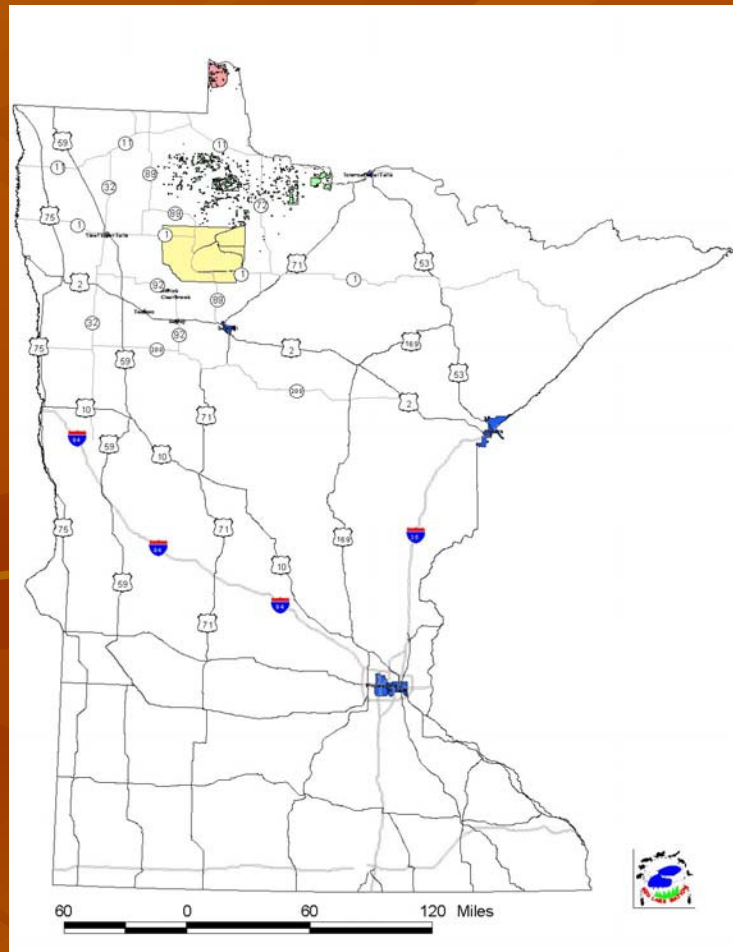


Biomass Energy Feasibility Study for the Red Lake Band of Chippewa Indians

**Presentation to U.S. Department of
Energy, Tribal Energy Program
Kick-off Meeting**

November 19, 2003

Location



The Resource

SUMMARY OF THE RED LAKE RESOURCE BASE

Forested Area by Species Group		Annual Allowable Cut
Aspen/Birch	98,710 acres	36,625 cords
Red/White Pine	10,364 acres	3,253
Swamp Conifer	66,630 acres	11,274
Swamp Hardwood	50,836 acres	9,875
Upland Hardwood	33,561 acres	1,698
Total Forest	260,101 acres	62,725
Non-productive	158,925 acres	
Water Acres	230,000 acres	
TOTAL (Diminished)	649,026 acres	62,725
Ceded Lands & NWA	156,067 acres	17,727
TOTAL TRIBAL LANDS		80,452

The Potential

- Red Lake loggers annually harvest about 35-40,000 cords(78,000-90,000 green tons).
- Currently about 20 Red Lake members who own logging operations. Each employs 3-4 workers.
- Currently, about 10% of total merchantable volume on Red Lake timber sales is left in the woods. Much of this is due to poor species /product markets.
- Current harvest levels are significantly less than the annual allowable harvest volumes for most species.

