

Benton Area School District

Utilization of Biomass for Heating Benton Area School District

Fueling our school and our future
with renewable energy.

Program Information

Penny Lenig-Zerby - Superintendent BASD

Beverly Ribble - Business Manager BASD

Ryan Koch – Pocono Northeast RC+D
Coordinator

Scott Singer – USDA Wildlife Biologist

Kris Ribble – NRCS

Adam Dantzcher and John Bootle
Renewable Energy Resources

Benton Area School District

- K-12 population- 730
- 30th smallest school district in Pennsylvania
- District population- 5,300
- District size- 98.6 miles
- 114 district employees
- 39% agricultural land

Financial Information

- \$10.2 million budget
- 1 mil= \$88,000
- 60% of budget used for instruction

Fuel Budget

- 07-08 school year- \$109,900
- 08-09 school year- \$127,500
- 09-10 school year- \$70,226
- 10-11 school year- ? \$145,080 @
- \$3.10 per gallon for fuel oil – 46,800 gal.

Building

- K-6 Elementary School consisting of 71,000 square feet
- 7-12 Middle/Senior High School consisting of 100,000 square feet
- Alternative Education/Maintenance consisting of 5,500 square feet

BENTON AREA SCHOOL DISTRICT



Renovations

- 1999 Elementary School renovation cost \$6.9 million
- 2002 Middle/Senior High School cost \$10.1 million

Project Partners:

- Benton Area School District
- USDA-Natural Resources Conservation Service
- Pocono Northeast Resource Conservation and Development Council
- PA Department of Environmental Protection

Additional Project Support

- Pennsylvania Department of Agriculture
- Pennsylvania Game Commission
- Columbia County Conservation District
- Pheasants Forever
- Fishing Creek Watershed Association
- Senator John Gordner
- Representative David Millard
- Commissioners of Columbia County
- Penn State Cooperative Extension

Project Overview

- PEDA grants received in the amount of \$700,000 to install necessary equipment needed for supplying three school buildings with biomass heat.
- Flexible fuel capability
 - biomass materials such as native grass, wood chips, wood pellets and corn can be utilized in this flexible fuel system

Project Goals

- Reduce fossil fuel consumption by at least 44,450 gallons annually
- Save a minimum of \$57,000 annually in fuel cost
- Reduce air pollution emitted by 88%
- Provide growth for the local economy

Project Goals

- Provide education opportunities for students and the community relating to renewable energy systems
- Provide an additional opportunity for farmers to market products locally
- Facilitate growth of sustainable, renewable energy cropping systems in the local area
- Increase or maintain the amount of wildlife habitat in the area

Motivations for Choosing ***Biomass***

- To utilize the well established agricultural base in our district
- To keep energy savings local by utilizing biomass crops grown in our area
- Reduce energy costs in our district
- Pass this savings to the taxpayer
- Create public awareness of biomass heating systems and promote the idea to others
- Reduce the district's reliance on fossil fuels

Motivations for Choosing Biomass, *Creating Public Awareness and Demand...*

- The biomass boiler system was installed in such a way to will allow the public and all interested parties a chance to view the system in operation
- By creating public awareness of biomass heating systems we can promote the idea to other industrial sites, public buildings, homes, farms, and schools

Anticipated \$\$ Savings with Biomass

- **Grass Pellets:** 525 tons/year @ \$165/ton \$86,625 annual costs: Savings of **\$58,455** annually

Note: Our team visited Mt. View School District in Jan. 2006, this district had saved about \$80,000 during the 05-06 heating season

Pocono Northeast RC&D Council Energy Harvest Grant

- Awarded an Energy Harvest grant for a mobile pelletizing unit
- RC&D Council will provide approximately two years worth (500 tons) of grass pellets/briquettes
- Grasses are being donated by the
- PA Game Commission and
- Ernst Conservation Seeds, LLC.

View the Department of Environmental Protection Website

- Website: www.depweb.state.pa.us
- Link to grants and loans
- Link to permits, licensing and certification
- DEP Programs (A-Z) and Keywords

Contact Information

- Penny Lenig-Zerby- Superintendent - BASD
@plenig-zerbybentonsd.org
- Beverly Ribble- Business Manager - BASD
bribble@bentonsd.org
- Rick Long- Director of Bldgs. & Grounds –
BASD - rlong@bentonsd.org
- James Babcock- Executive V. President –
Advanced Recycling Equipment, Inc. -
jbareinc@windstream.net

Motivations for Choosing Biomass, *Looking Forward...*

- Demand for and supply of pellets/briquettes will have to co-develop due to the public's lack of awareness of this technology
- The market should develop rapidly because pellet and corn stoves currently on the market are able to burn grass pellets.
- With a strong marketing campaign focusing on “local renewable energy” the demand for pellets will begin to escalate

Feedstock Standards

- Time of Harvest – End of January – through February
- Site visit before harvest by a BASD representative
- Cut switchgrass leaving 6” to 9” on stem
- Size of bale – 4’ – 5’
- Moisture level – 18% or less
- Storage of switchgrass bales should be on grass areas

Purchase Price

- \$70.00 to \$85.00 per ton subject to moisture and quality
- Prices are subject to change