

Arkansas Alternative Energy Commission

Thursday, June 19, 2014

Little Rock, Arkansas

The Ashdown Mill

- 1966 – Area residents voted in favor of \$50 million bond to fund the initial investment for the construction of the Ashdown Mill including #61 PM.
- 1974 – \$50 million investment in #62 PM installation.
- 1978 – \$250 Million investment in #63 PM, pulp mill, pulp dryer, recovery boiler and turbine generator.
- 1990 – \$500+ Million investment in #64 PM, #3 RB, and 3 & 4 TG's.



Today:

- 2,550 acre footprint
- 983 direct employees
- **Capacity :**
 - 750,000 tpy of uncoated free sheet
 - 175,000 admt/year of market pulp
- 3.3 million tons of wood purchased annually

Two recent biomass projects at Domtar facilities

- 2013 partnership with WE Energies in Wisconsin
- 2010 installation of a steam turbine generator in South Carolina



Rothschild Mill

- 400 jobs
- An integrated Pulp and Paper Mill
- Converting Operations
- Area Economic impact of over \$170 million
- Partnerships
 - We Energies -- \$255 million 50 MW biomass cogeneration plant. 400 construction jobs and 150 permanent forest-products jobs
 - Lignotech – over 60 jobs – using spent chemicals from papermaking for new products in agriculture, construction, transportation, pharmaceutical and related industries.

Domtar Rothschild: 1909

First sheet off reel: Nov. 18, 1910



MARATHON PAPER MILLS CO.
ROTHSCHILD, WIS.

Rothschild Mill: 2014



Today the mill operates one pulp line and one paper machine with a production capacity of 147,000 Tons per year.

Rothschild Biomass Cogeneration Plant



Why cogeneration?

Combined heat and power generation is a more efficient use of biomass fuel than producing steam and electricity separately

Domtar

- Satisfies 100% steam needs for the paper mill as renewable energy while reducing dependence on natural gas
- Allows mill to shut down existing older, less efficient boilers

We Energies

- Project helps fulfill state-legislated mandate to produce 10% of electricity from renewable sources by 2015

Rothschild Biomass Cogeneration Plant



Timeline

- Project announced by We Energies and Domtar
September 1, 2009
- Local approvals (site plan and height variance) received
August 2010
- Wisconsin DNR Air Permit issued
March 28, 2011
- PSCW Certificate of Authority issued
May 12, 2011
- Construction began
June 2011
- Commercial operation
November 8, 2013

Rothschild Biomass Cogeneration Plant



Project benefits

Renewable energy

- Plant uses renewable resources to generate electricity equal to that of a large wind farm

Employment

- Peaked at 415 construction workers on site
- 36 full time plant operations employees
- Permanent jobs in forest management, logging and trucking fields

Annual shared revenue

- Village of Rothschild - \$146,650
- Marathon County - \$113,350

Economic sustainability

- Improves mill's long-term viability and its competitive position in declining global paper industry

Rothschild Biomass Cogeneration Plant



50-MW biomass cogeneration plant



Rothschild Biomass Cogeneration Plant



Control room



Rothschild Biomass Cogeneration Plant



Circulating Fluid Bed boiler

- Metso manufactured/designed
 - 550,000 lb./hr. steam flow at 1500 psig
 - Capable of burning 2,080 tons/day of biomass



Rothschild Biomass Cogeneration Plant



Steam-driven turbine/generator

- Generation capacity: up to 50 MW
- Steam for mill use extracted at 200,000 lb./hr. at 200 psig



Rothschild Biomass Cogeneration Plant



Cooling towers

- Provides cooling water to all equipment in plant
- Condenses low-pressure exhaust steam from turbine
- Makeup water from Domtar mill water supply (Wisconsin River)
- Abatement technology to reduce visible water vapor plumes



Rothschild Biomass Cogeneration Plant



Back-up natural gas boiler

- Able to provide continuous steam to Domtar paper mill
- Will operate if biomass boiler is down for maintenance



Rothschild Biomass Cogeneration Plant



State-of-the-art emission control equipment

- Overall mill site emissions reduction of about 30%



Rothschild Biomass Cogeneration Plant



Domtar's Rothschild wood procurement background

Pulpwood

- More than 100 years experience
- Approximately 100 suppliers
- Paper mill consumes 120,000 cords per year
- Supply from up to 120 miles away

Biomass

- Buying and burning for more than 35 years
- 10 suppliers
- Paper mill generates about 50,000 green tons per year
- Prior to new biomass plant – paper mill purchased 80,000 green tons per year

Rothschild Biomass Cogeneration Plant



Domtar's environmental commitment

- Forest Stewardship Council certified
- Sustainable Forestry Initiative certified
- Require all fuel suppliers to comply with Sustainable Forestry practices and Wisconsin's Biomass Harvesting Guidelines

We are committed to maintaining our environmental leadership as embodied by our growing family of socially and environmentally responsible Domtar EarthChoice® papers, as well as by the strict international standards we have achieved.

We will also continually strive to achieve the right balance between our economic objectives, our concern for the environment and our respect for the places where we live and work.

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Sustainable biomass

Fuel

- Biomass use at new plant = 300,000 to 500,000 tons/yr.
- 5 studies confirm sustainable supply to meet demand

Sources

- Primary: wood waste from paper mills, sawmills and door/window manufacturers
- Opportunity: municipal yard waste, right-of-way clearing, storm damaged trees and invasive species prevention or diseased tree removal
- Logging residue: tree tops and branches left behind after pulp/lumber harvest

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Sustainable biomass

Harvest practices

- Common equipment – part of regular harvest
- Wet weather / soft soils
- Severe cold stops operations
- Market changes may alter biomass source
 - Example: pulpwood diameter increases from 4" to 6"
- Power plant/paper mill needs don't change harvest plan

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Fuel receiving, handling and storage

- Average 50-75 truckloads of pre-chipped biomass fuel
 - 75-mile radius of plant
- 2 weigh-in scales
 - Swipe card system
- 2 truck tippers and 1 self-unloading station
- Hog/screening system
- Enclosed storage and conveyors
- Auto reclaim from storage building

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Fuel receiving, handling and storage



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Truck tippers



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Fuel storage building/reclaimer



Bennettsville, South Carolina

- Domtar's Marlboro mill
 - Constructed in 1990 by Willamette
 - Last “greenfield” mill built in North America
 - 320 employees
 - Uncoated freesheet paper, base stock for lightweight thermal and market pulp
 - 1 pulp dryer and 1 paper machine

Evolution of steam turbine generator

- Economics of mill did not work for on-site electricity generation in 1990
- STG was conceived and in-house conceptual planning and design started in 2005
- Board approval in Summer 2009
- Project kick-off on October 27, 2009
- First generation on September 17, 2010







The “finished product”



