

CLEAN ENERGY RESULTS

Annual Report to the
Massachusetts Department of Energy Resources
Covering January 1, 2013 – December 31, 2013



2013

Massachusetts Department of Environmental Protection

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EXECUTIVE SUMMARY

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 regulatory expertise and authority to support DOER in advancing the permitting and development of renewable energy and energy efficiency projects throughout Massachusetts. The Massachusetts Clean Energy Center (MassCEC) works closely with MassDEP and DOER on program activities.

This 2013 annual report covers MassDEP activities performed between January 1 – December 31, 2013. It is being provided pursuant to the Memorandum of Agreement (MOA) executed between MassDEP and DOER and the Clean Energy Results Program Funding Proposal submitted by MassDEP to DOER (both dated May 16, 2011).

As this report will illustrate, the Clean Energy Results Program has achieved great success during 2013. During the time period of this report, MassDEP, working with the CERP agencies, made significant progress permitting innovative projects, providing technical assistance, collaborating on policy initiatives and in promulgating regulations that promote clean energy. MassDEP worked to implement its clean energy and solid waste management goals by finalizing an organics waste ban for larger commercial facilities, and worked with our partners at MassCEC and DOER to develop a \$1.5 million grant program to assist water and wastewater facilities to invest in energy-saving infrastructure.

Work done by MassDEP staff has directly advanced **over 160 clean energy and energy efficiency projects** of clean energy production from technology qualifying the Massachusetts Renewable Energy Portfolio Standard (RPS) and the Alternative Energy Portfolio Standard (APS). The RPS Program requires all retail electricity suppliers in the Commonwealth to obtain a minimum percentage of their supply from eligible renewable energy generation sources.

Below are highlights from each key program area. More information on each of these can be found under the Detailed Program Progress section of this report.

Water and Wastewater Utilities

MassDEP continued its technical and financial assistance to municipal drinking water and wastewater facilities across the Commonwealth. Along with its clean energy partners from DOER and MassCEC, MassDEP distributed its Positive Cash Flow Through Energy-Saving Projects Brochure at the Massachusetts Municipal Association's Annual Meeting & Trade Show. This event is the largest regular gathering of Massachusetts local government officials in the Commonwealth. To accelerate the implementation of energy-saving opportunities across the water and wastewater sector, MassDEP offered more than \$512 million in financing through the State Revolving Fund (SRF) administered by the Massachusetts Water Abatement Trust, to provide 2 percent interest loans for over 32 projects for renewable energy, green infrastructure, or green components of projects.

MassDEP continued its technical energy management assistance through its Energy Leaders Initiative by conducting energy site visits at seven drinking water facilities and holding a roundtable meeting with five drinking water and wastewater facilities to assist in developing Energy Management Plans from the recommendations of recently completed DOER ARRA-funded energy evaluations. MassDEP, in partnership with MassCEC, selected Alden Labs as the technical consultant to explore opportunities for in-line (or in-conduit) hydropower energy generation within the water and wastewater infrastructure of Massachusetts. This study was funded by MassCEC and Alden began working in February 2013. MassDEP, in collaboration with MassCEC, provided on-going technical input and review for two key energy assessment projects: 1) A Feasibility Study for Siting an Anaerobic Digestion Facility at the University of Massachusetts, Amherst Campus and 2) the In-Conduit Hydropower Project. The screening tool has been completed, along with a user manual, and both were placed on MassDEP's website in February, 2014.

In 2013, DOER and MassDEP, with funding support through MassCEC, developed a \$1.5 million grant opportunity to provide "gap" funding to jump-start and implement shovel-ready clean energy projects at facilities. The goals of DOER and MassDEP are to 1) expedite the installation of clean energy projects that will produce cost savings that can be reinvested into the facility assets; 2) promote a model of collaboration between many partners to leverage all available funding sources for clean energy development; 3) address the challenge of funding smaller clean energy projects that have a cost too large to cover with an operating budget but too small to warrant financing; and 4) provide additional financial incentives for larger clean energy projects requiring financing through a competitive award process. The grant program was announced in early 2014. <http://www.mass.gov/eea/pr-2014/efficiency-renewable-energy-drinking-and-wastewater-sites.html>

