

# MASSACHUSETTS

<http://www.mass.gov/doer/>

## **Massachusetts Sustainable Forest Bioenergy Initiative**

The Commonwealth of Massachusetts has identified a need for increased use of renewable energy in its energy mix. Bioenergy has been identified as one of the renewables with tremendous potential in Massachusetts due to the state's 3 million acres of underutilized forestland.



Early studies indicate that as much as four million tons of woody biomass could be produced annually in Massachusetts, mostly from forests and forest products industries. Utilizing only half that volume for the production of electricity would represent an estimated 200 MW of renewable generation, and substantial rural economic development associated with the fuel supply.

Stimulated by the state's Renewable Portfolio Standard (RPS) program, several development groups are looking seriously at building large bioenergy plants in western Massachusetts to utilize this woody biomass resource. The development of greater forest management and biomass supply infrastructure is critical to the successful development of these projects.

The Massachusetts Sustainable Forest Bioenergy Initiative will provide research and development on forest management and market infrastructure needs, and enable the state to provide the resources necessary to facilitate this biomass supply market to emerge.

## **Massachusetts Residential HEAT Loan Program**

The HEAT Loan Program provides customers with no-interest and low-interest loans (up to 3%) to assist customers with the installation of qualified energy efficient improvements in their homes. The loans are available up-to \$15,000 with terms up-to 7 years. To apply for the loan, the customer must own and reside in a one to four family residence and obtain a Home Energy Assessment through the MassSAVE Program. Loans are issued by participating banks who make the final decision on approving loans. Funds from this program are used to 'buy down' the interest on approved loans to 0% or 3% depending on income.

To date 350 individuals in Massachusetts have received loans resulting in \$2.5 million in energy improvements.

## **Rebuild Massachusetts**

In 2000, Massachusetts created the Rebuild America sponsored program, Rebuild Massachusetts (Program) under the direction of the Division of Energy Resources (DOER). This statewide Program has developed into a coordinating focus for energy efficiency and environmental efforts by assisting state and local governments in bringing together the diverse resources necessary for a comprehensive approach to energy and water conservation. The strategic application of the fundamental features of this program provides notable benefits to the target sector, including state and local government agencies, state housing authorities, and K-12 schools. Opportunities emerge through a variety of sources including involvement in statewide sustainability efforts, association with state energy efficiency programs, collaboration with other state agencies, and participation in public events and workshops.

## *ACTIVITIES*

**Energy Information System (EIS):** MA Department of Housing and Community Development (DHCD) has partnered with the Rebuild Program to collect and manage utility bill information for housing authorities with an electronic energy information system. The (EIS) is designed to help state and local public agencies understand, report, and better manage energy use and costs. The EIS is designed to make a broad range of utility bill information available to as broad an audience as possible electronically. As a web based resource, the EIS matches point and click access with a robust database of utility, building, and weather information.

The system provides reports of water and energy performance for subsequent analysis, troubleshooting and budgeting. Data is also used to benchmark building performance, identify targets for conservation improvements, and monitor the performance of conservation measures installed. As of today, we are reporting data on the EIS for over a dozen housing authorities. Together, these housing authorities have over 1,000 electric utility accounts and consume 50,000,000 kWh of electricity per year.

**Municipal Energy Management:** The Program concentrates the majority of its efforts on municipal-wide energy management. Because communities can make a real difference by becoming more energy efficient, the Program encourages strategic approaches to increase overall efficiency of existing buildings and energy conservation. To assist communities in their efforts to implement energy management, the Program provides technical assistance to help identify opportunities for increasing energy efficiency, develop strategies, and prioritize prospects for investments.

**Public Housing Energy Efficiency Project (PHEEP):** In partnership with the Massachusetts Department of Housing and Community Develop, PHEEP works with the state's 251 housing authorities to implement energy efficient capital upgrades using performance contracting. The project augments existing efforts in the state Rebuild Program to identify and support in-house energy and water efficiency programs, performance contract investments, and onsite combined heat and power and renewable energy generation investments in Massachusetts Authorities.

**Education/Workshops:** DOER provides workshops, in partnership with area Energy Service Companies, for performance contracting. The state designed a new web site in 2004 to publish a manual and boilerplate bidding documents. The site includes an overview of performance contracting, the aforementioned documents, state statute and regulations, the required forms and certificates, and relevant links to other sites.

**Energy Smart Communities Network:** DOER recently launched its newest phase of the Program called the Energy Smart Communities Network. This project provides a free listserv for municipalities that is dedicated to discussion around energy efficiency and energy conservation. It also provides DOER with a tool to broadcast technical and program information to a wide audience.

# MASSACHUSETTS

---

## **Brownfields to Brightfields**

On March 13, 2006, the Brockton City Council voted to authorize the Mayor to sign a contract with Global Solar Energy, Inc. to build New England's largest solar array at a remediated Brownfield site on Grove Street in Brockton. The project's budget of \$3.037 million will be paid through \$2.1 million in city funds, funds from the Massachusetts Renewable Energy Trust (MRET), and a US Department of Energy (DOE) grant.

