

Biomass District Heating
Garden Village
First Nations Community

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Biomass District Heating

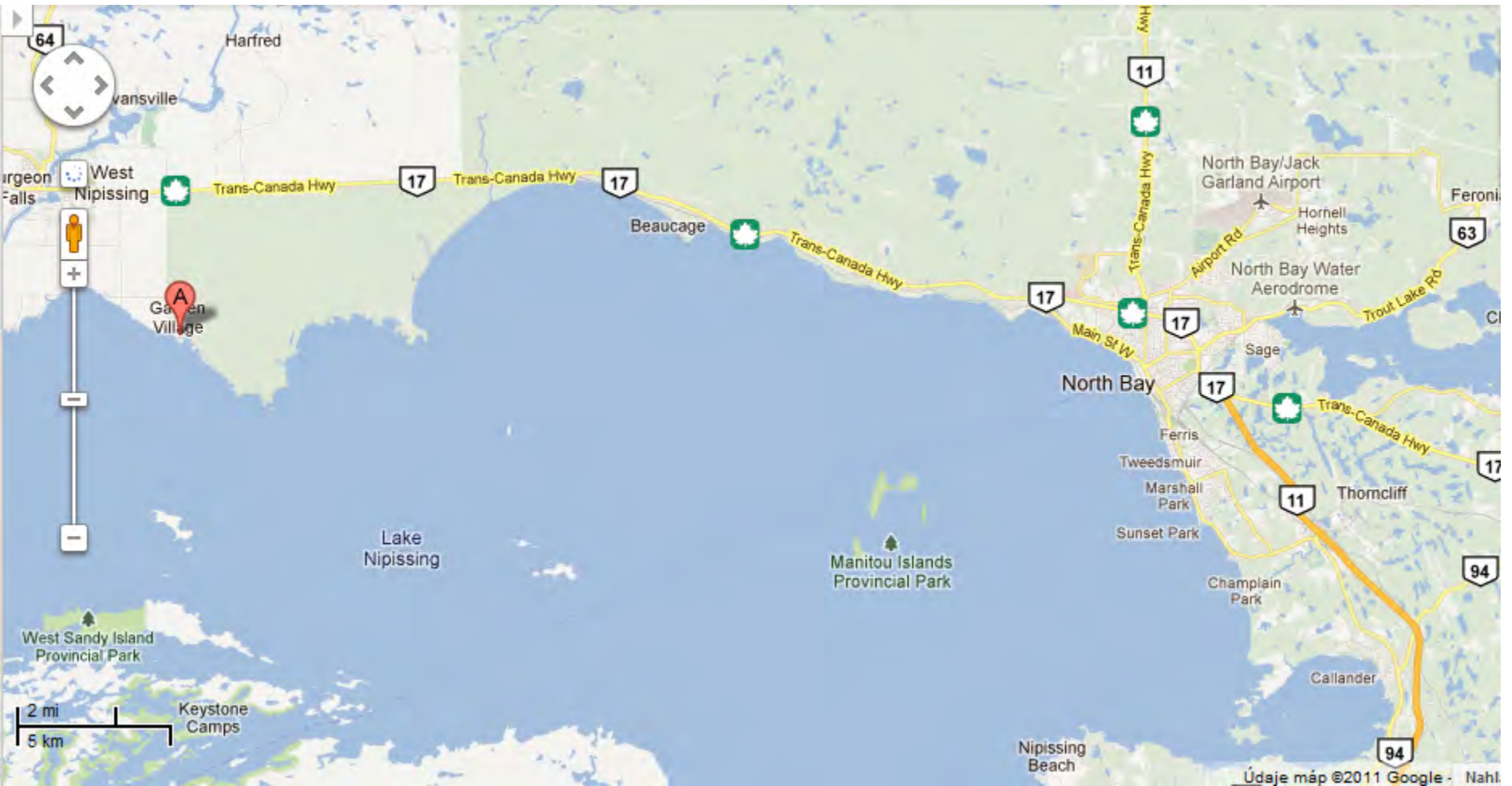
- Small Scale Energy Project
 - Environmentally Friendly
 - Renewable Power
 - Use of Local Sources, Creating Local Jobs

