U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Biomass Program

Monthly News Blast | April 2012

Energy Department Announces $2.5 Million to Advance Technologies for Clean-Burning, Efficient Biomass Cookstoves

The Energy Department announced up to $2.5 million available this year for applied research to advance clean biomass cookstove technologies for use in developing countries. The funding will support the development of innovative cookstove designs that allow users to burn wood or crop residues more efficiently and with less smoke than open fires and traditional third world stoves, helping to save lives and improve livelihoods. The Department of Energy (DOE), along with other federal agencies, is a founding partner of the Global Alliance for Clean Cookstoves, a public-private partnership to advance cookstove technologies that improve indoor air quality, reduce carbon emissions, and deliver important benefits for people's health and the economies of developing nations around the world.

DOE encourages organizations including small businesses, non-profits, universities, and national laboratories, to submit proposals for applied research and development grants to develop clean and efficient cookstoves.

For more information and application requirements for the Funding Opportunity Announcement, please visit the Funding Opportunity Exchange website under **Reference Number DE-FOA-0000709**. To learn more about DOE's biomass cookstoves efforts, see the Summary Report and Energy Blog.

Energy Department Announces up to $15 Million to Research Biomass-Based Supplements for Petroleum Fuels

As part of President Obama's blueprint for an economy fueled by homegrown and alternative energy sources, the Energy Department announced up to $15 million available to demonstrate biomass-based oil supplements that can be blended with petroleum, helping the United States reduce foreign oil use, diversify the nation's energy portfolio, and create jobs for American workers. Known as "bio-oils," these precursors for fully renewable transportation fuels could be integrated into the oil refining processes that produce conventional gasoline, diesel and jet fuels without requiring modifications to existing fuel distribution networks or engines.

The Department expects to fully fund between five to ten projects in fiscal year 2012

to produce bio-oil prototypes that can be tested in oil refineries and used to develop comprehensive technical and economic analyses of how bio-oils could work. The prototype bio-oils will be produced from a range of feedstocks that could include algae, corn, wheat stovers, dedicated energy crops, and woody residues. Domestic industries, universities and laboratories are all eligible to apply.

The results of the projects will inform future efforts directed at advancing bio-oil technologies and bringing these renewable fuels to market. A description of the funding opportunity, eligibility requirements, and application instructions can be found on the Funding Opportunity Exchange website under **Reference Number DE-FOA-0000686**.

Biomass Program's John Ferrell Wins Biotechnology Award

The 34th Symposium on Biotechnology for Fuels and Chemicals has selected John Ferrell as the winner of the prestigious 2012 Raphael Katzen Award. The Raphael Katzen Award recognizes organizations or individuals who have made distinguished contributions to enable and further the deployment and commercialization of biotechnology to produce fuels and chemicals from renewable resources. This award is named in honor of Dr. Raphael Katzen, who was a pioneer in scaling up and commercializing technologies for converting renewable feedstocks into fuels and chemicals. The award will be presented at the 34th Symposium on Biotechnology for Fuels and Chemicals to be held in New Orleans, Louisiana, April 30–May 3, 2012. View the Society for Industrial Microbiology and Biotechnology's website for more information.

Educational Opportunities in Bioenergy Webinar Slides Available

Presentations are now available for the Biomass Program's April 23, 2012, webinar, "Educational Opportunities in Bioenergy." During the webinar, experts from the National Renewable Energy Laboratory and Oak Ridge National Laboratory showcased specific bioenergy research programs and exciting educational opportunities available for undergraduate, graduate, and post-doctoral students at their labs. The webinar topics featured synopses of these bioenergy research programs, highlights of the benefits to students participating in them, and a list of important contacts to help students get involved. Webcast presenters included current and former student participants and leaders of the bioenergy research programs from both national labs, who provided information on the programs and their experiences. The PowerPoint presentations are now available on the Biomass website.

Biomass Program Principal Investigator Receives Agriculture Award

Dr. Indrajeet Chaubey, principal investigator on a Biomass Program-funded feedstock sustainability project and Purdue University professor, will receive the University's 2012 Agricultural Research Award, the highest honor to mid-year faculty members. Dr. Chaubey will receive his award and present a seminar at Purdue University on May 7, 2012, from 3:00–5:00 p.m. He and his team are working with the Biomass Program developing evidence-based crop parameter values for perennial grasses to

use in the Soil and Water Assessment Tool (SWAT) model.

