

**NRBP Update**  
**March 5, 2003**

**Upcoming Meetings, Workshops, and Conferences**

Massachusetts Biomass Working Group Meeting, March 25, 2003.  
Contact Howard Bernstein (howard.bernstein@state.ma.us)

Biodiesel For New England: A Regional Workshop, March 26, 2003.  
Registration information at: [http://www.nrbp.org/pdfs/workshop\\_brochure.pdf](http://www.nrbp.org/pdfs/workshop_brochure.pdf).

Biomass Brown Bag Luncheon April 1, 2003, Hall of States, Washington, DC  
Contact Rick Handley (rhandley@nycap.rr.com)

Pennsylvania Biomass Working Group meeting April 24, 2003  
Contact Dave Bingaman (dbingaman@state.pa.us)

**Massachusetts Fuel-Oil Co-Op Adds Biodiesel**

The NRBP began testing biodiesel in burners about two years ago through its host programs in New York and Rhode Island. The Brookhaven National Laboratory and the National Renewable Energy Laboratory supported the testing. In New York, the New York State Energy Research and Development Authority (NYSERDA) and World Energy tested a 25 percent biodiesel mixture in about 100 homes in Newburg, New York. The Rhode Island Energy Office and the National Renewable Energy Laboratory (NREL) have supported a study of biodiesel as a boiler fuel at four Warwick, Rhode Island, schools. Based, in part, on the experience of the New York and Rhode Island studies, Holyoke-based Co-OpPlus, an alternative energy cooperative with about 6,000 members in Western Massachusetts, plans to sell a mixture of 25 percent biodiesel and 75 percent home heating oil for use in residential burners. "We were formed with the idea of providing renewable energy sources," said Stephan Chase, chief executive of Co-OpPlus. "We thought we needed to do with home heating oil what they've done with gasohol," he said.

Biodiesel contains a higher amount of oxygen, which makes it a cleaner-burning fuel. In fact, biodiesel runs cleaner in an oil burner, which uses an open flame, than it does in the compression engines used in vehicles, according to Keith Ciampa, executive vice president at biodiesel distributor World Energy. Under an open flame, a mixture of 20 percent biodiesel and 80 percent heating oil reduces nitrogen oxides by 10 percent. In addition, the biodiesel mixture reduces carbon buildup inside the heating unit. In Western Massachusetts, however, World Energy and Co-OpPlus believe there is a market that will be receptive to cleaner, domestically produced fuel. About 70 percent of the 3,000 Co-OpPlus members Chase contacted said they are interested in heating their homes with biodiesel. The deal with Co-OpPlus also will allow World Energy to penetrate Connecticut, southern Vermont and the Albany, New York, area thanks to the co-op's central location, Ciampa said. (Excerpted from the Journal of New England Technology)

## **Paper Sludge – Stepping Stone to Ethanol?**

The NRBP and the U. S. Department of Energy (DOE) have discussed including paper sludge in an assessment on biomass feedstocks for fuels and chemicals. While paper sludge may be important in areas of New Hampshire, New York and Maine, the DOE is concerned that since there is only a limited quantity of the sludge, it does not warrant study by DOE because it will not produce a significant output of ethanol. According to Dr. Lee Lynd of Dartmouth University, the quantity of paper sludge is not large on the scale of national energy needs. Roughly, 5 million tons of sludge is generated annually, and if all of it were converted to ethanol at (again, roughly) 100 gallons per ton, it would produce about 500 million gallons of ethanol. The estimate may be closer to 100 million gallons, due to local circumstances (mills too small, sludge already used for other things, sludge not very amenable to bioconversion). That is equivalent to one medium to large (but not huge) corn ethanol plant.

