

# SERBEP Update

MAY/JUNE 1998

A Publication for  
the General  
Biomass  
Community

The Southeastern Regional Biomass Energy Program is one of five regional biomass energy programs. It is administered for the U.S. Department of Energy Office of Energy, Efficiency, and Renewable Energy Programs, by the Tennessee Valley Authority's Environmental Research Center in Muscle Shoals, Alabama. The 13-state region includes Florida, Kentucky, Mississippi, Georgia, North Carolina, South Carolina, Virginia, West Virginia, Missouri, Tennessee, Louisiana, Arkansas, Alabama, and Washington, D.C.

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## FORMER CIA DIRECTOR OFFERS OUTLOOK FOR ETHANOL

*(Following are excerpts from R. James Woolsey's Keynote Address to the 1998 National Conference on Ethanol Policy & Marketing. Mr. Woolsey is a former Director of the Central Intelligence Agency. This excerpt is printed with permission from the Ethanol Report, Issue #68, March 19, 1998.)*

Imported oil is the world's largest commercial enterprise. Oil is 40% of the energy that the world consumes and two-thirds of the proven reserves exist in five countries: Saudi Arabia, Kuwait, the UAE, Iran and Iraq. If you add the Caspian Basin, and its reserves of possibly close to 15%, you have approximately 80% of the proven reserves of oil in the world in this Mid-Eastern region of the world. The Mid-East is populated, in the governments that control the oil, principally by two groups of people: psychopathic predators such as Saddam Hussein, and vulnerable autocrats. The world burns 73 million barrels of oil a day and discovers about 15. American production peaked in the late 1960s and world production will peak sometime between 2005 and 2020. But at best, we have on the average only a couple of decades before oil production starts to head down and head down rather steeply...

The growth and economic development of Asia substantially exacerbates this problem of dependence on the Mideast... As India and China and the rest of eastern and southern Asia industrialize and modernize, the growth in oil consumption early and into the mid-part of the next century is going to be phenomenal. *Fortune* magazine forecast two years ago that once China and India alone reach what is today South Korea's level of energy consumption per capita [they] will need about 120 million barrels of oil a day. Now the interesting number is that the world as a whole uses about 73 million today, so we are talking about approaching the trebling of world oil demand...

There are three areas of substantial concern that we should have as Americans which are driven by the world's growing—and soon to be extraordinarily high—level of dependence on the Mideast for the central and most important fuel of the world. First of all, this consideration should drive our own worries about American security. We consume about a quarter of the world's oil and we have about 2% of the reserves...

Secondly, oil and coal are a huge contributor to the risk, and I use the word risk advisedly, of global climate change. Climate



Please let us know of others who would like to receive this update publication on a monthly basis. Also, let us know if you are currently receiving this information and wish your name removed from our mailing list.

**Greenhouse Gas Mitigation—Greenhouse Gas Mitigation:**

*Proceedings of the International Conference on Technologies for Activities Implemented Jointly* (Vancouver, British Columbia, Canada, May 26-29, 1997), is now available.

This resource presents papers reflecting the theme that Activities Implemented Jointly (AIJ) provides an effective mechanism to facilitate practical demonstration and development of greenhouse gas mitigation technologies. Published in a single volume, the book covers key note talks, international initiatives, enhancing sinks and stores, maximising joint benefits, improved energy technology, Asian Development Bank, transport, and transmission and end use. The concept of AIJ will facilitate international cooperation to reduce greenhouse gas concentrations and mitigate effects of climate change. To order, contact Elsevier Science Offices, PO Box 882, New York, NY 10159-0882, (212) 633-3730, (888) 437-4636, fax (212) 633-3680, email <usinfo-f@elsevier.com> Cost is NLG350.00/US\$217.00. Refer to ISBN: 0-08-043325-1.

change is at least a serious enough problem to hedge against even if one is not sure it is going to occur. And third, through poverty in the third world—linked to the trade imbalances that most third world countries have with countries that ship them oil and their direct dependence upon supplies from other countries—imported oil over the long run is going to drive much of the world's instability...

