We Energies' generating system

May 2014

BIOMASS COGENERATION

Rothschild Biomass Cogeneration Plant

RBCP generates renewable electricity and steam for our customers.

Location:
This plant is located on the Domtar Rothschild Paper Mill in Rothschild, Wis.

Type of plant:
Biomass-based, cogeneration facility provides base-load for the electric system while supplying all of the steam to the Domtar Rothschild Paper Mill.

Initial cost:
$269 million

Units:
1 Circulating Fluid Bed (CFB) boiler
1 Natural gas auxiliary boiler for steam only

Year in service:
2013

Generating capacity:
50 megawatts

Steam capacity:
800,000 pounds per hour
CFB: 550,000 pounds per hour
Auxiliary: 250,000 pounds per hour

Steam customers:
1 – Domtar Rothschild Paper Mill

Rothschild Biomass Cogeneration Plant

Fuel:
Wood (clean wood waste from saw/lumber/paper mills, forest residue, right-of-way clearings), natural gas for boiler start-up; Natural gas for auxiliary boiler.

Biomass handling:

Transportation:	One self-unloading station and two semi-truck tippers.
Storage:	Building is 160 feet wide by 435 feet long by 65 feet high and holds approximately one week of chipped woody biomass fuel.
Preparation:	Biomass fuel arrives pre-chipped.

Average biomass use:
500,000 tons annually

CFB Boiler:
Height: approximately 150 feet
Furnace temperature: 1,500 degrees Fahrenheit
Steam temperature: 950 degrees Fahrenheit
Steam pressure: 1,550 pounds per square inch
200 pounds per square inch are extracted to the papermill.

Ash handling:
Bottom ash is removed by a sieve system, water cooled and screw-conveyed out of the process. It is beneficially used in construction material. Fly ash is pneumatically conveyed to a storage tower and beneficially used as an agriculture soil amendment.

Chimney:
One 265-ft. chimney on the CFB
One 210-ft. chimney on the auxiliary boiler

Cooling system:
The cooling tower is equipped with abatement technology to reduce visible water vapor plumes.

Control room:
All major functions in the plant are controlled by operators with computer support to continuously monitor and report on pressures, temperatures, flow rates, etc. In addition, the computer aids in start-up, shutdown, load adjustments and information for future reference.