



Fond du Lac Band of Lake Superior Chippewa's Sustainable Energy Projects

Fond du Lac Band Strategic Energy Vision

The Fond du Lac Band believes that its Energy Vision should blend in with other objectives like economic development, job creation, and cultural values. In support of its long-term strategic energy planning effort, as well as its overall mission, the Band has adopted the following Energy Vision:

The Energy Vision of the Band is to maximize the efficiency of energy usage and develop energy resources in ways that will sustain current and future generations by addressing the economic, environmental, and social issues of energy within the context of Fond du Lac Band's culture, traditions and established tribal policies for the wise use of our sun, forest, water, and wind resources.

Strategic Energy Plan Options: Energy Conservation, Generation and Administrative

2003: built 25 energy efficient homes. Homes average a 25% reduction in space heating costs.

2009: conduct energy audits on tribal buildings. Installed LED and high bay T-8 lights resulted in 15% reduction in energy use.

2010: first LEED Resource Management Building with 12-kW solar system, passive and solar reflective tubes for interior lighting.

2015: Noresco an ESCO performed an investment grade audit on twenty-four Fond du Lac Band buildings. Energy conservative measures included water reduction, interior/exterior lighting, boilers, controls, air handling units & building operating software.

2016: We installed a 1 megawatt, 5-acres solar array commissioned on August 22, 2016. Utilizing 3,230 solar panels, the solar field has offset Black Bear Casino Resort's total energy use by about 10%.

2018: Sawyer Community Center Biomass District Heating project, 1.7 MM btu biomass boiler, 138 tons of wood chips replace over 13,000 gallons of propane annually. Award winning, fully automated design with in-floor wood chip air drying system.

2020: We partnered with the National Indian Carbon Coalition on a Forest Carbon Sequestration Project to verify forest data inventory, determine carbon dioxide sequestration levels and develop a voluntary market forest carbon sequestration project that generates revenue for land purchase and renewable energy projects while preserving the forest & reducing carbon dioxide.

2021: Fond du Lac Council enacted a charter of incorporation for the Fond du Lac Tribal Utility Corporation.

2022-2024: FDL worked with LHB Inc to design an 8-megawatt solar array and biomass district heat for Brookston Community.

Commercial Scale Biomass District Heat Sawyer Community Center Biomass Building

- 1.7 MMbtu biomass boiler.
- Wood chips will replace 89% of propane use.
- Reduce propane use by 13,295 gallons per year.
- Saving approximately 85 tons of CO2 per year.



Commercial Scale Wood Waste Utilization Sawyer Community Center Biomass District Heat

- Javo toploader wood chip feed system.
- In-floor air drying wood chips before they are fed into the boiler.
- 138 tons of wood chips per year



Commercial Scale Solar Energy Black Bear Casino Resort Solar Site

- Black Bear Casino Resort 1 Mega-Watt, 5-acre solar array went online August 22, 2016.
- Utilizing 3,230 Trina solar panels and 38 ABB string inverters, the solar field has offset Black Bear Casino's total energy use by about 10%.
- First year production totals exceeded 1.2 GWh of energy.
- The solar site has generated \$80,000 in savings Black Bear Casino Resort electric bill is reduced by \$60,000 a year, \$20,000 goes into an operations and maintenance budget.



Biomass Building Foundation



12/4/2024

Brookston Biomass District Heat Building



12/4/2024

Residential Scale Renewable Energy:

5-residential solar electric systems and 7-solar hot air systems have been installed



Residential Scale Renewable Energy:

Out of 5 solar electrical systems, 4 systems are 3kW total energy offset systems. The 5th system is unique because it's a 1.5kW DC system that feeds a domestic hot water tank. Together they all total 13.5 kW of renewable solar energy.

