

CLEAN ENERGY RESULTS

First Progress Report to the
Massachusetts Department of Energy Resources
Covering July 17 - December 31, 2011



Easthampton Landfill Solar Project: 2.3 megawatts

January 2012

Massachusetts Department of Environmental Protection

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BACKGROUND

The Clean Energy Results Program, established in July 2011 and launched in November 2011, is a first-of-its-kind partnership between the Massachusetts Department of Environmental Protection (MassDEP) and the Massachusetts Department of Energy Resources (DOER). This innovative new program builds on MassDEP's unique regulatory expertise and authority to support DOER in advancing the permitting and development of renewable energy and energy efficiency projects throughout Massachusetts.

This first quarterly report covers MassDEP activities performed between July 17, 2011 and December 31, 2011. As this report will illustrate, MassDEP has made significant progress during this reporting period, including direct advancement of more than 100 clean energy and energy efficiency projects with potential for 75 megawatts of clean energy production from technology qualifying under RPS and APS.

SUCCESSFUL PROGRAM CREATION AND LAUNCH

During this reporting period, a brand new internal management and staffing structure was put into place for the Clean Energy Results Program to best position MassDEP to support DOER in key program areas. No new employees or contractors were hired as part of this effort. A high-level management team was established in September 2011 consisting of leaders from some of the Commonwealth's principal agencies with energy directives: DOER, the Massachusetts Clean Energy Center, the Executive Office of Energy and Environment, and MassDEP. Since then, the team has been meeting bi-weekly to provide oversight and direction on the establishment of the new program to ensure all agencies are fully aligned and consistent in messaging and approach.

Another major accomplishment during the first reporting period was the strong external launch of the program executed by MassDEP in close partnership with DOER. In support of the official program launch in November 2011, high quality educational material was created in-house at MassDEP to explain the new program and partnership; this information continues to be used by both agencies. Ambitious clean energy and energy efficiency goals were established by MassDEP and DOER Commissioners during program launch which set specific targets for MassDEP focus. The MassDEP and DOER Commissioners and senior leaders conducted extensive outreach to highlight the new program as a top priority through social media and press (including website, twitter, and e-newsletter). MassDEP and DOER established new partnerships under the Clean Energy Results Program with outside agencies, including with EPA New England and the Massachusetts Division of Capital Asset Management (DCAM).

Program Framework Accomplishments:

- New program launched through strong formalized MassDEP-DOER partnership
- 18 short and long term goals established that will result in measurable clean energy outcomes
- New Clean Energy Director position created, and candidate selected from within MassDEP in October 2011

MEASURABLE PROGRAM PROGRESS

During this first reporting period, the Clean Energy Results Program has already made significant progress towards meeting the clean energy and energy efficiency goals set by MassDEP and DOER in key program areas (described below). MassDEP staff developed detailed action plans for each program goal outlining milestones, roles and responsibilities, and timeframes for achievement. These plans will be kept updated on a monthly basis to track MassDEP progress.

Environmentally Challenged Property

Under the Clean Energy Results Program, MassDEP has ramped up its efforts to encourage new clean and efficient sources of energy at environmentally challenged property including closed landfills, underutilized contaminated sites (i.e. brownfields), and federal Superfund sites. During this reporting period MassDEP made significant progress towards achieving the Clean Energy Results Program goal of achieving 50 megawatts of new solar photovoltaic installation on environmentally challenged property.

MassDEP also made significant progress in tackling regulatory and legal obstacles that have historically prevented clean energy projects sited on environmentally challenged properties from moving forward. During this reporting period MassDEP drafted liability guidance (modeled on EPA guidance) to provide clear explanation of potential liability for clean energy developers interested in siting on M.G.L. Chapter 21e and Superfund sites. Progress was also made in advancing the Baird McGuire Superfund green remediation project. During this reporting period, MassDEP hired contractors to evaluate the feasibility of entering into a Power Purchase Agreement (PPA) to finance solar and geothermal energy to off-set costs associated with an energy intensive on-site groundwater pump and treat system.