Organics Diversion and Anaerobic Digestion

MassDEP promulgated final regulations in December 2012 designed to streamline the siting of anaerobic digestion operations and other advanced organics processing technologies. In 2013, MassDEP, with stakeholders, developed a framework for implementing a ban on landfill disposal and incineration of organic waste by large generators. This action will increase the incentive for siting anaerobic digestion facilities to manage these materials. A draft regulatory package was developed and issued for public comment in July 2013 and the final regulation was promulgated in early 2014, with the ban set to begin October, 2014. MassDEP continues to work with numerous private and public partners on projects, providing technical and financial assistance, including the MWRA, the Town of Bourne, the New Bedford Solid Waste District, the Town of Hamilton and the Town of Lexington. MassDEP is also supporting the Division of Capital Asset Management and Maintenance (DCAMM) efforts to site anaerobic digesters on state land. Feasibility studies were completed at three state-owned properties, MCI-Shirley, MCI-Norfolk and UMass-Amherst and work has begun to seek input from local officials and residents through public meetings. MassDEP continues to provide financial incentives for the diversion of organics and support of anaerobic digestion technology development. \$3 million in funding was awarded through the Recycling Loan Fund (RLF) targeting assistance to anaerobic digestion projects.

DOER also made \$1 million available for grants to public entities for anaerobic digestion through MassDEP's Sustainable Materials Recovery Grant Program. MassDEP and DOER have awarded \$100,000 to the Massachusetts Water Resources Agency (MWRA) for its wastewater treatment plant at Deer Island. The MWRA currently digests sludge in 12 large digesters to help run the plant. A pilot project will introduce food waste into one of the digesters to determine the effects of co-digestion on operations and biogas production. \$200,000 has been awarded to the City of New Bedford for a pilot scale anaerobic digestion project to include food waste at the Crapo Hill landfill and \$30,000 has been awarded to the Town of Bourne for consulting assistance with developing a lease to build and operate an AD facility on their property. This DOER funding comes from the 2010 and 2011 Alternative Compliance Payment (ACP) Spending Plan. ACPs are paid by electric retail suppliers if they have insufficient Renewable Energy Certificates to meet their compliance obligations under the Renewable Portfolio Standard programs. DOER establishes the plan for use of these funds to support clean energy development in the Commonwealth.

MassDEP, through the RecyclingWorks program is also assisting dozens of organics generators in establishing diversion programs in advance of the organics ban.

In autumn 2013, MassDEP worked with Stop & Shop on permitting an innovative project utilizing anaerobic digestion to recover the economic value in unsold food products to produce electricity at its distribution facility in Freetown. That permit was issued in early January, 2014.

Environmentally Challenged Property: Clean Energy at Closed Landfills

MassDEP provided municipal officials; solid waste consultants and renewable energy developers with the tools needed to assess the redevelopment potential for clean energy at closed landfill sites, navigate the permitting process and harness state incentives. 2013 saw numerous successful renewable energy installations on closed municipal landfills with a total of 46 Post-Closure Use Permits issued to projects with the potential to generate 86.5 MW's of clean electricity. Of these projects, a total of 17 projects are now operational and generating a total of 26.6 MWs of clean electricity. For a complete list of communities that are developing clean energy at closed landfill sites, please visit the Clean Energy Results Program website for [Closed Landfills with Permits for Renewable Energy](#).

Environmentally Challenged Property: Clean Energy at Contaminated Land/Green Remediation

MassDEP staff assisted six clean energy projects proposed on contaminated land, with potential for 11.25 megawatts of clean energy production between Brownfield and Superfund sites, co-hosted the EBC/US EPA/DEP/DOER/CEC Program: "Project Financing Strategies for Developing Renewable Energy on Contaminated Properties in Massachusetts" and completed its second offering of training for Licensed Site Professionals (LSPs) with DOER and MassCEC titled "Siting Renewable Energy on Contaminated Land in Massachusetts."

MassDEP hosted four quarterly Green Remediation Workgroups between March and December, participated as the plenary speaker at the Association of State and Territory Solid Waste Management

Officials (ASTSWMO) mid-year meeting focused on “Greening Cleanups”, participated as a panelist with EPA on ASTM’s Standard Guide for Greener Cleanups at the 2013 Brownfield’s Conference, participated as a panelist at the Environmental Business Council (EBC) Site Remediation Program titled “Considering Green Remediation in Site Cleanup Under The New MCP” and was a presenter at the Northeast Waste Management Officials Association (NEWMOA) Workshop titled “Moving Toward Sustainable Remediation.”

