Fall 2004 Newsletter

Ohio Biomass Energy Program

Promoting the development of renewable energy resources in Ohio, including wood and agricultural residues; ethanol and biodiesel biofuels; landfill gas to energy; and energy crops.

Ohio Agriculture Groups Awarded USDA Grant Funds

On September 15, 2004, two Ohio agriculture groups were awarded a total of $1 million in grant funds from the U.S. Department of Agriculture (USDA) for projects to promote the development of renewable energy systems and energy efficiency improvements. The grant recipients were Wenning Poultry, located outside Fort Recovery in Mercer County, and American Ag Fuels, LLC (AAF) in Defiance.

Farm operations are increasingly looking toward new methods concerning manure disposal. To alleviate the problem of animal waste disposal, Wenning applied for a USDA grant for the installation of an on-farm anaerobic digester system, which uses animal manure to generate electricity. Wenning estimates that 865 kilowatt hours (kWh) of electricity will be produced from the manure of 1 million laying hens. The electricity will be used for the electric needs of the farm and any excess will be sold to the local electric utility. Wenning has contracted with GHD, Inc. in Chilton, Wis. to install the anaerobic digester system.

AAF applied for a USDA grant to assist the company in manufacturing biodiesel to provide northwest Ohio markets with increased supplies of renewable energy resources. The biodiesel will be produced using a variety of feedstocks, which include recycled vegetable oils and animal fats. Currently, there are no biodiesel producers in northwest Ohio, and the demand for renewable energy such as biodiesel is growing. AAF estimates that the biodiesel processing plant will be completed by June 2005.

The USDA awarded $22.8 million to 167 recipients from 26 states. Ninety-four percent of the grant money will be used to fund anaerobic digesters and wind power development. The grants were awarded as part of the USDA Renewable Energy Systems and Energy Efficiency Improvements program, created in 2002 as part of the Farm Bill, to provide assistance to farmers and rural small businesses in the areas of renewable energy and energy efficiency. The USDA worked in conjunction with the U.S. Department of Energy and the Environmental Protection Agency on awarding the grants. For additional information, please visit the UDSA Web site at ww.usda.gov/Newsroom.

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Biomass Grant Opportunities

Organizations in the Ohio biomass industry are encouraged to apply for the following grant opportunities:

- The U.S. Department of Energy (DOE) requests research grant applications to participate in a project entitled "University Research in Biomass Technologies: Basic and Applied Understanding of Biomass Conversion and Processing for Fuels, Chemicals/Materials, and Heat and Power."

Deadline: October 13, 2004

The intent of this grant is for organizations to assist in developing the eventual production of non-petroleum based fuels, chemicals and materials, and heat and power, particularly for enabling emerging and future biorefineries. The program also hopes to build university and laboratory collaboration in making state-of-the-art DOE equipment and facilities accessible to the selected teams.

Two to three grants are expected to be awarded for a total of $5 million. The applications are due by Wednesday, October 13, 2004. For more information, contact Patrick Liles at the DOE at gobionconsortio@go.doe.gov, or visit the financial assistance section of https://e-center.doe.gov. The reference number is DE-PS36-04G094025.

- The U.S. Department of Energy (DOE) is soliciting applications for two separate grants.

Deadline: December 13, 2004

The Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) grants can provide up to $100,000 in funding for fiscal year 2005.

Small businesses with strong research in science or engineering are encouraged to participate. The grant solicitations offer opportunities for manufacturing-related projects in accordance with President Bush's executive order of "Encouraging Innovation in Manufacturing."

The main difference between the grants is that STTR projects must involve substantial cooperation between a small business and a research institution. Cooperation between business and research in SBIR projects is encouraged, but not a requirement.

The deadline to apply for the grants is 5 p.m. on Monday, December 13, 2004. Applicants must submit their applications electronically. For more information about these DOE grant opportunities, please visit http://sbir.er.doe.gov.

Updated Agricultural Biogas Casebook Now Available

In response to numerous requests, the original Agricultural Biogas Casebook, sponsored by the Great Lakes Regional Biomass Energy Program and published in the fall of 2002, has been updated through a study prepared by Resource Strategies, Inc.

The Casebook provides case studies of operational anaerobic digestion (AD) systems and lists those under construction in the Great Lakes region. AD systems are used by farm operations to produce electricity from animal waste. The system profiles in the case studies include information on technologies, practices, and owner experiences. The report should be very useful in helping those considering AD systems to make informed choices and benefit from the experiences of others.

