

Laurentian Energy Authority March 26, 2006

Renewable Biomass
Combined Heat and Power Energy
Production from the Hibbing and
Virginia Public Utilities

Introduction

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- Jim Kochevar, General Manager, Hibbing Public Utilities
- Gary Cerkvenik, Costin Group

Hibbing & Virginia



- Two municipal district energy cogeneration plants.
- Combined 66 MW of electrical generating capacity.
- Six existing boilers, coal and natural gas fired.
- Six existing turbine and generator sets.
- Over 200 years combined power plant operations and management experience.
- Utilities presently have 155 employees.
- Serve 3,600 steam and 12,000 electric customers.
- Also operate natural gas and water systems.

Laurentian Energy Authority

- One business, the Laurentian Energy Authority I, LLC (LEA), a joint venture between Hibbing and Virginia will be the managing partner.
- LEA Board consists of 3 members of Virginia PUC, 3 members of Hibbing PUC.
- LEA Articles of Organization have been established and filed.
- Steam agreements, Operations and Maintenance agreements, Site and Equipment Lease agreements, between the LEA and the municipal utilities are being established.
- Ability to strategically capitalize on available federal tax incentives exists.

The Opportunity



- Xcel Energy's mandate to produce 110 mw of biomass based electricity.
- Use the existing Hibbing and Virginia public utility plants to meet this need.
- Create new jobs and produce renewable energy!

Our Goals



- Stabilize costs for our customers & avoid steam conversion costs.
- Sell renewable biomass energy at a profit.
- Create & fund new investment at Hibbing/Virginia.
- Create 60-100 new jobs.
- Millions of dollars spent on local biomass fuel purchases & materials.

Economic Value

- \$704,369,000 gross revenues to Hibbing & Virginia over 20 years.
- \$20 million annual community economic value (labor, fuel, materials). Multiplier of 3 over 20 years equals \$1.2 billion economic value.
- Based upon 35 mw annual production @average price of 10.2 cents/kwh contract with Minnesota's largest utility, mandated by the State.

Other Benefits

- Establishes 20 year long term plan for plant facilities.
- 60 to 100 new jobs
- \$52 million in new development at HPUC/VPUC.
- Millions of dollars in biomass fuel spent annually within 75 miles.
- Predictable steam rates for 3,600 residential and commercial customers.
- PUCs able to receive project cash distributions.
- Social & economic cost avoidance of up to \$30 million for 3,600 customer conversions.
- Environmental benefits of biomass from coal.
- \$40 million environmental controls cost avoidance
- New markets for region's loggers.
- New markets for region's landholders.

Coal Conversion

Biomass generation displaces coal consumption, yields cleaner environmental results, and provides future regulatory flexibility.



Pathway

- Purchase NGPP Minnesota Biomass, LLC
- Create a Joint Venture
- Launch Tree Farm
- Build a Development Team
- Obtain permits and approvals.
- Obtain financing and begin construction.
- Operational December 31, 2006



Our Partners on the Path

- Springsted Incorporated, Financial Advisor
- RBC Dain Rauscher, Lead Underwriter
- Harris Group Inc., Owner's Engineer
- Barr Engineering, Fuel Handling Design
- University of Minnesota, Natural Resources Research Institute (NRRI)
- State of Minnesota, Iron Range Resources
- Minnesota Department of Natural Resources
- Minnesota Extension Service
- Sebesta Blomberg, Environmental Consultants

The Purchase



- Hibbing and Virginia are purchasing NGPP MN Biomass, LLC.
 - We have purchased a 20 year contract (PPA) to sell 35 mw of biomass electricity to Xcel Energy (NSP).
 - We have successfully negotiated amendments and executed the PPA.

Biomass Mandate History

- 1994 Prairie Island Agreement--State and NSP (now Xcel)--mandates biomass.
- MN PUC process & Xcel selects three projects
- EPS Beck ppa sold to NGP Power. They renegotiate and downsize to 35 mw, and MN Legislature approves.
- NGPP and HPUC/VPUC conduct feasibility studies in fall of 03.
- NGP Power investigates economics of VPUC/HPUC as an option for additional or alternative MN project.
- Business model, development work, engineering starts.
- VPUC/HPUC initiates purchase discussions of NGPP Minnesota Biomass, LLC.
- Xcel Energy notifies MN PUC and supports Hibbing and Virginia.
- MN PUC ratifies PPA

Overview



- \$52 million to repower Hibbing/Virginia.
- \$5 million Wood Yard
- \$3.5 million first stage Tree Farm
- \$21.5 million long-term Tree Farms
- Operational December 31, 2006

Fueling The Project

State law mandates 25% of fuel from *closed loop biomass*. This means we need to grow a dedicated energy crop to meet the mandate.