The ethanol industry today, I believe, stands in a somewhat similar situation to where the computer and electronic industries stood in the 1960s. Big Blue IBM and its vendors dominated the computer world... But it was noticed by a few far sighted people in 1964 that something interesting had just been done. People had figured out how to put integrated circuits on silicon chips... What was happening was that the silicon chip was democratizing the production of information. And that democratization eventually not only destroyed the underpinnings of reliance on mainframes, it also broke empires. IBM, of course adapted, after something of a slow start, and it continues now...

We have some of these same types of ingredients today. Genetic engineering is beginning to create the possibility of a revolution in fuel production. Indeed, **the beginnings of the democratization of the production of transportation fuel.** The use of low cost feedstocks from cellulosic biomass are some of the first steps toward low cost production. What this means to me is that the current ethanol industry has to decide whether it is going to behave like the early IBM and its vendors, or the later, and I would say wiser, IBM.

The constituencies are there to help you and support you, to bring about this revolution—the democratization of the production of fuel. Various tactics are certainly available... extending of the tax credit for renewables; making the blenders credit non-taxable and available to drivers; promoting ETBE and E85 and flexible fuel vehicles; creating a joint team in the government to help move toward biorefineries, to help a broad range of products be

produced from biomass; supporting Governor Nelson's Fuels for America program, more research and development on genetic engineering.

But the question is not preeminently any one of these tactics. The question is strategy. Are you or are you not in favor of moving toward producing ethanol in volume and doing it relatively rapidly in order to bring about democratization of the production of transportation fuel? Or is your choice to wait and see, to hold on to what you've got, to be skeptical about growth in the industry, and to let the forces of American, indeed world, dependence on Mideastern oil play out? I would suggest to you that the second course is not just unimaginative like the early IBM, it is dangerous...

The question really is our, indeed the world's, dependence on imported oil and on the few states that have it: governed by psychopathic predators and vulnerable autocrats. The question is, will we collectively—the ethanol industry of today and the cellulosic biomass enthusiasts who look to the future—be able to join together and say to the Mid-East nations that control 80% of the resources of the world's largest commercial enterprise, what Oliver Cromwell once said to a group of his political opponents: "You have sat too long," he said, "in that place for any good that you are doing. Go, and let us have done with you. Go. In the name of God, go!"

## SILO UNLOADING SYSTEMS

Laidig Industrial Systems of Mishawaka, Indiana, offers three types of sweep auger unloaders (reclaimers) for silo bottom unloading problems: track driven, cantilever flatbottom, and hopper bin.

All Laidig unloader designs feature first-in, first-out material flow using a reclaim auger that rips through the underside of the stored material as the auger rotates around the bottom of the storage structure. The unloaders can also be provided with new Laidig steel or concrete silos or retrofitted into existing structures.

The cantilever unloader model uses dual augers which stretch across the diameter of the silo. These systems chew through material and auger it to the center of the silo where it is discharged by an exit auger. Cantilever models are designed for applications up to 26 feet in diameter.

Track driven systems feature a self-cleaning track along the outside perimeter of the silo and hydraulically powered auger rotation. The single auger runs from the center of the silo to the perimeter and is capable of unloading silos from 15 to 60 feet in diameter. The largest unit, capable of 30- to 60-foot diameter applications, can also be used in open underpile applications.

Although normally used in flat bottom applications, Laidig has also installed bottom sweep augers in cone-bottom bins. Capacity of any system depends on the characteristics of the material being handled including particle size, moisture content, stringiness, flowability, and duty cycle. Laidig says that they have successfully used their unloading systems for sawdust, hogged bark, wood chips, bulk chemicals, ground rubber, sludge, compost, grain meals, corn cobs, shredded paper, plastic flakes, distillers dried grains, and other materials.

For additional information, contact Laidig Industrial Systems at 14535 Dragoon Trail, Mishawaka, Indiana 46544, phone (219) 256-0204, fax (2129) 256-5575, or by email at <laidig@skynet.net>.

### **BIODIESEL METHYL ESTERS IN SEVEN MINUTES**

Researchers at the University of Toronto can now produce methyl esters from vegetable oils by base-catalyzed methanolysis in only seven minutes at ambient temperatures. The product meets current biodiesel fuel standards (e.g. >99.4% methyl ester). They had previously speeded up the reaction by using an inert cosolvent to form a one-phase system, but the reaction would still slow down right at the end. They thought they may have been up against

equilibrium limitations, but evidence pointed to polarity problems. Once this was understood, the problem was easy to solve.