Also in the spring of 2013, MassDEP’s Bureau of Waste Site Cleanup completed a regional outreach effort on CERP to MassDEP BWSC staff and DOER CERP contacts.

Clean Energy Outreach and Support

Outreach under the Clean Energy Results Program continued in 2013 through various forums and meetings. MassDEP worked closely with its state partners through the Massachusetts Organics Subcommittee to address regulatory, technical and financial barriers to siting anaerobic digestion facilities and made numerous presentations to various organizations seeking input on the framework that was being developed for a ban on landfill disposal and incineration of organic waste by large generators. CERP support teams also greatly advanced their work assisting anaerobic digestion (AD) project proponents and tangentially assisted several municipalities that are considering siting anaerobic digesters in their communities as well as other towns that are being considered for AD on state land. CERP support team staff assisted developers and LSPs with potential renewable energy projects on contaminated land and promoting green remediation for site cleanups. CERP support teams also provided energy tracking assistance through the Mass Energy Insight Program to over 100 public drinking water systems. Technical assistance/outreach was provided to Massachusetts public water suppliers and representatives from other states about MassDEP’s solar/wind policy & guidelines and the review/approval process for siting renewable energy on public water supply land. In addition, MassDEP staff met with representatives from several communities to answer questions on the agency’s noise policy, applicable regulations and sound sampling protocol and its relevance to wind turbines. MassDEP clean energy leads also continued to work collaboratively with DOER Green Communities staff on a number of potential clean energy projects across the Commonwealth.

Wind

During this time period, the Wind Turbine Technical Advisory Group (WNTAG) was formed. MassDEP finalized the membership list for the WNTAG, contacted prospective members and successfully secured membership participation. The Consensus Building Institute (CBI) was retained to facilitate meetings and support the work of WNTAG. In 2013, MassDEP worked with CBI and held five three-hour meetings with the WNTAG. The WNTAG has provided advice and technical information to MassDEP on potential revisions to its noise regulation and policy. WNTAG meetings have been open to the public and include time for brief public comments. The MassCEC/MassDEP Research Study on Wind Turbine Acoustics also made progress in a number of areas. The consultants for the project, Resource Systems Group with support from Epsilon Associates and Northeast Wind, completed noise testing at four sites and met several times with the MassCEC/MassDEP project team to plan the project’s next steps. In addition, MassCEC modified the scope of the project so that the project consultants could provide preliminary

data analyses to inform MassDEP and WNTAG on specific wind turbine acoustical parameters using data collected to date from the project.

Biomass

Biomass includes a variety of versatile renewable fuel sources derived from organic plant and animal material, such as wood, crops and alcohol fuels. These locally produced resources can be used to generate electricity, provide heat, and develop alternative transportation fuels. 2013 saw the launch of several new biomass pilot incentive programs to assist not only residents but also small businesses, universities, greenhouses and farms to trade in their inefficient residential or commercial wood fired heaters for cleaner, more thermally efficient combustion equipment. The Commonwealth Woodstove Change-Out Program allowed residents who qualify to receive a voucher for either \$1,000 or \$2,000 to replace older non-EPA certified stoves with much cleaner and high efficiency ones that use less wood and release less air pollution. Because of its success in 2013, in 2014 the Commonwealth Woodstove Change-Out Program will provide a new round of funding of up to an additional \$1 million to assist residents and businesses in replacing their inefficient wood stoves. The program is administered by MassCEC and funded jointly by MassDEP, DOER and MassCEC. In addition, MassDEP provided technical support to DOER and MassCEC in developing emission standards and monitoring requirements for Outdoor Wood-fired Hydronic heaters (OWHH) as well as for district heating renewable biomass boilers. DOER in collaboration with MassDEP, is responsible for providing low emissions criteria for these biomass initiatives.

DETAILED PROGRAM PROGRESS

The Clean Energy Results Program continues to make significant progress towards meeting the clean energy and energy efficiency goals set by MassDEP and DOER in key program areas (described below).

Clean Energy at Water and Wastewater Utilities

Achieving Positive Cash Flow Through Energy-Saving Upgrades

MassDEP and DOER continue to work collaboratively with the Energy Efficiency Program Administrators (PAs) to develop a financial assistance/partnership model using energy-saving projects at water infrastructure facilities to generate positive cash flow for cities and towns. Combining energy efficiency savings and renewable energy production from solar, wind and hydropower can lead to critical operating budget savings for communities that can then be reinvested back into public drinking water and wastewater facility assets.