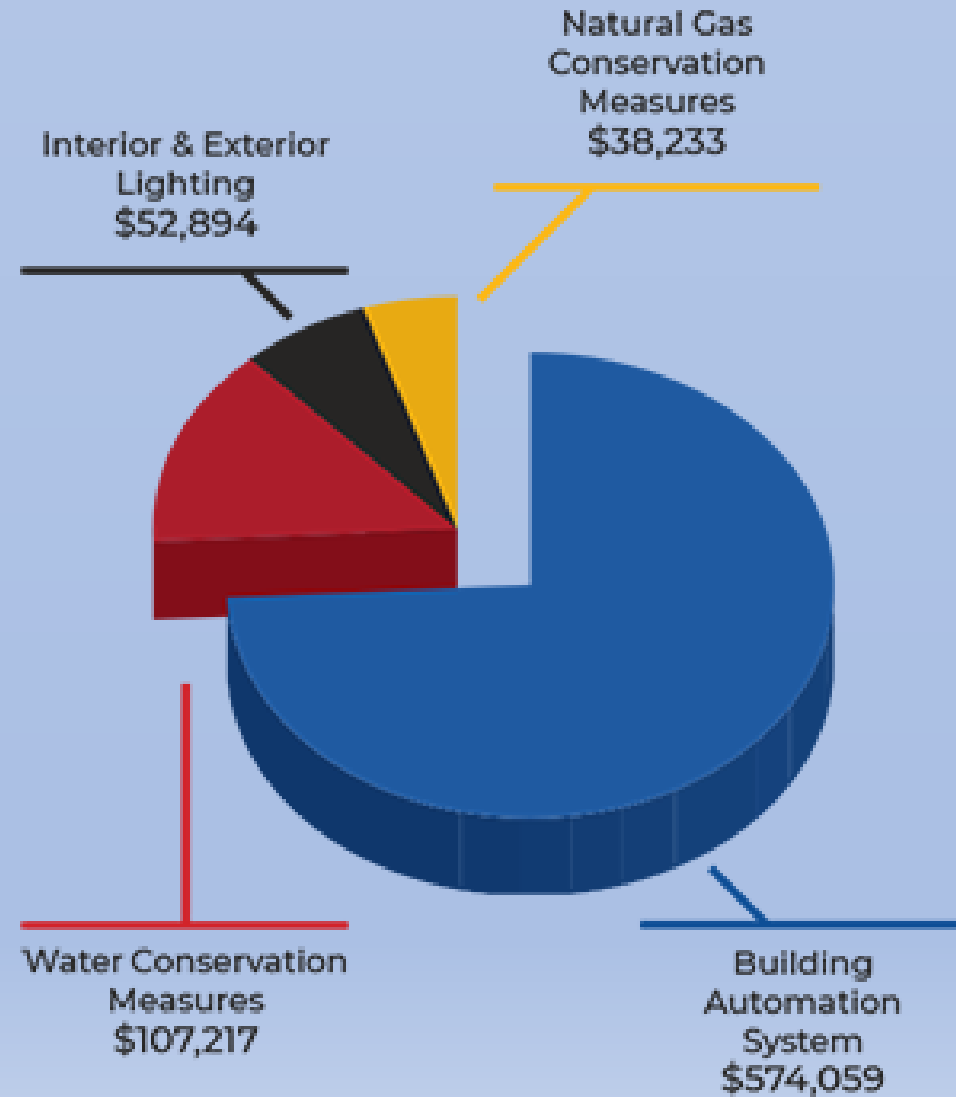


Energy Conservation

In 2010, Resource Management Division constructed the first LEED building in Carlton County. The building has offset its energy use by installing a 12-kW solar system, employed passive lighting, and solar reflective tubes for interior lighting.