Because of the speed of the reaction, no actual reactor is required in an industrial plant, because the esterification takes place in the pipework. The reaction, therefore, becomes continuous. At the appropriate time, the excess methanol and cosolvent are flushed off and recycled. The glycerol is separated, and the product water-washed and distilled in the usual way.

In a related development, the same researchers have used the acid-catalyzed one-phase process to make methyl esters from materials, such as waste fats and oils, which contain fatty acids. The acid-catalyzed process is much slower than the base-catalyzed process, and at the boiling point of methyl alcohol, normally takes up to 70 hours to make crude product containing approximately 93% methyl ester. In comparison, the one-phase process in ten hours, gives over 90% yields of product which contain 99.7% methyl ester. The residue from the distillation, which contains 70% methyl ester, can be recycled.

For further information contact Professor Boocock at the Department of Chemical Engineering and Applied Chemistry, University of Toronto, 200 College Street, Toronto, ON M5S 3E5 CANADA, fax (416) 971-2208, email <boocock@chem-eng.utoronto.ca>.

### **INFLATION FACTOR, REFERENCE PRICE, NONCONVENTIONAL SOURCE FUEL CREDIT ISSUED for §29**

The Internal Revenue Service, in an April 1 Federal Register notice, issued the inflation adjustment factor, nonconventional source fuel credit, and reference price for calendar year 1997.

The inflation adjustment factor, the fuel credit, and reference price are used to determine the tax credit allowed on the production of fuel from nonconventional

### **Climate Change Document**

#### **Available—Common Questions About Climate Change,**

published by the United Nations Environment Programme and the World Meteorological Organization, answers some of the most

commonly asked questions about climate change. This well-organized brochure, which includes numerous

graphics, answers such questions as Has the world warmed? Are human activities contributing to climate change? What human

activities contribute to climate change? How do we know that the atmospheric build-up of greenhouse gases is due to human activity?

What climate changes are projected? How reliable are predictions of future climate? and others. Copies of the brochure can be

obtained by contacting Peter Usher, United Nations Environment Programme, PO Box 30552, Nairobi, Kenya, fax 254 2 623410. This brochure can be viewed on the World Wide Web at the following

locations:

<http://www.gcric.org/ipcc/qa/cover.html> and

<http://www.unep.org/ipcc/qa/cover.html>.

**DOE National Telephone Directory—A**

web-based version of the DOE National Telephone Directory is now available to everyone who has Internet access. One major advantage the web-based version has is that it contains up-to-date information, since it is continually updated from the authoritative system which maintains the information. The web-based version has both the organizational and alphabetical listings available as well as field and laboratory information. The address is <http://www.hr.doe.gov/phonebook/>. To view and print the organizational information requires Adobe Acrobat Reader. You can download a free copy of Adobe Acrobat Reader by using the link on the phone book web page below the Laboratory Organizational listing. Just click on "Get Acrobat Reader" and follow the instructions. At this time the phone book is not available in hard copy form.

sources under §29 of the Internal Revenue Code.

The inflation adjustment factor for calendar year 1997 is 2.0331. The nonconventional source fuel credit is \$6.10 per barrel-of-oil equivalent for qualified fuels.

*(This information was taken from the Daily Tax Report, April 1, 1998, and provided to SERBEP by Greg Sanderson of Gornel & Davis, LLP, (404) 223-5900.)*

**ANIMAL WASTE POLLUTION**

A report on animal waste pollution, compiled by the Minority Staff of the US Senate Committee on Agriculture, Nutrition, & Forestry, has recently been released. The report, entitled *Animal Waste Pollution in America: An Emerging National Problem* (December 1997), discusses concerns about the potential for animal waste pollution from intensive livestock and poultry operations.

Nationwide, 130 times more animal manure is produced than human waste—5 tons for every person in the United States. Applied to land in proper amounts, manure is a valuable source of nitrogen, phosphorus and other crop nutrients, but more and more animals on larger farms means there is not enough crop land in some areas to use all of the manure. The Department of Agriculture reported recently that "...the continued intensification of animal production systems without regard to the adequacy of the available land base for manure recycling presents a serious policy problem." Inadequate animal waste management practices often lead to water pollution, yet there are no federal regulations for waste handling, storage, use, or disposal.