The Casebook provides profiles of 16 dairy operations with digesters. These digesters will process waste from approximately 30,750 dairy cattle and have 5.325 MW of installed generating capacity in total. The systems provide additional benefits of odor control, electricity sales, bedding material, and commercial fertilizer replacements.

Four anaerobic digesters at Fair Oaks Dairy, located in Fair Oaks, IN, featured in the updated Agriculture Biogas Casebook.

Numerous sponsors have supported the study, including:

- The Great Lakes Biomass State and Regional Partnership
- WE Energies
- Blackhawk Hills RC&D
- Wisconsin Focus on Energy
- Wisconsin Milk Marketing Board
- NextEnergy
- East Central Energy Cooperative

The new publication is available for download from the Ohio Biomass Energy Program (OBEP) Web site, which can be found under the electricity section of www.PUCO.ohio.gov. To receive a printed copy, please contact the OBEP.

Biodiesel-powered SUV to be Fueled by Ohio Soybeans

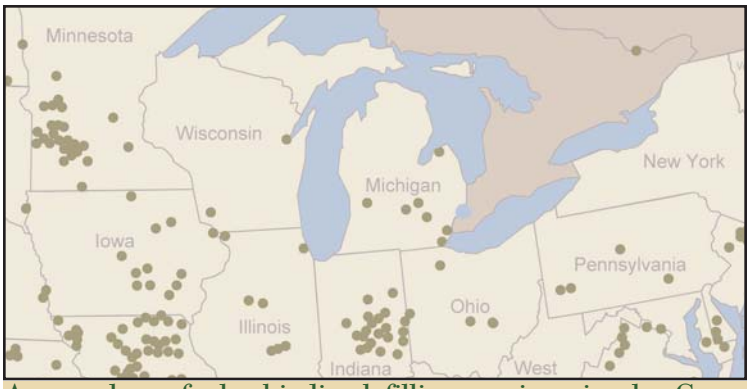
In November, the first new 2005 Jeep® Liberty Common Rail Diesel (CRD) sport-utility vehicle is scheduled to roll out of the Jeep factory in Toledo. The Liberty vehicles will have another Ohio connection, as they will be fueled with a 5 percent blend of biodiesel (B5), a fuel that is produced from soybeans grown in Ohio.

The Liberty CRD SUV will achieve gas mileages of 22 mpg city and 27 mpg highway, approximately 30 percent higher than Liberty's comparable gasoline engine. In addition to the reduction in fuel consumption, the diesel engines reduce emissions of greenhouse gases by 20 percent.

The 2005 Jeep® Liberty will be manufactured in Toledo and use biodiesel fuel made from Ohio soybeans.

The use of biodiesel fuel has become more widespread in commercial and consumer automobiles. More than 400 major fleets nationwide use biodiesel. Additionally, about 300 retail filling stations make various biodiesel blends available to the public, and more than 1,000 petroleum distributors carry biodiesel nationwide.

More information about the 2005 Jeep® Liberty is available at www.media.daimlerchrysler.com. Please visit www.biodiesel.org to learn more about the biodiesel industry.



A snapshot of the biodiesel filling stations in the Great Lakes region. About 300 filling stations in the U.S. offer biodiesel blends. *Source: National Biodiesel Board*

Biodiesel Overview

Biodiesel is a renewable fuel source produced from vegetable oils such as soybean oil, animal fats, and recycled cooking oils. Biodiesel fuel reduces emissions of tailpipe particulate matter, hydrocarbon, and carbon monoxide. When biodiesel displaces petroleum, it reduces global warming gas emissions such as carbon dioxide. Biodiesel can be used in diesel engines with no new equipment or engine modifications, and actually improves lubrication in the engine.

Minnesota Leads with Ethanol Initiative

On September 27, Minnesota Governor Tim Pawlenty announced his vision for the state to be "the renewable fuel capital of America." His plan includes doubling the required level of ethanol in gasoline, reducing gasoline consumption, and promoting the purchase of hybrid vehicles.

Currently, Minnesota law requires all gasoline sold in the state to include 10 percent ethanol (E-10). The governor plans to introduce legislation to require gasoline to contain 20 percent ethanol (E-20). Steps are being taken to help gas station owners, refiners, automakers, and citizens understand the legislation and the transition to E-20 before the legislation is proposed.

A research report from the Minnesota Center for Automotive Research at Minnesota State University, Mankato showed that there were no drivability or material compatibility problems experienced by 15 vehicles of various years, makes, and models using fuel with 30 percent ethanol (E-30). The 20 percent ethanol mandate will take effect when 50 percent or more of new model vehicles for sale in the state are warrantied for such a fuel.

