Menominee Tribal Enterprises

MTE Biomass CHP District Energy System

Presented by:
Norman Shawanokasic
The Menominee Nation

• The Menominee Nation once occupied 9.5 million acres of land

• The present Menominee Reservation was established in 1854 with 234,000 acres.

• The Menominee hunted, fished and harvested wild rice on their reservation.
The Menominee Nation

• The Menominee retained their island of timber & community by perseverance of their own tenacity, federal protection and fortuitous circumstance.
The Menominee Nation

- 95% of the reservation produces the finest old stands of hardwood, pine and hemlock located in the Great Lakes region.
The Menominee Nation

- Forty-six of Wisconsin’s timber varieties grow and are harvested on the reservation.
The Menominee Nation

- 24 miles of the Wolf River flows through the Menominee Reservation.

- It is one of the last pristine rivers in the state.
The Menominee Nation

- Located along the river at Keshena Falls is the Menominee Logging Camp Museum

- Visitors view over 20,000 artifacts housed in 7 log buildings
Menominee Tribal Enterprises

- MTE is the business arm of the Menominee Indian Tribe of Wisconsin
• MTE is owned and operated by the Menominee Indian Tribe of Wisconsin through a 12 member Board of Directors elected from the members at large.
Menominee Tribal Enterprises

• Committed producer and manufacturer of quality sustainable forest products since 1908.

• Employs ~300 individuals throughout its operation. The mill alone employs ~160 in peak season.

• MTE embodies the culture, values and spirituality of the Menominee
Current Energy Profile

- 3,600,000 kWh/year
- 1.44 MW peak demand
- 20,000 tons of sawmill byproducts consumed by boiler/year
- Typical demand 2,000 - 4,000 lb/hour
- Peak demand 12,000 lb./hour

(6) Kilns 300,000 Board Feet of Capacity

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Existing Boilers

- (2) 27,000 PPH 150 psig
- Installed in 70s updated in 80s
- Designed to operate steam shotgun sawmill carriage
- Too big for current load profile
- <25% efficiency
Changes to System

New Heating Supply Line
New Fuel Receiving and Storage
New Boiler
New Turbine
New Hammermill

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System Updates

• Replace 1 aging boiler with new, 8,600 lb./hr high pressure steam boiler

• Automate remaining large boiler
Back-Pressure Steam Turbine

• Reduces pressure from 275psi to 30psi

• Generates 1,000,000 kWh/yr electricity

• < $0.01/kWh energy costs

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New Fuel Processing & Storage

Hammer Mill

Fuel Storage

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District Heating System Benefits

- Generates 1,000 MWh electricity = 28% annual use
- <$0.01/kWh
- Improve boiler efficiency from <25% to >60%
- Reduce wood consumption by 11,400 tons
- Annual net savings >$400,000
- PM reduced by 90%
Menominee Tribal Enterprises
1908-2014

Menominee Tribal Enterprises is committed to excellence in the sustainable management of our forest, and the manufacturing of our lumber and forest products providing a consistently superior product while serving the needs of our forest, employees, wood products customers, tribal community, and future generations.