



Whitesand First Nation Community Sustainability Initiative



Presentation Overview

- * In 2009 Whitesand First Nation created the Community Sustainability Initiative (CSI) as a forward thinking initiative to lead the community forward out of economic despair, and to address social, cultural and education problems and issues.
- * This presentation focuses on the CSI Economic Cornerstone which is led by Whitesand's Biomass Energy Project and the employment opportunities and other benefits it will provide.
- * I will also reflect on a number of key project drivers and issues faced by Whitesand in building a bio-economy and better future.

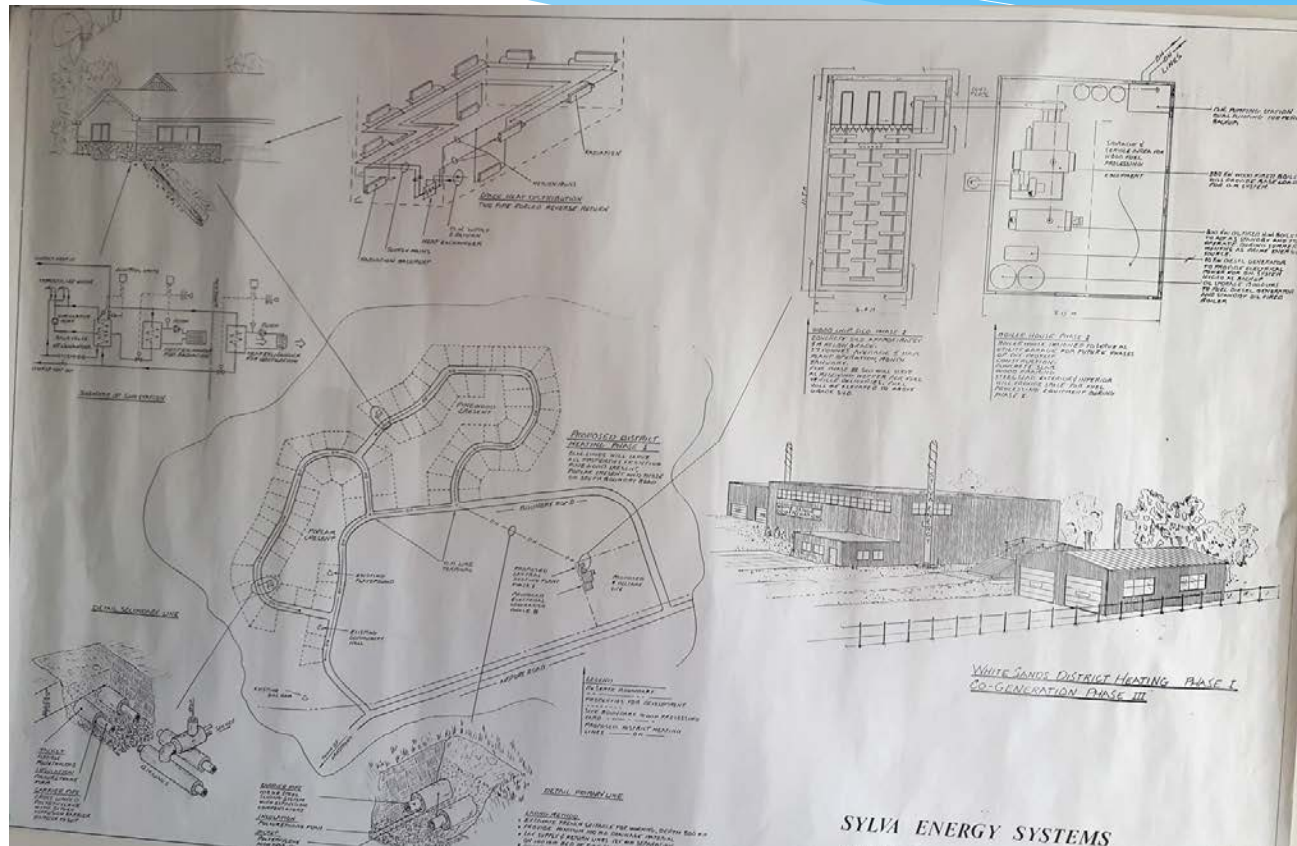
Key Project Driver

Community Vision & Commitment



- * Whitesand's vision of displacing the primary use of diesel generated electricity has been a long standing goal.
- * In 1992 Armstrong, ON and Whitesand submitted a proposal for a community forest which included a bio-mass cogeneration facility.
- * This proposal was not accepted but the community kept its vision alive and waited many years for a **window of opportunity** to open.