In late spring 2004, DOER submitted a DOE grant application on behalf of the City of Brockton to conduct the initial feasibility study to convert the contaminated Grove Street site into a solar site. In October of 2004, DOER received the \$59,400 grant award for the Brownfields to Brightfields preliminary study. As a result of this study, the City of Brockton is seeking to build New England's largest solar array at a remediated Brownfield site.

Global Solar Energy and its partners will design, install, operate and maintain a 425 kWDCSTC photovoltaic system. The system will use 1,395 ASE300 [310 W] modules from Schott Solar, Inc that could generate over 535MWh of electricity the first year (enough to power City Hall and a fraction of the police station load). Using clean, renewable energy reduces emissions of carbon dioxide and other greenhouse gases.

Using electricity generated by Brockton's Brightfield will avoid the emission of about 595,300 pounds of carbon dioxide each year. That is the equivalent of taking 45 cars off the road, or the amount of carbon dioxide that would be absorbed by planting 89 acres of trees. Brockton's project also avoids emissions of other greenhouse gases – about 1,000 pounds of sulfur dioxide and 370 pounds of nitrogen oxide per year.

## **Wind on Agricultural Lands**

For the past year DOER has been working with the Massachusetts Department of Food and Agriculture and the State Farm Bureau to explore opportunities for the installation of wind turbines on farms. Momentum increased during December as a result of a workshop co-sponsored by DOER and the Cape Cod Cooperative Extension entitled; "Powering Farms with Wind Energy". Over seventy people (mostly farmers) participated. This large turn out is a demonstration of a strong interest in the agricultural community in bringing renewable energy to Massachusetts farms.

A follow up workshop designed to assist farmers to apply for federal funding under the farm bill is planned before the end of FY06.

## **Appliance Efficiency Standards**

In November 2005, the Massachusetts legislature passed an Appliance Efficiency Standards Act. Minimum efficiency standards were set for gas and oil-fired furnaces, hot water boilers and steam boilers. The heating system efficiency standards conformed to existing Energy Star standards, where applicable. The heating systems standards cannot go into effect unless Massachusetts is granted a federal pre-emption waiver, as required under the 1992 federal EPACT 1992 (Energy Policy Act). The US Dept. of Energy has just ended a comment period on proposed heating system efficiency standards which may open the door to regional waivers to allow states to implement higher standards than the legislated single national standard.

The other appliances include small external power supplies, two types of transformers, and metal halide

lighting, which is commonly used in stadium and arena lighting. The MA standards are scheduled to be effective January 1, 2008.

## **MA Renewable Energy Portfolio Standard (RPS)**

During 2006, DOER revised the RPS Regulations for the first time since the original Regulations were issued in 2002. The revision incorporated the results of the 2005 stakeholder process regarding how biomass power plants qualify for RPS under the “low-emission, advanced biomass power conversion technologies” criteria of the statute. The revision also included some technical corrections, clarifications, and updates. The winter of 2005-06 and early spring of 2006 were spent drafting the regulatory revisions, as well as drafting a Guideline on the eligibility of biomass units. The formal rulemaking was launched in early June by the publication of the proposed Regulations and draft Guideline, the call for public comments, and the scheduling of a public hearing for June 28th. After careful consideration of the public comments, DOER completed its proposed final regulations and biomass Guideline and submitted them on November 6th to the state legislature for assignment to the appropriate joint committee(s) for review.

At the beginning of 2006, DOER issued the Annual RPS Compliance Report for 2004, summarizing filings from the thirteen retail electricity suppliers active in Massachusetts. Although the supply of generation from new renewable units increased considerably from 2003, it still fell well short of the demand, which increases annually in accordance with the RPS statute. Hence, the total of Alternative Compliance Payments (ACPs) to the Massachusetts Technology Collaborative was large (about \$13.4 million). In early July, DOER received the 2005 filings from twenty suppliers and spent the next few months analyzing and verifying them. The supply increased enough to reduce the percentage of shortfall, but the absolute size of the gap increased along with the ACP rate per MWh. As a result, the total of ACPs for 2005 compliance was much larger than for 2004. Although DOER expects an absolute reduction in the supply shortfall for 2006, the increased ACP rate will keep the ACP total high. However, DOER expects the amount of new supply that came on line late in 2006 to result in a very much improved outcome for 2007. The report on 2005 should be issued in February of 2007.

During 2006, DOER granted Statements of Qualification to twelve facilities, qualifying them as New Renewable Generation Units. Of the twelve units, six were for wind turbines or wind farms (totaling 254 MW of nameplate capacity), three were biomass plants (97 MW), and three were for solar photovoltaic systems (0.67 MW), for a total capacity increase of 352 MW. The 2006 increase more than doubles the pre-2006 total capacity, raising the total to 639 MW. Seven of the twelve new units are on the New England grid: one in a portion of northern Maine not on the New England transmission grid (wind), three in New York (two wind and one biomass), and one on Prince Edward Island (wind). Thus, the Massachusetts RPS is providing financial incentives for substantial increases in the numbers and generating capacity of new renewable generating units in both New England and adjacent areas.