BTEC
Biomass Thermal Energy Council

Advancing Clean & Efficient Biomass Utilization

EMEP 2013

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Biomass Thermal Energy Council (BTEC)

Dan Wilson, PE
Chairman

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Presentation Overview

- BTEC overview
- Thermal renewable energy
- BTEC focus areas / initiatives
  - Commercial boiler efficiency
  - Transportation / storage standards
  - Emissions

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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

Plum Creek
MARTH
FIBER IN MOTION
TARM BIOMASS
Innovative Leaders in Alternative Heating Solutions
NEW ENGLAND
WOOD PELLET, LLC
Bear Mountain Forest Products
Forest Energy Corporation

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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)

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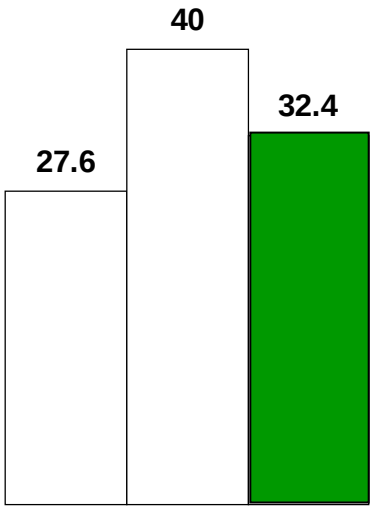
Thermal demands are 1/3rd of nations energy needs



Source: USDOE Energy Information Administration

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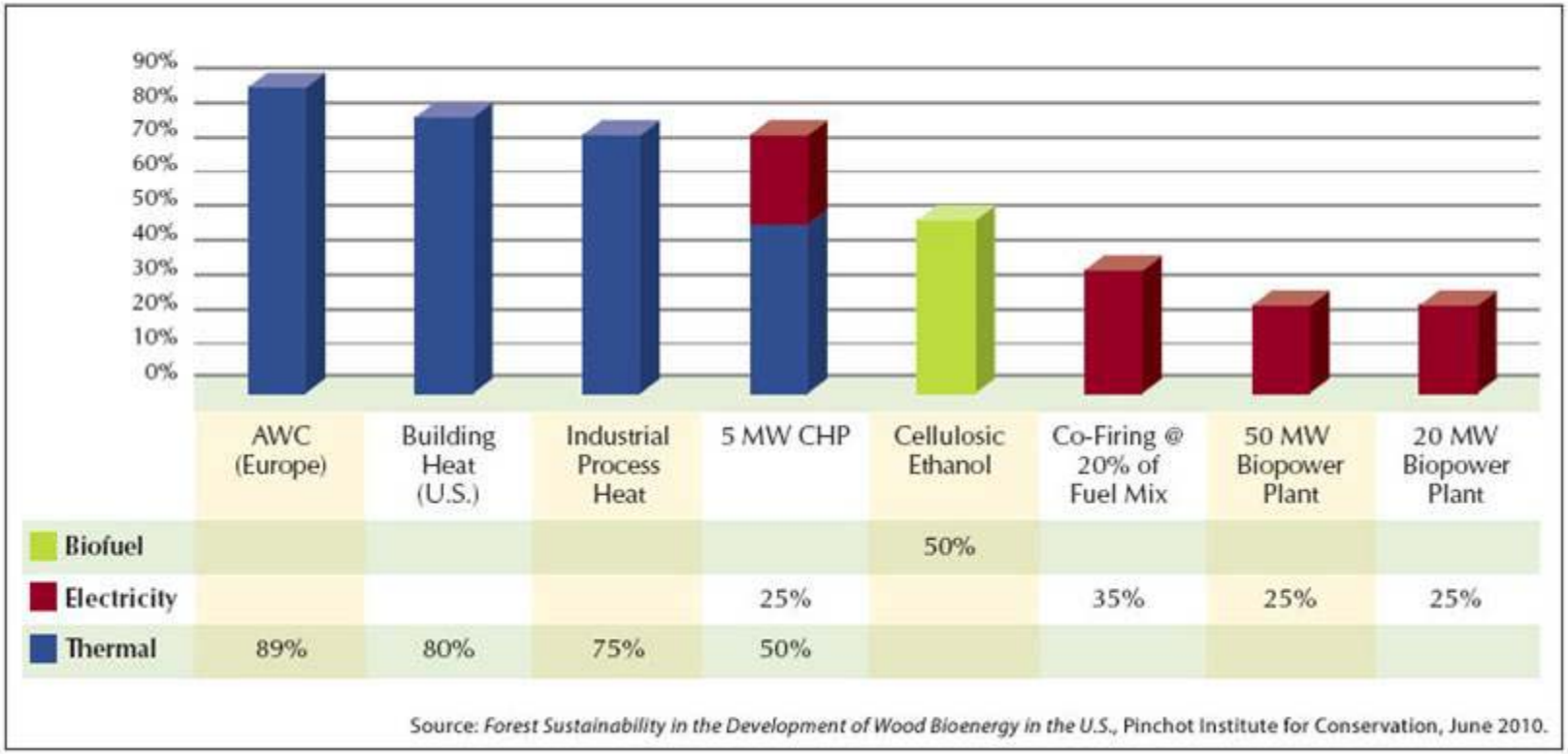
What is the most efficient use of the resource?