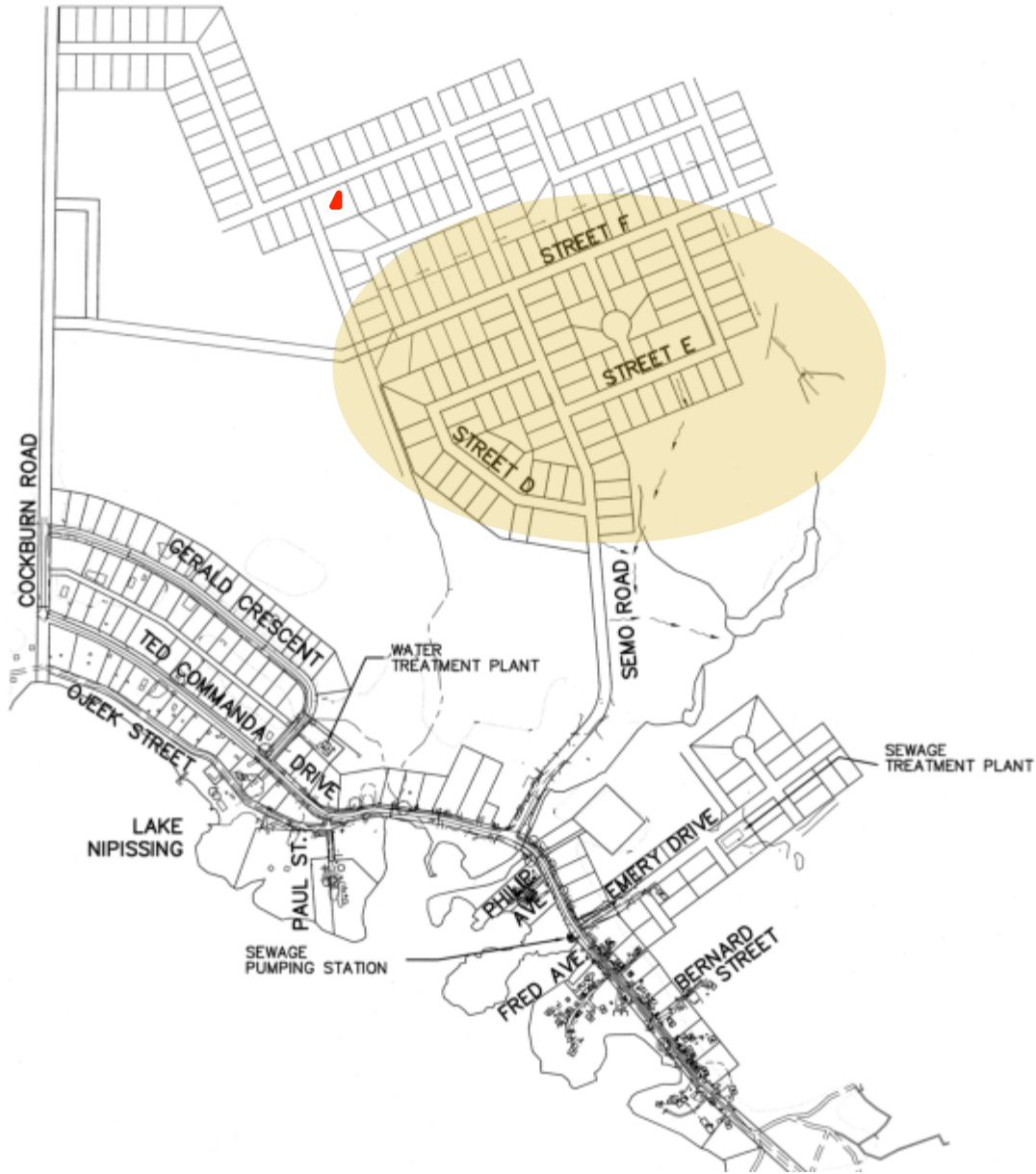
- Convenient for the Customer

- High Capital Cost
 - Expected Good Long-Term Financial Results

Garden Village

- First Nation Community
- New Subdivision for 88 Houses
- Considering Heating System Solution