During 2013, the Grafton Water District (GWD), a small water supplier serving approximately 10,000 people, took a major leap forward in producing long-term energy savings for its ratepayers and reducing its carbon footprint. Using a cash flow savings approach, the GWD used a Third Party Solar Developer to design, build and operate a 1.7 Megawatt solar array system at its drinking water system that is anticipated to result in a 20-year cost savings of \$3.5 Million. MassDEP's Central Regional Office staff and Boston Drinking Water staff provided technical guidance and approval of Grafton's solar array field under the new and streamlined Policy, "Wind & Solar Energy Projects on Public Water Supply Lands."

Several other municipal cash flow examples from both wastewater and drinking water facilities are highlighted below:

1. South Essex Sewage District (SESD) -- For over a decade, energy management / conservation has been a priority for this Wastewater District, resulting in over \$1.7 million of energy cost savings (FY 01 – FY 10) (reducing 7,871,143 kWh / year, 31% electrical use reduction). The SESD used a portion of these operational cost savings to reinvest back into the facility by hiring an electrical engineer to expand energy conservation and develop combined heat & power opportunities at the plant. Through the Energy Leaders partnership, MassDEP has provided energy assistance to the SESD, helping to secure financial incentives from National Grid and a DOER "Owner's Agent Technical Assistance" grant.
2. Edgartown Wastewater Treatment Facility -- Leveraged \$197,000 of energy efficiency funding from Cape Light Compact (through Mass Save®) to install variable speed drives on their aeration and sludge blowers, plant water pumps and install lighting upgrades. The facility secured a \$122,900 ARRA grant from DOER to install a 15 kW solar array at its plant. Overall, over \$15,000 of annual energy savings were achieved (reducing 201,396 kWh / year, 20% energy use reduction). Through the Energy Leaders partnership, MassDEP provided assistance to the

Edgartown facility, helping to secure a comprehensive facility energy audit from Cape Light Compact.

3. Stockbridge Drinking Water Facility -- Using incentive funds from National Grid's Energy Efficiency Program (through Mass Save®), the water department installed variable speed drives on 3 main 40-hp finished water pumps. Over \$10,000 of annual energy savings are anticipated (reducing 100,000 kWh/year, 30% energy use reduction). The facility is reinvesting these energy savings, replacing its inefficient electric heating system with a renewable heat pump system (geothermal), which is anticipated to save another \$10,000/year. Through the Energy Leaders partnership, MassDEP provided energy assistance to the Stockbridge facility, helping to secure a facility energy audit from National Grid and connecting the facility to MA DOER's energy efficiency programs.

Advancing Energy Projects with State Revolving Fund (SRF) Loans

On May 1st, MassDEP released the Final Intended Use Plan (IUP) for 2013 describing the projects financed with SRF funding. The list includes the following five green projects, of which one is wind and four are solar PV.

1. New Bedford Clean Water Project: Installation of two 2500 kW wind turbines at the wastewater treatment plant. Estimated cost is \$24.8 million.
2. Cohasset Drinking Water Project: Installation of two solar powered tank mixers (one for each storage tank). Also included in the project is the installation of roof and ground mounted solar arrays, expected to generate 150 kW at the Lily Pond Water Treatment Facility.
3. Norton Drinking Water Project: Installation of solar PV on the roof of a new water treatment plant. The project support from SRF is for the entire plant (~\$6.7 million), with an unknown cost for the solar PV. Typically, rooftop systems are sized in the ~15-30 kW range.
4. Scituate Drinking Water Project: Installation of solar PV on the roof of a new water treatment plant. The project support from SRF is for the entire plant (~\$3.59 million), with ~\$200,000 for the solar PV. Typically, rooftop systems are sized in the ~15-30 kW range.
5. Kingston Drinking Water Project: This project was previously listed on the IUP in 2012 and involves the construction of a roof mounted solar array (\$90,931) at Trackle Pond Water Treatment Plant.

Ongoing Construction Efforts of previously financed SRF projects also made progress this year. These projects include:

1. Lawrence Drinking Water Project: Installation of a 313.5 kW ground mounted solar array. Construction is substantially complete. SREC application was submitted to DOER in June 2013 and major inspections were completed in April 2013.

2. Westfield Drinking Water Project: Installation of 50 – 75 kW hydroturbine. This \$2.873 million project with estimated \$150,000 estimated for a hydroturbine is under construction. The construction contract was signed on March 28, 2013. Major inspections were conducted in March, April, May and June of 2013.

