



An Investment in Michigan's Economy & Future

## Michigan Energy Initiatives = Economic Growth, Job Creation

The Bureau of Energy Systems aligns Michigan's energy sector initiatives, promotes economic growth, and job creation for the state's transition to the clean energy economy. The BES directs policy and program development; implements legislation; and coordinates agencies and stakeholders including building local public private partnerships; leveraging resources; and facilitating cross-functional public/private initiatives to establish Michigan as a leader in renewable energy, increase energy efficiency in the public and private sectors, and reduce the state's dependence on imported energy.

The BES provides learning opportunities for Michigan's residents, businesses, and institutions to understand the necessity and importance of energy efficiency and renewable energy resources to our economy and increase the adoption of energy efficiency and renewable energy technologies; industry; and practices within the state resulting in sustainable energy production, conservation, and job creation.

The Bureau's core functions provide technical assistance, financial assistance, education and outreach to public and private entities for energy efficiency and renewable energy projects, biomass, agricultural and other alternative energy solutions. The core market categories include: Building Science; Residential Programs; Transportation; Sustainable Communities; and Commercial/Industrial programs with a focus on existing business growth.

### Michigan's State Energy Program is Funded with Federal Appropriations:

The State Energy Program (SEP) has maintained bipartisan support from governors and Congress for 30 years and focuses on energy efficiency and renewable energy projects that address each state's unique energy priorities and opportunities. Each dollar of federal SEP funding is matched with an estimated \$10.71 of state and private funds.

Between 2005 and 2009, SEP leveraged \$2.7 billion in state and private funding, created an estimated 31,820 direct jobs, and tens of thousands of direct and indirect jobs were retained by helping small businesses and manufacturers to become more energy efficient and by displacing imported petroleum with renewable fuels – keeping money at work in communities rather than sending it abroad for imported oil.

With SEP funds and the resources leveraged by them, the State Energy Offices develop and manage a variety of programs geared to increase energy efficiency, reduce energy use and costs, develop alternative energy and renewable energy sources, promote environmentally conscious economic development, and reduce reliance on oil produced outside the U.S., all in the interest of helping to assure energy reliability and strengthening America's competitive position and national energy security.

The U.S. State Energy Program is the only cost-shared program administered by the U.S. Department of Energy (DOE) that provides resources directly to the States for allocation by the governor-designated State Energy Office for use in energy efficiency, renewable energy, and alternative energy demonstration activities.

# Accomplishments as of February 2011



## Energy Efficiency and Renewable Energy

In Michigan, the State Energy Office contributes to the economic vitality in several ways, most of which are influenced and/or funded on a national level. Over the last few years, the Bureau has made significant investments in facilitating the adoption and deployment of renewable energy and energy efficiency technologies and practice statewide through its:

- Fostering greater efficiency in manufacturing to retain jobs;
- Supporting private sector energy innovations through such means as business incubators and job training;
- Advancing cost-effective energy efficiency retrofits in public buildings (e.g., schools, state facilities) to reduce energy costs to the taxpayer;
- Implementing energy emergency plans to mitigate the economic and security implications of energy supply disruptions and related price spikes;
- Delivering public energy efficiency education;
- Conducting statewide energy planning to ensure states' indigenous energy resources are identified and economic development options are understood; and
- Piloting innovative energy demonstration projects with the private sector and research institutions.

For more information about Michigan energy initiatives: [www.michigan.gov/energyoffice](http://www.michigan.gov/energyoffice), [www.michigan.gov/energy](http://www.michigan.gov/energy) and [www.micheen.org](http://www.micheen.org). If you have any questions, contact BES at (517) 241-6228

## Building Sustainable Communities, Saving Taxpayer Money



**eFACT**

*The State Energy Program produces real jobs for real people and helps states like Michigan with manufacturing retooling. Michigan is poised to be a leader in the emerging green economy with its leading R&D, manufacturing history, and skilled workers.*

**Building Sustainable Communities:** Nearly 200 cities, counties, and townships are participating in Energy Efficiency and Conservation Block Grants (EECBG) to operate government in the most cost-effective, energy-efficient, and environmentally-sustainable manner. Funding for this program will expire in mid 2012.