Many states and localities have recently enacted new laws and regulations, and this is an area of intense activity. North Carolina and Kentucky, for example, recently imposed moratoria on the construction of most new livestock operations. In some states, disputes have arisen as to whether local jurisdictions have the authority to regulate livestock and poultry operations. Among the sources of legal authority advanced to justify local control are zoning and health ordi-

nances. Typically, proponents of local control are seeking more stringent regulation than is provided by state law. Although many states are grappling with this issue on their own, new minimum environmental standards for animal waste management should be established at the federal level to ensure nationwide protection of the environment and human health.

The Animal Agriculture Reform Act addresses animal waste pollution problems by requiring large animal feeding operations to develop animal waste management plans that would follow new environmental standards. Any national approach to the animal waste problem should include the following policies, found in the Animal Agriculture Reform Act:

- Environmentally sound standards should be set for the handling, storage, and use or disposal of animal waste.
- Specific standards similar to those for human waste should require treatment of excess manure that cannot be used for a beneficial purpose.
- Animal waste management practices must limit the application of both phosphorous and nitrogen in animal manure to amounts needed by crops.
- The Environmental Protection Agency should maintain its regulatory role, but the Department of Agriculture should be actively engaged in setting new animal waste management standards and helping farmers implement sound environmental practices for livestock and poultry production.
- In 60 percent of rivers and streams that EPA has identified as "impaired," agricultural runoff, including nutrients from animal waste, is the largest contributor to pollution.
- 35 million gallons of spilled animal waste killed 10 million fish in North Carolina in 1995. Last year more than 40 animal waste spills killed 670,000 fish in Iowa, Minnesota, and Missouri, up from 20 spills in 1992.
- Animal wastes carry parasites, bacteria, and viruses and can pollute drinking

water with high levels of nitrates, potentially fatal to infants.

- Nutrient pollution can come from a number of sources, but in areas of intensive livestock production, animal waste is a leading suspect in blooms of toxic microbes linked to excessive nutrients.
- Excessive growth and decay of algae in nutrient enriched waters depletes available oxygen.

Animal waste is not the only threat to water quality, but action must be taken now to minimize the risks to our nation's ground and surface water from livestock and poultry production. Comprehensive national standards for animal waste management, such as those set forth in the Animal Agriculture Reform Act, are an important step toward improving water quality across America.

For a complete copy of the report, *Animal Waste Pollution in America: An Emerging National Problem*, contact SERBEP. There is a charge of \$3 to cover copying and mailing costs.

#### **NREL TOPICAL ISSUES BRIEFS**

The National Renewable Energy Laboratory (NREL) has recently issued two topical issues briefs. The first, entitled *Green Marketing in the Massachusetts Electric Company Retail Competition Pilot Program* (October 1997, NREL/TP-260-23507), discusses retail access pilot programs as an important function for examining competitive market issues as well as marketing strategies and customer reactions to different power supply options. The experience gained through these pilots provides important insights into future power market operations, including the market for green power. The Massachusetts Electric Company's (MECo's) *Choice: New England* pilot for residential and small-business customers was a voluntary program developed primarily to test the billing and metering logistics that distribution companies will need in the competitive market. The pilot also offered a preview of program implementation and marketing under customer choice. It was the first retail competi-

tion pilot to explicitly include green power options in program design. The MECo pilot's energy suppliers were selected through the issuance of a request for proposals (RFP). Eligible customers were drawn from four pilot cities: Lawrence, Lynn, Northampton, and Worcester. MECo and the pilot program administrator conducted outreach to customers in all four cities through a broad range of marketing and consumer education strategies. In addition, suppliers conducted their own marketing efforts, including telemarketing, literature distribution, and issuance of enrollment ballots to customers. They differentiated themselves by offering varying energy prices, financial incentives, and assorted services. For example, most of the selected green options offered customers a degree of savings but were diverse in their generation profiles and other environmentally friendly actions. Customer response to the different green options varied depending on consumer values, environmental benefits offered by suppliers, and supplier marketing strategies. Only 3% of participating small-business customers selected a green option, whereas 31% of residential participants selected a green option. Residential customers selected a high percentage of power supply portfolios with more renewable source content, including at least 20% renewables and no nuclear. The pilot clearly demonstrates that, in a competitive situation, there is interest in a variety of energy supply options, including green options. The pilot results also suggest that supplier marketing, pricing, customer education, and appropriate disclosure guidelines will be instrumental in determining the future standing of green power offerings.

