

GREAT LAKES REGIONAL
BIOMASS ENERGY PROGRAM

Quarterly Report

September 1, 1989 - November 30, 1989

F. Kuzel

Council of Great Lakes Governors
Chicago, Illinois 60604

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EXECUTIVE SUMMARY

This is the first quarterly report of the seventh year of operation of the Great Lakes Regional Biomass Energy Program. The program was initiated in 1983 with a grant to the Council of Great Lakes Governors from the Biofuels and Municipal Waste Technology Division of the U.S. Department of Energy. Stressing near-term biomass feedstock production techniques and conversion processes, the objective of the program is to increase the use of biomass energy by the public and private sectors in the seven state Great Lakes region. States that are in the Great Lakes region include: Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio and Wisconsin.

The Great Lakes Regional Biomass Energy Program is divided into three separate operational programs. The first is the State Grant Program, which provides resources to the seven state energy offices in the region to increase their capabilities in biomass energy. State-specific activities and interagency programs are emphasized in the State Grant Program. The second, the Subcontractor Program, involves the letting of subcontracts to private organizations to address regional biomass issues and needs. The third is the In-House Technology Transfer Program in which Council staff develop biomass energy publications and reports. Due to reduced funding levels, this year's program contains no new subcontractor projects. Several projects initiated with prior year's funding will be completed this year.

This year, many of the states funded through the state grants component have revised the major emphases of their programs or intend to initiate a planning and evaluative process to establish future program goals. Illinois has changed its focus from a primarily wood oriented program to one stressing the use of waste for energy, including anaerobic digestion, forestry and yard waste, and manufacturing wood waste. Iowa will concentrate on marketing biomass conversion processes, including combustion, gasification, anaerobic digestion, and fermentation which builds on past efforts to increase the availability of biomass resources. Michigan will develop a two-year plan for its biomass program in cooperation with other state departments and public/private stakeholders.

There will be a greater emphasis on providing technical assistance to potential biomass energy users through the region. Iowa will establish a "circuit rider" program to market biomass conversion processes to public officials across the state. Minnesota will institute an on-site technical assistance program aimed at correcting operational problems in existing wood-fired boilers. Ohio will produce computer software programs to assist potential users of biomass combustion systems and producers of alcohol fuels get started with such operations. These join existing economic analysis services in Wisconsin, Michigan, and Illinois.

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GREAT LAKES REGIONAL BIOMASS ENERGY PROGRAM

QUARTERLY REPORT

September 1, 1989 - November 30, 1989

1. INTRODUCTION

The Great Lakes Regional Biomass Energy Program was initiated in September of 1983 with a grant from the Biofuels and Municipal Waste Technology Division of the U.S. Department of Energy. The program is intended to provide resources to public and private organizations in the Great Lakes region (Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio and Wisconsin) to increase the utilization and production of biomass fuels. Overall, the goals of the program include:

1. improving the capabilities and effectiveness of biomass energy programs in the state energy offices;
2. assessing the availability of biomass resources of energy in light of other competing needs and uses;
3. encouraging private sector investments in biomass energy technologies;
4. transferring to the private sector the results of biomass research and development;
5. eliminating or reducing barriers to private sector use of biomass fuels and technologies; and,
6. preventing or substantially mitigating adverse environmental impacts of biomass energy use.

As the grantee, the Council of Great Lakes Governors is responsible for designing and implementing the program structure to meet the above-stated objectives. Maximizing broad-based regional initiatives was also an important element in the development of the Great Lakes Regional Biomass Energy Program. To fulfill these goals, the Council recruited a 40-member Technical Advisory Committee to prioritize the biomass needs of the region and to recommend programs to address those needs. The members of the Technical Advisory Committee are biomass professionals from federal agencies, state agencies, universities, private industry, not-for-profit organizations and trade organizations located throughout the seven-state region. Through this diverse advisory committee, it is anticipated that the most important biomass issues for the Great Lakes region will be identified.

A seven-member Steering Council is appointed by the governors of the Great Lakes states. The role of this body is to act on recommendations of the Technical Advisory Committee, provide advisement on specific program activities and set basic program guidelines.

A Project Director, hired by the Council of Great Lakes Governors, coordinates the activities of the Technical Advisory Committee and the Steering Council. Additionally, the Project Director is responsible for the day-to-day activities of the regional program, as well as implementing program mandates.

The Great Lakes Regional Biomass Energy Program is divided into three separate operational programs. The first is the State Grant Program, which provides resources to the seven state energy offices in the region to increase their capabilities in biomass energy. State-specific activities and interagency programs are emphasized in the State Grant Program. The second, the Subcontractor Program, involves the letting of subcontracts to private organizations to address regional biomass needs as identified by the Technical Advisory Committee. The third is the In-House Technology Transfer Program in which Council staff develop biomass energy publications and reports. Reduced funding levels preclude the initiation of any new projects under the Subcontractor or In-House Technology Transfer Programs during the 1989-90 program year.

