

NRBP Monthly Report November 9, 2001

NRBP States Set Broad Bioenergy Agenda

Connecticut

The State's biomass program is working with the Connecticut Clean Energy Fund (CEF) to identify projects, particularly small gasifiers located on-site. The CEF is in the process of developing a strategic plan which identifies its role in the promotion of biomass in Connecticut. The CEF is part of the State's Biomass Working Group. The Connecticut Academy of Sciences and Engineering is partnered with the Connecticut Economic Resource Center, and Department of Agriculture to do a feasibility study for using agricultural biomass to generate electricity and lower farm operating costs, the NRBP is assisting with the project (see story below). Another member of the State's Working Group the Connecticut Department of Agriculture is partnering on demonstrations of two digesters that run off of cow manure and the Department continues to explore opportunities for a technology that will work well with chicken manure. The NRBP continues to advise the Department on the projects and provides linkages to similar demonstration projects in New York and Vermont. The NRBP's host organization the Connecticut DEP has provided guidance on two proposed bills from the 2001 legislative session, An Act Establishing a Bio-Diesel Task Force and An Act Concerning Bio-diesel fuels. The biodiesel fuel act extends certain business tax credits and sales tax exemptions available for motor vehicles that run on clean alternative fuels to vehicles that run on bio-diesel fuel.

Delaware

The NRBP's host organization the Delaware Department of Administration-Division of Facilities Management, State Energy Office, has been chosen by the State as the designated state-level office for collecting and disseminating current and precedent information surrounding biomass production and utilization as an energy source. The Delaware State Energy Office is charged with Alternative Fuels programs and the Clean State Program, along with other energy-related tasks. The Delaware State Energy office is a participant in the Delaware Bioenergy Consortium and provides state-wide direction through partnership activities. The University of Delaware Cooperative Extension-Renewable Resources program serves to coordinate research and technical assistance to the Delaware Bioenergy Consortium and Delaware State Energy office on bioenergy development. Preliminary plans have been completed to site two biofuel plantations in Delaware during the Spring 2002 planting season. These 3+ acre sites will be located at the University of Delaware's Georgetown Research and Education facility. SEO anticipates using willow and hybrid poplar, with a possibility of including switchgrass. The University of Delaware Cooperative Extension will help foster the establishment of biofuel plantations throughout Delaware preparing a feedstock and alternative agricultural crop for future energy needs. Continuance of this effort will extend to generate interests for waste-water treatment facilities to incorporate biofuel plantations on 'treated' land to encourage nutrient uptake and provide an on-site feedstock for future bioenergy technologies.

Through assistance from the NRBP and the Delaware Bioenergy Consortium, the First State Resource Conservation and Development Office (USDA-RC&D) and the USDA-Natural Resources Conservation Service conducted a Carbon Sequestration Conference. Over 40 participants were introduced to carbon sequestration models and future economic benefits of programs being tailored throughout the United States and Canada. The Delaware Bioenergy Consortium is planning to host an Ethanol Briefing Breakfast (workshop) on November 30, in Dover. Invited guests will include the Delaware Legislature, the agricultural community, fleet managers and members of the Petroleum and service station councils. This event will begin around 7:30 a.m. and conclude with a facilitated question and answer session around 11:30 a.m. The NRBP's Program Director will facilitate the last session. The Governor has been invited to open the meeting.

Maine

The State's NRBP host organization the Maine State Planning Office, is providing on-going assistance to the Agricultural Products Utilization Commission (APUC): The APUC, a legislatively-initiated working group that is evaluating ethanol production in the State. A grant from the National Resources Energy Laboratory secured by the NRBP's host organization, has enabled the APUC to hire a consultant to evaluate the feasibility of cellulosic ethanol production in Maine. The Maine State Planning Office is assisting the APUC with project management. The study is scheduled to be complete the year's end. The NRBP's representative has arranged a series of briefings with the Governor, the Commissioners of Conservation, Environmental Protection, and Economic & Community Development, and the Director of the State Planning Office on potential bioenergy opportunities for the State. Ongoing staff-level communications among the State Planning Office and the Maine Departments of Environmental Protection and Transportation are considering the advantages and disadvantages of bio-fuels such as ethanol, biodiesel and oxydiesels. Research and demonstration needs are being assessed. The State Planning Office has stimulated discussion among members of the Governor's Natural Resources Sub-Cabinet on RD&D needs related to biomass and whether there may be opportunities for expansion of biomass-related research at the University of Maine. A formal briefing of the Sub-Cabinet is scheduled for November. Discussions are ongoing with regional air quality regulators on biofuels and the potential for biofuels to provide environmental and energy security benefits. The Chewonki Foundation, an environmental education and research group located in Wiscasset Maine, has been making biodiesel from waste vegetable oil and using it in the Foundation's vehicles and boiler. Chewonki provides tours and information on request, and has provided a valuable opportunity for State policy makers and the public to see production and use of biodiesel first hand.