1992 Site Layout District Heating System



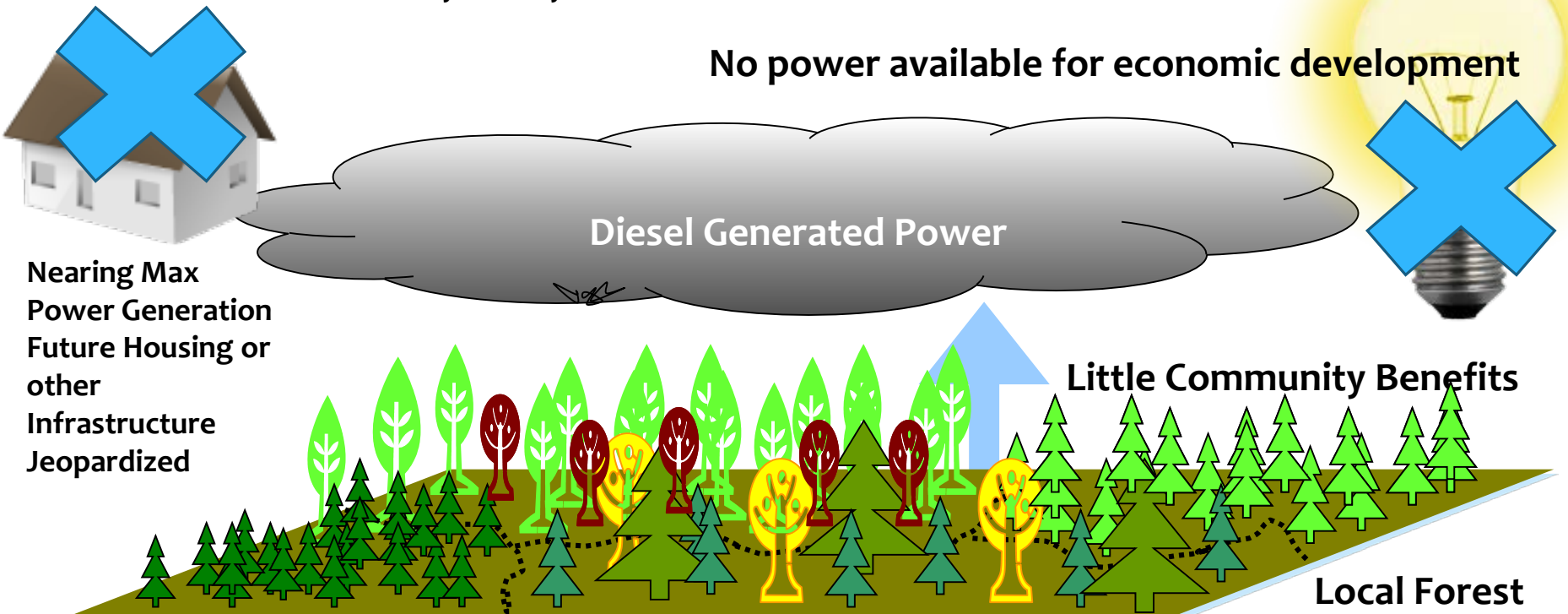
Whitesand First Nation



- * Whitesand First Nation is located approximately 250 km north of Thunder Bay, Ontario near the northern tip of Lake Nipigon.
- * 1200 community members with, with an on-reserve population of approximately 450.

2016 The CURRENT SITUATION

- * High unemployment rate with little or no chance for meaningful work.
- * High on-reserve population is in receipt of social assistance.
- * Many of social assistance recipients are without a grade twelve education. Poor secondary retention rates.
- * Social despondence with many citizens experiencing drug dependency and low self-esteem.
- * Local Forest was abandoned by industry and is now a Crown Forest.



