



310 Hardwood Lane
Princeton, WV 24720
(304) 487-1510



PROJECT SUMMARY

Biomass Thermal Energy Project Eminence R-1 Elementary School, Shannon County, Missouri

The Missouri Department of Conservation is providing grant funding to six schools in Missouri for implementation of biomass thermal energy projects. The funding is provided under the Recovery Act (ARRA), and is administered by the US Forest Service. The Wood Education and Resource Center (WERC) is providing technical assistance to MDC for project evaluation and implementation. The project description and statistics provided in this summary are based on the initial investigations performed by WERC. The final project configuration may include changes based on the final design.

Project Description

Existing System – The main building at the Eminence school is heated by an inefficient propane boiler. The boiler provides heat to the school through a central hot water system that lacks adequate controls. When one room calls for heat, rooms that do not require any heat are also heated and must open windows to remain comfortable.

Proposed Biomass System – The project consists of renovating the heating distribution system within the school to allow control of the temperature in each room. This significantly reduces the overall demand for energy at the school. An advanced biomass combustion unit utilizing cord wood as a fuel will supply 80-85% of the heat for the school, replacing the use of propane. The unit will be approximately 0.25 mmBtu/hr, and will utilize thermal storage to improve overall system efficiency. The cord wood unit meets stringent European emission requirements, and has a combustion efficiency of about 90%.

Key Project Statistics

Existing system

- School square footage – 15,000 ft²
- Current fuel(s) used for heating – Propane
- Annual fuel cost – \$27,000

Proposed system

- Annual wood utilization – 30 cords
- Projected annual fuel cost – \$5,000
- Grant funding provided – \$350,000

Projected annual fuel cost savings – \$22,000