Maryland

The Maryland Energy Administration, host organization for the NRBP in Maryland is currently funding research on a small scale combustion unit that will burn switchgrass. The combustion system is being developed at the Wye Island Research and Education Center of the University of Maryland. Once the project is completed it will produce heat which will be used to warm a barn which is located at the center. One of the objectives of the research study is to determine the

actual amount of emissions produced by the system and the constituent parts of the emissions. The objective of the project is to identify a small low-cost heating system which could use biomass fuels produced on the farm. MEA together with the Maryland Corn Growers, (among others) has received funding from the U.S. Department of Energy in order to develop an ethanol based fueling system. The first station to go on line will be a facility near Ft. Meade. The station, which is an old BP station, will dispense E85 to approximately 150 automobiles based in the Ft. Meade area. Eventually, a minimum of 5 stations will be developed in the Baltimore - Washington area. This initiative will greatly increase the number of clean fuel vehicles in the State of Maryland. Through links provided by the NRBP the Maryland Energy Administration was advised of a current research effort under way at the U.S. Department of Agriculture Research Station in Beltsville, Maryland. The project is a combined effort of USDA and the U.S. Department of Energy's National Energy Technology Laboratory in Pittsburgh. The thrust of the project is to evaluate the performance of a micro turbine which is fueled by a combination of methane from an anaerobic digester in combination with pipeline quality gas. A second evaluation will assess the performance of the system when using a combination of digester gas and propane. The project will also provide an opportunity to evaluate the economics of micro turbines when they are fueled by different combinations of fuels. MEA plans to transfer the information from the project to Maryland dairy farmers who are currently exploring ways to eliminate a nutrient waste problem from dairy cattle.

Massachusetts

The State's host organization the Division of Energy Resources (DOER) has impaneled a large, nearly 40 members, and highly motivated Biomass Working Group. The Working Group has been the centerpiece of efforts to provide comments on draft regulations to the States Renewable Portfolio Standards (RPS). The draft regulations for the RPS were made available October 3. The working group has issued comments intended to expand the eligible definitions for biomass technology and fuels. Without the forum created by the working Group it is unlikely that a coordinated effort could have been organized to support biomass. In addition to providing comments on the RPS the Working Group has produced white papers on bioenergy technology, biomass feedstocks available in the State, and analysis of demand for renewable energy. The NRBP is preparing a summary of the three white papers. The state's Renewable Energy and Distributed Generation Guidebook can now be downloaded from the website: www.state.ma.us/doer/pub_info/guidebook.pdf. DOER and EOEa were also lead authors in drafting the New England Governors/Eastern Canadian Premiers Climate Change Action Plan, adopted by both groups on August 23rd. Biomass is one of the featured renewables relied upon to reduce CO2 emissions from electricity production. The regional plan may be downloaded at www.cmp.ca/CCAPe.pdf. Discussions continue with the Biomass Energy Resource Center in Vermont to plan for a possible CHP plant to supply electricity from wood chips for an MWRA ozone treatment facility to be located near the Quabbin and Wachusett Reservoirs in central Massachusetts.