The second topical brief is entitled *The New Hampshire Retail Competition Pilot Program and the Role of Green Marketing* (November 1997, NREL/TP-260-23446). The State of New Hampshire has been experimenting with a pilot program, mandated by the State Legislature in 1995 and implemented by the New Hampshire Public Utilities Commission (NHPUC), before it implements full retail access. The New

#### **Short Rotation Woody Crops Operations Working Group**

**Group**—Proceedings of the First Conference of the Short-Rotation Woody Crops Operations Working Group, held in Paducah, Kentucky, September 23-25, 1996, are now available. The mission of the Working Group is to promote collaborative efforts in developing needed operations for SRWC plantations that comply with the principles of economic viability, ecological soundness, and social acceptance. This goal will be met primarily by improving communication and sharing of information among interested parties, and by sponsoring conferences and workshops. For information on obtaining a copy of the proceedings, contact the Southern Research Station, DeVall Drive, Auburn University, AL 36849, (334) 826-8700, fax (334) 821-0037, email [stokes@usfs.auburn.edu](mailto:stokes@usfs.auburn.edu). The homepage for the Working Group is <http://www.esd.ornl.gov/bfdp/srwcwgrp/menu.html>.

**To Contact SERBEP—**

We have not been receiving information in a timely manner due to incorrect use of zip codes, fax number, etc. Correct SERBEP contact information is: Tennessee Valley Authority, Southeastern Regional Biomass Energy Program, PO Box 1010, CEB 2A, Muscle Shoals, AL 35662-1010. For non-postal service mail (FedEx, UPS, etc.) the address is Tennessee Valley Authority, Southeastern Regional Biomass Energy Program, CEB 2A, Reservation Road, Muscle Shoals, AL 35661. Our area code has changed; our correct phone number is now (256) 386-3086 and fax number (256) 386-2499.

**Proceedings**—Limited copies are available of the proceedings from the *Logging & Sawmilling Journal's* Residue to Revenue Conference, held November 4-5, 1997, in Richmond, BC. The conference focused on potential markets for wood residues, economics, and case studies and on providing solutions to managing, utilizing and profiting from wood waste. Cost is \$145 Canadian, or \$101.50 US. Contact Logging & Sawmilling Journal, PO Box 86670, North Vancouver, BC V7L 4L2, CANADA, (604) 990-9970, fax (604) 990-9971. Visa and Mastercard are accepted.

Hampshire pilot program was the first to be opened to all classes of customers in a single program, and numerous suppliers and service providers registered to compete. In the short marketing blitz that followed the announcement of eligible participants in May 1996, many marketing strategies, techniques, and messages were tested. Green marketing, an attempt to characterize the supplier or service provider as environmentally friendly without referring to the energy resource used to generate electricity, was used by several suppliers or service providers to attract customers. This appeal to environmental consumerism was moderately successful, but it raised a number of consumer protection and public policy issues. This issue brief examines the marketing methods used in New Hampshire and explores what green marketing might mean for the development of renewable energy generation. It also addresses the issues raised and their implications.

These topical briefs are available from the National Technical Information Service, US Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161, (703) 487-4650. The briefs are available to DOE and DOE contractors from the Office of Scientific and Technical Information (OSTI), PO Box 62, Oak Ridge, TN 37831. Prices are available by calling (423) 576-8401.

### **PELLET STOVE CAN BURN NONWOOD PELLETS**

Dell-Point Technologies Inc., a new manufacturer of pellet stoves, is the first pellet stove manufacturer in the world licensed to use a newly developed proprietary close coupled gasification technology for pellet stove applications. The patent pending "Gas-A-Fire" pellet stove was developed in Canada as a joint project between Biomass Consultation and the Canadian Federal Government's Advanced Combustion Labs (CANMET). The goal was to be able to burn pellets with higher ash content than that tolerated by most equipment on the market, with good emissions and efficiency results. The technology has an overall efficiency of 85% and can handle typical high ash pellets

produced from bark, RDF, agricultural residues, and plantation crops. Normally, higher ash pellet fuels above 1% ash content will, upon combustion, slag and form clinker. Air to fuel is then compromised, leading to additional problems with stove performance. Silicate is a principal component of the overall makeup of the ash and initially deforms (starts to melt) at around 1,200°F. The lower operating temperatures in the bottom of the gasifier are well below the melting point of the silicate, so the ash simply falls through the grate and into the ash pan. The resulting wood gases are super combusted as they leave the burner, resulting in near complete combustion of the gases and low excess air levels. Reduced excess air levels mean reduced heat loss through the stack. In general, excess air levels in the Dell-Point pellet stove gasifier are 7 times less than current technology.