However, the virtue of paper sludge is not its ultimate contribution to energy supply, but rather that it provides an opportunity to commercially apply technology at a much smaller scale and with a much lower total investment than any other feedstock (including corn fiber and corn stover). Over the last five years, the biomass-to-ethanol industry has learned that it is difficult to raise \$100 million for a first-of-a-kind plant, because of the associated risks; however, raising \$5 million for a commercially viable paper sludge plant may be doable. A commercial paper sludge facility would move technology from the high-risk to proven category, and thus would increase the likelihood that larger facilities would process other feedstocks, with greater potential to contribute to national energy needs. In essence, the use of paper sludge potentially can be a valuable stepping stone that plays a catalytic role in the commercial establishment of processes featuring enzymatic conversion of cellulose.

The DOE frequently pursues such stepping stone strategies. For example, the entire production of organic chemicals and polymers is equal to about one year's growth in fossil fuel production. If DOE's goal were to research only those products that had potential to make a real difference, then DOE would ignore chemicals. In fact, the DOE is extremely active in the chemicals sector. Why? Commercial production of chemicals will show the way for commercial production of fuels (which could make a real difference) by reducing risk in an application that has larger economic returns and can be implemented at smaller scale. Exactly the same rationale applies to paper sludge.

## **NRBP, BERCC Collaborate on District Energy Roundtable**

The NRBP is working with the Biomass Energy Resource Center (BERCC) on a biomass district energy roundtable to be held in late May or early June. The NRBP is serving as a technical advisor to BERCC to lead the development of the technical program, seek sponsorship, identify and secure speakers, and plan the technical agenda.

District energy systems in the United States are generally steam and provide heat and some cooling, primarily in cities in the downtown area, and on college campuses. These systems are old but are maintained, since many of the customers do not have an independent heating system.

Modern district energy systems in Europe use high-temperature hot water. Most of the current district energy systems use fossil energy. St. Paul, Minnesota, has just built a large biomass district energy system. BEREC believes that by combining the benefits of district energy systems and biomass fuels, there may be a synergistic effect. The goal of the roundtable is to better understand the benefits of (and barriers to) combining biomass fuels with modern hot water district energy systems. Does the perceived synergy of adding biomass fuels to modern district energy systems offset the potential complexity of a biomass system? The roundtable will explore this question.

The roundtable will be comprised of stakeholders from the district energy community, as well as advocates for biomass fuels and environmental advocates concerned with forest sustainability and air quality. Invitations also will be extended to community planners and municipal officials, including representatives from public works, local economic developers, colleges, financiers, public policy advocates, such as renewable energy and greenhouse gas advocates, and respected engineering companies to ensure engineering due diligence is followed. For more information, contact Rick Handley: rhandley@nycap.rr.com.

### **Biopower Decision Tools for America's Electric Cooperatives**

The Regional Biomass Energy Program through the Southeast Region (SERBERP) has begun a project "Developing Biopower Decision Tools for America's Electric Cooperatives." The objectives of the project are to develop analytical tools for electric cooperatives and to determine the merit of site-specific biopower projects. SERBERP will develop a family of computer models and a generalized business plan that will allow rural electric cooperatives and rural municipal electric utilities throughout the country to assess the technical and economic potential for investing in biopower technologies. Additionally, they will perform three case studies using the methodology developed. SERBERP is planning to use real-life case studies, since they feel that a project based on the experience of an actual electric cooperative may increase the probability that a cooperative will implement a project. SERBERP currently has one cooperative in Missouri that will participate on the project. They are seeking two other cooperatives to work with them. Since the National Rural Electric Cooperative Association (NRECA) is partially sponsoring this work, they request that the cooperative be part of NRECA's Cooperative Research Network (CRN). At minimum, they at least need to be a member of the NRECA.

In addition to the U. S. Department of Energy and NRECA, partners in the project include the Missouri Energy Center, the University of Missouri-Columbia, the Electric Power Research Institute (EPRI), the U. S. Department of Agriculture Rural Utilities Service (RUS), and the Southern States Energy Board.

For more information on the project or to nominate an electric cooperative, contact Phil Badger at: pbadger@bioenergyupdate.com.