New Hampshire

The State's biomass representative has attended several sessions of the New Hampshire House Committee on Science, Technology and Energy. Various bills of interest to the NRBP's and its host organization the Governor's Office of Energy and Community Services (ECS) are being considered here. ECS has collaborated with Department of Environmental Services on the wording of some of these bills. One bill proposes to establish a Renewable Portfolio Standard for New Hampshire; other considerations pertain to Green Power and renewable energy as a possible component of transition service as the New Hampshire electricity market moves toward open competition. ECS has participated in discussion with the Whitefield Planning Group, which hopes to establish an Eco-Industrial Park adjacent to the Whitefield Power and Light Co. wood-fired power plant. The State's biomass rep participated on a tour for the Science, Technology, & Energy Committee of the State Legislature (ST&E) of the Bridgewater wood-fired power plant, and a private wood lot recently logged for low-grade wood as part of the overall forest management plan. The low-grade harvest is a financially vital part of overall forest management, providing fuel for power plants and also making proper forest management practices economically feasible. ECS met periodically with New Hampshire's Industries of the Future (IOF) group because of their Sawmills component, though currently there is not much activity around this issue. Assessment of paper and sawmills in NH is that they are currently striving to survive; new biomass technologies are a distant second interest. ECS is monitoring Dr. Lee Lynd's research and process development work for the enzymatic conversion of paper mill sludge to ethanol; work is going well, but his desire to encourage a company to invest in a conversion plant at Berlin-Gorham will probably be thwarted by the plant's closure. The biomass rep has asked Dr. Lynd to consider other paper mills in NH as a possible site for an ethanol plant, though his research to date shows that the sludge from the Berlin-Gorham plant to be the most amenable to enzymatic processing. The biomass rep attended a presentation at NH DES on biodiesel fuel. ECS is considering providing money from their alternative fuels program to help start a biodiesel pilot demo project in the Concord area. Through assistance from the NRBP ECS is distributing information on anaerobic digestion from the Vermont Methane Demonstration project. The Vermont demo info was sent to a state agriculture official, who passed it onto the farm owners. The biomass rep plans to visit the Vermont demo. ECS is working with the NRBP and the Business and Industry Association of NH to arrange a conference on fuel cells. It is tentatively scheduled for January 2002. The biomass rep hosted a Brown Bag lunch presentation— part of an ongoing series to keep ECS staff informed on developments in the broad field of energy – by John Calhoun, with a long career in forestry and also wood gasification furnaces for industry. He is a strong proponent of maintaining NH forests to provide for a variety of values, including energy from low-grade wood on a sustainable basis. ECS is awaiting the outcome of the wood plant rate order buy down/buyout proposal before PUC before determining a date for the next Biomass Advisory Group meeting.

New Jersey

With the assistance of the State biomass representative Rex Lumber, a wholesale wood supplier and importer, has installed a Chiptec gasifier, to produce process steam for the dryer, and cogenerates electricity for a portion of their load (154 kW). The initial interest by Rex in the project stemmed from the high cost of residue disposal. The company's wood residues total 5600 tons annually. Rex Lumber has invested \$1.3 million for the system and may be eligible for funding from the States renewable energy fund. In order to receive state funds Rex must meet the state's requirement to be considered "renewable" and qualify for a RPS payment. Rex must show that the fuel used is "cultivated and harvested in a sustainable manner." Professional management of the forest is required. The company does not use virgin wood, and some is imported from the tropics, but the firm has been approved for RPS eligibility through assistance from the State's biomass rep. There have been two Biomass Working Group meetings to date, both well attended. A strong mix of public and private sector people comprise the membership. The willow and hybrid poplar demonstration plantation is in its second year and is located at a resource education center in Jackson visited by 8,000 people annually. Its linkage to carbon sequestration is emphasized in the tours. The Biomass rep as well as the NRBP's director have been assisting the New Jersey Farm Bureau in its efforts to establish an ethanol plant. Garden State Ethanol is pursuing sites, with corn the initial feedstock and cellulose as a later addition. A feasibility study has been completed and indicates strong economic potential.

New York

Strong interest in biodiesel has surfaced in the past year. NYSERDA has been meeting with key stakeholders, developing several projects, and planning future efforts. One ongoing project is looking at the viability of biodiesel in home heating applications. Researchers are studying the effects the fuel blend could have on residential-scale furnaces. This year's NRBP grant is being used to conduct a home heating demonstration in 100 houses for the 2001-2002 heating season. A NREL-sponsored informational workshop on biodiesel is planned in Albany for next Spring. The workshop will include information on the potential to use biodiesel as both a transportation fuel and a heating fuel. NYSERDA has made a major effort to integrate energy with agriculture, and place a high priority on rural development based on value added products and energy from farms. NYSERDA has formed an agriculture team that has combined resources from several NYSERDA programs to fund demonstration and outreach. The NRBP has been an active participant in this effort. NYSERDA conducted its first statewide agriculture workshop with NRBP help. NYSERDA is planning its next workshop for Nov 13-14, at the state fairgrounds in Syracuse. Numerous projects from previous agriculture solicitations are underway, including projects to produce biodiesel on-farm, willow marketing, willow gasification, production of animal feed from apple pomace, etc. One feasibility study on ethanol/power co-location involves Easterly Consulting and the AES staff at the Greenidge Station power plant in Dresden, NY. Co-location of an ethanol facility could supply renewable lignin feedstock to the plant, which already co-fires wood with coal.

