2014/2015 Biomass Research and Development Initiative Awards

The U.S. Department of Energy (DOE) in collaboration with the U.S. Department of Agriculture (USDA), and National Institute of Food and Agriculture (NIFA) awarded up to $10 million in funding, available through the Biomass Research and Development Initiative (BRDI).

Recipients of USDA funding include:

- **University of California-Riverside, Riverside, Calif., $1,297,725:** This project proposes to convert poplar to ethanol and polyurethane via pretreatment and lignin polymer synthesis. Increased revenue in bio-refineries and the offset of pretreatment costs to improve overall process economics are expected outcomes of this research.

- **University of Montana, Missoula, Mont., $1,403,868:** This project will focus on ponderosa pine and mixed, dry conifer forests to quantify ecological and economic opportunities; identify innovative management pathways to quantify financial, environmental, and social health benefits of displacing fossil fuels with forest-based bioenergy.

- **North Carolina Biotechnology Center, Durham, N.C., $1,873,987:** This project proposes to address feedstock development to optimize production of educational resources on biomass sorghum production in the Mid-Atlantic region.

- **Dartmouth College, Hanover, N.H., $1,849,940:** This project proposes an approach to overcoming the lignocellulosic recalcitrance barrier through physical disruption during biological processing. This can potentially decrease pretreatment costs by increasing lignocellulosic solubilization. Planned activities will extend work and discoveries to the industry through extension outreach programs.

- **State University of New York College of Environmental Science and Forestry, Syracuse, N.Y., $906,722:** This project will provide comprehensive life cycle economic and environmental understanding of the production of willow and forest biomass for the use in heat and power, combined heat and power, and biofuels from hot water extraction. This project will assist in mitigating investment risk in the bioenergy sector.

The two DOE projects will focus on the development of diverse cost-effective technologies for the use of cellulosic biomass in the production of biofuels, bioenergy, as well as a range of biobased products (including chemicals, animal feeds, and power) that potentially can increase the economic feasibility of fuel production in a biorefinery.

The two selections will integrate science and engineering research in biofuels and biobased product development, one of the three topic areas for this funding opportunity. The DOE selections are:

- **The Ohio State University (OSU)**, Columbus, OH – The OSU project is titled "Biomass Gasification for Chemicals Production Using Chemical Looping Techniques." OSU proposes to develop the biomass to syngas (BTS) chemical looping process for efficient production of value-added chemicals and liquid fuels from biomass. This BTS process is expected to deliver high quality syngas from biomass in a single step, with a potential to reduce capital costs for syngas production by 44% compared to conventional processes.

- **Massachusetts Institute of Technology (MIT)**, Cambridge, MA – The MIT project is titled "Improving Tolerance of Yeast to Lignocellulose-derived Feedstocks and Products." The primary goal of this research is to enhance production of cellulosic ethanol by improving tolerance towards three common inhibitors during cellulosic ethanol production. This same tolerance mechanism is expected to also enhance production of products beyond ethanol, such as monoethylene glycol, an important precursor material used in the production of bottling, fabrics, and anti-freeze.