Environmentally Challenged Property Highlights:

- Advanced 41 clean energy/energy efficiency projects on environmentally challenged land with the potential for 64 megawatts of new clean energy production
- Approved post-closure use permits for 17 solar on closed landfill projects totaling 34 megawatts (*this represents 68% permitted towards 50 megawatt installation goal*)
- Provided technical assistance to an additional 18 landfill projects (post-closure use and landfill gas) with potential for 16+ megawatts future energy production
- Provided technical assistance to 7 brownfield and Superfund cleanup projects with potential for 14 megawatts of future energy production
- Developed liability guidance for clean energy projects on contaminated sites
- Launched the contracting phase for a first-of-its-kind green remediation pilot at the Baird McGuire Superfund site in Holbrook.

Clean Energy Potential at Water and Wastewater Utilities

Since program launch, MassDEP has further concentrated its efforts on reducing energy usage at drinking water and wastewater treatment facilities. This important work will help forge the pathway for meeting the Clean Energy Results Program goal of reaching zero-net energy at 20% of water utilities statewide by 2020. During this reporting period, MassDEP made progress in its ongoing partnership with DOER and EPA to benchmark energy use and integrate energy consumption data and environmental facility information into the DOER MassEnergyInsight (MEI) database. This work helps MassDEP and its partners identify opportunities for savings and monitor energy use over time. Once completed, Massachusetts will become the first state in the country to compile actual energy consumption data for the entire water and wastewater sector, which will help the agencies to develop a web-based system to track on-going energy performance and results. MassDEP's has used its Energy Leaders group to ramp up efforts in this area, including through two Energy Leader Forums that were held during this reporting period.

Considerable progress was also made during this reporting period in construction of new energy efficiency and on-site power generation upgrades at 21 "green infrastructure sites" which used federal American Recovery and Reinvestment Act (ARRA) funding through MassDEP's State Revolving Fund (SRF) Program.

Water and Wastewater Utilities Highlights:

- Advanced 30 clean energy/energy efficiency projects at Massachusetts water and wastewater utilities
- Power generation commenced at 24 fully constructed SRF-financed clean energy projects (solar, wind, hydro, CHP) with potential for 10 megawatts of clean energy (and energy savings of \$2.6 million)
- As a result of this funding four facilities (located in Falmouth, Lee, Pittsfield and Barnstable) are on pathways to achieving zero-net-energy status
- Renewable energy use was increased at 27 Energy Leader plants during this reporting period (*32% increased use of renewable energy at Energy Leaders facilities towards the 50% program goal for 2013*)
- Energy use benchmarked through MEI at 160 wastewater and drinking water facilities (*43% benchmarked statewide towards the 100% program goal by 2013*)
- Two Energy Leaders Forums held with 22 facility representatives, state and federal agencies, and energy providers
- In MassDEP's most recent Intended Use Plans for fiscal year 2012 State Revolving Fund loans, 67% of the principal amounts are devoted to energy efficiency or renewable energy components of the selected projects

Organic Waste Diversion & Anaerobic Digestion/Combined Heat and Power

MassDEP has ramped up its efforts to increase energy production from anaerobic digestion and combined heat and power as an important way to achieve both clean energy and solid waste goals. MassDEP has been working closely with its state partners through the Massachusetts Organics Task Force and other forums to tackle regulatory and financial barriers to diverting source-separated organics and siting anaerobic digestion projects.

In November 2011, MassDEP issued a package of draft regulation amendments for public comment that have been designed to establish clear permit pathways for anaerobic digestion facilities (as well as facilities that recycle and compost material that has been diverted from the solid waste stream). These regulation amendments were developed in coordination with DOER, the Massachusetts Department of Food and Agriculture and the Massachusetts Clean Energy Center. Input was also provided by a task force comprised of facility developers, consulting engineers and solid waste experts, local health officials, environmental advocates, and others. The public comment period closed on January 23, 2012, and MassDEP is now reviewing the comments and developing a final regulation package for promulgation this spring.

In addition, MassDEP is providing assistance to multiple projects underway across the state to advance the collection and recovery of organic materials. During this reporting period, programs to assist in facility development were established including funding for feasibility studies and low interest financing for project development.

During this reporting period MassDEP also made progress on studies of anaerobic digestion and combined heat and power potential on public land. MassDEP has partnered with Massachusetts Clean Energy Center, DOER, and the Department of Food and Agriculture to work with DCAM to target appropriate and suitable state-owned land for siting AD-CHP demonstration projects, with the goal of having three projects up and running by 2015. MassDEP worked with DCAM to identify a list of 60 sites using the MASSETS database during this reporting period.