Biomass Fuel

- **Open Loop**
 - Open loop is waste wood, tops, limbs, agricultural waste, etc.
 - Base contract for 150-175,000 tons.
 - Additional open market purchases.
 - NRRI studies indicate 500,000 ton annual supply.
 - Provides diversity and market for underutilized species, helping loggers & landowners.
- **Closed Loop**
 - Closed loop is a dedicated crop for energy purposes.
 - Short rotation woody crops, poplar/willow.
 - Highland/Lowland Brush.
 - Right of Way Clearings
 - Goal is 25% closed loop over 20 years (exceptions noted).
 - Initial tree farm project owned.
 - Long-term partners (US Forest Service, U of M, MN Extension, MN DNR, Innovative Ventures) engaged to assist in development.

The Tree Farm Overview

*Invest \$25 million in tree farms in NE Minnesota.

*Engaged Greenwood Resources, Innovative Ventures, NRRI, USDA, US Forest Service for expertise.

*Develop the best clones and a nursery for future plantings.



Planting Program

2004: Planted 650 acres plus a 40 acre tree nursery.

2005: Planting 1000 acre tree farm and procuring previously planted lands.



Our Aitkin County Tree Farm



It is Farming, Not Logging, at this Stage



Things Stand Tall After Year One



Third Party Providers

The utilities are working with Ag Extension and an existing cooperative to encourage third party farming.



Harvesting

This is a typical harvesting operation after 5 years on a closed loop tree farm site.



Chipping and Transportation

Biomass is chipped and transported by truck to a central wood yard.



Wood Yard



- Central location between cities.
- 30-60 day fuel supply.
- Both open and closed loop.
- Weighing, testing, screening, inventory.
- Quality control.

Open Loop Biomass

Existing logging operations leave behind tops, limbs, and underutilized species. The biomass plants will burn these in chipped form, and they will also be delivered to the central wood yard. NRRI studies show over 500,000 green tons available per year.



Repower

- Harris Group, Barr Engineering studies.
- New boilers, fuel handling, upgrades.
- Generally, 15 MW generation from Virginia, 20 MW from Hibbing.
- Coal and natural gas back up and 25% other fuel potential average over 20 years.
- 86% capacity factor.
- Affords ability to participate in additional renewable markets.



The Power Purchase Agreement (PPA)

- PPA necessitated by 1994 and 2003 Minnesota Legislative Renewables Mandates.
- Twenty year agreement to sell 35 MW to NSP (Xcel Energy).
- Average Sale Price of \$102.85 per MWhR.
- Allows fuel flexibility incorporating Open Loop and Closed Loop Biomass, Coal, and Natural Gas.
- System interconnections already in place, and transmission responsibility lies with NSP.
- Allowance for recovery for imbalance in prescribed fuel ratios.

Development Time Line

- Oct.-Dec., 04:
 - Continue permit work.
 - Complete design and start EPC negotiations.
 - Site prep land for 05, find 05 planting material.
 - MN PUC ppa approval.
- Jan-March, 05:
 - Explore investment with lenders, private equity, tax motivated partners.
 - Continue permit work.
 - Execute EPC and equipment documents.
- April-June, 05:
 - Complete permit work.
 - Begin site preparation.
 - Package to investors.
 - 05 land planting.
 - Contracts for Phase 2 tree farm.
- July-Sept., 05:
 - Receive air permits and authority to construct.
 - Realize funding from bonding. Release constructor to commence construction.
 - Site preparation for 06 phase one tree farm.
- Oct., 05-Dec., 06:
 - Construction of plants, wood yard.
 - Plant 06 Phase one tree farm.
 - Achieve commercial operation of facilities between 10/31/06 and 12/31/06 with simultaneous plant start ups.

Summary

- Municipals to invest in plants, tree farms using reserves and bonding.
- 35 MW renewable biomass energy displacing coal.
- Achieved executed PPA with Xcel (NSP).
- Meets all state mandates while creating jobs and capitalizing on environmental initiatives.
- Production by 12/31/06.