Relative biomass conversion efficiency of bioenergy technologies.



Source: *Forest Sustainability in the Development of Wood Bioenergy in the U.S.*, Pinchot Institute for Conservation, June 2010.

More info? – BTEC Fact Sheets

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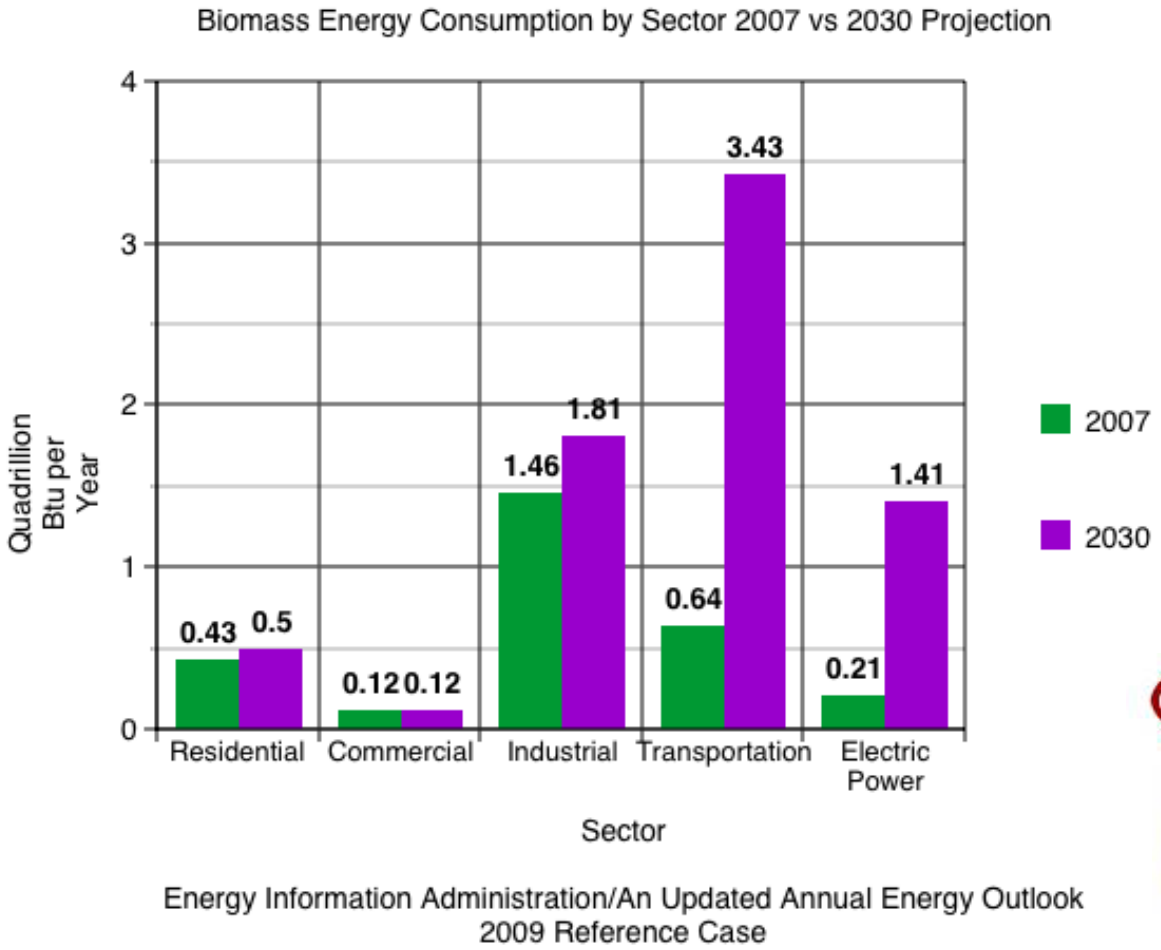
Biomass Future with Current Federal Government Vision?



ALLIANCE FOR GREEN HEAT
clean, renewable & local

Courtesy of John Ackerly, Alliance for Green Heat

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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

Biomass Thermal Utilization (BTU) Act of 2013

Sponsors: Senator Angus King (I-ME), Senator Susan Collins (R-ME)

What is thermal biomass?

A thermal biomass system is a stove, furnace or boiler that runs on biomass fuels such as wood pellets and chips, solid wood or agricultural residues. The system produces thermal energy for heating residential, commercial and industrial buildings, as well as process heat for industrial applications.

Wood pellets, chips and solid wood are the most common fuels for biomass heating systems, although agricultural wastes will see growth in the future.

Wood pellets are generally made from wood waste, condensed under heat and pressure, with no additives. They have high energy density, low moisture content, and are as easy to transport and use as traditional fossil fuels. Wood chips offer a slightly less refined form of biomass fuel, but also allow for easy transport and storage.

