Opportunities for Biomass Combustion Systems in Wisconsin

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Presentation Outline

• Focus on Energy Program Overview
• Opportunities and Barriers
• Case Studies of Biomass Combustion Projects in Wisconsin
• Conclusions
• Questions
Focus on Energy Target Markets for Renewable Energy

- **Solar**
  - Electrical Generation
  - Water Heating
- **Wind**
- **Bioenergy**
  - Anaerobic Digestion
  - Non-residential Wood Burning
Biomass Energy Combustion Market

• **Target:**
  – Wood products industry
    • Generate wood scrap/residuals
    • No transportation costs
  – Institutions and businesses in rural areas

• **Connect:**
  – Energy users
  – Technology providers
  – Buyers and sellers of biomass energy
Focus on Energy Incentives (Starting July 1, 2007)

What type of systems are eligible?

- Must be a customer of a participating Focus on Energy utility
- Must replace natural gas or electricity
- Must use organic materials
  - Wood, grasses, other organic materials
- Must meet emission limits and other permit requirements
Focus on Energy Incentives (Cont.)

How much is available per project?

- Cash Back Rewards: $10,000
- Implementation Grants: $250,000
- Feasibility Studies for projects < 750,000 therms per year: $10,000
- Development grants for projects > 750,000 therms: $50,000
- Business development grants: $10,000

Grant Application Deadlines

- Last Wednesday of each month
Focus on Energy Incentives (cont.)

- **Cash Back Rewards (<5000 therms per year)**
  - Up to $10,000 or 25% of project cost
  - <1000 therms per year: $3.00 per therm
  - 1000 to 3000 therms per year: $2.50 per therm
  - >3000 to 5000 therms per year: $2.00 per therm

- **Implementation Grants (> 5000 therms per year)**
  - Maximum of $250,000
    - Maximum of 25% of installed cost, or
    - Formula approach: $50 x (therms/year)^0.63
Opportunities

• Technology is proven and performance has improved with better control technologies
• Many facilities in Wisconsin have abundant biomass resources
• Paper mill closures may impact biomass availability
  ➢ Vermont as an example
• Pellet fuels are becoming more popular
  ➢ Paper, sawdust, grasses and other residuals
• Economic/environmental issues
  ➢ CHP projects, co-firing, carbon credits
Benefits of Using Local Forest Biomass

• Sustainable renewable fuel source
• Relatively low cost fuel
• Local and regional economic development
• Positive action on climate change
Barriers

• Consistent supply of biomass fuels
  ➢ Biomass Commodities Exchange Project
• Storage and handling issues
  ➢ Lower energy density than fossil fuels
• Material characteristics
  ➢ Size
  ➢ Moisture content
  ➢ Energy value
• Public acceptance
  ➢ Can be viewed as a step back
  ➢ Poor performing outdoor “doghouses” have come under intense public scrutiny
Wisconsin Biomass Combustion Market

- 49 completed projects
  ~25,000 tons per year
- 21 projects in progress
  ~50,000 tons per year
- Biomass for Heating Schools and Institutions initiative for 2008
- $1 million budget: July 07 – Dec 08
Case Studies: Implementation Grants

- Sunny Slope Gardens
- Hayward Eatery and Brewpub
- Barron School District
- Granite Valley
- Superior Kiln
- Muscoda Protein Products
Case Study: Sunny Slope Gardens

- Wood pellet boiler installation project
  - Six-55,000 Btu/hr pellet boilers with storage hoppers and auto feed systems
  - Approximate project cost of $10,300
  - Focus on Energy contribution of $2,400
  - Estimated annual savings of approximately 5,000 therms of natural gas

- System provides heating for 4,000 square feet of commercial greenhouse space
Case Study: Sunny Slope Gardens
Case Study: Hayward Brewpub

- Wood pellet boiler installation project
  - 1,500,000 Btu/hr pellet boiler with storage and auto feed
  - Approximate project cost of $66,000
  - Approximate Focus on Energy contribution of $11,700
  - Estimated annual savings of approximately 17,500 therms of natural gas

- System provides process heat for restaurant/bar
Case Study: Hayward Brewpub
Case Study: Barron School District

• Wood boiler controls upgrade
  - Project cost of $55,000
  - Focus on Energy contribution of $15,000
  - Estimated annual savings of 75,000 therms

• System provides heat for elementary and high schools, hospital, medical center and nursing home
Case Study: Barron School District
Case Study: Granite Valley

• Wood boiler installation project
  - 250 HP boiler
  - Project cost of $700,000
  - Focus on Energy contribution of $42,000
  - USDA funding of $179,000
  - Estimated annual savings of 280,000 therms of natural gas

• System provides process heat for wood drying
Case Study: Granite Valley
Case Study: Granite Valley
Case Study: Superior Kiln

• Wood boiler installation project
  ➢ 230 HP steel fire tube boiler, low pressure steam at 15 psi
  ➢ Provides heat for drying dimensional lumber
  ➢ Project cost of $449,000
  ➢ Focus on Energy contribution of $35,000
  ➢ Total production of 540,000 therms
  ➢ Estimated annual savings of 275,000 therms of natural gas

• Previously had issues with inconsistent natural gas supply and were also on interruptible service
Case Study: Superior Kiln
Case Study: Muscoda Protein Products and Meister Cheese

- Wood boiler installation project
  - 400 HP boiler
  - Project cost of $1,700,000
  - Focus on Energy contribution of $35,000
  - USDA funding of $430,000
  - Estimated annual savings of 600,000 therms of natural gas with a four year payback

- System provides process heat for cheese plant and whey drying facility
Case Study: Muscoda/Meister
Case Study: Muscoda/Meister
Additional Information

www.focusonenergy.com

• Case studies
• Full Service Installers list
• Consultant list
• Application materials
• Events calendar
Conclusions

• Many options exist for the utilization of wood or other types of biomass

• Focus on Energy has technical and financial resources available to assist with projects

• Incentives have been significantly increased and now is the time to take advantage of this opportunity
Questions?

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Thank You