Advancing New Energy Savings through the Energy Leaders Initiative

MassDEP continued its energy management leadership at drinking water and wastewater facilities through its Energy Leaders Initiative. MassDEP, DOER, EPA New England and the Energy Efficiency Utility Providers met with several drinking water and wastewater facilities to identify, implement and discuss potential funding and financing options to help move energy-saving projects forward. In total, nearly \$1 million of annual energy efficiency opportunities were identified for 20 facilities through energy audits funded by DOER.

Grant Program

In 2013, DOER and MassDEP, with funding support through the MassCEC, developed a \$1.5 million grant opportunity to provide “gap” funding to jump-start and implement shovel-ready clean energy projects at facilities. The goals of DOER and MassDEP are to 1) expedite the installation of clean energy projects that will produce cost savings that can be reinvested into the facility assets; 2) promote a model of collaboration between many partners to leverage all available funding sources for clean energy development; 3) address the challenge of funding smaller clean energy projects that have a cost too large to cover with an operating budget but too small to warrant financing; and 4) provide additional financial incentives for larger clean energy projects requiring financing through a competitive award process. The grant program was announced in early 2014. <http://www.mass.gov/eea/pr-2014/efficiency-renewable-energy-drinking-and-wastewater-sites.html>

Evaluating and Recovering Energy from Anaerobic Digestion and In-Line (Conduit) Hydropower Projects

MassDEP has been working with UMASS-Amherst and our consultant, CDM Smith, to develop a feasibility study for siting an anaerobic digester at the UMASS Amherst campus. This Study is a preliminary evaluation for the possible development of an Anaerobic Digestion facility, adjacent to the Town of Amherst’s Water Pollution Control Facility (WPCF), that would accept “source-separated organics – SSO” materials from the University as well as other local generators and biosolids from the Amherst WPCF and other similar local wastewater facilities.

In addition, MassDEP and MassCEC selected and worked with Alden Labs as the technical consultant to explore opportunities for in-line hydropower energy generation within the water and wastewater infrastructure of Massachusetts. This project will provide a review of technologies, evaluate the statewide potential for in-line hydropower application in Massachusetts and develop a screening tool for MassDEP and water and wastewater facilities. The screening tool was completed and placed on

MassDEP's website in February, 2014. The screening tool will enable a user to complete a preliminary evaluation of hydropower generation potential at water supply and waste water treatment facilities. With facts about a specific system and location (such as pressure or head, and flow), a user will be able to estimate power generation potential and get some preliminary cost/benefit analysis results with the screening tool.

Anaerobic Digestion/Organics Diversion

MassDEP continues to work closely with its state partners through the Massachusetts Organics Subcommittee and other forums to tackle regulatory, technical and financial barriers to diverting source-separated organics and siting anaerobic digestion projects. During the past year, MassDEP continued its efforts to develop an organics collection infrastructure to provide the necessary feedstock for energy production through anaerobic digestion. MassDEP also updated its Organics Action Plan to reflect progress. The Organics Action Plan may be viewed on the MassDEP web site at: <http://www.mass.gov/eea/agencies/massdep/climate-energy/energy/anaerobic-digestion/>

Regulatory Streamlining

During 2013, MassDEP met with its organics subcommittee members several times seeking their input on the framework being developed for a ban on landfill disposal and incineration of organic waste by large generators. MassDEP developed a draft regulatory package that reflected the subcommittee's proposed framework, which was approved for public comment in July. Public Comment closed in August and a final regulation was issued in early 2014. The proposed implementation date of the ban is early fall 2014. MassDEP made approximately 40 presentations over the course of the year to various organizations seeking input on the framework, further refinement for the regulatory package and general technical assistance and outreach on MassDEP's proposed approach to diverting organics.

Creation of Framework/Infrastructure for Increased Organics Diversion

MassDEP in collaboration with the MassDEP Organics Subcommittee continued to work towards implementation of key components of the Organics Action Plan that was developed in spring 2012. MassDEP solicited the help of students from Northeastern University to identify various on-site options for managing food waste. The students presented their findings at the May Organics Subcommittee meeting. Students from Tufts also helped in the surveying of food processors sectors to better understand volumes of organics expected from these types of operations.

In addition, MassDEP participated on the review committee for the MassCEC study of small anaerobic digestion systems. The final report was issued in Fall 2013.