MassDEP also initiated its study of public drinking and wastewater treatment facilities for anaerobic digestion during this reporting period. MassDEP reached out to the six wastewater treatment plants that presently have anaerobic digestion to establish whether those facilities would be open to receiving off-site organics. Additionally, staff has begun initial discussions with nine wastewater treatment plants that have abandoned anaerobic digestion units to determine if those plants would be interested in bringing those units back on-line. A GIS map has been developed highlighting state property with wastewater treatment plants and proximity to organic sources and the road network. This tool will help MassDEP evaluate if adding anaerobic digestion at those properties could be a viable option.

Organic Waste Diversion and Anaerobic Digestion/Combined Heat and Power Highlights:

- Issued draft regulations to streamline permitting for anaerobic digestion and other organic waste diversion facilities (final regulations expected spring 2012)
- Advanced 15 organics diversion and anaerobic digestion projects (farms, wastewater treatment plants, and other locations)
- One farm anaerobic digestion system up and running (1mw) and permitting for 3 additional farm systems nearly complete
- Awarded \$300,000 in grants to municipalities for organics diversion/capacity projects, including an anaerobic digestion feasibility study and anaerobic digestion RFP project.
- Established low-interest Recycling Loan Fund rates for organics collection and processing companies, and raised the maximum loan amount to \$500,000
- Established a Commercial Assistance Program to assist businesses in diverting organics and other waste materials
- Commenced a comprehensive study of anaerobic digestion/combined heat and power potential on public lands (*substantial progress towards goal*)
- Drafted a comprehensive study of collection and other infrastructure barriers to organic waste diversion (*substantial progress towards goal*)

Potential Public Nuisance/Health Impacts from Wind Turbines

During this reporting period the effort to obtain an independent scientific review of potential health impacts from wind turbines was officially launched (July 19, 2011) and completed. This project represents a nation-leading effort to advance the public understanding of the science surrounding wind turbines and their potential impacts.

This project has required a substantial level of effort by MassDEP staff, including its senior leadership. After identifying and engaging a panel of experts, MassDEP conducted extensive public outreach, holding a public comment period during July and August and collecting public feedback to solicit public concerns related to siting wind energy projects. A website was established to share those comments and other panel-related documents with the public. The independent panel's study was completed (and report issued in January 2012). Three public meetings have been scheduled to share the report findings and solicit public comment. A team of MassDEP technical and engineering staff are actively reviewing the report and conducting additional research to ensure that MassDEP will be well-equipped to advise the public and local boards of health about this important scientific issue.

During this reporting period MassDEP also assisted the Massachusetts Clean Energy Center in developing its Acoustic Protocol for wind turbine projects. In addition, MassDEP also advanced its review of its current noise policy to determine whether current standards are appropriate and protective for siting wind turbines. Staff reviewed MEPA projects to provide advice to project developers in estimating quantitative noise impacts (this effort will continue and ramp up in 2012). MassDEP continues to provide technical assistance to municipalities and other partners to help interpret noise policy and applicable regulations.

Wind Highlights:

- Analysis of potential health impacts associated with wind turbines completed by Independent Expert Panel (*goal achieved*)
- Public discussion advanced, including through public comment period and scheduling of public meetings in early 2012 (*substantial progress towards goal*)
- Review of MassDEP noise policy underway (*substantial progress towards goal*)
- Technical assistance provided to 6 projects to help interpret noise policy and applicable regulations

Clean Energy at Other MassDEP Regulated Sites

Additionally, MassDEP made substantial progress promoting clean energy and energy efficiency in several other key program areas during this reporting period. Guidance for siting wind and solar projects on public water supply lands was issued (September 2011) which led to three related projects getting approved during this reporting period. MassDEP support to DOER was initiated towards promoting small-scale wood pellet sustainable biomass thermal systems

Other Reporting Period Highlights:

- Issued “Siting Wind and Solar Projects in Public Water Supply Lands” Guidance
- Assisted DOER with identifying lowest emitting equipment technologies for industrial/commercial institutional thermal biomass
- Provided technical assistance and permit approvals for combined heat and power, biomass, and biodiesel projects



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