

West Kentucky Bio-Energy Demonstration Center Murray State University

Project Description

Murray State University (MSU) will develop a West Kentucky Bio-Energy Demonstration Center at the MSU Equine Farm to explore biomass options to produce clean energy. The Center will include two BB500 Bio Burner units manufactured in Kentucky, a screening system to remove excess hay, and a building enclosure for both units. One of the two units at the equine center will be mobile and used for off-site demonstration purposes. MSU will also purchase a drying unit and pelletizer machine. These machines will be added to the existing burner components and allow for additional research and demonstrations on the uses of biomass.

This project will demonstrate how cost-effective bioenergy applications can supplant traditional heating systems. MSU will also conduct emission testing of the bioenergy units for air quality compliance. The units will provide radiant heat to the equine center and will offset fossil fuel energy with renewable energy at a rate of 40,000 kWh to 50,000 kWh per year. The primary biomass for the units will consist of muck or bedding material from horse stalls. Each unit will have the capacity of producing 500,000 btu per hour of renewable energy. Total project costs will exceed \$618,000 with the Cabinet providing \$309,000 in match.

Project Objectives

- Bioenergy will be successfully demonstrated in an agricultural livestock based setting.
- An office/ demonstration conference center will be renovated to host visits.
- A complete closed loop system of Bioenergy Development will be demonstrated.
- Results of applied research on emissions conducted by MSU faculty and students demonstrating the reduction of emissions compared to traditional energy sources.
- Educate 100 area farmers and agriculturists on this technology.
- Hold 3 meetings with local livestock production groups
- Develop written plans for transferability of concept

Time-line

- June 2013 - Purchase Equipment
- April 2013 - June 2013 - Design and Construct Facilities
- June 2013 - Install Equipment
- August 2013 - Train Operator
- October 2013 - September 2015 - Conduct Testing
- October 2013 - September 2015 - Utilize Different Fuel types
- November 2013 - September 2015 Data Collection
- January 2014 – August 2015 - Host Education Sessions
- May-August 2014 & May-August 2015 - Host Bioenergy field days
- June 2014 - Host West Kentucky Regional Agriculture Board
- September 2014 - Develop Video
- June-August 2015 - Display Mobile Unit at County Fairs, etc.
- February 2015 - Display Mobile Unit at National Farm Machinery Show
- September 2015 - Close out grant