Pellets: Opportunities for West Virginia

Governor’s Energy Summit
Charleston, WV
December 17, 2013
Jennifer Hedrick, Executive Director
PFI in Brief

• Founded in 1985

• A North American Trade Association Promoting Energy Independence through the Efficient Use of Clean, Renewable, Densified Biomass Fuel

• Emphasis on Densified Biomass (e.g. pellets) for a Range of Applications

• Membership Comprised of:
  • Densified Biomass Manufacturers
  • Industry Suppliers
  • Associate Members (e.g. NGOs, universities)
Figure 1. Renewable energy consumption in the nation's energy supply, 2010

Total: 97.892 quadrillion Btu
- Petroleum: 37%
- Natural Gas: 25%
- Nuclear Electric Power: 9%
- Renewable Energy: 8%
- Coal: 21%

Total: 8.049 quadrillion Btu
- Biomass: 53%
- Geothermal: 3%
- Hydroelectric: 31%
- Wind: 11%
- Solar: 1%

Source: U.S. Energy Information Administration
Biomass Energy Supply in the U.S.

Woody Biomass = ~ 22% of nation’s renewable energy supply and 2% of overall energy used in the U.S.

Source: Short-Term Energy Outlook, January 2013

Note: Hydropower excludes pumped storage generation. Liquid biofuels include ethanol and biodiesel. Other biomass includes municipal waste from biogenic sources, landfill gas, and other non-wood waste.
America’s Energy Use

Transportation 29%

Electricity 40%

Heating (thermal) 31%

Source: Energy Information Administration
U.S. Domestic Pellet Market

Residential Market = Primarily “Bagged” Market; pellets sold in 40 lb. bags at “Box” stores or independent retailers

Using pellets as primary or secondary heat source; zone heating

About 1.5 million homes heating with pellets
Thermal Applications: Residential Heating

- Stoves and Inserts
- Boilers and Furnaces
Thermal Applications: Commercial/Industrial Market

• Large-scale boilers

• Generally > 250,000 BTU/hr

• Schools
• Hospitals
• Government Buildings
• Communities
• Confined Animal Feeding Operations
U.S. Domestic Market

Source: RISI
Growing number of pellets now exported to EU utilities

Source: RISI North American Bioenergy Forecast
West Virginia Pellet Industry

- Appalachian Wood Pellets, Inc. Kingwood, WV
- Hamer Pellet Fuel Co., Elkins, WV
- Lignetics, Inc., Linn, WV
West Virginia Pellet Industry

• Employing 65 people—jobs for rural West Virginians

• Over 40 years of experience producing pellets for West Virginia, Northeastern and Mid-Atlantic states, and Canada

• Utilizing production residues from saw and lumber mills—excellent outlet for waste byproduct

• Producing pellets for residential heating, barbecuing, and for use by other industries as absorbents

• Pursuing other market opportunities
West Virginia Pellet Industry

• Provide an affordable heating alternative to other fuels, which can offer families significant costs savings

• Every ton of pellets used vs. oil reduces CO2 emissions by about 1.5 tons

• Pellet stoves have extremely low particulate emissions due to their high burn efficiency and the density of the fuel (<1gm/hr)
## West Virginia Wood Pellet Production and Sales

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<tr>
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<th>Tons</th>
<th>Million BTU</th>
<th>Btu/lb</th>
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<tbody>
<tr>
<td></td>
<td>2011</td>
<td>2012</td>
<td>Average</td>
</tr>
<tr>
<td>Maximum Production</td>
<td>280,880</td>
<td>268,880</td>
<td>274,880</td>
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<tr>
<td>Actual Production</td>
<td>160,275</td>
<td>138,962</td>
<td>149,618</td>
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<tr>
<td>Annual Sales</td>
<td>164,156</td>
<td>130,472</td>
<td>147,314</td>
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<tr>
<td>Sales in WV</td>
<td>25,721</td>
<td>27,218</td>
<td>26,470</td>
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<tr>
<td>Sales outside WV</td>
<td>138,435</td>
<td>103,254</td>
<td>120,844</td>
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Percent Exported: 82%
Developing Market Opportunities
Confined Animal Feeding Operations (CAFOs)

Fuel switch from LP gas to pellets provides:

• Greater **cost effectiveness** and predictability
• Savings up to 50%
• Zero moisture content resulting in: dryer litter, improved bird health, reduced ammonia and odors, improved air quality for workers and birds
• No carbon impact
• Use of renewable resources
Opportunities for Pellets: Lessons from Neighboring States

- **Goal** = Provide affordable heating options for residents of New England, MD and PA
- **Goal** = Job Creation
- **Goal** = Grow biomass thermal market
Opportunities for Pellets: Lessons from Neighboring States

√ Commitment from Community (physical and financial)
√ Support of State and Local Governments
√ Federal Government Funding

Grassroots Action = Market Expansion
Project Examples:
Millinocket Regional Hospital
Maine

- 25 beds
- 70,000 square feet
Maine Biomass Heating Projects Data Dashboard

Choose Site

Millinocket Regional Hospital

Summary Data

Millinocket Regional Hospital

Public School building
200 Somerset Street
Millinocket, ME, 04662

Building Size = 70,000 Square Feet
New Boiler: Schmid Model UTSP 700
Boiler Capacity = 2.20 MMBTU/hr
Fuel Type is Pellets
Grant Amount = $258,978
Owner Amount = $258,977
Total Cost = $517,955
Capital Cost per MMBTU = $235,434
Completion Date: January 24, 2013

2012-2013 Actual

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<tr>
<td>2012-2013 Wood Cost</td>
<td>$46,538.88</td>
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<tr>
<td>2012-2013 Heating Oil Cost</td>
<td>$59,588.06</td>
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<tr>
<td>2012-2013 Savings</td>
<td>$157,458.33</td>
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Projected in Grant

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<tr>
<td>Prior Oil Cost</td>
<td>$261,585.27</td>
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<tr>
<td>Estimated Wood Cost</td>
<td>$56,961.65</td>
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<tr>
<td>Estimated Oil Cost</td>
<td>$0.00</td>
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<tr>
<td>Estimated Savings</td>
<td>$206,623.62</td>
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Savings Variance from Grant (+ is good) = ($49,165.29)

Millinocket Regional Hospital, 2012-13 Actual

2012-2013 Savings = $157,458

Heating cost per degree day / 10,000 sq. ft.

Total Cost per 1000 Sq. Ft. (includes amortized capital cost over 20 years) $521.44
Project Examples

Bulk Delivery

• Gaining Traction in the U.S.
• Development of recommendations for delivery and storage of pellets
Public Policy: Examples
Opportunities for WV

• Increasing collaboration between interest groups, state and local governments to advance pellet industry

• Looking at feasibility of expanding RPS, other public policy initiatives

• Creating additional job growth, especially for more rural regions
THANK YOU!

Jennifer Hedrick
hedrick@pelletheat.org
703.522.6778

Facebook.com/pfipellets
@pelletfuel
Appalachian Wood Pellets, Inc. Kingwood, WV
Don Wagner
Dwagner@appalachianwoodpellets.com

Hamer Pellet Fuel Co., Elkins, WV
Lori Hamer
Lhamer@hamerpellet.com

Lignetics, Inc., Linn, WV
John Utter
JohnU@Lignetics.com

Contact: West Virginia Pellet Manufacturers