

Updates from the Michigan Biomass Energy Program

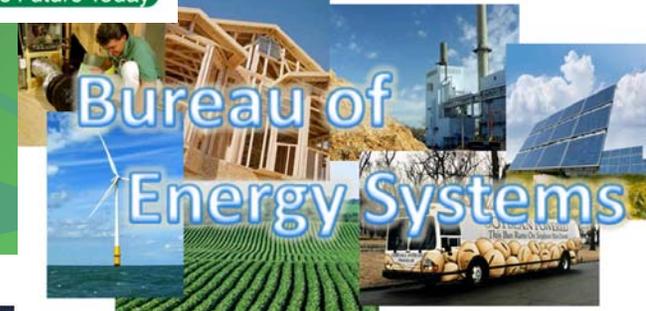
Presented by Tania Howard

Michigan Biomass Energy Program (MBEP)

(DELEG) Bureau of Energy Systems

Program Overview

- DELEG Bureau of Energy Systems
- MBEP Goal: To encourage the sustainable production and use of energy derived from Michigan's biomass resources, through targeted incentives, public/private partnerships, and information dissemination



Program Authority

- U.S. Department of Energy (DOE), State Energy Program
 - The State Energy Program provides financial and technical assistance to states through formula and competitive grants.
 - States use their formula grants to develop state strategies and goals to address their energy priorities.
 - Competitive grant solicitations for the adoption of energy efficiency/renewable energy products and technologies are issued annually based on available funding.
- 
- The seal of the United States Department of Energy is circular with a blue center and a gold border. The border contains the text "DEPARTMENT OF ENERGY" at the top and "UNITED STATES OF AMERICA" at the bottom. In the center, a white eagle with wings spread is perched atop a shield. The shield is divided into four quadrants: the top-left shows a sun, the top-right shows a nuclear symbol, the bottom-left shows a power plant, and the bottom-right shows a wind turbine. A gold lightning bolt strikes the shield from the top-right.
- States must provide a 20% match under SEP annual formula allocations.
 - States must submit annual goals, metrics, and budgets to DOE for approval.

Areas of Interest

Feedstocks

- Wood/Wood Waste
- Energy Crops
- Biogas/LFGTE
- Biosolids/Organic Waste

Applications

- Electricity
- Heat
- Transportation Fuels
- Bio-based Products

Technologies

- Combustion/Cofiring
- Cogeneration (CHP)
- Fermentation
- Anaerobic Digestion
- Gasification



Program Services

- Biomass Energy Demonstration Grants*
- Biomass Workshop and Event Funding*+
- Information resource/outreach
- Provide referrals to partner agencies/organizations

*non-profit and public organizations eligible to apply; for-profit organizations may partner or sub-contract with eligible applicants.

+funding currently available; see www.michigan.gov/biomass for program guidelines

Recently Funded Projects

Demonstration Projects (2009):

- MSU Biogas Potential for Anaerobic Digestion
- Traverse Bay Economic Development Corp Feasibility Study
- Lake Superior State University Pellet Demonstration
- MSU Biomass Feedstock Inventory Tool

Demonstration Projects (2010):

- Lansing Board of Water & Light (LBWL) Feasibility Study
- Wyandotte Municipal Services (WMS) Feasibility Study

Recently Funded Workshops

Workshops:

- MWEA Biosolids & Energy Conference (2009, 2010)
- Michigan AgriEnergy Conference (2009)
- GVSU (MAREC) Organic Waste Workshop (2009)
- Michigan Biomass Waste to Energy Summit⁺



