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DOE to Invest up to \$4.4 Million in Six Innovative Biofuels Projects at U.S. Universities

WASHINGTON – The U.S. Department of Energy (DOE) today announced the selection of six advanced biofuels projects in which DOE plans to invest up to \$4.4 million, subject to annual appropriations. These awards to U.S. institutions of higher education will support research and development (R&D) for cost-effective, environmentally friendly biomass conversion technologies for turning non-food feedstocks into advanced biofuels. Combined with the minimum university cost share of 20 percent, more than \$5.7 million is slated for investment in these six projects.

“Reaching out to our university partners across the country is one more step in expanding our national team that is working to make cost-effective, sustainable biofuels from non-food cellulosic feedstocks an essential contributor to fulfilling our renewable energy goals,” Program Manager of the Office of the Biomass Program Jacques Beaudry-Losique said. “DOE is investing in these universities and novel technologies to pursue R&D in support of the goals established in the Energy Independence and Security Act of 2007 for advanced biofuels and the Administration’s production targets.”

These projects represent an investment in clean energy technologies that will help expand the current biofuels R&D efforts and help meet growing energy demand while reducing greenhouse gas emissions and dependence on foreign oil. These will also expand the geographic diversity and breadth of partners working on advanced biofuels development across the country and strengthen DOE collaboration with universities, encouraging the innovation necessary to diversify our nation’s energy sources.

By engaging these partners DOE is working to meet the Renewable Fuel Standard mandated by the Energy Independence and Security Act of 2007, which has a requirement of producing at least 36 billion gallons of U.S. renewable fuels by 2022. Additional biofuels R&D projects recently announced include: industrial enzymes improvements; pilot-scale 10 percent biorefineries to test novel refining processes; biomass gasification improvements; “ethanologen” development; four commercial-scale biorefineries; and three new DOE Bioenergy Research Centers established by the DOE Office of Science.

The following six projects were competitively selected for negotiation of awards:

University of Toledo: The University of Toledo (Toledo, Ohio) will address development of cost-effective biocatalysts capable of increasing product yield in the biological conversion of lignocellulosic biomass. The project will use a novel enzyme pellet scheme for efficient fermentation of both five-carbon and six-carbon sugars. The proposed approach provides the potential of simultaneous conversion of cellulose to sugar and fermentation to ethanol with native yeasts for the first time. The University of Toledo will undertake research tasks to evaluate the implementation of the technology in several modes of operation.

Steven’s Institute of Technology: Steven’s Institute of Technology’s New Jersey Center (Hoboken, N. J.) for

MicroChemical Systems with BASF Catalysts LLC is planning to evaluate and demonstrate a novel microchannel reactor to reform pyrolysis oil to synthesis gas (syngas). The project intends to use the novel reactor and precisely controlled operating conditions to produce a high yield of syngas at a reduced energy and temperature, while additionally extending the life of the chosen catalyst.

Montana State University: Montana State University (Bozeman, Mont.) will partner with Utah State University to evaluate the oil content of algae cultures available to the universities and identify populations that naturally have higher rates of oil production. In this project, they will test the oil producing microalgae in existing open ponds for growth characteristics and oil production and determine the optimal algae type and most efficient biorefinery design.

University of Georgia: University of Georgia (Athens, Ga.) plans to develop novel approaches to supply nutrients to oil-producing algal systems resulting in cost-effective algae-biofuel production systems. The project will take advantage of the abundance of litter from the poultry industry as a source of low cost nutrients, and develop a nutrient delivery system to grow algae sustainably. Additionally, this project aims to develop process methods for the harvesting of algae from open ponds and subsequent processing to biofuels and other value added products from algae.

University of Maine: The University of Maine (Orono, Maine) in conjunction with several industry and academic partners is planning to determine the optimal yield and productivity of high potential bacteria at moderate to high temperatures. The University of Maine intends to use regionally available feedstocks, i.e., pre-pulping extracts and seaweed sludge, to model alternative conversion and fermentation pathways of these feedstocks into intermediates and alcohols, respectively.

Georgia Tech Research Corporation: Georgia Tech Research Corporation (Atlanta, Ga.) plans to evaluate and model the reaction kinetics in two experimental gasifiers using forest residues under different processing conditions. This project will evaluate the impact specific conditions, pressure and temperature, on the carbon gasification rate and formation of contaminants. The resulting models will maximize synthesis gas yield from an optimized gasifier.

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