MassDEP, through RecyclingWorks, provided technical assistance to dozens of commercial generators of organics on how to establish a successful program. Several case studies have been published on the RecyclingWorks website, [RecyclingWorks](#), to serve as model programs for other businesses. RecyclingWorks, with the input from the Massachusetts Health Officers Association and solid waste haulers, has also drafted guidance on best management practices for storing and collecting organics. This guidance will provide health officials with information on how best to establish storage and

collection requirements in their communities to reduce any impacts. The guidance was published in late summer. MassDEP Municipal Assistance Coordinators have provided technical assistance to several communities looking to pilot organics collection for residents including Newton, Ipswich, Manchester, Cambridge, Salem and Hamilton. After assessing organics diversion potential at state facilities in spring, MassDEP has developed and initiated an effort to provide the technical assistance needed to help these facilities start diverting organic material. MassDEP will be seeking to assist in establishing organics diversion programs where none exist and enhancing the performance of existing programs at these state facilities. MassDEP's contractor scheduled and conducted site visits with a number of agencies who had initially expressed interest.

Financial Incentive Programs

With \$3 million in funding from DOER, MassDEP negotiated a specific carve-out to its Recycling Loan Fund (RLF) for investments in anaerobic digestion. MassDEP finalized the agreement with its RLF administrator Business Development Corporation and announced the new funding in July. A \$750,000 loan was closed in the fall of 2013 as part of a financing package for the BGreen AD System in Hadley. MassDEP permitted the BGreen AD energy facility in Hadley, which began producing energy in December 2013. It is anticipated that 2 additional loans to AD projects will be funded in the first half of 2014 totaling over \$1 million. Several other projects are under consideration.

Siting of Anaerobic Digestion

Following the evaluation of state properties for the potential for siting anaerobic digestion, MassDEP and DCAMM have narrowed the list to three candidate properties that will be further evaluated: MCI-Shirley, MCI-Norfolk and the Amherst Wastewater Treatment Plant (on the UMass-Amherst campus). In 2013, feasibility studies were completed for all three properties. Following the completion of the studies, community meetings were held to get feedback. A request for information was issued in the fall for the MCI properties. DCAMM is seeking legislative authorization to issue a final RFR for the MCI properties. The Amherst property needs further investigation prior to issuing an RFR.

MassDEP coordinated with the MWRA in preparing to release a request for proposals for a pilot program that would accept roughly 40 tons per day of food waste for introduction into the Deer Island digesters. The MWRA has selected a vendor to supply organics and MassDEP provided \$100,000 in financial assistance to help the MWRA make facility adjustments in order to accept source separated organics. The pilot will start in mid 2014.

MassDEP continues to work with several communities that are pursuing AD projects including Bourne, Hamilton, Springfield and the New Bedford Regional Refuse Disposal District.

Permitting

In autumn 2013, MassDEP worked with Stop & Shop on permitting an innovative project utilizing anaerobic digestion to recover the economic value in unsold food products to produce electricity at its distribution facility in Freetown. That permit was issued in early January, 2014.

<http://www.mass.gov/eea/agencies/massdep/news/releases/massdep-approves-stop-and-shops-project-in-freetown.html>

Environmentally Challenged Property

MassDEP continues to bolster its efforts to encourage new clean and efficient sources of energy at environmentally challenged property.

Clean Energy at Closed Landfills

MassDEP provided municipal officials; solid waste consultants and renewable energy developers with the tools needed to assess the redevelopment potential for clean energy at closed landfill sites, navigate the permitting process and harness state incentives. 2013 saw numerous successful renewable energy installations on closed municipal landfills with a total of 46 Post-Closure Use Permits issued to projects with the potential to generate 86.5 MW's of clean electricity. Of these projects, a total of 17 projects are now operational and generating a total of 26.6 MWs of clean electricity. For a complete list of communities that are developing clean energy at closed landfill sites, please visit the Clean Energy Results Program website for [Landfill Renewables](#).

During 2013, MassDEP issued 7 additional Post-Closure use permits with the potential of generating 7.5 MWs of clean electricity. In addition, 7 projects began operation and are now producing 9.4 MW's of clean electricity. These projects include Agawam, Brookfield, Dartmouth, Lancaster, Ludlow, Methuen and Sudbury.