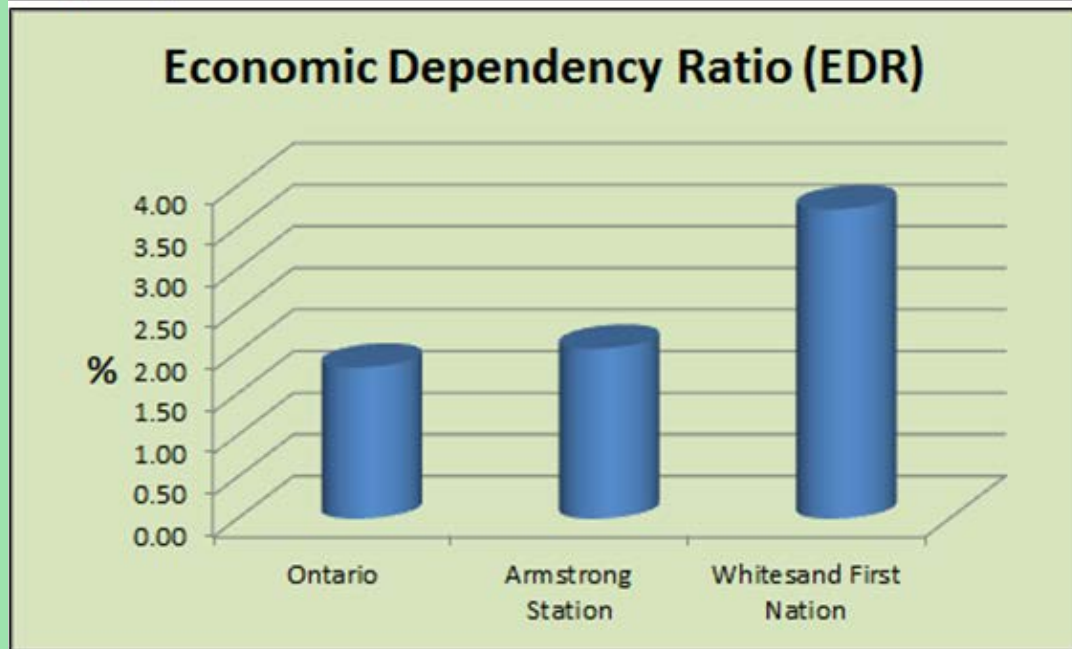
Past forest industry harvested trees and removed for processing elsewhere with very little local benefit.

Community Workforce

Characteristics	Armstrong Station	Whitesand First Nation	Ontario
participation rate	67.10%	36.10%	64.80%
unemployment rate	7.70%	15.20%	6.70%
employment rate	56.90%	30.60%	60.40%
Economic Dependency Ratio (EDR)	2.04	3.72	1.82

The mean education level is less than grade nine and the unemployment rate is high.

The result is that social transfer payments account for the bulk of family income.



Community Sustainability Initiative

The Community Sustainability Initiative (CSI) has the goal of improving the livelihoods of community members through sustainable use of the local forest including increased management participation and responsibility, capacity building and skills advancement, innovation, green energy production and economic growth.

