Advancing Clean & Efficient Biomass Utilization

EMEP 2013

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Biomass Thermal Energy Council (BTEC)

Dan Wilson, PE
Chairman
Presentation Overview

○ BTEC overview

○ Thermal renewable energy

○ BTEC focus areas / initiatives
  ● Commercial boiler efficiency
  ● Transportation / storage standards
  ● Emissions
Introduction to BTEC

- The Biomass Thermal Energy Council (BTEC) is the industry trade association dedicated to advancing the use of biomass for thermal energy applications.
- Members include landowners, handling equipment manufacturers, fuel refiners, appliance manufacturers, project developers, investment companies, nonprofits, universities, associations, and many others.

Why was BTEC established?
1. To advocate for and promote the biomass thermal industry in the national energy policy debate.
2. To reach out to and educate the public and decision makers on the benefits and advantages of using biomass for heat and CHP.
3. To develop biomass energy research and analysis that enables sound investment and policy decisions.
Beneficial Attributes of Biomass Thermal

○ Economics / Job Creation
  ● Savings for owners on energy costs
  ● Wealth retention (regional /national energy security)

○ Generates markets for low use wood – allows forest management

○ Net reduction of carbon emissions

○ Efficient use of resource (thermal and thermally-led CHP)
Thermal demands are 1/3rd of nations energy needs

Source: USDOE Energy Information Administration
What is the most efficient use of the resource?

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<th>Biofuel</th>
<th>Electricity</th>
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<td>AWC (Europe)</td>
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<td>89%</td>
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<td>Building Heat (U.S.)</td>
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<td>Industrial Process Heat</td>
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<td>5 MW CHP</td>
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<td>Cellulosic Ethanol</td>
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<td>Co-Firing @ 20% of Fuel Mix</td>
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<td>50 MW Biopower Plant</td>
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<td>20 MW Biopower Plant</td>
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Biomass Future with Current Federal Government Vision?

Biomass Energy Consumption by Sector 2007 vs 2030 Projection

Energy Information Administration/An Updated Annual Energy Outlook 2009 Reference Case

Courtesy of John Ackerly, Alliance for Green Heat
Promoting the BTU Act

- S. 1007, the **B**iomass **T**hermal **U**tilization Act (BTU Act)
- Sens. King (I-ME), Collins (R-ME), Shaheen (D-NH)
- Provides tax parity for residential and commercial/industrial high efficiency biomass thermal systems
- 75% efficiency for residential, 65%/80% for commercial/industrial
- 24 groups already endorsing
- Long road ahead
- Bottom line: Stronger communities through local fuels, healthier forests, less oil
Why Is a Biomass Commercial Size Boiler Efficiency Standard Needed?

- Key to allow benchmark for incentivizing efficient and clean technologies / designs
- Key to consumers - as a consumer, how do I choose the most efficient biomass boiler?
  - Biomass boiler advertising claims
    - 98% efficient
    - 92% efficient
### Vision for BTEC Commercial-Size Boiler Efficiency Standard

#### Background
- Survey development
- Dissemination of survey among architects and engineers
- Evaluation
- Survey publication

#### Preparation
- Development of materials and stakeholder meetings
- Meeting with standards organization
- Initial stakeholder session
- Development of Library with information on biomass thermal systems
- Development of stakeholder document

#### Standard Writing
- Convening of contractor TRAC and procurement of project consultant(s)
- Determining and approaching the appropriate standards organization
- Development of project scope
- Publicizing scope and holding scoping meetings
- Developing the draft test procedure, validation laboratory testing, and soliciting public feedback

#### Adoption/Publication
- Submit efficiency test procedure to selected standards body
- Track approval of standard in selected standards body
- Information Dissemination - public promotion of results

#### Funding Source

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*Funding Pending

### Financial Support:
The U.S. Forest Service, West Penn Power Sustainable Energy Fund, the U.S. Endowment for Forestry and Communities, and the New York State Energy Research and Development Agency (NYSERDA) have, are in the process of, or have pending awards to contribute between $50,000 to $140,000 each to this multi-year effort.

### BTEC’s Request:
To make this project a success, the industry needs to provide financial support and leverage these commitments. In BTEC’s current projections $25,000 is needed in direct financial support from industry in 2013, which will allow the project to continue until 2015. BTEC is requesting your company’s support of $1,000 or more. Your contribution will be matched by a ratio of more than 10:1 and will help pay for preparation, meeting supplies, professional facilitators, and follow-up work.

### Sponsorship Supports:
1. The development and publication of a Request for Information
2. The execution of a multi-day workshop in Washington, D.C. with manufacturers, Federal Agencies and a Standards Body
3. The drafting of the standard
NYSERDA Bulk Pellet Storage Project

- Education & outreach to industry
- Literature review relating to CO formation
- Information gather on policies / standards in Europe & Canada
BTEC/NEBTWG Pellet Storage Standard

- Parallel activity to NYSERDA project
- Borrowing from international standards
- Consideration of passive and active ventilation measures to address CO
Emissions

- Biomass must offer an efficient, clean, & safe option to be a viable over long-term

- Keys are:
  - modern combustion technologies
  - appropriate designs to maximize system efficiency, minimize emissions
  - stack design based on site specific modeling
  - appropriate emission controls
Addressing thermal energy use necessary to meet greenhouse gas reduction goals

Energy Usage in mmBtu/yr for a university in Wisconsin

- Boiler Fuel: 332,763 mmBtu/yr
- Electric: 84,422 mmBtu/yr
Thank You!

Dan Wilson, PE
Chair
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