2. RESEARCH HIGHLIGHTS

The Iowa Department of Natural Resources conducted biomass energy presentations and workshops at the Iowa Science Teachers Fall Conference and at the Environmental Educators fall program.

The Minnesota Department of Public Service contracted with Northwest Iron Fireman and Future Fuels to provide on-site technical assistance to existing wood-fired boiler operators who are experiencing operating problems.

The Public Utilities Commission of Ohio hosted a booth at Paul Bunyan Days at which biomass energy publications, photographs, and a slide/tape show were displayed.

The Wisconsin Division of Energy awarded 11 grants under the second cycle of the Wood Waste Energy Incentive Program.

Pacific Environmental Services (PES) completed a draft final report which documented the results of d-RDF emissions tests conducted at Dordt College in Sioux Center, Iowa.

3. MANAGEMENT HIGHLIGHTS

The Steering Council met on November 21, 1989, to initiate discussion on future activities and directions of the Great Lakes Program.

The Michigan state grant application was approved for the 1989-90 program year.

4. TECHNICAL PROGRESS

4.1 STATE GRANT PROGRAM SUMMARIES

4.1.1 Illinois State Grant Program

Agency: Illinois Department of Energy and Natural Resources

Project Manager: Mr. Terry Miller

Objective: To provide technical assistance, public outreach, and original research to expand the use of biologically-derived waste products for the generation of energy.

Approach: The program will concentrating on converting wood waste from both primary and secondary manufacturers to energy, anaerobic digestion of domestic wastewater and other organic waste stream sludges, conversion of yard waste to energy, and the use of forestry harvesting waste for energy production.

The progress of two waste-to-energy projects funded through the Illinois Alternative Energy Bond Fund will be monitored and documented. Huey Forest Products, Inc., will convert wood waste to process steam and electricity, and the Woodridge-Green Valley wastewater treatment facility will expand its pilot-scale, two-phase anaerobic digestion project to full-scale operation. A workshop and tour of this facility are planned.

Two additional demonstration projects will be sought out. One will demonstrate the use of pellets and other industrial wood wastes for energy recovery, and the other will utilize yard waste and, perhaps, MSW in a two-phase anaerobic digester for energy recovery in the form of biogas.

A directory of secondary wood industries in Illinois, correlated with solid fuel boiler operators, will be compiled and distributed to both parties in an effort to evoke a dialogue between the two entities. The project manager will continue to provide technical assistance services to initiate these and other projects.

Status: These activities were completed this quarter:

- assisted Huey Forest Products to apply for an Illinois Technologies and Practices Demonstration Program grant to install monitoring equipment at its wood waste-to-energy plant;
- wrote one article which was published in "Illinois Resources".

Future

Efforts: These activities will be completed in the near future:

- hosting a workshop/tour of the DuPage County anaerobic digester project.

4.1.2 Iowa State Grant Program

Agency: Iowa Department of Natural Resources

Project Manager: Ms. Katherine Sibold

Objective: To increase the use of Iowa's biomass energy sources, including wood, agricultural products, and municipal solid waste (MSW), by both the private and public sectors.

Approach: Past biomass efforts by the Iowa DNR have focused on the availability of resources for biomass conversions. Now that many of these resources have been identified, the state will concentrate greater attention on marketing the conversion technologies, i.e., combustion, gasification, anaerobic digestion and fermentation.

Two new programs will be initiated to encourage conversion to biomass energy. A biomass conversion pre-feasibility analysis computer program will be developed, and assistance will be provided to at least 10 potential users. A "circuit rider" will market biomass conversion processes to public officials across the state in order to increase the use of biomass at state facilities, public schools, and local government buildings.

In order to affect the transfer of biomass energy technology to the general public, the program will conduct a workshop for teachers, publish eight articles in the Iowa Energy Bulletin and/or the Iowa Conservationist, update the biomass directory, and circulate a list of available biomass publications and distribute the publications in response to requests.

In cooperation with the Waste Management Authority and the Environmental Protection Division, the Biomass Program will publish a report on the results of d-RDF emissions tests that are being performed at Dordt College and Ag Processing of Eagle Grove. The object of the publication will be to inform policy-makers and potential users about emissions associated with d-RDF use. Staff will continue working on the Iowa Comprehensive Energy Plan to assure that biomass plays a major role in the formulation and implementation of the plan.

Status: These activities were completed this quarter:

- published two articles in the October issue of the Energy Bulletin;
- published a wood energy brochure which will be used by the "circuit rider" to promote biomass conversion;
- conducted presentations/workshops at the Iowa Science Teachers Fall Conference in Des Moines and at the Environmental Educators fall program at Springbrook State Park;
- issued a Request for Proposals for the "circuit rider" program.

