Linking Fuels Reduction and Wood Energy

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Heating the Midwest
Large Commercial/Institutional Real World Projects – Success Stories
3:15 pm to 5:00 pm, April 26, 2012

Wisconsin State Energy Office (SEO)

SEO's Mission is to invest in Wisconsin by:
• Increasing energy efficiency;
• Developing renewable and alternative energy sources;
• Promoting energy-related economic development & jobs; and
• Reducing reliance on imported oil.

SEO manages over $85 million in federal energy-related grants and loans including:
• Installation of an 800 Hp biomass cogeneration system at a hospital in La Crosse;
• Upgrading the biomass handling system at paper mill in Fox River Valley; and
• Numerous biogas, bio-CNG and biomass feedstock related initiatives.

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Presentation Overview

- Wisconsin’s Biomass Resources
- Existing Biomass Users and the Biomass Energy Dilemma
- Projects Linking Fuels Reduction and Wood Energy:
  - Gundersen Lutheran
  - Appleton Coated, LLC
- Going Forward: Wisconsin Strategic Bioenergy Feedstock Assessment

Source: State Energy Office

Wisconsin Biomass Resources

Wisconsin’s Biomass Landscape

- **North**: Wood cover
- **South**: Agricultural cover
  - Corn Stover
  - Wheat Straw
  - Small Grains

Source: Billion Ton Study Update
Wisconsin’s Pulp and Paper Industry

- WI Pulp and Paper Industry:
  - #1 Pulp and Paper Industry in U.S.
  - 60,899 Employees with Payroll of $2.7 Billion
- Energy Intensive Industry

Biomass Energy Potential?

- Biomass potential:
  - Energy
  - Manufacturing
- Very large biomass projects proposed in WI:
  - Encourages development of forest residue supply chains
  - Provides opportunities for forest restoration
  - Impacts fiber supplies for existing industries
- 2 projects that illustrate this tension:
  - Bay Front
    - Utility biomass to electricity
    - >500,000 tons/year
  - Domtar
    - Utility and paper company co-generation
    - >370,000+ tons/year
Fuels Reduction

Source: John Deere

Source: Wausau Daily Herald

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Linking Fuels Reduction and Wood Energy

• Funding Source
  - USDA – U.S. Forest Service
    - Wood Education and Resource Center
  - State Fire Assistance (National Fire Plan)
  - Awardees:
    - Gundersen Lutheran – La Crosse, WI
    - Appleton Coated, LLC – Combined Locks, WI

Source: Wood Education and Resource Center
USDA Forest Service, 2010

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Gundersen Lutheran

- Major healthcare provider based in La Crosse with 6,000+ employees
- Commitment to energy independence by 2014

Gundersen’s Road to Energy Independence

Gundersen’s Road to Energy Independence

Source: Gundersen Lutheran

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Gundersen Lutheran

- Biomass Boiler
  - 38% of energy independence goal (~150,000 MMBtu and 2,500,000 kWh)
  - Will produce majority of heat/steam used by health system
  - On-site electricity production with back pressure steam turbines
  - Local economic development benefits
  - Targeted production – October 2012

Source: Gundersen Lutheran

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Appleton Coated: Commitment to Sustainability

- CEO commitment to eliminate fossil fuels
- Paper consumers are beginning to require greater sustainability
  - FSC or SFI certification,
  - Recycled content,
  - Renewable energy
- Focus:
  - Energy Efficiency & Conservation
  - Biomass

Appleton Coated Biomass Expansion

Goal: Convert largest boiler to 100% biomass by 2015
- Currently burns:
  - coal,
  - woody biomass, and
  - paper pellets

Source: Greenwood Fuels
Source: Appleton Coated
Appleton Coated Biomass Expansion

Several steps to increase biomass utilization:

- Woody biomass feed rate
- Storage space
- Delivery
- Maintain and support biomass suppliers

Going Forward: Wisconsin Strategic Bioenergy Feedstock Assessment

- Neutral, Statewide Assessment
- Resource and Cost Projections

Source: Solar Energy
Thank you!

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