The Catalyst – CSI 5 Cornerstones

CSI was developed
on a 5 Cornerstone
Approach

All cornerstones
are integrated
and equally
valued



**Economic
Development**



Culture



**Skills
Training/
Education**



CSI



Society



Environment

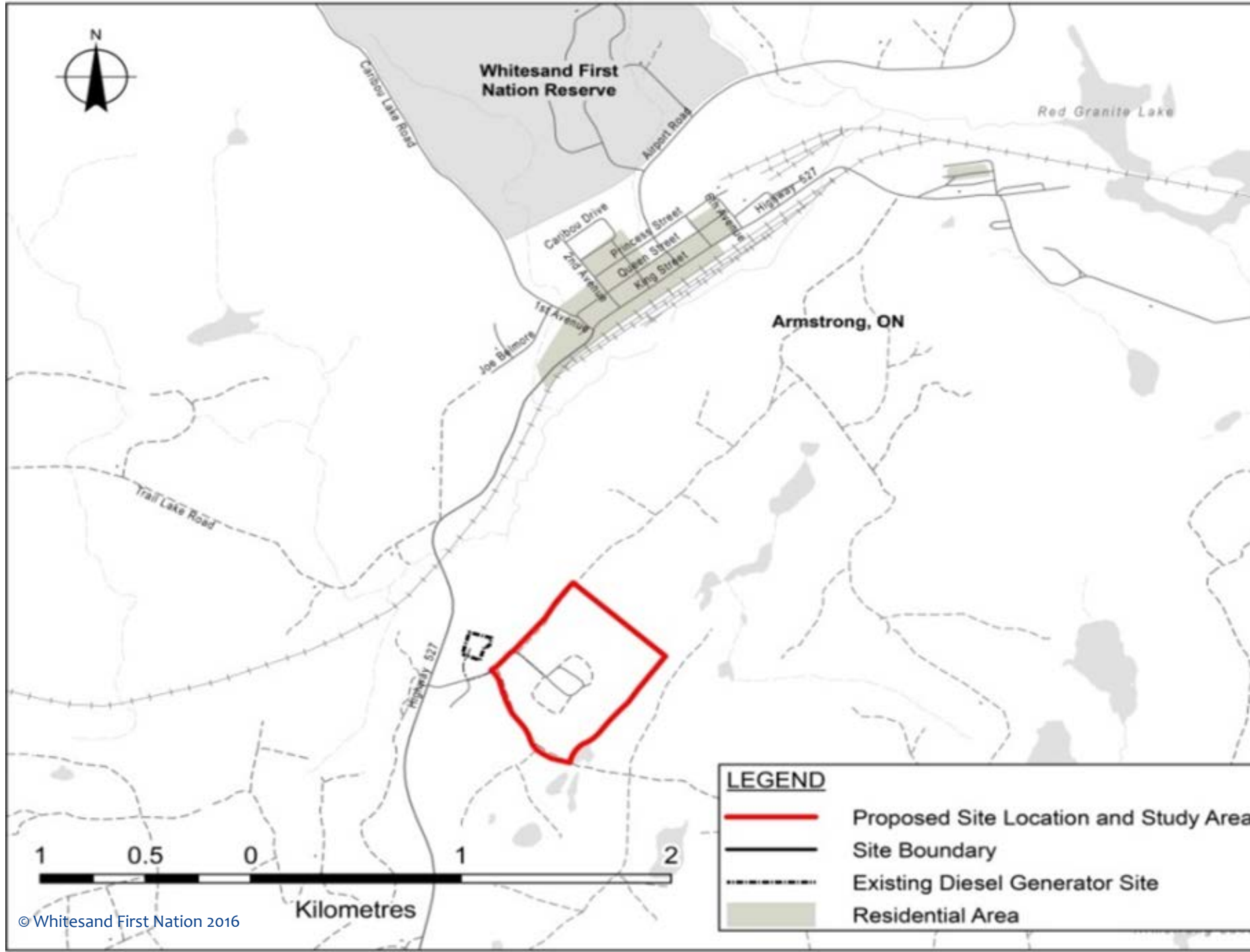
Other Project Drivers

1. 2007 – 08 meltdown of the Northwestern Ontario forest industry led to the **Provincial Wood Supply Competition**. Whitesand was awarded forest allocations to begin development of a new “Bio-Economy”.
2. 2013 Ontario Ministry of Energy - **Long Term Energy Plan** identified that Whitesand would not be connected to the Ontario transmission grid, but could pursue renewable energy projects that provided economic development opportunities.