Future

Efforts: These activities will be completed in the near future:

- finalizing the Comprehensive Energy Plan and submitting it to the state legislature;
- selecting a software package for the pre-feasibility analysis program and making initial contact with potential clients;
- hiring a "circuit rider" and initiating that program.

4.1.3 Michigan State Grant Program

Agency: Michigan Public Service Commission

Project Manager: Mr. Tom Stanton

Objective: To identify and reduce barriers to using wood, waste, and other biomass for energy in Michigan's commercial, industrial, and institutional facilities in order to achieve the state's biomass energy potential.

Approach: The Michigan program will provide technical assistance to 12 industrial, commercial, and/or institutional facilities interested in converting to wood fuel. In addition, the Michigan program will provide assistance to state facility decision makers regarding biomass energy conversions. As a pilot project, staff will offer direct outreach assistance to four commercial or industrial clients concerning waste minimization and waste product utilization.

Program staff will continue to manage 15 projects being conducted under the Resource Recovery Development Program. A special technology transfer grant will be awarded to develop informational materials regarding this Program and to share lessons learned from installations and operations funded thereunder.

The biomass energy program's proven technology transfer and technical assistance instruments will be evaluated, updated, and expanded. These include the Wood Energy Financial Analysis Model microcomputer program, Michigan Wood Fuel Users' Manual, WastePlan community solid waste systems analysis computer program, and BIONET nationwide electronic mail and bulletin board service. A two-year Biomass Energy Program Plan will be developed in cooperation with the Department of Natural Resources, Department of Agriculture, Michigan Forest Products Development Council, Soil Conservation Districts, and Cooperative Extension Service.

Status: These activities were completed this quarter:

- reviewed and awarded five grants through the Michigan Wood Energy Demonstration Program: Harbor Industries, Charlevoix; Houghton County Medical Care Facility, Hancock; MET, Inc., Ludington; Millcraft Products, Inc., Allegan; Northern Land and Lumber Co., Escanaba;
- provided training for 12 employees of the Waste Management Division on how to utilize WastePlan as a technical assistance tool.

Future

Efforts: These activities will be completed in the near future:

- adding users to the BIONET system, with a goal of reaching biomass energy coordinators in all 50 states;
- completing a two-year Biomass Energy Program plan of action.

4.1.4 Minnesota State Grant Program

Agency: Minnesota Department of Public Service

Project Manager: Mr. Narvel Søndahl

Objective: To promote the use of Minnesota energy crops by addressing existing problems and presenting new information to the public.

Approach: Three projects will be undertaken:

The first project will encompass correcting operational problems in existing wood-fired boiler plants. Some existing systems are not being operated, while others are operating using the secondary fuel. A technical assistance team will make on-site visits to installations requesting assistance in response to a questionnaire mailed to all known biomass fueled facilities in the state. This project will be a cooperative effort with the Energy Division and the Departments of Natural Resources, Administration, and the Pollution Control Agency.

A second project will involve researching the existing codes or standards that relate to the installation and operation of wood-fired residential heating equipment. The study will address state and national standards on emissions, in addition to the fire and safety codes, and the accepted appliance rating agencies. The end product will be a consumer oriented brochure that will be distributed to anyone interested in purchasing wood energy equipment.

The third project will generate a brochure explaining the advantages of planting short rotation biomass energy crops. It will be primarily directed toward the agricultural community. A great amount of interest has been shown in whole tree burning power plans, and this publication will help develop the fuel supply needed to sustain such an operation.

Status: These activities were completed this quarter:

- mailed a questionnaire to all biomass energy facilities in the state as the first step of the Technology Assistance project. Twenty-six requests for assistance were received;
- published a request for proposals for contractors to undertake on-site technical assistance. Entered into contracts with Northwest Iron Fireman and Future Fuels to perform this service;
- obtained and received copies of existing codes from Minnesota and other states, as well as other literature related to residential wood-burning stove emissions and safety;
- researched work done previously on short rotation (SR) energy crops, conducted interviews with experts to obtain updates of current SR projects, and spoke with attendees of the Petroleum Substitute Project Group from universities, governmental agencies, and the private sector involved in ongoing SR research;

- completed the first draft for an eight-page brochure on Short Rotation Biomass Energy Crops.

Future

Efforts: These activities will be completed in the near future:

- beginning the on-site technology assistance visits;
- writing the Residential Wood Heating Equipment Emission and Safety Review publication;
- obtaining photographs and illustrations for the Short Rotation Energy Crops brochure.