Help Green Communities use Economic Gardening – BES plans to develop local green economies by collaborating with MSHDA to develop a Tool Kit and related training for the Green Communities Program to use to encourage Green Entrepreneurship as a community/economic reinvention strategy.

Through programs and partnerships with municipalities, schools and private nonprofit organizations, the BES supports communities statewide in becoming environmentally and economically sustainable. These programs are improving local infrastructure, creating and retaining local jobs and leveraging the private investment needed to thrive for the long term.



**Energy Efficiency & Conservation Block Grant (ARRA):** A formula grant from the American Recovery & Re-investment Act of 2009 to administer competitive grants to smaller populated municipalities; the grant purpose is for implementing energy efficiency and conservation strategies that reduce fossil fuel emissions and total energy use, and that improve energy efficiency in transportation, building and other sectors. Accomplishments include:

- 111 non-entitlement local government competitive grants (\$15.4 million) awarded 2/1/10;
- 17 LED demonstration grants (\$1.96 million) awarded to entitlement & non-entitlement local governments on 2/1/10
- 4 technical assistance grants (\$196k) to nonprofit organizations to support municipalities
- As of 9/26/10 (3<sup>rd</sup> Quarter), \$4.5 million in federal and \$11.5 in leverage was spent and reported.
- In addition, state-local media events, 6 success stories and more than 30 articles have been published on these projects to date with many more expected next quarter
- Several projects are showcasing MI manufactured wind, solar, and LED technologies.

**Rebuild MI Program:** State-local partnerships provide technical assistance to public schools and local governments for building energy efficiency retrofits. Support services include energy audits, benchmarking, project planning, including information on attractive financing, and follow up.

- Enrolls 60 addition school districts and local governments annually; since the Rebuild Michigan Program began, 629 partners enrolled and have pledged to retrofit more than 118 million square feet of space.
- Trained 13 local energy auditors to provide technical assistance throughout MI in FY 2010.
- Annually engage 60 private engineering and energy consulting firms to promote Rebuild Michigan.
- Measured \$20 million in energy efficiency investments in FY 2010 and more than \$2 million/year in energy cost savings.
- Awarded \$15k challenge grant to Rebuild Michigan Community Partner in Detroit; the grant supported workshops to educate commercial building owners, contractors and organization leaders on the triple bottom line benefits of energy efficiency

**Community Based EE and RE Network - MichEEN Portal:** A new interactive form of communication between state and local government, business, and stakeholders through innovative social networking site dedicated to building a broad energy efficiency network among Michigan communities. The community based energy efficiency network also includes the continued capacity building and networking with the Energy Demonstration Centers established throughout the state, partners in the green communities challenge, and the Clean Cities Coalitions.

**Green Communities Challenge Program:** The Michigan Green Communities Challenge is designed to ensure that all Michigan communities have the tools to take the necessary steps to implement short-term and long-range actions that will protect the environment and operate municipal government in a more cost-effective, energy-efficient, and environmentally-sustainable manner. The Challenge is open to any village, city, township or county within Michigan and there are currently over 80 municipalities who have passed a resolution of support to become members.

**Performance Contracting Program:** The BES is laying the framework to streamline the performance contracting industry in Michigan to leverage private investment in deep energy retrofits of public and private buildings, schools, and universities. The BES provides continued technical support for enabling legislation, standard procurement documents, demonstration materials and projects, training and outreach in this lower risk approach to long term energy efficiency for public buildings. A new public-private partnership called the Energy Services Coalition-Michigan Chapter to promote performance contracting use was formed. The BES is also able to leverage federal technical assistance as well. In Feb, 2011 the State announced innovative performance contracts with three Michigan companies that will use Michigan workers to make energy efficiency and infrastructure updates to three state correctional facilities in Jackson and Kincheloe. The retrofits and improvements will pay for themselves by saving the state \$1.7 million per year utility savings and the reduction of more than 2 million kWh of energy, or the power for 3,767 homes, every year. Other opportunities occur at the local level as several counties and cities have combined the Qualified Energy Conservation Bonds; EECBG funds together to finance additional energy savings through performance contracting.

**Recycling:** A program authorized and funded to provide recycling assistance to Michigan small business and institutions. The program advocates sustainable business practices, which includes technical assistance, business-to-business consultation, and financial assistance to promote and grow recycling markets.