Overview of CSI Biomass Project

With the announcement of the wood award WFN began the development process of the CHP and Wood Pellet Facility which would include:

- * 5 MW cogeneration facility fueled by woody biomass.
 - * Approximately 2.1 MWe to power the pellet plant.
 - * Approximately 1.1 MWe to power Whitesand, Armstrong and Collins. Approximately 1.0 MWe other businesses and future growth
 - * Approximately .8 MWe parasitic load.
- * Wood pellet plant
 - * will utilize heat and electricity from the cogeneration plant for various pelletizing processes.
 - * 90,000 metric tons per year of residential grade pellets.
 - * Exploring opportunity for advanced wood pellets.
- * Other components
 - * Wood processing yard, water supply and storage, wastewater management infrastructure and transformer station. m



**Whitesand First
Nation Reserve**

Red Granite Lake

Armstrong, ON

LEGEND

-  Proposed Site Location and Study Area
-  Site Boundary
-  Existing Diesel Generator Site
-  Residential Area

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Kilometres

Project Driver

Power Purchase Agreement

- Through a collaborative approach with the Ministry of Energy and with support from Ontario Power Generation the project was studied for the benefits it could provide.
- This work led to a **Minister's Directive** which notes the special significance of the project and which directed the Independent Electricity System Operator to execute a **20 year Power Purchase Agreement**.

Power Purchase Agreement

- * Directive was built through the development of a custom Socio-Economic Benefits Valuation approach for considering rates above current market prices that could support the community energy project.
- * Quantification of four benefit categories in building-up the EDA for the electricity generation to the pellet plant.

Employment	Fiscal	Environmental	Social
Construction and ongoing employment income for the electricity component of the project.	Provincial personal income taxes (PIT) that could be received through employment gains, and MNRF crown dues.	Value of avoided CO ₂ from the diesel that would otherwise be consumed.	Value of reduced Ontario Works costs, and training costs to date as a proxy for other social benefits.

Climate Change Project Drivers

- * Through the project development stages various government goals and mandates appeared which continued to place greater value on our Project including Ontario's Climate Change Commitments;
- * Pan-Canadian Task Force on Reducing Diesel Use in Remote Communities.
- * Minister of Environment Climate Change Discussion Paper goal of “**new economic growth that result from moving to a low carbon economy.**”

Moving Forward on Climate Change

2014 Mandate letter: Environment and Climate Change

This strategy will be forward looking to 2050 and will contain an action plan to help our government achieve its greenhouse gas reduction targets for 2020. Implementing the strategy and achieving our targets will require an all-of-government approach and, as Minister of the Environment and Climate Change, you **will work with and be supported by colleagues, including the ministers of Finance, Energy, Transportation, Municipal Affairs and Housing, Economic Development, Employment and Infrastructure, Agriculture, Food and Rural Affairs, Research and Innovation, and Natural Resources and Forestry to complete the strategy in 2015.**



Renewable Energy Approvals (REA)

The Project is subject to the REA process, subject to the provisions of the *Environmental Protection Act* and Ontario Regulation 359/09. The REA process entails consideration of environmental aspects, natural heritage features and water bodies as well as heritage and archaeological resources. In addition, the REA process includes, public, agency and First Nation consultations.

Notice of Proposal (and Draft Project Description Report release)	Public Meeting #1	Completion of Environmental and Technical Studies	Notice of Public Meeting #2 (and release of draft studies)	Public Meeting #2	Project Layout Finalized	Reports Finalized	Submit REA Application to MOE	Notice of Filing posted on Env. Registry by MOE	MOE Review (6 months)	REA Decision
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Sept 2013

Dec 23 2015

- [Renewable Energy Approval was](#) issued December 23, 2015. First of its kind in Ontario.
- [Environmental Compliance Approval](#) for the pellet mill was also recently issued.

Life Changing Opportunity



Building a Biomass Workforce

- * Once WFN received wood supply commitment Whitesand began seeking training support to prepare members for employment in the new biomass facilities.
- * Began with Heavy Equipment Certification, which supported forestry road maintenance contract with MNR; and would assist future harvesting and biomass supply operations.
- * Completed Wood Products & Energy Manufacturing Program
 - * 56 week long program to create a workforce that is multi-skilled and flexible, capable of working in several job situations across all plant operations.
 - * 22 enrolled in the program and 13 graduated.