4.1.5 Ohio State Grant Program

Agency: Public Utilities Commission of Ohio

Project Manager: Mr. Claude Eggleton

Objective: To educate the people of Ohio on the uses of wood and agricultural residues as a source of usable fuel, thereby integrating the renewable resources of Ohio with the furthered growth of the state's economy, along with the protection of the environment.

Approach: The PUCO will conduct a wood combustion conversion seminar focusing on the equipment, financing, and tax abatement opportunities for secondary wood users interested in converting conventionally fueled energy systems into wood or agricultural residue combustion systems. Pertinent information sheets will be prepared and distributed to support the seminar. Other publications will include informational pamphlets about alcohol fuels production, alcohol fueled vehicles, waste-to-energy, and possibly pollution control regulations and gas production from waste.

Computer programs will be written to guide the potential user of a biomass combustion system on how to size and purchase a system, and to guide the potential producer of alcohol fuels on how to get started in such an operation.

Work on the boiler survey will continue, as will work on the biomass energy resource maps. Together, these completed projects will serve as the basis for identifying candidate biomass conversion sites.

The biomass information resource centers in state depository libraries will continue and be expanded. The Biomass Energy Program will participate in Paul Bunyan Days, a wood user's information fair sponsored by the Ohio Forestry Association.

Status: These activities were completed this quarter:

- distributed 250 books and 500 fact sheets at the Paul Bunyan Show. In addition to displaying 26 different publications, a slide/tape presentation of a wood burner and photographs depicting several biomass energy production processes were shown at the booth;
- mailed survey forms to 51,000 boiler operators across the state. Approximately twelve percent of the forms have been returned to date;
- sent an information packet containing a wood energy conversion book and fact sheets to over 50 respondents to last year's secondary wood user's survey.

Future

Efforts: These activities will be completed in the near future:

- remailing 800 boiler survey forms with corrected addresses;
- entering data from the boiler survey on computer;
- interfacing Landsat computer generated imagery with the Biomass Energy Resource maps.

4.1.6 Wisconsin State Grant Program

Agency: Wisconsin Division of State Energy and Intergovernmental Relations

Project Manager: Mr. Dan Moran

Objective: To encourage public and private sector investment in biomass energy technology, especially wood-fueled energy systems.

Approach: The Division will continue to offer free preliminary economic analyses to parties interested in utilizing wood for energy, and has expanded the service to include analyses of cogeneration.

A portion of the wood energy assistance effort will consist of updating and disseminating current market information on wood fuel suppliers, wood fuel users, and wood energy system vendors and engineers. Specifically, the information collected during last year's surveys of wood facilities and waste wood generators will be used as a basis for continued data gathering efforts including an update of the directories of waste wood generators and users, and an inventory of equipment vendors, contractors, and consultants who are active in the wood energy field.

The Biomass Program Manager will continue to manage six feasibility studies funded through the Waste-to-Energy component of the Oil Overcharge Program. An additional three to six contracts will be added during grant Cycles 4 and 5.

A significant amount of time will be spent publicizing, managing, and evaluating the Wood Waste Energy Incentive Program. The second grant cycle is scheduled for late 1989. A report and fact sheet will be prepared detailing the Department of Natural Resources air emission control requirements, and their impact on these grant programs. A project report of the wood waste program development, operation, and effectiveness will also be prepared. It will detail the process of developing the program, the rationale behind the program rules, and the effectiveness of the program in stimulating cost-effective investments and fossil fuel savings.

The program also intends to provide information dissemination regarding biomass fuels other than wood. Those biomass technologies will be investigated and analyzed to determine their potential for application in Wisconsin. Data and information gathered will be synthesized for technical and nontechnical audiences and presented in fact sheets and Wisconsin Energy News articles.

Status: These activities were completed this quarter:

- awarded 11 grants, totalling \$100,000, under Cycle 2 of the Wood Waste Energy Incentive Program;
- made site visits to five Cycle 1 and Cycle 2 grant recipients where projects have been completed (Silver Creek Lumber, Highbridge; Birchwood Lumber and Veneer, Birchwood; JMB Pallet, Plover; Christiansen Building Components, Mapleton; Glacier Transit and Storage, Plymouth);
- participated on a wood and wood waste utilization task force for the Wisconsin Utilities Advance Planning process, and on a wood heat study group which is drafting a plan to include wood stove replacements in Wisconsin's low-income housing assistance program.

Future Efforts: These activities will be completed in the near future:

- publishing a Biomass Special insert for the Wisconsin Energy News;
- updating the Directory of Wood Waste Producers and the Directory of Wisconsin Wood Burning Facilities.

4.2 SUBCONTRACTOR PROGRAM SUMMARIES

4.2.1 d-RDF Emissions

Contractor: Pacific Environmental Services, Inc.