*Visit www.michigan.gov/biomass for more information

⁺Funded by DELEG, with consultation from MBEP, in partnership with MSU and MEDC



Project Highlights

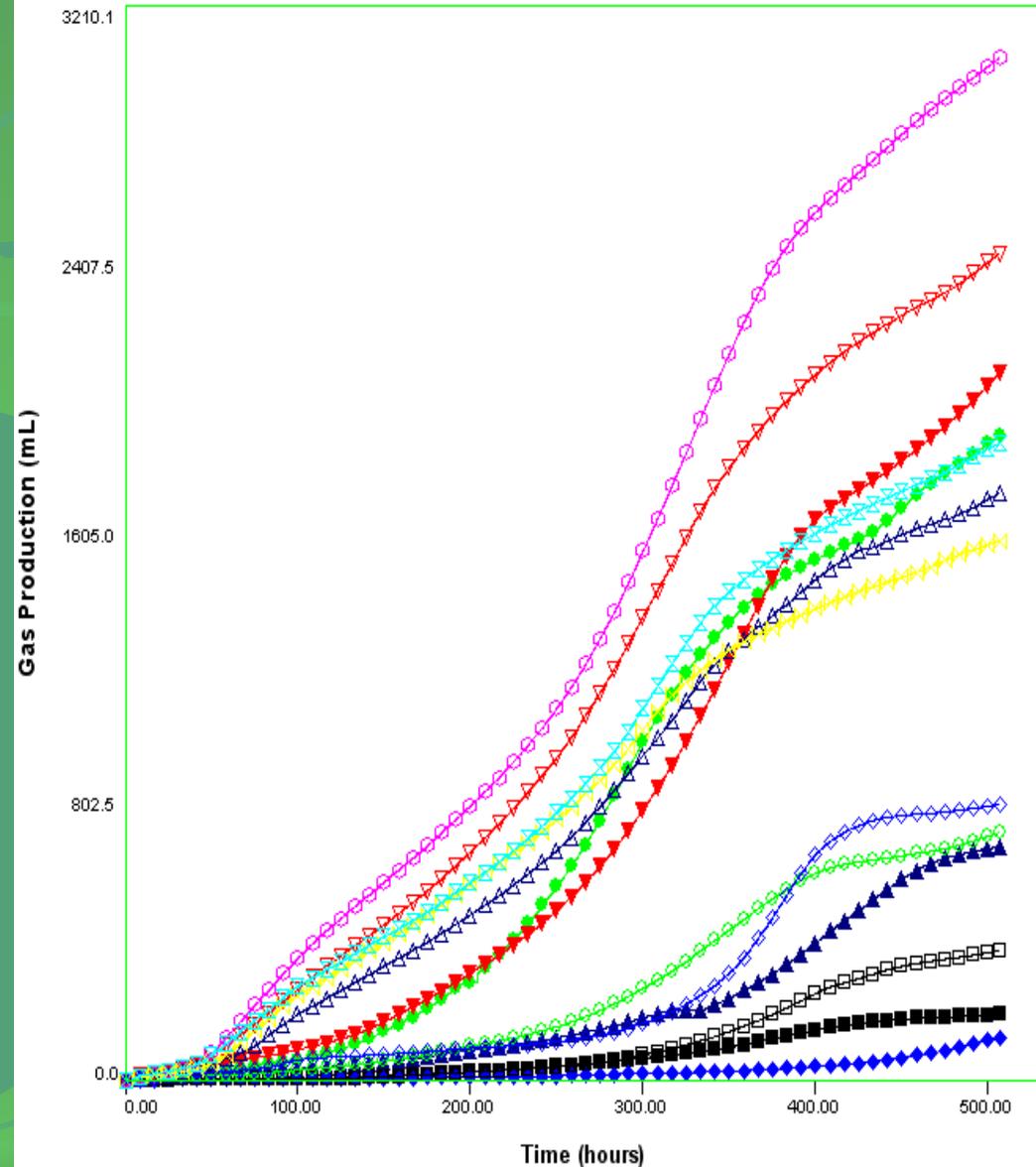
MSU Biogas Potential for Anaerobic Digestion

- Goal: Promote successful ventures before costly investments are made
- Identify farms and other sites with good potential for AD
- Locate regions where centralized digesters would be practical



MSU Biogas Potential for AD (cont'd)