Using Vanadium Catalysts to Break Down Biomass to Produce Chemical Feedstocks

In a paper published in the prestigious chemistry journal, *Angewandte Chemie International Edition*, Los Alamos National Laboratory scientists Susan Hanson (C Division), Ruilian Wu, and Pete Silks (B Division) describe a significant advance in catalysis science that furthers the important goal of breaking down biomass into high-value commodity chemicals. The paper was published in the online Early View February 7, 2012, and was highlighted on the inside cover of the April print edition of the journal.

The Los Alamos work highlighted in *Angewandte Chemie* demonstrates that a phenolic lignin model compound may be broken down selectively into useful components using a vanadium catalyst. Vanadium is an inexpensive, earth-abundant metal that is well suited for promoting oxidations in air. The researchers showed that two different vanadium catalysts can break apart phenolic lignin molecules in different ways, an advance that opens the door to developing selective methods for oxidizing lignin substructures using vanadium. For more information, read the complete article, "C-C or C-O Bond Cleavage in a Phenolic Lignin Model Compound: Selectivity Depends on Vanadium Catalyst."

Past and Upcoming Events with Biomass Representation

- Advanced Biofuels Leadership Conference, April 2–5, 2012, Zia Haq, Brian Duff, Travis Tempel, Barbara Twigg, and Howard Marks, Washington, D.C.
- International Biomass Conference and Expo, April 16–19, 2012, Elliott Levine and Barbara Twigg, Denver, Colorado
- Social Aspects of Bioenergy Sustainability Workshop, April 24, 2012, Alicia Lindauer, Kristen Johnson, and Ranyee Chiang, Washington, D.C.
- BIO World Congress, April 29–May 2, 2012, Valerie Reed and Brian Duff, Orlando, Florida
- 34th Symposium on Biotechnology for Fuels and Chemicals, April 30–May 3, 2012, Leslie Pezzullo, John Ferrell, Kristen Johnson, Steve Thomas, and Bryna Berendzen, New Orleans, Louisiana
- Bioenergy Deployment Consortium Meeting, May 7–9, 2012, Neil Rossmeissl, Knoxville, Tennessee
- Technical Information Exchange on Pyrolysis Oil: Potential for a Renewable Heating Oil Substitution Fuel in New England, May 9–10, 2012, Elliott Levine, Manchester, New Hampshire
- Hybrid Processing for Biorenewable Fuels & Chemicals Production Symposium, May 9-10, 2012, Melissa Klembara, Ames, Iowa
- 5th Annual Biomass Supply Chain & Logistics Conference, May 10–11, 2012, Travis Tempel, Atlanta, Georgia
- EPA Biogas Technology Market Summit, May 14, 2012, Brian Duff,

Washington, DC
- Biomass R&D Technical Advisory Committee Meeting, May 22-24, 2012, Elliott Levine, Richland, Washington
- 2nd International Conference Algal Biomass, Biofuels, Bioproducts, June 10–13, 2012, Joyce Yang, San Diego, California
- Biogas and Fuel Cells Workshop, June 11-13, 2012, Brian Duff, Golden, Colorado
- Biomass 2012: Confronting Challenges, Creating Opportunities – *Sustaining a Commitment to Bioenergy*, July 10–11, 2012, Biomass Program staff, Washington, D.C.

Funding Opportunities

- *Technology Research, Development, and Tools for Clean Biomass Cookstoves:* Funding Opportunity announced on April 12, 2012, to increase the viability and deployment of renewable energy technologies through research, development, and tools that lead to clean and efficient biomass cookstoves.
- *Bio-Oil Stabilization and Commoditization:* Funding Opportunity announced on April 6, 2012, to support the development of thermochemical liquefaction technologies to produce a bio-oil feedstock.
- *Biomass Research and Development Initiative (BRDI) FY 2012*: The FY 2012 solicitation was released on March 22, 2012. Subject to annual appropriations, the U.S. Department of Agriculture (USDA) and the U.S. Department of Energy (DOE) plan to contribute up to $35 million over three years for this year's BRDI solicitation.
- *Biomass Advancements in Sustainable Algal Production*: DOE is requesting applications to support outdoor phototrophic algae research and development in two areas: (1) nutrient and water use in algal production systems and (2) the development of algal technology test bed facilities. This research will support the Biomass Program's goals to model pathways for significant (>1 billion gallons per year) volumes of cost-competitive algal biofuels by 2022.
- *BRDI FY 2011*: In partnership with USDA, full proposals are being reviewed, and an announcement has been targeted for the spring of 2012.