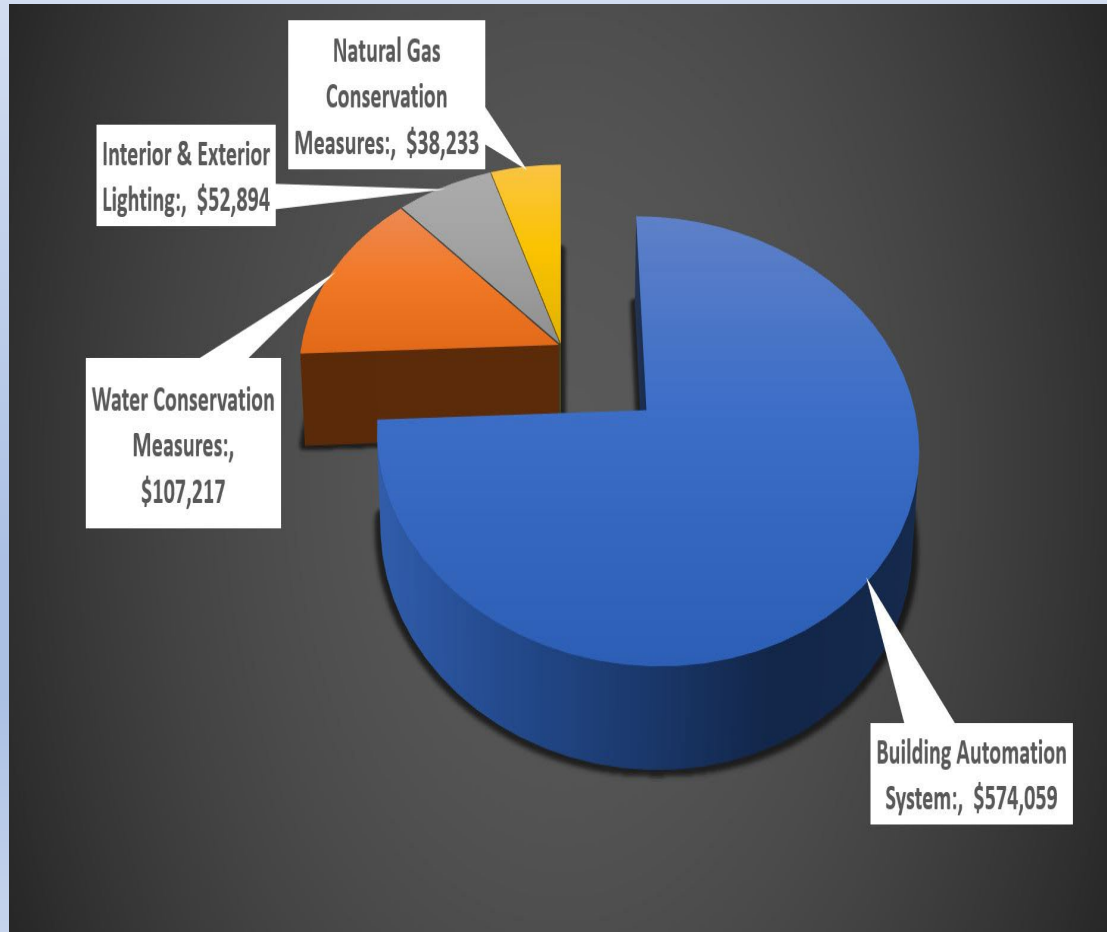


Noresco Energy Services Contract Savings Breakdown



Energy Conservation: Noresco Savings Breakdown

The Environmental Program partnered with Noresco to perform an energy savings audit on Fond du Lac owned buildings. Twenty-four buildings were identified with the greatest need for energy conservative measures. The energy conservative measures included water, interior/exterior lighting, boilers, controls, and air handling units.



- The annual savings total equates to \$772,403.
- That means the Fond du Lac Band will save approximately \$64,366 per month.
- The total payback of the project is 6.1 years.
- The project alone can account for up to 24% energy savings.

Renewable Energy Challenges



The Fond du Lac Band of Lake Superior Chippewa have been committed to energy efficiency and carbon offset projects while living in a seasonably harsh climate.