- 1: SEED
- 2: SEED, MSU MANURE
- ▲ 3: SEED, FINISH MANURE
- ▼ 4: SEED, MSU MANURE, FINISH MANURE
- ◆ 5: FINISH MANURE
- 9: SEED
- 10: SEED, MSU MANURE
- △ 11: SEED, CHICKEN MANURE
- ▽ 12: SEED, MSU MANURE, CHICKEN MANURE
- ◇ 13: CHICKEN MANURE
- ⊖ 14: SEED, 2:1 MSU MANURE:CHICKEN MANURE
- ⊗ 15: SEED, 1:2 MSU MANURE:CHICKEN MANURE
- ⊕ 16: SEED, MSU MANURE, CHICKEN MANURE, DUPLICATE



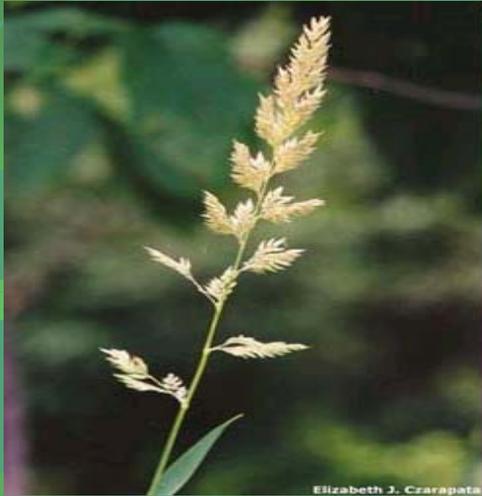
(Sample biogas production graph)

Traverse Bay Economic Development Corporation



- Goal: Conduct a feasibility study which will determine the availability of waste wood within a 60 mile radius from a proposed biomass power plant in Mancelona, Michigan.
- The study provides necessary preliminary information regarding the feedstock needs of a proposed 36 megawatt wood fired electrical plant.

Lake Superior State University



- Goal: Demonstrate the production and use of reed canary grass pellets to fire a pellet stove in a publicly accessible location; also, to reduce impacts of this invasive species and put it to good use locally
- The data provides a technical and economic case for the future use of reed canary grass as a heating fuel
- This project built upon a previous study in which it was determined that 4 acres of grass = estimated 800 gallons of propane at a much lower cost.

MI Waste Biomass Feedstock Inventory

- Goal: Create a statewide feedstock assessment tool which examines the type, supply, location, and energy potential of Michigan biomass sources, as well as potential constraints
- Wood resource data not originally included due to separate MEDC study, which is nearing completion
- BETA version of the tool is currently available online

Michigan Waste Biomass Energy Inventory to Support Renewable Energy Development

Beta Version, September 2009

The Michigan Biomass Inventory identifies sites of residual biomass and land that can produce high energy value biomass, estimates the net energy theoretically available from the biomass, and identifies constraints that limit the utility of biomass conversion technologies.

Data is not verified to be correct and is only intended to provide a starting point in locating a centralized biomass conversion technology. The tool and data does not replace on-site visits, interviews with managers of biomass sources, and consultation with professionals versed in energy conversion calculations. The developers and site host are not responsible for any decisions that result from the use of this resource.

Michigan Biomass Inventory Technical Requirements

- Supported Web Browsers: Internet Explorer 7+, Firefox 2+ with JavaScript enabled and all Popup Blockers disabled
- Recommended Monitor Resolution: 1024 x 768 or greater

All technical documentation is copyrighted.