Governor Pawlenty also signed an executive order to reduce the state government gasoline consumption by 25 percent by the year 2010 and 50 percent by 2015. He plans to implement increased use of agricultural fuels and fuel-efficient vehicles, including hybrids, to achieve this goal.

The Governor also stated his support to establish the University of Minnesota as a National Center of Excellence for Biofuels Research. This would give the university an opportunity to seek state and federal support for continued innovation in producing and utilizing renewable fuels.

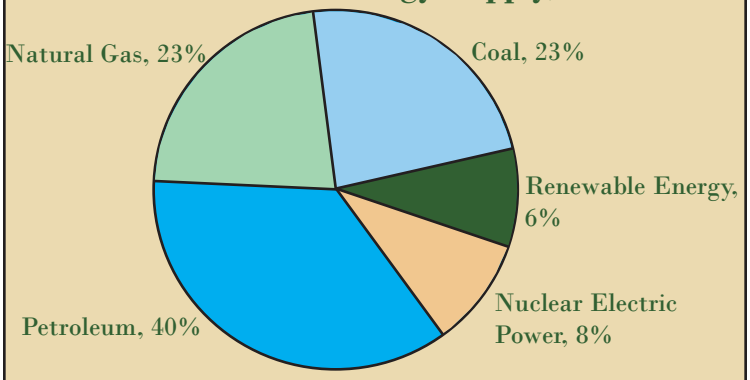
New EIA Data for Biomass Energy

The U.S. Energy Information Administration (EIA) has released a report entitled "Renewable Energy Trends 2003," containing useful data about national and state level renewable energy consumption.

The report notes that renewable energy contributed 6 percent of the total energy supply for the United States in 2003, which is a 3 percent increase to 6.1 quadrillion Btu from the previous year. While more than half of the growth came from a 4 percent increase in hydropower, most of the remaining growth came from a 3 percent increase in biomass. Biomass consumption in the residential and transportation sectors grew 15 and 41 percent, respectively. Ethanol use increased substantially from 133 trillion Btu in 2001 to 156 trillion Btu in 2002, and grew to 220 trillion Btu in 2003. This increase is largely due to its use as an oxygenate in reformulated gasoline and the declining use of the oxygenate additive MTBE.

"...Renewable energy contributed 6 percent of the total energy supply for the United States in 2003..."

The Role of Renewable Energy Consumption in the Nation's Energy Supply, 2003



Information from the EIA "Renewable Energy Trends" report.

Industrial and electric power sector biomass consumption accounts for more than three-fourths of total biomass consumption, yet biomass consumption declined 1 and 2 percent in 2003, respectively, compared to 2002 in these sectors. Ninety-five percent of the industrial sector consumption of renewable energy was wood and wood waste biomass.

While other renewable sources are largely used to generate electricity, twice as much biomass was used for space, steam, and process heat quads as was used for electricity production in 2003. The industrial sector is the greatest user of process heat and steam, and 59 percent of total biomass was consumed by this sector in 2003. Ninety-six electricity generating plants burned both biomass and coal in 2002 in 26 states, although none were in Ohio.

The document reports the following renewable market shares of net electric generation for the Great Lakes program states in 2002: Illinois (0.4), Indiana (0.1), Iowa (2.4), Michigan (2.1), Minnesota (3.9), Ohio (0.1), and Wisconsin (2.0).

To view the "Renewable Energy Trends 2003" report, visit the EIA Web site at www.eia.doe.gov/fuelrenewable.

Additionally, the PUCO offers the quarterly publication "Ohio Energy Data Report" which contains information about the production, consumption, and price of energy in Ohio. This report is available on the PUCO Web site at www.PUCO.ohio.gov in the electric and natural gas sections.

DOE Biomass Program Launches New Integrated Web Site

The Biomass Program, one of 11 energy programs housed in the U.S. Department of Energy (DOE) Office of Energy Efficiency and Renewable Energy (EERE), has recently launched a new Web site. This new site effectively combines information about biomass power, biomass fuels, bioproducts, and other biomass energy technologies to provide a comprehensive resource about this renewable energy option. The Biomass Program takes an integrated approach, developing technology for the conversion of plant-derived material into valuable fuels, chemicals, materials, and power in order to reduce dependence on foreign oil and foster the growth of the domestic biomass industry.

The new site reflects the look of the EERE Web site and provides visitors with the latest news from the program. For more information, visit the U.S. DOE Biomass Program Web site at www.eere.energy.gov/biomass.