Project Manager: Mr. John Chehaske

Objective: To assist regional air quality regulatory agencies determine the permitting processes required for densified waste fuels. To accomplish that end, this project will develop an accurate and complete emissions profile for pelletized waste fuels produced in the Great Lakes region and burned in small commercial/ industrial burners and utility boilers.

Approach: This project will be performed in four phases. Phase I will include background work to document prior research, locate densified waste fuel producers and identify state regulations pertaining to small scale combustion of waste fuels. During Phase II, emissions and ash tests will be conducted on a small add-on furnace rated between 5,000 and 7,000 lbs. of steam/hour. Phase III will involve emissions and ash testing of a 15 to 25 MW power generating boiler rated at approximately 150,000 lbs. of steam/hour. In the final phase, Phase IV, the test results will be analyzed, and the information gathered will be transferred to the air quality officials in the region.

The contractor will test three types of densified waste fuel produced in the Great Lakes region, including two different d-RDF pellets and a wastepaper pellet. The two d-RDF fuels will represent the two different processes currently being utilized in the region: (1) a "Lundell" type; and (2) a "Buhler-Miag" type. One of the two d-RDF fuels will include plastics, while the other will not. The pelletized wastepaper will be from a source separation and pelletizing facility. Emission tests to be conducted will include: (1) particulates; (2) PM10 particulates; (3) CO; (4) CO₂; (5) NO_x; (6) SO₂; (7) HCl; (8) total hydrocarbons; (9) dioxins; (10) dibenzofurans; (11) heavy metals; and (12) PCBs. Ash will be tested for total hydrocarbons, dioxins, dibenzofurans, heavy metals, and PCBs.

Status: These activities were completed this quarter:

- completed the draft final report and appendices, which documented all test results;
- presented the test results to the Steering Council.

Future

Efforts: These activities will be completed in the near future:

- producing a technical article for publication which analyzes the test results.

4.3 IN-HOUSE TECHNOLOGY TRANSFER PROGRAM SUMMARIES

4.3.1 MSW Incineration with Energy Recovery Case Studies

Project Manager: Ms. Kathryn Lyster

Objective: To assist municipal officials in making decision regarding MSW incineration by providing them with detailed information on the issues and problems that have been encountered by cities that have already invested in incinerators with energy recovery systems.

Approach: A list will be developed of all MSW incinerators with energy recovery in the Great Lakes region. From that list, 14 sites will be selected for in-depth case studies. The case studies will be based on site visits to the plants which will consist of interviewing the plant personnel, touring the facility and taking photographs. Information to be collected will include: (1) size of the system; (2) amount of waste burned; (3) type of system; (4) political process which resulted in decision to invest in system; (5) financing arrangements; (6) MSW tipping fees; (7) emissions; and, (8) ash disposal. The MSW incineration case studies will be published in a booklet. The first part of the booklet will provide an overview of generic MSW incineration technology and issues, while the second part will include the actual case studies complete with quotes from municipal officials, plant schematics and photographs.

Status: These activities were completed this quarter:

- completed revisions to individual case studies.

Future

Efforts: These activities will be completed in the near future:

- writing introductory material and appendices;
- printing and distributing the completed case studies booklet.

4.3.2 Commercial-Scale Anaerobic Digester Case Studies

Project Manager: Ms. Kathryn Lyster

Objective: To inform industries with wastewater disposal problems of the possibilities of solving their problems by investing in energy generating anaerobic digestion systems.

Approach: All commercial-scale (non-farm and non-sewage treatment) anaerobic digesters operating in the Great Lakes region will be identified. A limited number of those facilities will be selected to be featured in a case study publication. Visits to each location will be the basis for the write-ups. These site visits will consist of interviewing plant personnel, touring the facility and taking photographs. Information to be collected will include: (1) size of the system; (2) amount of wastewater treated; (3) type of digester; (4) amount of gas produced; (5) manner in which gas is utilized; (6) cost and economics of system; and, (7) state and local permits. The anaerobic digester case studies will be published in a booklet. The first part of the booklet will provide an overview of generic digester technology and issues, while the second part will include the case study write-ups.

Status: Work on this program has been temporarily suspended.

5. TECHNOLOGY TRANSFER

5.1 PUBLICATIONS

Three articles were written and published in the September/October edition of *Biologue*. The articles are listed below and attached as Appendix A:

- Activities Across the Region
- Illinois Researching Ethanol Expansion
- Wisconsin Publishes Wood Energy Directories

During this quarter, the Council distributed 29 copies of the Biomass Energy Facilities: 1988 Directory of the Great Lakes Region and 101 copies of other publications that were produced by the GLRBEP.

5.2 MEETINGS AND PRESENTATIONS

No regional technology transfer meetings or presentations were sponsored this quarter.