**Participation in Collaborative and Interagency Teams:** To encourage and enable leveraging state; federal; and private resources to advance sustainable communities including: Port Cities Collaborative; Sense of Place Council; Detroit Commercial and Detroit Residential Collaboration; City of Flint Energy Council; and Grand Rapids Area Community Sustainability Partnership.

**Energy Assurance Program:** A cooperative project with the Michigan Public Service Commission funded in part by the U.S. Department of Energy that allows Michigan to pursue new initiatives, update existing energy assurance plans, and supplement existing efforts. It also allow existing planning gaps to be filled and new and emerging areas, such as the smart grid and cyber security, to be addressed and integrated into State plans based on the State Energy Assurance Guidelines referred to in the Funding Opportunity Announcement (FOA). This includes a Program Development Plan, Workforce Development Plan, Energy Assurance Planning, Energy Supply Disruption Tracking Process, and a Regional and Intrastate Energy Assurance Exercises.

**eFACT**

The most complete study done thus far for State Energy Program (Oak Ridge National Laboratory, 2005) concluded that for every federal dollar invested \$7.22 in energy savings resulted and almost \$11 in non-federal “leverage” was produced. This is cost-effective, value for money; promotes entrepreneurship and assistance to business development and is key to state priorities. Each \$1 of SEP federal funds is associated with annual savings of 1.03 million source BTUs.

## Cutting Utility Costs in Michigan Homes & Buildings

**Promoting Use of Energy Efficient Appliances:** Approximately 158,000 appliance rebates have been issued in Michigan through the now completed Michigan Appliance Trade Up program, and recipients will enjoy an average annual energy savings of \$35 per year. The total energy savings generated by all the products purchased under MEEARP equal the annual energy consumption of 1,300 average homes in Michigan.

**Building Operators' Certification (BOC) Training Program:** A competency-based training program that educates facility operators and managers on energy efficiency for building management and maintenance. It is new to Michigan and two pilot courses sponsored by MI utilities were completed in 2010. The Midwest Energy Efficiency Alliance administers the program and BES holds the state license and is developing the program within MI.

- Consumers Energy gave partial tuition rebates of \$300/student to the 25 completing a course from May – July; DTE Energy sponsored 36 students, and matched rebates for students that completed their course from October - December.
- Planning is underway for Level I courses in West MI and Mid-MI during 2011.
- Evaluations have determined that BOC-trained students save their employer an average \$12k in annual energy costs.

**Energy Efficiency and Renewable Energy in State Buildings Program:** A federal grants program initially funded through the American Recovery and Reinvestment Act of 2009 which provided nearly \$30 million to state agencies to carryout energy efficiency and renewable energy projects in state-owned and leased facilities, buildings, and properties. Through this program implementation, the BES awarded funding to the Departments of Technology, Management and Budget; Corrections; Natural Resources and Environmental Quality; Transportation; etc. for energy projects ranging from lighting upgrades to HVAC replacement.

**State of Michigan Energy Use Reduction Efforts:** The BES has and continues to play a significant role in state government exceeding its energy use reduction goals by tracking energy use, conducting energy audits, identifying cost effective operational and maintenance changes for owned and leased space and increasing employees' awareness of behavioral changes that reduce costs. Also, see Performance Contracting, Energy Efficiency/Renewable Energy (EE/RE) Revolving Loan Fund, and State Energy Program (SEP) in state buildings as funding tools to drive additional energy costs savings and demonstrate renewable energy and building control technologies in the state building portfolio.

## Assisting Michigan Businesses & Industries

**Diversifying Manufacturers:** Through the Clean Energy Advanced Manufacturing Program, the State is helping small businesses diversify into high-growth clean energy sectors and invest in advanced manufacturing of renewable energy and energy efficiency systems and components for job creation and retention. The program aims to build or increase production capacity of renewable energy systems (i.e. wind turbine systems, solar technology, bio-energy equipment, geothermal heating and cooling systems) and build, or increase production capacity of energy efficiency technologies such as induction lighting, smart grid systems, mechanical systems (i.e. heating, cooling, and ventilation equipment), building control systems, etc.