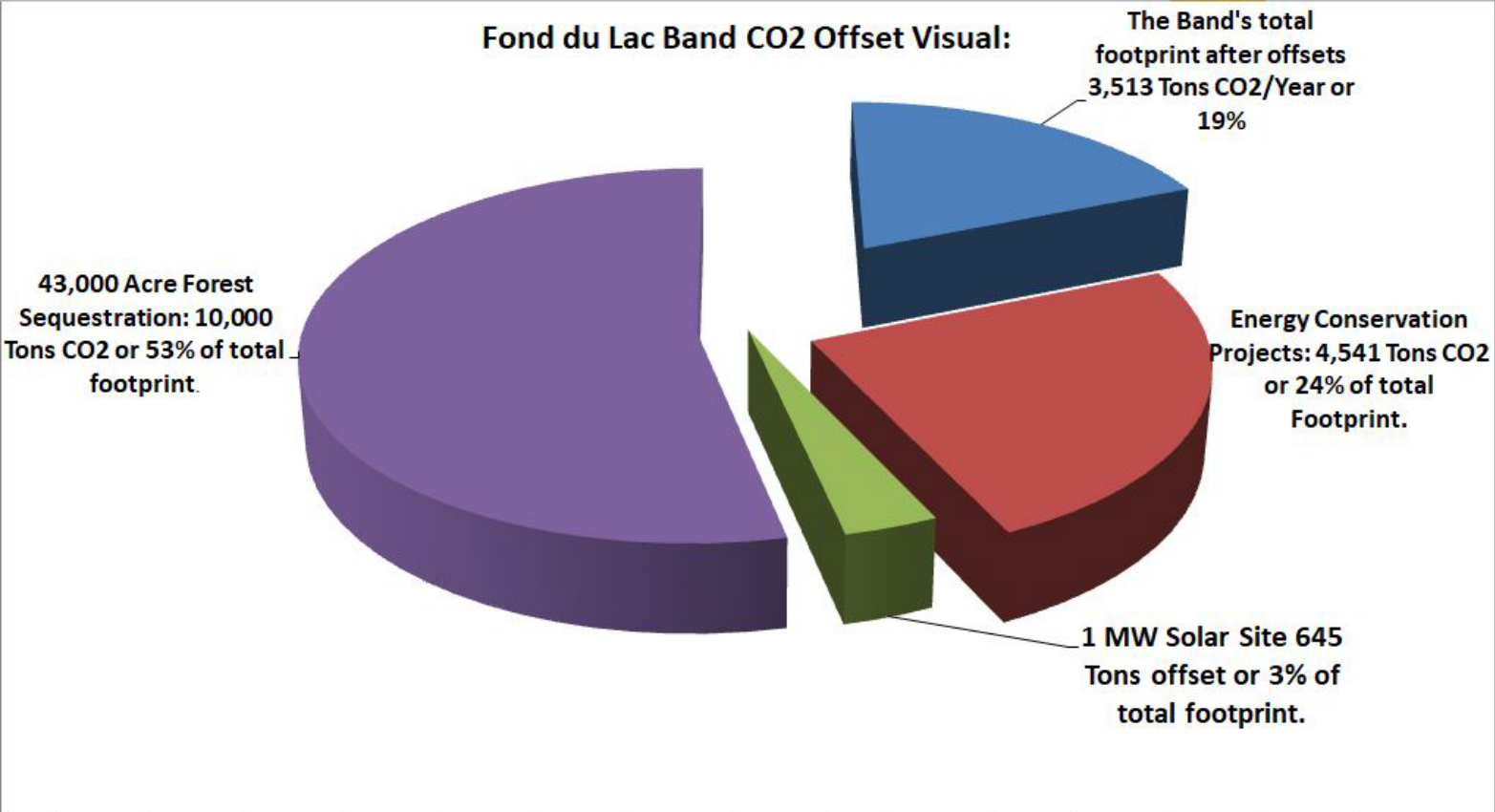
Challenges

- Climate Zone
- Feasibility
- Measurement and verification
- Funding Source
- Robust Decisions and Designs
- Inventory Management
- Education and Outreach
- Utilities
- Maintenance



Conclusion

Renewable energy and conservation will continue to be important for the Fond du Lac Band. Benchmarking residential and commercial buildings will help us monitor costs and emissions. Community outreach and education will help us remain a leader in the efforts to cut CO₂ emissions. Those efforts are noticed by state and federal elected officials who will continue to help us with funding renewable energy and conservation projects. With funding and staff efforts we can achieve sustainable outcomes.



Questions ?

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