6. MANAGEMENT PROGRESS

6.1 PROJECT PROCUREMENT

6.1.1 State Grant Program

An application to participate in the 1989-90 state grant program was received from the Michigan Public Service Commission. The Steering Council approved this request via mailed ballot (see Appendix B), bringing to six the number of states which are active in this program.

6.1.2 Subcontractor Program

During an October 25, 1989, conference call meeting, the Steering Council reviewed an unsolicited proposal from the Illinois Department of Energy and Natural Resources to fund a monitoring program at a newly installed wood waste-to-energy project (see Appendix C). The Council agreed not to act on this proposal until general program priorities and direction were established at a future meeting (see Appendix D for meeting summary). At its November 21, 1989, meeting at the O'Hare Hilton, Chicago, the Steering Council decided not to fund this proposal, and not to consider any unsolicited proposals unless this is determined to be a viable strategy at a later date (see Appendix E for meeting summary).

6.1.3 In-House Technology Transfer Program

No new in-house projects were started this quarter.

6.2 FUTURE PLANNING

The Steering Council met on November 21, 1989, at the O'Hare Hilton, Chicago, to discuss future directions and activities of the GLRBEP. The Council reviewed the most recent recommendations from the Technical Advisory Committee (TAC), but concluded that they were outdated, being two years old. The Council determined that the best approach to future planning is to evaluate and update the TAC membership, host a TAC meeting, and act upon the new TAC proposals. The Council will meet again in January to draft guidelines for a TAC meeting, set overall program priorities, and establish a regular meeting schedule for the Council and the TAC.

6.3 SITE VISITS

The Project Director made two site visits to meetings and events sponsored by the industry and the U.S. Department of Energy, and to program planning, grantee, and subcontractor meetings:

Southern Biomass Conference and National Meeting of State Biomass Energy Coordinators, Blacksburg, Virginia, September 12-14, 1989;

GLRBEP Steering Council meeting, Chicago, Illinois, November 21, 1989.

6.4 STAFFING

There were no staffing changes during this quarter.

*reprint, Appendix A,
removed.
ds*

APPENDIX B



COUNCIL OF GREAT LAKES GOVERNORS

EVAN BAYH
Governor of Indiana
JAMES J. BLANCHARD
Governor of Michigan
ROBERT P. CASEY
Governor of Pennsylvania
RICHARD F. CELESTE
Governor of Ohio
MARIO M. CUOMO
Governor of New York
RUDOLPH G. PERPICH
Governor of Minnesota
JAMES R. THOMPSON
Governor of Illinois
TOMMY G. THOMPSON
Governor of Wisconsin

BONNIE L. KOENIG
Executive Director

TO: Steering Council
FROM: Fred Kuzel
RE: Regional Biomass Energy Program

Attached please find a copy of the 1989-90 grant proposal for the state of Michigan for your review.

Please use the lower portion of this memo for you recommendations and return it to me in the envelope provided at your earliest convenience.

Thanks for your cooperation.

Name _____

Michigan Application: Approve _____ Disapprove _____

Comments:

APPENDIX C

PROPOSAL TO THE
GREAT LAKES REGIONAL BIOMASS ENERGY PROGRAM
310 South Michigan Avenue, Tenth Floor
Chicago, Illinois 60604

SUBMITTED BY
ILLINOIS DEPARTMENT OF ENERGY AND NATURAL RESOURCES
OFFICE OF SOLID WASTE AND RENEWABLE RESOURCES
BIOMASS ENERGY PROGRAM
325 West Adams Street, Room 300
Springfield, Illinois 62704

June, 1989

INTRODUCTION:

The Illinois Department of Energy and Natural Resources has provided partial funding for the Huey Forest Products (HFP) wood waste to energy project through the Illinois Alternative Energy Bond Fund. The HFP operation is the largest hardwood sawmill in the state, and was experiencing severe disposal problems for their sawdust, bark and wood chips. The decision was subsequently made to construct a demonstration project that would illustrate a method of converting this solid waste stream into useable, productive energy to be used to generate electricity and steam for kiln drying high quality hardwood lumber. The system will use a GE steam turbine, and will produce a peak of 3.75 megawatts of electrical power. A detailed project description may be found in Exhibit B (attached).

PROJECT NEEDS:

The Illinois Department of Energy and Natural Resources is requesting \$45,000.00 to purchase monitoring equipment for this project. This equipment expense will include flow and temperature meters to monitor boiler feed water, boiler output/turbine input, turbine output/kiln input and boiler makeup water. Also included will be monitoring devices for measuring the flow, weight and type of wood waste entering the burner, and a device for monitoring the combustion chamber temperatures. An integrating recording device will render the collected data into useable form.