**Commercial / Industrial Program:** The Commercial and Industrial Energy Program encourages energy efficiency in the commercial and industrial sectors by promoting sustainable business practices and incentivizing the implementation of advance energy technologies and practices. It aims to facilitate the development and deployment of clean energy systems in the Great Lakes Basin by cultivating social entrepreneurships that align business principles with social ventures where mutuality exists. It also advocates economic gardening as a means to further incentivize research, development, and commercialization of transformation energy technologies.

The program also provides training on energy efficient and renewable technologies on and in commercial buildings. Training focuses on conveying an understanding of how these technologies are applied with the framework of sustainable building codes, as well as how green building design and construction result in decrease energy consumption, improved environmental quality, and building longevity and usage.



**Clean Energy Advanced Manufacturing Program:** A program funded by the U.S. Department of Energy (DOE) to assist small manufacturing companies, currently located in Michigan, to diversify into high-growth clean energy sectors and invest in advanced manufacturing of renewable energy and energy efficiency systems and components. The program aims to build or increase production capacity of renewable energy systems (i.e. wind turbine systems, solar technology, bio-energy equipment, geothermal heating and cooling systems) and build, or increase production capacity of energy efficiency technologies such as induction lighting, smart grid systems, mechanical systems (i.e. heating, cooling, and ventilation equipment), building control systems, etc. Over 18 Michigan companies received nearly \$35 million in grants and loans to manufacture transformation EE and RE technologies over the next three years.

**Save Energy Now Program:** This Program, funded by the DOE, aims to establish a Michigan Industrial Energy Center (MIEC) that will help struggling industries in Michigan develop a comprehensive energy usage reduction program. The Bureau in concert with the Midwest Industrial Assessment Center, offers a training and certification program for current and prospective industry energy managers; conduct assessments to assist energy-intensive industries in Michigan to identify and implement energy efficiency opportunities, and conduct waste heat recovery technology demonstrations to drive its adoption.

**E3 Student Internship Program:** A program funded by the U.S. Environmental Protection Agency (EPA) that interfaces with the Economy, Energy and Environment (E3) Program currently underway in southeastern Michigan. The objectives are two fold: accelerate the adoption of E3 principles; facilitate the implementation of lean, energy efficiency, and environmental sound activities; and provide students with the opportunity to extend their engineering studies beyond the class room.

- DTE will provide funding for energy audits and play a critical role in the implementation.
- The Industrial Assessment Center will conduct audits
- The Michigan Manufacturing Technology Center will conduct LEAN training and identify internships.
- The University of Michigan, Wayne State University and Lawrence Institute of Technologies will help recruit the engineering students.

**Retired Engineer and Technical Assistance Program (RETAP):** A program designed to help small businesses identify and implement energy efficiency (E2) and pollution prevention (P2) measures to ensure growth and competitiveness in the marketplace. The program annually conducts over 150 energy efficiency and pollution prevention assessments by retired engineers and scientists.

### **Energy Efficiency and Renewable Energy Technology**

**Demonstration Program:** The program, funded by the DOE, offers small businesses the means to demonstrate innovative renewable energy and energy efficient technologies not yet widely adopted in Michigan. The purpose for the demonstration program is to drive adoption of these innovative technologies by industry and others in Michigan thru real world demonstrations and in-depth documentation and information outreach.

- Five Michigan companies received nearly \$1.5 million in grants to demonstrate the viability of new commercialized technologies.

## **eFACT**

According to the Michigan Green Jobs Report ([http://www.michigan.gov/documents/nwlb/GJC\\_GreenReport\\_Print\\_277833\\_7.pdf](http://www.michigan.gov/documents/nwlb/GJC_GreenReport_Print_277833_7.pdf)) Clean transportation and fuels are the largest green economy sector in Michigan, with 41 percent of green jobs. This reflects both our automotive heritage and a potential center of growth as hybrid and electric vehicles develop. From 2005 to 2008, a sample of 358 green related firms added more than 2,500 jobs to Michigan's economy, an employment expansion rate of 7.7 percent compared to the total Michigan private sector average of negative 5.4 percent during the same period.

**Energy Efficiency and Renewable Energy Revolving Loan (RFL) Program:** The Energy Efficiency and Renewable Energy Revolving Loan Program, established under Public Act 242 of 2010, provides low interest loans to the public and private sector for energy efficiency and renewable energy projects. The RFL Program was funded at nearly \$17 million. The interest rates and terms are set annually by the Director of DELEG.

