Advancing Sustainable Wood Energy in Maryland
The Maryland Wood Energy Coalition

School Projects : The Low-Hanging Fruit

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PA DCNR Bureau of Forestry
Pennsylvania's Wood-Energy Program

MISSION

- Establish decentralized, small thermal, sustainable woody biomass energy systems for community and economic development
- Utilizing several woody biomass feedstocks: low-value / low-use wood, mill residue, short rotation woody crops
Examples of Cost Savings

- Mountain View School District- $131,000/yr.
  - versus fuel oil
- Dillon Floral Corporation (Greenhouse) - $191,000/yr.
  - versus #6 fuel oil
- Elk Regional Health Facility (Hospital) - $300,000/yr.
  - versus natural gas
- Benton Area School District - $72,800/yr.
  - versus fuel oil

School Districts:

Central Crawford – Sr High School, Pool Complex, Admin (kW electric gen.)
Northern Bedford – Elementary, Middle, High School
Northeast Bradford – Elementary & High School
Sullivan County – Middle & High School, Admin
Penns Valley – Elementary & High
East Lycoming – Sr High School (600 kW solar PV + 45 ac. Hybr. Willow)
Kane – Sr High School
Benton – High School
Wyalusing – Elementary & High School
Clearfield – Middle School
Mountain View – Middle & High School
Blue Ridge – High School

Hospitals:

- Warren State Hospital (40 buildings), North Warren
- Evangelical Community Medical Center, Lewisburg (some kW generation)
- Elk Regional Health Systems, St Marys

Greenhouses:

- Esbenshades, Brickerville (250 kW electric generation)
- Twin Springs Fruit Farm, Ortanna
- Dillon Floral, Bloomsburg

Universities:

- Bloomsburg University (campus heating)

Prisons:

Cresson SCI (steam turbine, about 300 KW generation)
Greensburg SCI (co-firing with waste coal, 30 MW)

Utility Power Plants:

Viking Energy GDP Suez, Northumberland
(month-balled next 4 years, 18.5 MW)
Piney Creek Waste Coal, Clarion
(co-firing with waste coal)
Koppers Inc., Montgomery
(recycled railroad ties, 12 MW electric generation)
Evergreen Power
(at Corrstack, Reading, 12.5 MW generation)

Other Industrial:

Bakery Feeds, Honey Brook
Kennett Square Specialties, Kennett Square
Lehigh Cement, Cement Plant & Quarry, Evansville
OEM Enterprises, Inc, Redbank

Government & Community:

Lancaster Township Municipal Building, Lancaster
Caledonia State Park, Fayetteville
Weiser State Forest Office, Aristes
Susquehannock State Forest, Cross Forks
Penn Nursery, Potters Mills
The Cooperage, Honesdale (pellet, bulk delivery)
The Bruderhof, Spring Valley, Farmington (6 buildings)
International Conservation Center, Somerset Co (Pitt Zoo Elephant Farm)

Wood Industry:

Alan McIlvain, Marcus Hook
Allegheny Wood Products, Marble
Baillie Lumber, Titusville
Babcock Lumber, Champion
Bingaman & Son Lumber Inc, Selinsgrove
Brownlee Lumber, Brookville
Catawissa Lumber, Paxinos
Cherry Hill Hardwoods, Richfield
Clear Lake Lumber, Spartansburg
Coastal Lumber, Hopwood
Craftmaster Mfg, Towanda
Cummings Lumber, Troy
Deer Park Lumber, Tunkhannock
Donald Dean & Sons Lumber, Montrose

Wood Industry:

Dwight Lewis Lumber, Hillsgrove
Glatfelter Pulpwood Co, Spring Grove
Gutchess Hardwoods, Latrobe
Holt & Bugbee, Mount Braddock
Horizon Lumber, Kersey
Industrial Hardwoods, Mount Union
Industrial Timber & Lumber, Endeavor
Industrial Timber & Lumber, Ridgway
Mallery Lumber, Emporium
Masco Retail Cabinet Group, Athens Twp
Matson Lumber, Brookville
Matson Timber-Land, Corsica
Nydree Flooring, Piper
Penn Pallet, St Marys

Wood Industry:

Plunkett Webster, Inc, Brookville
RAD Woodwork, Inc, Nescopek
RAM Forest Products, Shinglehouse
Sawmill Valley Hardwoods, South Gibson
Strick Corporation, Hughesville
Temple Inland, Mt Jewett
Tuscarora Hardwoods, Elliottsburg
Weaber, Inc, Lebanon
Weaver Pallet, Cochranton
Wheeland Lumber, Liberty
Wood Mode, Inc, Kreamer
York Group, Inc, Pittsburgh
Yorktowne Cabinetry, Inc, Mifflinburg
... (and many more)

PA Wood Pellet Manufacturers:

Energex Pellet Fuel, Inc. Mifflintown
Log Hard Pellets Spartansburg
Wood Pellets Co. Summerhill
Tri-State Biofuels Uniontown
Penn Wood Products, Inc. East Berlin
PA Pellets, LLC Ulysses
Greene Team Pellet Fuel Co. Girard’s Fort
Barefoot Pellet Company Troy
Bald Eagle Pellet Co. Tyrone
Allegheny Pellet Corporation Youngsville
Stein-David Hardwood Newcastle
Great American Pellet Palmerton
Alexander Pellet St Mary’s
Roaring Spring Biofuel Roaring Spring (wood/plastic cube)
A.J. Pellets Marion (under construction)
Sullivan County School District

- Laporte -- north central Pennsylvania
- Heat & hot water -- Elementary School, High School, Administrative Office
- Providing 85% heating for 126,000 sq ft
- Reducing heating costs up to $133,000/year
- Retained 15% oil heating for peak demand and shoulder months
Sullivan County School District

- Utilizing 800 tons sustainably harvested local wood chips ($42/ton)
- Replacing 46,500 gallons fuel oil annually ($3.59/gallon)
- Effectively eliminating 830 lbs/year SO2
- Net reduction of 1,000,000 lbs/year CO2
Sullivan County School District

- Project installation:
  - Fully automated chip delivery system
  - 150 cubic yard chip storage
  - 2.8 mmBtu/hr biomass gasification unit & boiler, controls, boiler room equipment
  - External, integrated hot water thermal storage tank, 3000 gallons
  - 450 ft pre-insulated pex piping and interconnection to existing central hydronic system, variable frequency drive motors
  - Total project cost -- $1.65 million
Sullivan County School District

- Project Benefits:
  - First year fuel savings $115,000
  - First year cash flow $65,000
  - Ten temporary construction jobs created
  - Sustainably harvested fuel keeps $825,000 in local economy over project life ($33,000/year)
  - Modern wood energy systems are automated, clean, & efficient
  - Wood fuel considered renewable & carbon-neutral
Sullivan County School District
East Lycoming School District  
-- Hughesville High School

- Biomass boiler - heating & domestic hot water
- Boiler handles about $\frac{3}{4}$ of thermal load
  - displaced all oil usage
- Boiler portion of project: $2.1$ M
- Received $800k$ in grants
- 15 year payback
- Used ESCO process
- Planting hybrid willow to fuel the boiler
- Plus a 600 kW solar array
Hughesville High School
Hughesville High School
May 2012
Penns Valley Elementary & High School
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