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[Michigan Biomass Inventory](#)

[Technical Appendix](#)

[Informational Pamphlet](#)

 DELEG

 BAE
Department of Biosystems
and Agricultural Engineering

 RS&GIS
REMOTE SENSING
GEOGRAPHIC INFORMATION SCIENCE

Disclaimer: Data is not verified to be correct and is only intended to provide a starting point in locating a centralized biomass conversion technology. The tool and data does not replace on-

To access the tool visit: <http://mibiomass.rsgis.msu.edu/>

Recently Funded Activities (cont'd)

- Lansing Board of Water & Light:
 - Goal: to demonstrate the feasibility of co-firing biomass in existing facilities
 - Initial test burns identified torrefied wood as being compatible with their pulverized coal boilers
 - Needs to find a local source of this fuel for continued testing
- Wyandotte Municipal Services:
 - Goal: to demonstrate the feasibility of acquiring, handling, and co-firing various biomass fuels
 - Identified RenewaFUEL briquettes or similar material as possible fuel source for their fluidized bed system
 - Needs to address on-site storage issues before moving forward



Pictured, Erickson Station, LBWL

- Both utilities are investigating biomass as a partial replacement for coal, in order to meet Michigan's Renewable Portfolio Standard.
- The RPS requires utilities to generate at least 10% of their electric load with energy from renewables, or to negotiate the equivalent using tradable renewable energy certificates, by 2015.

Current Year Projects

- Michigan Biomass Inventory Tool Updates:
 - Maintain the tool for an additional year and develop a plan to sustain the tool into the future without state incentives
 - Will be updated to include additional source data, improved functionality, and increased user-friendliness
 - Maps of top locations for anaerobic digestion, direct combustion, gasification, and ethanol production in the state will also be developed
 - Updates are scheduled to be completed in the summer of 2011
- New (FY 2011) biomass demonstration grant awards to be announced this month

Other Related BES Initiatives

■ AgriEnergy Program:

- Farm Energy Audit Program
- Urban Agriculture
- Feasibility of growing, harvesting, and producing bioenergy crops on non-trad'l land (road rights-of way and vacant urban land) – Phase I & Phase II Studies
- Passive Solar (Hoop house) Loans

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■ Transportation Programs:

- Clean Cities
- Biofuel Infrastructure Tax Credit
- Biofuel Signage Rebates

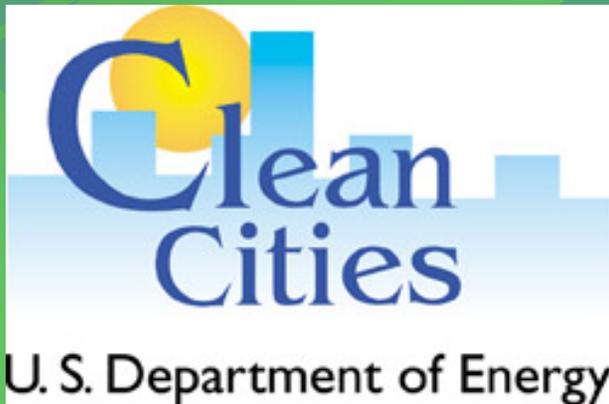
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■ Other Programs:

- Clean Energy Advanced Manufacturing
- Renewable Energy & Energy Efficiency Technology Demonstration Grants
- Energy Efficiency & Renewable Energy Loans

MI Clean Cities Coalition Overview

- Detroit Area Clean Cities (Clean Energy Coalition)
- Ann Arbor (Clean Energy Coalition)
- Greater Lansing Area Clean Cities
- West MI (seeking DOE designation)
- Clean Cities is a U.S. Department of Energy program whose goal is to reduce petroleum consumption in the transportation sector
- Promotes alternative fuels and vehicles, fuel blends, fuel economy, hybrid vehicles, and idle reduction via local partnerships
- The Clean Cities program was created to support the implementation of the Energy Policy Act (EPAct) of 1992



Other Key Organizations

- MPSC – approvals of contracts between power suppliers and regulated utilities, establish interconnection/net metering and other utility regulations, various incentives & projects
- MDNRE – regulates activities that impact the state's air, water, and land resources
- MDA – incentives to agricultural producers & related businesses, regulation of fuel quality
- MEDC & Next Energy – businesses attraction & sector development
- The Michigan & U.S. Departments of Treasury – tax incentives
- Federal Agencies – DOE, USDA, EPA
- Universities & Research Facilities – MSU, U of M, MTU, GLBRC, etc.
- Non-profits & Collaboratives
- Regional Partners
- Local Govt
- Business Community, Trade Associations

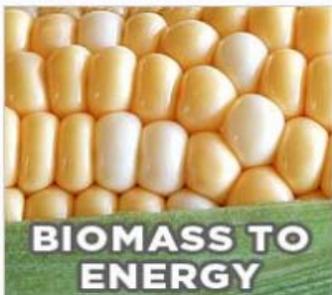
Staying Connected & Informed – Micheen.org



Biomass to Energy

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Welcome to the MicheEN Biomass to Energy Group!