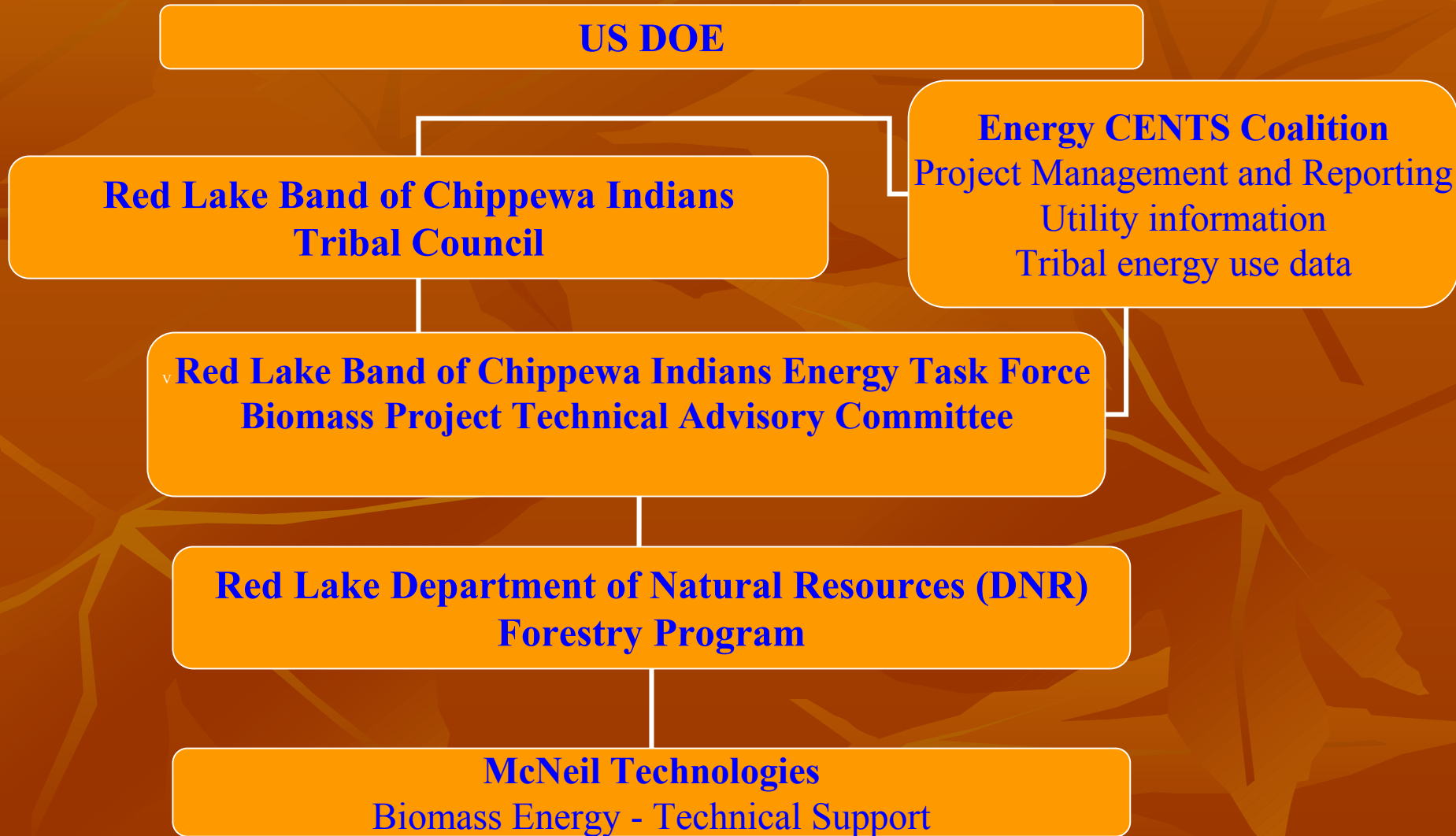
Site Conversion and Reforestation

- In addition to timber harvesting, Red Lake's Forestry Program is actively involved in reforestation and converting up to 1000 acres each year to Red and White Pine.
- A significant amount of biomass is generated in the conversion process to pine. This volume will contribute to the biomass needs as well.

Business and Industry

- Red Lake currently has a custom homes facility which manufactures pre-fabricated homes. This business generates wood waste that could be utilized.
- Red Lake Builders is a construction business on the Reservation which also generates biomass, in the forms of construction debris and wood removed for home sites and road construction.
- Red Lake Forest Products (Tribal sawmill) is currently shut down, however, if that were to re-open, slab wood, edgings, and planer shavings all could be utilized as biomass.

Biomass Energy Feasibility Study



Project Goal and Objectives

- Goals
 - Develop tribal biomass energy enterprises
- Objectives
 - Conduct detailed biomass resource assessment
 - Evaluate local and regional utility issues
 - Evaluate biomass energy technologies and markets
 - Preliminary siting study, focus on power and heating
 - Assess social, environmental and economic impacts
 - Prepare pro-forma financial analyses
 - Develop business plan for biomass enterprise

Task 1 – Kick-off Meeting

- “Biomass Energy 101” presentation to TAC
- Logistics, schedule, timeline
- Tribal strategic planning issues relayed from Tribe to team
- Initial data gathering by team

Task 2 - Biomass Resource Assessment

- Quantify biomass resource supply
- Location
- Current uses
- Costs
- Availability
- Sustainability
- Biomass supply curves

Task 3 - Biomass Energy Technology Characterization

- Focus on commercially available technologies for power generation and/or facility heating
- Fuel requirements, capital costs, O&M costs, labor requirements, land, storage, output, financial incentives

Task 4 -Utility Interconnection

- Interconnection requirements and costs
- Available transmission capacity
- Power purchase agreements, standby charges
- Potential green power sales to regional utilities

Task 5 - Siting Analysis

- Identify potential sites for biomass plant development
- Assess proximity to grid, load centers, thermal hosts
- Analyze land use restrictions, facility footprint, zoning, emissions, water needs
- Include access to biomass supply and road networks

Task 6 – Facility Heating Study

- In general, economics of facility heating are very good
- Several tribal commercial buildings are heated with electricity (casinos, schools, offices)
- Conduct a detailed technical and economic analysis of heating one facility with wood

Court House Middlebury, VT





Task 7 – Biobased Products Overview

- Provide background information on liquid fuels, other biobased products (wood/plastic composites, charcoal, pellets, chemicals)
- Not major focus of the project

Task 8 – Social, Economic and Environmental Impacts and Benefits

- Jobs, economic development
- Emission impacts
- Impacts on forests, resource utilization
- Forest fire threat reduction
- Greater energy independence
- Energy security

Task 9 – Financial Analysis

- Pro-forma analysis of wood-fired power plant
- Evaluate levelized cost of energy, NPV, ROI
- Financing methods and costs
- Compare different sized biomass plants and different locations

Task 10 – Business Plan

- Summarize results of first nine tasks
- Training, and tribal professional development planning
- Long term operations and maintenance training
- Business planning for implementing a renewable energy development project

Contacts

Robert Lintelmann

Red Lake DNR, Forestry Program Director

218-679-3959 (p)

Robertl@paulbunyan.net

Scott Haase

Program Manager

McNeil Technologies, Inc

303-273-0071 (p)

Shaase@mcneiltechco.com