In the event of a power failure, a 12-volt DC battery back-up system continues to power the "Gas-A-Fire." For extended power failure outages, the stove can be powered from a vehicle. The stove can also be powered by a solar panel by day and by battery at night.

In order to be attractive to a large number of potential users, the economics must be attractive relative to conventional energy sources. The vendor claims that the Dell Stove has the potential to operate at steady-state efficiencies over 80% in a pellet stove application, which is significantly higher than some stoves in the marketplace today. Also, the technology is effective in reducing CO<sub>2</sub> emissions levels by an average of 9 tons per household per year, according to Canadian Government studies.

Dell Point has already established distribution channels in Sweden, France, and the UK and is now establishing a US distribution network. The manufacturing plant in Montreal has over 250 employees and has the capacity to manufacture over 25,000 pellet stove units per year. For more information, contact Mark Drisdelle or Claude Lapointe at (514) 331-6212, fax (514) 435-2007. You may also visit the company's web site at [www.pelletstove.com](http://www.pelletstove.com).

## CALENDAR OF EVENTS

**June 8-11, 1998**

Wurzburg, Germany  
*Biomass for Energy and Industry, 10th European Conf. and Tech. Exhibition*  
 C.A.R.M.E.N.e.V.  
 Technologiepark 13, D-97222 Rimpar  
 bei Wurzburg, GERMANY  
 fax: +49-9365-806955  
 website:  
<http://www.wip.tnet.de/bi98.htm>

**June 8-11, 1998**

Hong Kong  
*The 9th Global Warming International Conference & Expo*  
 The Global Warming Int'l Center  
 P.O. Box 5275  
 Woodridge, IL 60517-0275  
 tel: (630) 910-1551  
 fax: (630) 910-1561

**June 22-24, 1998**

Amherst, Wisconsin  
*Midwest Renewable Energy Fair*  
 tel: (715) 825-5166  
 website:  
<http://www.msn.fullfeed.com/~hulet/>

**July 8-10, 1998**

South Bend, Indiana  
*1998 Fuel Ethanol Workshop International*  
 Kathy Bryan, Bryan & Bryan, Inc.  
 tel: (719) 942-4353  
 email: etoh85@aol.com

**July 12-14, 1998**

Nashville, Tennessee  
*Southeast Hearth Products Association Annual Meeting*  
 Ed Lenard  
 SEHPA  
 PO Box 747  
 Gastonia, NC 28053  
 tel: (888) 399-5649  
 fax: (704) 739-0099

**August 2-7, 1998**

Boulder, Colorado  
*27th International Symposium on Combustion*  
 Dr. Donald R. Hardesty  
 Combustion Rsch. Dept. MS 9052  
 Sandia National Laboratories  
 7011 East Avenue  
 Livermore, CA 94551-0969  
 tel: (510) 294-2321  
 fax: (510) 294-1004  
 email: drharde@sandia.gov  
 website:  
<http://me-www.colorado.edu/27symp>

**August 23-27, 1998**

Boston, Massachusetts  
*American Chemical Society Division of Fuel Chemistry Symposium on Fuels for the Year 2000 and Beyond*  
 Dr. Steven A. Benson  
 Univ. of North Dakota  
 tel: (701) 777-5177  
 fax: (701) 777-5181  
 email: sbenson@eerc.und.nodak.edu  
 Dr. Craig Fairbridge  
 National Centre for Upgrading Technology  
 Alberta, Canada  
 tel: (403) 987-8618  
 fax: (403) 987-5349  
 email: craig.fairbridge@nrcan.gc.ca

**August 25-27, 1998**

Vancouver, Washington  
*2nd Conference of the Short-Rotation-Woody Crops Operation Working Group*  
 tel: (502) 335-3151  
 email: GMSIMON@Westvaco.com