Study Finds Biodiesel to be a Clean Option for Standby Generators

In July 2004, Barrett Consulting Associates, Inc. completed a study analyzing the efficiency of biodiesel fuel compared to petroleum diesel. The analysis investigated the effectiveness of biodiesel in standby generators for possible use by the Bonneville Power Administration on Washington State's Olympic Peninsula. While biodiesel has been used more extensively by the transportation industry in recent years, its use in generators has been limited, with national parks leading the way.

Typically, the transportation fleets and generators operate with a B20 blend of 20 percent biodiesel and 80 percent petroleum. The 100 percent biodiesel (B100) is not prevalent due to higher cost, and other blend amounts are being used.

A storage and performance analysis of biodiesel was included in the report. The study found that a six month shelf-life is recommended for biodiesel, and the fuel also requires more filtration in its initial hours in storage compared to petroleum diesel. After the initial filtration, biodiesel has the same maintenance concerns as regular diesel and is also biodegradable and non-hazardous.

The key benefit of using biodiesel fuel is reduced air emissions. Biodiesel is often more costly than regular diesel, depending on blend levels and regional markets for the fuel. Existing evidence, however, in transportation fleets points to the reduced engine maintenance costs associated with using biodiesel as a possible means of minimizing the extra expense of purchasing biodiesel fuel. The report recommends biodiesel as an acceptable option to regular petroleum diesel in standby generators. Visit the Web site at www.transmission.bpa.gov to view the full report.

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2004 Biodiesel Handling and Use Guidelines

The "2004 Biodiesel Handling and Use Guidelines" report is now available from the National Renewable Energy Lab (NREL). This updated version of the popular "Biodiesel Handling and Use Guidelines" features a frequently asked questions section, expanded biodiesel basics information, and the most up-to-date blending information. To see the full report, visit the NREL Web site at www.nrel.gov/vehiclesandfuels.

New Curricula for Ethanol and Biodiesel Education

The National Energy Education Development (NEED) project has sponsored the development of new 4-12 grade curricula on the renewable fuels ethanol and biodiesel with support from the Great Lakes Biomass State and Regional Partnership, and in conjunction with the Illinois Sustainable Education Project, the Governors' Ethanol Coalition, the U.S. Department of Agriculture, Renewable Fuels Association, and the National Biodiesel Board. Currently, NEED is working with the Great Lakes Partnership to develop teacher training workshops and make these materials available to classrooms in our region.

The Biodiesel curriculum is available on the NEED Web site at www.NEED.org, and the ethanol curriculum will be available soon. For additional information, please contact the Ohio Biomass Energy Program office at (614) 644-7857.

Ohio Biomass Electronic Listserv

An electronic listserv is available on the Ohio Biomass Energy Program Web site. This listserv allows interested parties to sign up to receive up-to-date information about Ohio biomass through e-mail. To sign up for the listserv, visit the Ohio Biomass Energy Program Web site in the electricity section of www.PUCO.ohio.gov. Sign up your e-mail address in the box provided.

Save the Date: Biomass Conferences

Bioenergy Conference: National Perspective – Ohio's Potential

October 28, 2004

Sponsored by the Ohio State University Extension and Ohio Agricultural Research and Development Center

Columbus, Ohio

This conference will bring together representatives from Ohio's leading industries to discuss opportunities for developing biomass as a feedstock alternative to imported oil. The goal of the conference is to facilitate networking and awarenessfor key stakeholders. For more information visit www.oardc.ohio-state.edu.

BioCycle's Fourth Annual Conference on Renewable Energy: From Organics to Recycling

November 8-10, 2004

Co-sponsored by the Great Lakes Biomass State & Regional Partnership

Des Moines, Iowa

This comprehensive, three-day Conference will feature information on the best systems for converting biomass into energy sources. For details and registration information, visit www.jgpress.com/biocycle.htm.

Ohio Wind Power Conference

November 9-10, 2004

Sponsored by Green Energy Ohio, the U.S. Department of Energy, and the Ohio Department of Development

Cleveland, Ohio

The second annual Ohio Wind Power Conference is a two-day event featuring information on the latest developments for wind power technology in Ohio. PUCO Commissioner Donald L. Mason will be speaking at this event. Register before October 22 to receive a discounted price. Further details and registration information can be found at www.ohiowind.org.

Turbo Expo 2005

June 6-9, 2005

Sponsored by the American Society of Mechanical Engineers

Reno, Nevada

The Turbo Expo will feature technical sessions on coal, biomass, and alternative fuel technologies. The deadline to submit drafts of papers is November 9, 2004. For more information, visit www.asme.org.

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