Pennsylvania

The state's NRBP representative has drafted a white paper for the state senate on biomass. The proposal was requested by the Senate's Agriculture Committee. The state rep has also provided input into the Governor's draft comprehensive energy plan. Several ethanol production efforts have surfaced in the state in the past year. The two recent ethanol workshops hosted by the NRBP and the Pennsylvania Department of Agriculture, the NRBP host organization, have stimulated considerable interest among farmers enduring a depressed economy. There are active plans by the Jones Brewing Company to build an ethanol plant near Pittsburgh. The York County Economic Development Agency has held meetings with farmers/producers in the York and Lancaster areas. Early efforts are underway in Mercer and Butter counties. In each case the plan would use Midwestern and local grains as feedstocks. Pennsylvania has been selected as one of five USDA demonstration states to demonstrate energy crops on CRP lands. Enrolled acres would be eligible for full CRP payments, except in harvest years when partial payments would be made—payments for the switchgrass in harvest years would be supplemented by a local electric plant co-firing the switchgrass with coal. The NRBP's state rep played a critical role in helping to bring the applicants for the demonstration together. The state NRBP rep has helped two bioenergy projects with funding through The West Penn Sustainable Energy Fund. The fund is providing technical assistance on a soy diesel project and a corn stove manufacturing plant (which can also utilize wood pellets). The state's biomass representative and the NRBP director are also working with the West Penn Sustainable Energy Fund to plan and host an Agri-Energy Conference November 12-13, in State College. The green energy potential on farms, forests, and in industry will receive attention. The hybrid willow project has won continuing funding from the state Department of Agriculture; to establish new site trials. Hybrid poplar will also be evaluated. The Friends of Agriculture will be co-hosting with the NRBP a series of "field days" at the various site trials. Plans to establish a statewide Working Group are still under development.

Rhode Island

The NRBP's host organization the Rhode Island State Energy Office (RISEO) is working with the Warwick School District on a demonstration of biodiesel in the school's boilers. NRBP funding for the project has been leveraged with funds from NREL. Early results for the project show reduced air emissions including NOX and little or no technical problems using 5, 10, or 20 % blends of biodiesel with heating oil. Following a very successful energy rebate program in the State RISEO is considering a clean wood burning appliance initiative to promote pellet stoves and clean stoves, especially to displace electric and oil-heat. RISEO is considering a rebate to consumers who trade-in older non EPA approved wood stoves for newer cleaner more efficient models. RISEO continues to work on establishing a Biomass Working Group in the state.

Vermont

The host organization for the NRBP are the Vermont Departments of Forest Parks and &

Recreation and Public Service. Vermont has a long standing working group call the Biomass Partners. The Partners meet about three times per year and last met in Burlington on June 8th, 2001. The state's biomass team continues to provide information on all types of wood energy applications as requested. Staff distributed a total of 79 wood energy publications to individuals and companies during the last quarter. In addition, several hundred publications related to residential wood heating were distributed at the VT State Fair at Rutland. The Wood Chip Heating Systems Guide continues to be one of the most popular items distributed. Information on residential heating has also been very popular. Staff prepared a residential wood heating display for the VT State Fair in Rutland. The display focused on a comparison of the heating values of various types of wood and alternate fuels. The comparison charts were well received and generated a number of requests for handouts. In addition, a portion of the display discussed how to burn wood properly and featured information based on the NRBP brochure by the same name.