- The RFL has awarded nearly \$8M in loans to private companies to manufacture next generation energy efficiency and renewable energy products. Some of the most notable loan recipients are URV USA (Eaton Rapids), Grid Logic (Metamora), KC Jones (Warren), and Innotech (Manistee).

## Helping Michigan Farmers & Agriculture Industry Grow

**Providing Loans for Energy Efficiency and Renewable Energy Projects:** The Energy Loan Program provides low interest loans to public and private entities for an assortment energy efficiency and renewable energy projects such advanced manufacturing, city lighting, distributive energy systems, and HVAC systems.

**Growing your Community Passive Solar System Programs:** A cooperative partnership between the DELEG, Agriculture, and the MEDC provides funding for purchasing and installing agriculture equipment used to extend the growing season of both cool and warm season crops. A Passive Solar System is also known as a high tunnel, hoophouse, passive solar greenhouse, or unheated greenhouse.

**Encouraging Green Buildings & Home Weatherization:** The Department of Human Services along with DELEG's Bureau of Energy Systems and Michigan Public Service Commission provide federally-funded weatherization assistance programs aimed at residential energy conservation for low-income residents. And DELEG is currently partnering with 22 different public and private partners performing energy retrofits of over 11,000 homes and 131 commercial buildings. They are building models to support a sustainable energy efficiency industry in Michigan.

**AgriEnergy Program:** The program offers technical and financial assistance to:

- Explore the feasibility of growing and harvesting bioenergy crops on nontraditional croplands that include area along Michigan roadways and vacant urban lots.
- Develop an agrienergy self auditing tool kit
- Conduct farm energy audits
- Evaluate and project potential energy and cost saving, GHG reductions, job creation and retention resulting from implementing E2 measures associated with agriculture operations.

**Biomass Energy Program:** This Program annually provides demonstration project funding, workshop and event sponsorships and information requested by businesses and individuals seeking MI-specific data, development opportunities, and/or funding to locate or expand bioenergy activity in Michigan

- Recently completed two grant-funded projects with municipal utilities in which co-firing tests of processed biomass fuels at coal-fueled plant was tried and outcomes were documented.
- Funded enhancements to the Michigan Biomass Inventory tool to improve its user friendliness and efficiency for business and a more sustainable research tool for MSU.
- Planned and sponsored the Biomass Waste to Energy Summit on 12/7/10

## Reducing Michigan's Reliance on Foreign Fuels

**Transportation and Transportation Fuels:** Through collaboration with federal, state, and regional agencies and non-profit organizations, the BES is accelerating transportation energy efficiency through education and incentives to produce and purchase cleaner vehicle technologies and fuels, especially for fleet operations. These efforts reduce dependence on imported oil, decrease pollution, and give an economic boost to the state's major industries.

**Transportation Efficiency/Alternative Fuels:** Coordinate Biofuels Infrastructure Tax Credit Program authorized by P.A. 335 of 2008. Service station owners may receive credits of up to \$20k or 30 percent of eligible costs for installing or converting dispensing equipment for qualifying biodiesel or ethanol blends. Highway signage incentives cover 50 percent of station owner costs for logo signs near exit ramps that inform the public of E-85 or B-20 fuel availability. Long-term support of regional Clean Cities Coalitions in metropolitan areas focuses on alternative fuels and infrastructure for vehicle fleets, idle reduction and clean vehicle technology.

- Four station owners received tax credit certificates to date.
- Five station owners received highway signage rebates in FY 2010.
- GM, MI and 5 other states' Clean Cities Coalitions partnered on a \$1.8 million federal grant to fund biofuels infrastructure along the I-75 corridor from Michigan to Florida.
- The BES partnered on a \$15 million federal grant award with nearly \$15 million in leverage to fund clean vehicle technology and alternative fuel infrastructure in S.E. Michigan.
- Clean Cities Program – the BES provided a 2010 grant to assist the nine-county West MI Clean Cities Coalition organize and achieve formal designation as a national Clean Cities partner

**eFACT**

Michigan will benefit greatly by reducing our reliance on fossil fuels and foreign oil and diversifying our economy and manufacturing industry into emerging green technologies such as wind, solar, advanced battery storage, and others.

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