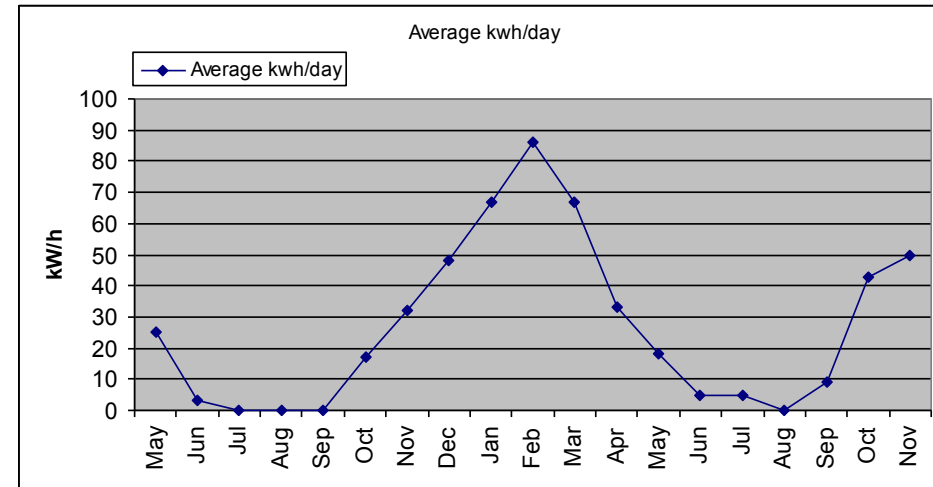
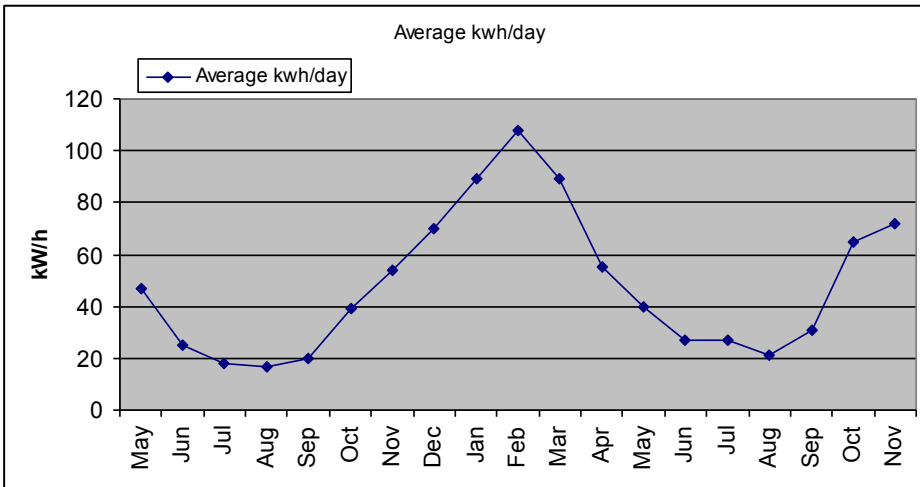


Amount of Energy Consumed

- Standard House Used:
 - 1000 sq ft
 - 3 people living in the house
 - 1 ½ foam insulation + blown insulation in 2009 → R2000 rating



Energy Consumed for Heating



Heat for One House: 13096 kWh/Year

The Whole Subdivision, One Year

(Taking into account 88 houses)

■ 1152 MW/h/Year (4GBTu/Year)

Biomass System

- Est. Peak Load
 - ~16kW (One House)
- Subdivision
 - ~1.4MW Power Needed
- Boiler With Equipment:
 - Up to **1,000,000\$**



Distribution System

- DS Estimates:
 - Piping 1000\$/meter
 - 2000m: 2,000,000\$
 - Heating System in Homes:
 - 10,000\$ per House
 - Subdivision: ~1,000,000\$

- Total: 3,000,000\$



Fuel – Wood Pellets

- Estimated Price: 220\$/ton
- Heat Content: 14MBTu/ton
 - after 80% combustion efficiency
- 4GBTu/0.014GBTu
 - 286 tones of pellets
 - 286t*220\$
- **63,000\$ Annually**



Heating With Electricity

- Installation
 - 3000\$ per House
 - 264,000\$ Subdivision
- Annually
 - 227,000\$



Comparison

	Electric	Biomass
<i>Installation</i>	264,000\$	4,000,000\$
<i>Annual Costs</i>	227,000\$	63,000\$

Limitations

- Backup Heating Unit
- Participation

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Thank You

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