Employment Pellet Mill & Co-Gen Facility

A variety of jobs will be required to construct, operate and maintain the facility:

Cogeneration Plant Operations	Pellet Plant Operations	Maintenance	Biomass Yard Processing	Administration
Cogeneration Plant Operators	Dryer Operators	Facility Equipment Mechanics	Biomass Material Handlers	Site Supervisors
Power Engineers	Pellet Mill Operators	Mobile Equipment Mechanics	Mobile Equipment Operators	Administrative Support
Material Handling Operators	Material Handling Operators			Finance & Human Resources



Employment Forestry Related

A variety of jobs will be created in forestry and harvesting operations to supply the facilities:

Harvesting Operations	Road Maintenance	Silvi-culture	Forest Management
Feller Buncher/ Skidder Operator	Heavy Equipment Operators	Site Prep	Forester
Slasher		Tree Planting	Forestry Technicians
Truck Drivers		Tending	

Anticipated Employment (Direct & Contracted Services)

	Details	Employees
Co-Gen Plant	Includes co-gen operators, trades and shared admin/wood yard services	17
Pellet Plant	Includes pellet plant operators and shared admin/wood yard services	22
	Sub-Total Facilities/ On-Site	39
Harvesting	(2) 3-man crews	6
	Mechanic	1
	Supervisor	0.5
Bush Haul	Trucks (Drivers) Required: Based on 157,000 m ³ @ 40 m ³ /load with 3,925 loads/240 days per year; 4 hours / load = 2 loads / shift / truck	8
	Loaders	1
	Supervisor	0.5
	Sub-Total Forestry/Contracted Services	17
Total Direct Employment		56

Benefits

- ✓ Ontario's first biomass project using Renewable Energy Approval.
- ✓ Community Owned project that will be the first to replace primary use of Hydro One Remotes diesel generators and obtain a biomass power sales agreement.
- ✓ Reduce air emissions from the diesel generators that currently use approximately 1,000,000 litres of diesel fuel annually.
- ✓ Create 60 full time and 60 seasonal jobs generating approximately \$ 4 million in wages.
- ✓ Tax return to Ontario is approximately \$3.5 million annually.
- ✓ Better forest utilization and timber optimization, maintaining sustainable and health forest ecosystems.
- ✓ Creating B2B opportunities with Industry.

MUCH MORE

- * Pride of Ownership
- * Environmental Integrity
- * Empowerment
- * Community Reinvestment
 - * Social
 - * Health
 - * Education
 - * Employment
 - * Culture