Thorough monitoring of this project is important for at least two reasons:

- a) The monitoring will provide the necessary data to ensure optimization of the system design, allowing standardization for future installations of this type.
- b) Installation of the instrumentation will greatly enhance the demonstration value of the system by better visualization of the entire operation during tours and workshops by allowing instant access to actual operational data.

MONITORING PLAN:

The goal in monitoring the Huey Forest Products project is to provide total energy data on an integrated powerplant using hardwood waste. Use of the proportional screw feed augers on the storage silos will allow the collection of data on specific tree species as the owner/operator intends to fill each of the three silos with a different wood type; therefore, any combination of species can be used and the subsequent energy output recorded. Standard thermocouple probes will be used to monitor combustion chamber temperatures, and standard insertion turbine flow meters will be used to monitor steam and condensate flows and temperatures. An automatic weighing conveyer will be used to provide total feedstock weight, and will be placed just prior to the burner. All data will be collected on an integrating data logger/strip chart recorder.

REPORTING:

The project's duration will be two years; collected data will be summarized and analyzed on a monthly basis, and quarterly reports will be submitted to the Great Lakes Regional Biomass Energy Program. An annual and a final report will also be provided.

*budget
removed*

APPENDIX D

GREAT LAKES REGIONAL BIOMASS ENERGY PROGRAM

Steering Council Conference Call
October 25, 1989

Chris Burger	Illinois Dept. of Energy and Natural Resources
Dave Loos	Illinois Dept. of Energy and Natural Resources
Terry Miller	Illinois Dept. of Energy and Natural Resources
Bob Berlin	Indiana Dept. of Commerce
Kitty Sibold	Iowa Dept. of Natural Resources
Bob Forsythe	Michigan Public Service Commission
Narv Somdahl	Minnesota Dept. of Public Service
Carol Cutshall	Wisconsin Dept. of Administration
Fred Kuzel	Council of Great Lakes Governors

Fred Kuzel began by stating that the purpose of this meeting was to discuss the general policy toward unsolicited proposals, and the specific proposal received from the Illinois Department of Energy and Natural Resources to fund monitoring equipment for a newly installed wood waste-to-energy plant at Huey Forest Products. He also noted that Claude Eggleton was on reserve military duty, and there would be no representation from Ohio on this conference call. Bob Berlin mentioned that while Indiana will continue to participate on the Steering Council, they will not become any more actively involved in project management for at least the next few years.

Kitty Sibold noted that at the last Steering Council meeting we had decided to discuss program priorities and direction before acting on any unsolicited proposals. Bob Forsythe suggested that we become more involved in program planning and perhaps initiate a meeting of the Technical Advisory Committee. Carol Cutshall stated that we need to give everyone an opportunity to submit proposals, preferably going to route of issuing Requests for Proposals. It was generally agreed that we should not act upon Illinois' proposal now, but should schedule an "in-person" meeting soon.

Dave Loos stated that they were operating under a time constraint and hoped to have a decision in a few weeks. Several others answered that this would not be possible, and although it would be a topic at the next meeting, it will not necessarily be approved then.

It was decided that the next meeting should be held on November 21 at or near O'Hare Airport, beginning at 8:30 a.m. Mr. Kuzel will request a representative from Pacific Environmental Services to make a presentation concerning the d-RDF emission test report and the next phase of the project (testing at a larger, power generating boiler). The other agenda item will be future planning--recommended priorities for projects, how to use carryover funds, and what direction the region should take.

APPENDIX E

GREAT LAKES REGIONAL BIOMASS ENERGY PROGRAM

Steering Council Meeting
November 21, 1989
O'Hare Hilton Hotel, Chicago

Present:

Chris Burger	Illinois Dept. of Energy & Natural Resources
Bob Berlin	Indiana Dept of Commerce
Kitty Sibold	Iowa Dept of Natural Resources
Bob Forsythe	Michigan Public Service Commission
Narv Sordahl	Minnesota Dept. of Public Service
Claude Eggleton	Public Utilities Commission of Ohio
Carol Cutshall	Wisconsin Dept. of Administration
Fred Kuzel	Council of Great Lakes Governors
Bruce Olson	Pacific Environmental Services, Inc.
Franklin Meadows	Pacific Environmental Services, Inc.

The meeting began at 8:30 a.m. with introductions by each of the Steering Council members and a brief summary of activities and projects within each state's program. Fred Kuzel suggested that a member of the Steering Council, rather than staff, could be considered to act as Chair of the Council. The members felt that this could cause difficulties in communication between DOE, staff, the industry, etc. and felt that Mr. Kuzel should continue acting as Chair.