A biomass thermal system can provide hot air, water, and process heat

Advanced combustion technologies allow the use of biomass fuels with very high efficiencies and low emissions. Leading technologies have been developed in Europe, but are now entering the U.S. market. Domestic U.S. manufacturers are also developing advanced technologies.

What are the economic and environmental benefits of renewable thermal biomass?

These technologies utilize fuels and feedstocks that support forest- and agricultural-based economic development in rural regions. Many rural regions are dependent on imported fossil heating fuels such as oil and propane, and do not have access to natural gas. Locally produced biomass fuels can displace dependence on these expensive imported fuels, thereby keeping fuel dollars local and greatly reducing heating costs.

Wood pellet and chip manufacturing, as well as dedicated production of agricultural feedstocks for thermal applications can help revitalize economies in regions that have been impacted by decline in forest industry or agriculture. Biomass thermal creates and helps retain JOBS.

Biomass fuels are low carbon and result in net reduction of greenhouse gas emissions when displacing high carbon intensity fuels such as heating oil. In addition, the use of wood fuels reduces sulfur emissions that contribute to acid rain.

Biomass fuels can be conveniently delivered in bulk

The use of biomass fuels produced in America helps strengthen American energy independence and security.

Why is the BTU Act important?

The BTU Act adds high efficiency biomass thermal technologies to the list of renewable energy technologies that current benefit from investment tax credits under section 25D (residential) and Section 48 (commercial/industrial) of the tax code. This investment credit currently applies to solar thermal and geothermal technologies, but not to biomass thermal. The BTU Act corrects this oversight. The BTU Act only qualifies the most efficient and advanced technologies for the credit.

Investment credits are needed for advanced biomass thermal technologies because of their comparatively high up front capital cost. This "capital hurdle" must be overcome to build the market and gain economies of scale that will bring system costs down. Similar policy has been very effective in reducing the cost of solar (PV and thermal) and geothermal technologies.

Who supports the BTU Act?

Alliance for Green Heat
American Boiler Manufacturers Association
American Forest Foundation
Aroostook Partnership for Progress
Biomass Energy Resource Center
Biomass Thermal Energy Council
Hardwood Federation
Heating the Midwest with Renewable Biomass
International District Energy Association
Maine Pellet Fuels Association
Mt. Adams Resource Stewards
National Association of Forest Service Retirees
National Network of Forest Practitioners
New York Biomass Energy Alliance
North Country Resource Conservation and Development Council
Northeast Biomass Thermal Working Group
Northern Forest Center
Pellet Fuels Institute
Pennsylvania Biomass Energy Association
Sustainable Northwest
Vermont Energy Investment Corporation
Watershed Research & Training Center

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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 scolicity 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

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

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NYSERDA Bulk Pellet Storage Project

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

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BTEC/NEBTWG Pellet Storage Standard

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

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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

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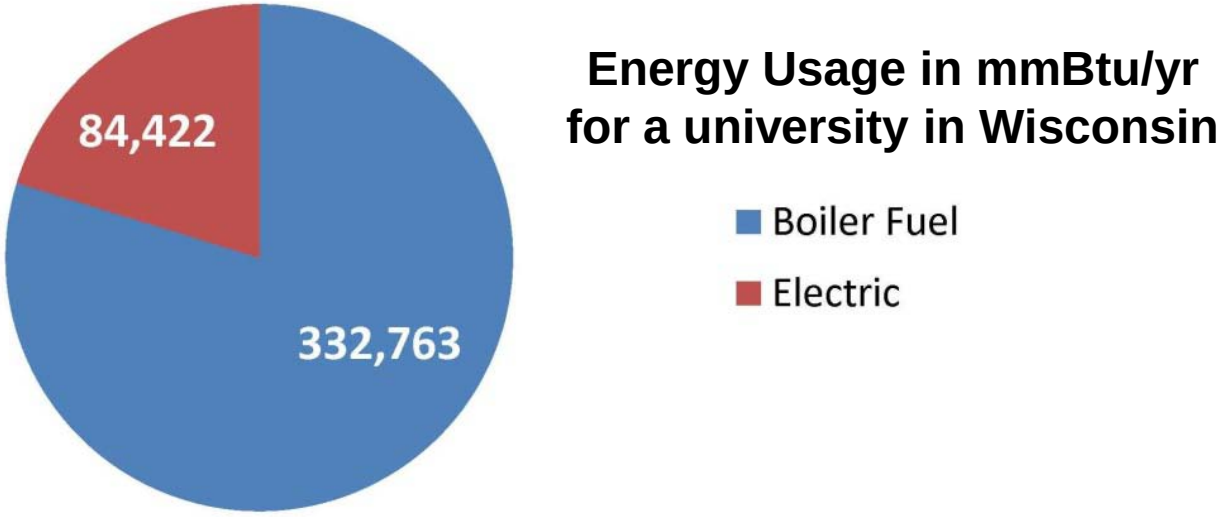
Addressing thermal energy use necessary to meet greenhouse gas reduction goals



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Thank You!

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