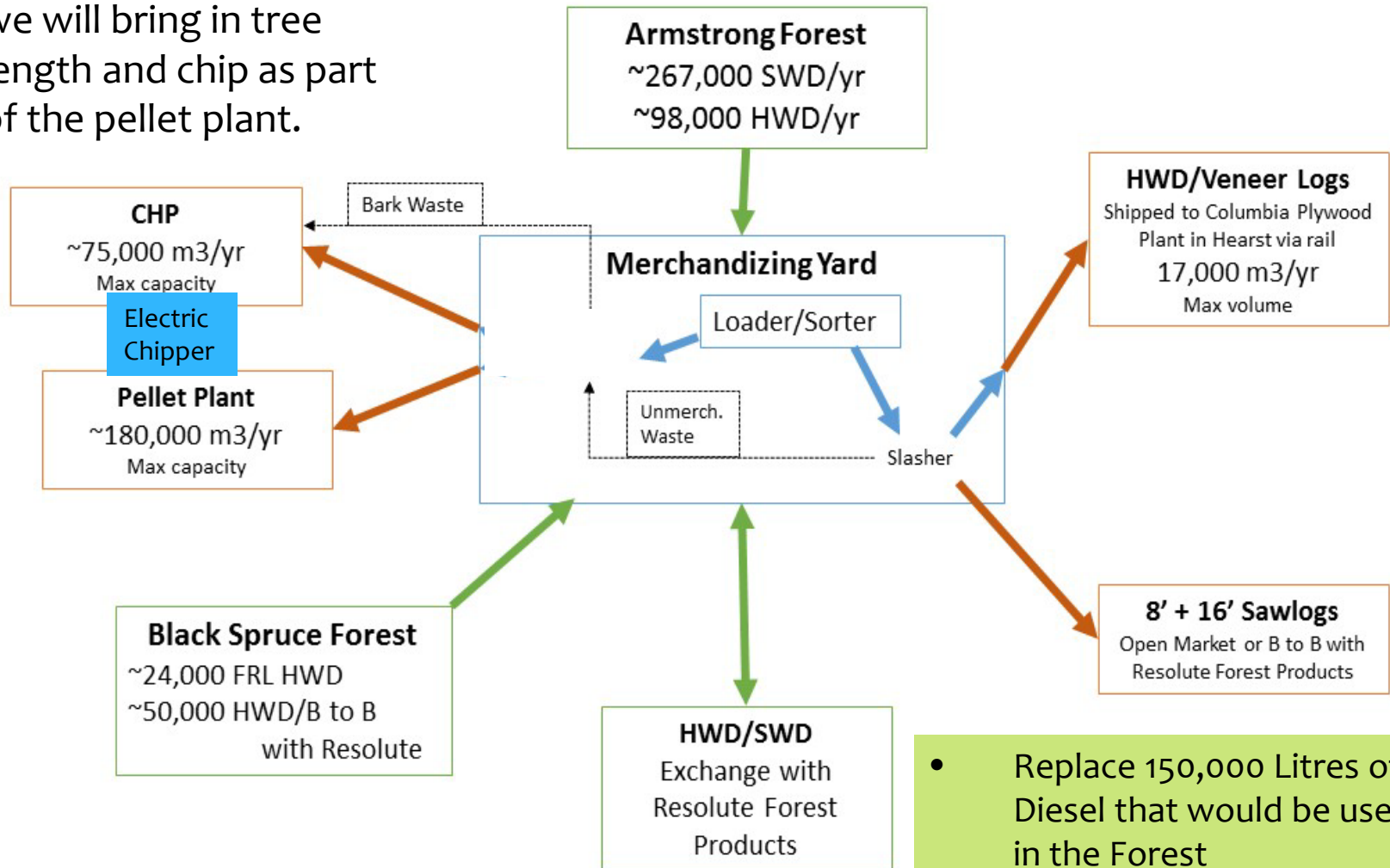
Current Tasks

- * Power Purchase Agreement negotiation began January 18.
- * Underway with Facility License Application (business plan) and additional fibre analysis
- * Identify and acquire capital funding grants
- * Capital Financing
- * Forest management tenure on local forest.

Next Steps

- **Continue community training to raise employability skills and build local biomass workforce.**
- Replace current home heating fuel (approximately 300,000 litres annually) with pellet boilers/stoves.
- Study potential for a greenhouse which would utilize waste heat from the facilities. Create more employment and supply fresh vegetables to community .
- In discussion with other communities on the development of a First Nation Wood Pellet Consortium to aggregate production; and Certification standard that accounts for the economic, social and environmental benefits of the respective operations.

Original design was to chip in the forest. With the merchandising yard we will bring in tree length and chip as part of the pellet plant.

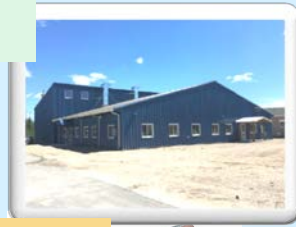


- Replace 150,000 Litres of Diesel that would be used in the Forest
- Create more employment opportunities

2025 - Looking Forward



New subdivision = 50 new housing units
Connected to District Heating Pellet Boiler



Log Homes sourced
From Local Forest



District Heating /
Housing Retrofits



Domestic &
International Market



Community Power

Economic
Development Power



Economic
Development Power



Waste Heat



Return to
Environment

Realize
Maximum
Benefits
From Local
Forest



Forest Management and
Environmental Services

Indigenous and Western Knowledge



Local Forest

Community Sustainability Initiative

Closing

- * In the end, the *Community Sustainability Initiative* is about the long-term responsibility and accountability for Whitesand's economic, cultural, social, and environmental future which is led by a “New Bio-Economy”.
- * Ownership for that future can only rest with the Whitesand itself; however, Whitesand has sought and continues to seek expertise and partners to help us accomplish this vision.

Thank you

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