Program staff partnered with the Biomass Energy Resource Center (BERC) to provide a VT Biomass Energy Workshop for a number of US Forest Service employees and community leaders from the western US. The tour was supported by a grant from the USDA Forest Products Lab. Participants found the field trip format and ability to speak directly to facility managers and business owners to be very effective and informative. The tour could become an annual event if there is sufficient interest and continued funding. A member of the team traveled to a USFS Biomass Conference in Yreka, California and presented on developing a biomass fuel supply infrastructure based on Vermont's experience. That presentation alone led to 26 additional requests for information. Staff are currently working with Renewable Energy VT (REV) (an industry association of renewable energy companies) to provide them with a small grant of \$5000 to develop information products regarding wood pellet fuel. REV plans to work with the Pellet Fuels Institute and its own members on the project. The grant money is being provided as part of a special Forest Service grant which FP&R received. Staff provided the USDA Northeast Area Economic Action Program with detailed information on biomass energy accomplishments and state policy. The information was in preparation for a mid-October Energy Summit which is to include the Secretaries of Energy, Interior, and Agriculture to discuss how each Department will support the renewable energy component of the National Energy Policy. The Forest Service is developing a paper for Ann Veneman, the Secretary of Agriculture, to use to discuss the opportunities related to forest-based biomass energy. The National Fire Plan provides new opportunities for the Forest Service to become involved with biomass energy using resources from western National Forests. However, in the East and South, forest-based biomass, in the form of wood processing residues, land clearing residues, and clean urban wood waste, has been used for some time with good success. The Forest Service briefing paper for Secretary Veneman will illustrate the East's overall positive experience with wood for energy. The USDA's hope is to discuss wood's widespread use, and opportunities to expand this use within the framework of today's forest management options on state and private lands in the East. With the assistance of DOE Boston, program staff cooperated with DOE's Office of Building Technology, State and Community Programs on a calendar project which they are developing. Each year, the U.S. Department of Energy, Office of Building Technology, State and Community Programs (BTS) produces a calendar focusing on energy excellence in the built environment. This year, the BTS 2002 calendar will have a special focus on schools. The calendar will feature EnergySmart schools and school districts from around the country. Two of Vermont's wood-heated schools

have apparently been chosen to be featured on the calendar, Hazen Union School and Barre Town Elementary & Middle School. Staff provided photos of the schools, equipment and staff, and collected the requested information on each of the conversion projects. At the request of FPR staff, the VT Air Quality Division prepared a document comparing air emissions from wood burning with those of several other fuels on a per btu basis. The document is intended to be an unbiased resource for those considering wood conversions. Emissions information was pulled from several sources, the primary one being the Air Quality Division's EPA guidance manual which lists average contaminant levels, and is used primarily for assessing "pollution fees." The Massachusetts Division of Environmental Management (DEM) and VT FPR partnered with the Biomass Energy Resource Center (BERC) to obtain funding from the US Forest Service, through the NE Area Fire Plan, in support of efforts in biomass district energy and/or combined heat and power. The grant of \$50,000 will specifically fund the following projects: *1) Develop model community energy projects using chipped fuel wood from state or private lands; 2) Develop a model system for extracting, transporting, and processing small diameter roundwood and delivering it to community users; and 3) Produce dissemination materials to make project findings available to impacted communities nationwide.* BERC has also partnered with VT FPR and Mass DEM to apply for funding for three additional projects (two state projects and one multi-state project) through the NE Area Rural Development Through Forestry Program. The proposed projects include: *1) The Lamoille County Biomass Energy Initiative; 2) Business Development for a Wood to Energy Project; and 3) Economic Development Benefit of Biomass Energy Projects.* Staff continue to work with a hospital in Northern Vermont to install a biomass-fired, combined heat and power system during their upcoming expansion. There has also been continued assistance to the Lamoille County Development Council in its energy project analysis. The group is investigating the idea of developing a biomass power plant as an economic development strategy. They continue to work with staff from DPS and FPR to determine the most efficient size, most likely site and most efficient scenario possible for such a plant.

The end of the legislative session brought good news for schools considering conversions to wood energy systems. Senator Vincent Illuzi, a strong proponent of wood energy, was able to amend the State Construction Aid to Schools statute to give preferential treatment to wood fired heating. Most State construction aid to school districts is limited to 30% of the total project cost, however the new legislation raises that limit to 50% for wood heat conversions. Of special interest to those schools who converted a number of years ago, and may have built "undersized" storage bins, is the fact that the language of the bill allows for the same aid rate for modifications and replacement of wood chip storage facilities. There has also been an increased interest shown by some municipal utilities in the concept of building and operating small biomass power plants in areas where a thermal load also exists. One utility in southern Vermont is seriously considering such a project which would be located at an industrial site and operated by the utility, with the industry being a customer for the thermal energy. The Montpelier district energy project continues to move slowly forward with the help of the previously mentioned FS grants.