It was noted that DOE was accepting testimony on the National Energy Strategy at a series of hearings and through written testimony. After discussion, it was agreed the Steering Council should submit written testimony stressing the importance of including biomass energy in the Strategy. Carol Cutshall stated that she would direct Dan Moran of her staff to prepare draft testimony and send it to Mr. Kuzel for distribution, review, and approval by the Steering Council. The finalized product will be forwarded to DOE.

To begin the discussion on future directions and projects, several DOE priorities were presented. DOE has requested that each region prepare a five year review of the biomass energy program. Several completed products were distributed and discussed, and the consensus was that we should prepare the document. A simple listing of projects, without graphics or photos was suggested.

DOE's second priority is a request to place greater emphasis on biomass conversion to liquid and gaseous fuels, with a short term emphasis on ethanol and methanol. It was agreed that the Technical Advisory Committee would consider ethanol and methanol along with other alternative fuel projects. A possible project

was the preparation of a summary or case studies report of alcohol production facilities within the Great Lakes region. It was suggested that an intern could be hired to undertake this project. No action was taken regarding this project, but Mr. Kuzel was directed to contact the other regions to see how they were addressing this DOE priority.

A discussion of unsolicited proposals in general, and the Huey Forest Products proposal from Illinois in particular, followed. Chris Burger suggested that unsolicited proposals should first be reviewed by the biomass office in the state in which it originated, and then presented to the Steering Council with that state's recommendation. Narv Somdahl stated that he opposed unsolicited proposals, but was willing to go along with the Illinois proposal because of the need to address congeneration. Both Claude Eggleton and Carol Cutshall felt that we should review and act upon recommendations from the Technical Advisory Committee rather than accepting unsolicited proposals. It was decided that we would not approve funding for the Illinois proposal, and that we would not consider any other unsolicited proposals unless specific guidelines were in place.

The discussion then moved to the Technical Advisory Committee's proposals from November, 1987. It was quickly decided that many of these proposals were probably outdated, and that the TAC should meet again to prepare new recommendations. Mr. Forsythe agreed to draft guidelines for a TAC meeting, and asked that all Steering Council members compile the areas of interest within their state which should be addressed by the TAC. It was stated that as a starting point, the TAC should review the old proposals at its next meeting. The next Steering Council meeting was set for January 17, 1990, to establish a TAC agenda, and to further discuss priorities for the Great Lakes program.

Two other planning items discussed were the need to finish up the case studies projects that Kathryn Lyster was working on, and the need for accurate financial information regarding carryover funds. It was decided that someone be hired to complete the case studies, possibly from the Madison area to work with Ms. Lyster. A resolution was passed requesting a financial status report for the program (attached).

Following a lunch break, the meeting was turned over to Bruce Olson and Frank Meadows of Pacific Environmental Services, Inc. for a report on the recently completed d-RDF emissions tests conducted at Dordt College. Mr. Olson stated that particulate emissions were over most state standards, and that measurable, but low, amounts of dioxins and HCl were detected. These could all be easily corrected with emissions control devices. Steering Council members suggested that tests for mercury and ash

leachability should have been conducted. Mr. Olson replied that these could be included in a Phase III test of a larger boiler with electricity generation.

Mr. Olson concluded that there aren't any great hazards associated with burning d-RDF in this operation, and that this project has shown this to be a perfectly acceptable technology for retrofitting small scale boilers, given proper particulate control. It was noted that when it comes to converting to d-RDF, standards are very individualized for each facility. Ms. Cutshall and others requested that PES present a comparison of the Dordt College test results with existing state standards. Mr. Olson responded that he was currently preparing a paper for the Institute of Gas Technology's Energy from Biomass and Wastes forum and that he would try to incorporate these requests in that paper. Mr. Kuzel asked Mr. Olson to have the paper, as well as a cost estimate for Phase III of this project ready for the January 17, 1990 meeting.

The meeting adjourned at 3:00 p.m.

Prepared by:
Frederic Kuzel
Project Director

**GREAT LAKES REGIONAL BIOMASS ENERGY PROGRAM
STEERING COUNCIL**

RESOLUTION

WHEREAS, the Steering Council of the Great Lakes Regional Biomass Energy Program (GLRBEP) needs to make decisions on funding regional projects using GLRBEP funds, and

WHEREAS, the Steering Council, in order to make decisions, needs to know precisely the amount of funds that have been expended and obligated, as well as that are currently available for projects, and

WHEREAS, the Steering Council has not been provided with such information in several years,

NOW THEREFORE BE IT RESOLVED, that the Council of Great Lakes Governors prepare and distribute a financial status report to the Steering Council which (1) identifies funds spent to date, current obligations, and funds available for the current grant year, and (2) includes the annual line item budget for the GLRBEP for the previous and current grant years.

The Steering Council requests this information by December 31, 1989, in order to initiate and complete project planning in a timely fashion.

Adopted: November 21, 1989
Chicago, Illinois