Michigan has many renewable energy opportunities, but energy from biomass is one where we and other midwestern states have comparatively superior opportunities. We also have very strong biomass to energy research and development programs and several companies working toward commercialization of these technologies. However, not all Biomass to Energy schemes make environmental and economic sense. This section of MicheEN.org is the place for those of us interested in Biomass to Energy to collaborate.

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Announcement

From: TaniaH 🟢 | Posted: 12/16/2010

Biomass Waste to Energy Summit

Michigan Department of Energy, Labor and Economic Growth, Michigan State University, and the Michigan Economic Development Corporation sponsored a conference on December 7th, 2010 at the Michigan State University Kellogg Center. The conference hosts are working diligently to get conference follow-up information posted here in the Biomass to Energy Group on MicheEN. Presentations will be posted shortly.

New Blog Posts

TaniaH

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📧 New Messages!



Have questions about the site? Visit Frequently Asked Questions!

Share Your Perspective

- Are we on the right track?
- In what ways should we spend our time, effort, and \$?
- How might we more efficiently advance sustainable bioenergy development in MI?
- Are there areas we are overlooking?
- What are some ways we could do more with limited resources?
- Do you have an experience others could learn from?
- Do you know of an opportunity others could benefit from?
- Join the “Biomass to Energy” and other groups on www.micheen.org to participate in the discussion

Considerations for Biomass Energy

- Biomass energy is still in the development phase in the U.S. and MI; some technologies and markets are further along than others
- Important to consider implications for land use, water conservation, wildlife management, agricultural economy and sustainability
- Planning phase is vital to ensuring successful projects
- Consider the characteristics, strengths, and weaknesses of your organization and/or community
- Biomass waste utilization could provide some of the best opportunities for cost savings and environmental benefits



- Maximize partnerships and leverage resources to create greater overall impact

For More Information:

- EPA-NREL Bioenergy Primer: www.epa.gov/RDEE/documents/bioenergy.pdf
- DOE Biomass Program: <http://www1.eere.energy.gov/biomass/>
- State Energy Program: <http://www1.eere.energy.gov/wip/sep.html>
- Great Lakes Bioenergy Research Center (GLBRC): <http://glbrc.msu.edu/>
- Bioenergy Feedstock Information Network: <http://bioenergy.ornl.gov/>
- Biomass R&D Initiative: www.biomass.govtools.us/
- Grant Solicitations: www.grants.gov
- Loan Guarantee Program Office: <http://www.lgprogram.energy.gov>
- EPA Renewable Fuel Standard Program: <http://www.epa.gov/oms/renewablefuels/index.htm>
- USDA BCAP: <http://www.fsa.usda.gov/bcap>
- USDA Rural Development: <http://www.rurdev.usda.gov/mi/>
- Alternative Fuels Data Center: <http://www.afdc.energy.gov/afdc/>
- DOE National Biofuels Action Plan: <http://www1.eere.energy.gov/biomass/pdfs/nbap.pdf>
- NREL State of the States 2009: <http://www.nrel.gov/docs/fy10osti/46667.pdf>
- Energy Information Administration: <http://eia.doe.gov/>
- Renewable Energy Databook:
http://www1.eere.energy.gov/maps_data/pdfs/eere_databook_091208.pdf
- Growing America's Fuel Report:
http://www.whitehouse.gov/sites/default/files/rss_viewer/growing_americas_fuels.PDF

Questions?

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