

Renewable Energy Solutions for MU

Gregg Coffin, Paul Hoemann
University of Missouri -Columbia

Highly reliable and cost effective utilities are essential for the University of Missouri (MU) to achieve its academic, research, and outreach missions. MU's Campus Facilities – Energy Management department focuses on three key areas to help meet that requirement; Production Efficiency and Reliability, Energy Conservation, and Renewable Fuels. This poster presentation highlights MU's efforts to develop and utilize renewable biomass fuels in its power plant for the associated economic and environmental benefits.

The past several years MU has been testing and developing sources of renewable biomass fuels for use in its power plant. Biomass fuels tested to date include: corn cobs, switch grass, and wood waste. The plant staff has demonstrated that it can use blend up to 15% to 20% of sized biomass with coal in its existing stoker boilers. Most of the testing has been conducted with wood wastes; however we learned that most sized biomass fuels can be used in this same manner. This pilot program has been very successful demonstrating that MU is able to utilize renewable biomass fuels without increased cost, while also reducing emissions and investing in Missouri's economy.

MU is continuing its use and development of biomass fuels in its power plant. Plans are underway to install a new material handling system designed to receive, store, and blend biomass in its existing boilers. Plans are also underway to meet MU's future energy needs with a 100% biomass-fired boiler. This new boiler will replace an older unreliable coal-fired boiler with a new bubbling fluidized bed boiler designed to utilize a wide range of clean burning renewable biomass fuels. Both these projects are in design and expected to complete in 2012.

Why renewable biomass for MU?

- Biomass fuel is a fully renewable energy available today. It's very cost effective and can reliably supply MU 24/7 energy.
- Biomass is abundant and plentiful in Missouri's forestry and agriculture industries. Biomass includes various wood waste sources, corn cobs, switch grass, waste paper, etc.
- Using biomass will reduce emissions, including green house gas emissions.
- Unlike fossil fuels, like coal and gas, biomass is a regionally supplied fuel for MU. Using biomass will allow more of MU's energy budget to be spent locally, resulting in more Missouri economic development and more Missouri jobs!
- The use of renewable biomass in MU's power plant will help support MU's academic, research, and outreach missions by sharing knowledge and partnering to research new bio-fuel technologies.