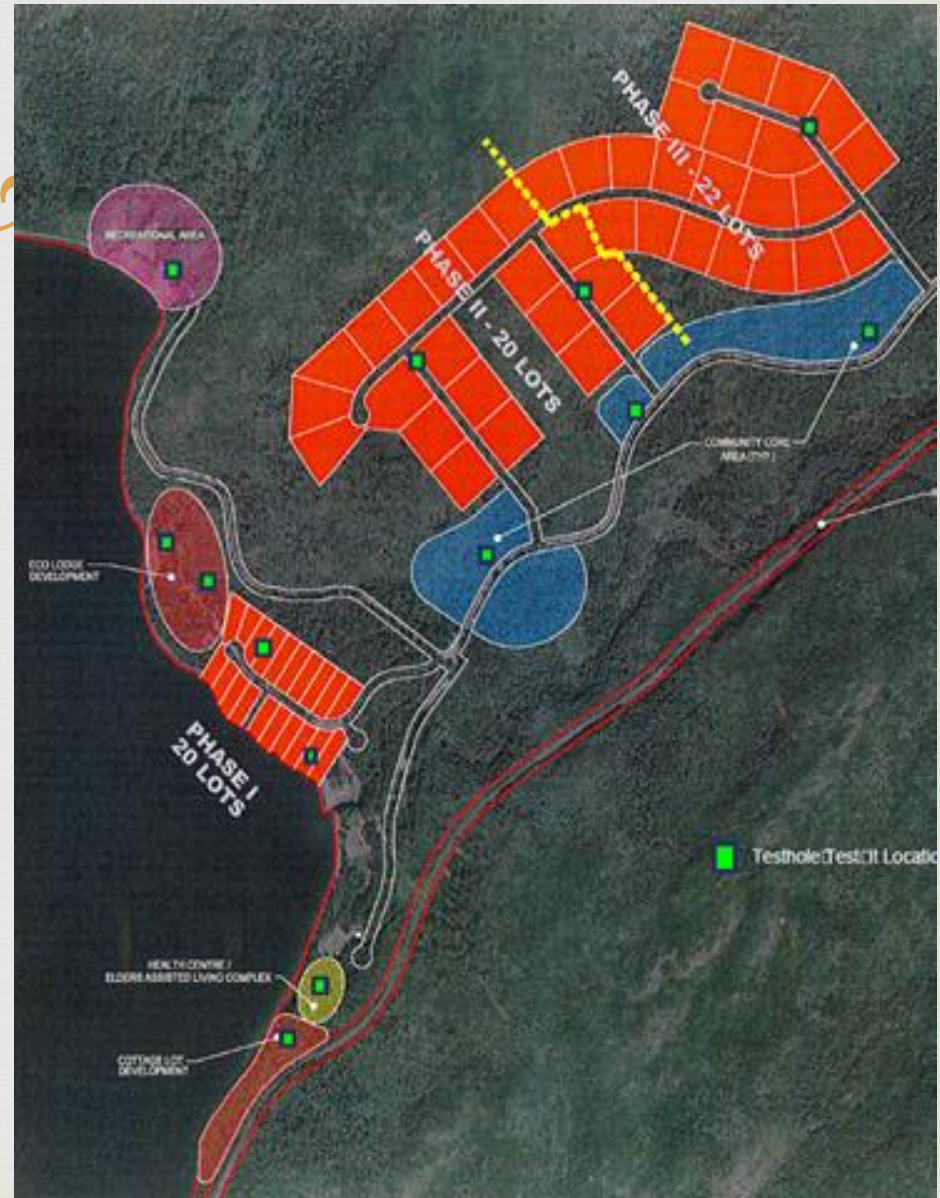
Canada

GOING FORWARD



BNA District Heating System

- By Spring of 2022, BNA will have six (6) individual homes constructed, and two (2) duplexes: 10 units total
- Need to ensure that the next three homes are biomass-compatible, and need to retrofit the 4 duplex units
- Also BNA Government Office, Roundhouse, other buildings that will be constructed must be biomass compatible
- Goal is to have a “critical mass” of infrastructure at BNA which can hook into a **District Heating System**
- The mobile chipping unit can then ensure a regular supply of fuel from Sawmill wood waste on and off-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 building



PROJECT BENEFITS



LESSONS LEARNED

BNA Bioheat Project: Project Benefits



BNA is on track for completing its Bioheat project by the end of March 2021.

Project Benefits include:

- A heated Sawmill for the workers;
- A source for our wood waste;
- The displacement of diesel and a move toward renewable fuel sources;
- Homes in BNA are being prepared for a future “district heating system”, which will dramatically lower the heating costs for members moving back to the community;
- The tractor and mobile chipper will allow BNA and Papasay to look at regional biomass sales to Indigenous and non-Indigenous communities alike who may also look toward this technology for use in their homes, halls and businesses;
- BNA can become a regional leader in biomass and bioheat developments, showcasing to others how they can also benefit from this technology.



BNA Bioheat Project: Lessons Learned



1. Things will happen completely out of your control. Need to Manage them.
 - Weather: Concrete Pad, Fuel Supply; Getting going *before* winter.
 - COVID-19: Delays on shipping chippers from Europe, closing of testing facilities
2. Project Management keeps things organized, on-time, and on-budget.
3. Do your due-diligence! Be comfortable with your choices.
4. A talented and dedicated team is a must.
5. Communication is critical.
6. Take lots of pictures and document your Project.
7. If BNA can do this, you can too!



Miigwetch!



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