**September 1-4, 1998**

St. Augustine, Trinidad, West Indies  
*International Symposium and Exhibition, Energy and the Environment*  
 Sr. W.A. Mellowes  
 Dr. A.C. Pilgrim  
 Univ. of the West Indies  
 Office of the Dean  
 Faculty of Engineering  
 St. Augustine, Trinidad  
 tel: (868) 645-3233-9, ext. 2061/ 2503  
 fax: (868) 662-4414  
 email: enenviro@eng.uwi.tt  
 website: <http://www.uwi.tt/~power/sym/>

**September 20-25, 1998**

Florence, Italy  
*World Renewable Energy Congress*  
 tel: 39.55.4376300

**October 4-8, 1998**

Madison, Wisconsin  
*Bioenergy '98*  
 Fred Kuzel  
 Great Lakes Regional Biomass Energy Program  
 35 E. Wacker Drive, Suite 1850  
 Chicago, IL 60601  
 tel: (312) 407-0177  
 fax: (312) 407-0038  
 email: fkuzel@cglg.org  
 website: <http://www.cglg.org/projects/biomass/bioenergy98>

**November 8-11, 1998**

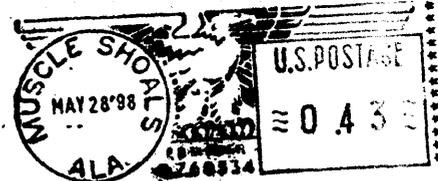
Phoenix, Arizona  
*New Crops & New Uses: Biodiversity & Agricultural Sustainability*  
 David Dierig  
 USDA, ARS, US Water Conservation Laboratory  
 4331 E. Broadway  
 Phoenix, AZ 85040  
 tel: (602) 379-4356  
 fax: (602) 379-4355  
 email: ddierig@uswcl.ars.ag.gov

**1999****January 10-14, 1999**

*Thirteenth International Symposium on Management & Use of Coal Combustion Products (CCPs)*  
 American Coal Ash Association  
 2760 Eisenhower Ave., Suite 304  
 Alexandria, VA 22314-4553  
 tel: (703) 317-2400  
 fax: (703) 317-2409  
 website: <http://www.ACAA-USA.org>



*SERBEP Update*  
Southeastern Regional Biomass Energy Program  
Tennessee Valley Authority, CEB 2A  
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Muscle Shoals, AL 35662-1010  
(Non-US Postal Service Zip Code 35661)



CLEAN CITIES HOTLINE  
NREL  
1617 COLE BLVD, BLDG. 16  
GOLDEN, CO 80401-3305  
USA

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SERBEP  
UPDATE

The use of trade names is for information purposes only and does not imply endorsement, nor does the omission imply lack of endorsement, by the federal government.



## BioEnergy '98—Expanding Bioenergy Partnerships 8th Biennial Conference

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**Just a reminder**—Each month we receive returned newsletters with no forwarding address available. We are forced to remove these names from our mailing list. If you have moved and wish to keep receiving the *SERBEP Update*, please be sure to send us your new address.

BioEnergy '98 is a premier international event hosted biennially by the U.S. Department of Energy's Regional Biomass Energy Program. The focus of BioEnergy '98 is to build a thriving biomass energy industry through partnerships for energy, the environment, and the economy. BioEnergy '98 will be the first major biomass conference to examine implications from the Kyoto Conference of the Parties meeting on greenhouse gas emissions and other environmental drivers.

Topics include special emphasis on bioenergy mitigation of greenhouse gas emissions, financing issues, innovative and successful bioenergy projects around the world. Other topics include liquid biofuels, electric power production from various feedstocks and technologies, biogas production and utilization, biomass cultivation and harvesting, technical and economic assessments of cropping and production systems, national and international policy issues, market opportunities, and environmental aspects of bioenergy production and use.

BioEnergy '98 will be held at the new Monona Terrace & Convention Center designed by Frank Lloyd Wright in Madison, Wisconsin, October 4-8, 1998, at the start of Energy Awareness Month. The conference is hosted by the Great Lakes Regional Biomass Energy Program. More information, including the call for papers and Trade Show exhibitor application, can be obtained from the Internet at <<http://www.cglg.org/bioenergy98>> or by contacting Fred Kuzel at (312) 407-0177 or <[fkuzel@cglg.org](mailto:fkuzel@cglg.org)>.