Clean Energy at Contaminated Land

MassDEP advanced 6 clean energy projects proposed on Brownfield's, federal Superfund sites and other contaminated land that (once operational) will have potential for generating more than 11.25 megawatts of clean energy production. That includes work done on the Baird McGuire Superfund green remediation project, ongoing assistance to the 4.9 MW Shaffer Landfill in Billerica/Iron Horse Park Superfund solar PV project, ongoing assistance to the New Bedford Parker Street School 0.5 MW solar PV project ongoing assistance to at the Sullivan's Ledge Superfund site 1.75 MW solar PV project in New Bedford, Brownfield Support Team (BST) assistance with a proposed 0.5 MW solar PV project at the 27 Katrina Rd. site in Chelmsford, BST assistance with a proposed 0.5 to 1.0 MW solar PV project at the Payne Cutlery/Elco Dress site in New Bedford and BST assistance with a possible 2.5 MW solar PV project at the Microfab site in Amesbury as well as ongoing Superfund assistance to the marine Commerce facility project (future staging area for the off shore wind farms) in New Bedford. BWSC also consulted with several interested parties on the opportunities of utility scale solar development on contaminated land. In addition, MassDEP coordinated on and provided suggested revisions to DOER's definition of "Brownfields" and "Eligible Landfills" for its proposed amendments to portions of 225 CMR 14 – Renewable Energy Portfolio Standard – Class I where favorability is given to Brownfield and landfill development.

One article relating to DOER's proposed SREC II program with its emphasis on Brownfield and Landfill solar PV development was published in the LSPA newsletter. The article was titled "New Developments: Siting Renewable Energy on Contaminated Land in Massachusetts."

Promoting Green Remediation

Progress continued this year on promoting the use of green remediation at state and federally regulated contaminated sites. MassDEP hosted four quarterly "Green Remediation" workgroup meetings between March and December with the LSP community. Workgroup efforts focused on the pending adoption of regulatory changes in the spring of 2014 that would foster the application of green remediation elements in waste site cleanup response actions. In November, ASTM International released its "Standard Guide to Greener Cleanups" that could serve as an implementing resource to MassDEPs regulatory changes. They also focused on a pilot study that would encourage energy efficiency and renewable energy opportunities at three to four sites including the New Bedford BST3 Brownfield sustainable redevelopment/revitalization efforts at the former Payne Cutlery/Elco Dress industrial sites.

Two articles relating to Green Remediation were published in the LSPA newsletter with a focus on education and implementation. The articles were titled "Green Remediation: Tools for Implementation" and "A Closer Look: ASTM's Standard Guide for Greener Cleanups", respectively.

BWSC continues a collaborative process with BRP on the application and opportunities around the use of Ground Source Heat Pumps. BWSC plans to develop/draft a policy document addressing issues specific to GSHP installation and application at locations with concentrations of oil and hazardous materials present in subsurface media.

In October MassDEP presented at the Environmental Business Council (EBC) Site Remediation Program titled "Considering Green Remediation in Site Cleanup under the New MCP" held in Westborough, MA. The program attracted 25 attendees. Between December 4th and 5th, MassDEP presented at the Northeast Waste Management Officials Association (NEWMOA) Workshop titled "Moving Toward Sustainable Remediation" held between Dayville, CT and Westford, MA respectively. The workshop covered the topics of both renewable energy development on contaminated land and green remediation. The program attracted up to 150 attendees between the two locations.

Extensive, Targeted Outreach - Clean Energy on Contaminated Land

In March 2013, in conjunction with the Environmental Business Council (EBC) USEPA, DOER and MassCEC, MassDEP co-hosted a program titled "Project Financing Strategies for Developing Renewable Energy on Contaminated Properties in Massachusetts". The program sought to address financing issues associated with contaminated property redevelopment as renewable energy facilities. The program attracted 90 attendees and included opening remarks by USEPA Deputy Administrator Ira Leighton and MassDEP Commissioner Kenneth Kimmell. Ahead of the program, MassDEP finalized and published (online) the first edition of its "Contaminated Land Profile List" that provides information on over 700 properties with favorable renewable energy redevelopment characteristics. MassDEP also finalized and published (online) a fact sheet titled "Addressing Renewable Energy Development at Contaminated

Properties in Massachusetts – Managing Chapter 21E Liability.” Liability is a central concern for developers of contaminated property. Also in March 2013, MassDEP began an internal outreach effort on CERP activities with its regional waste site cleanup staff and DOER colleagues.

In April 2013, MassDEP completed its second offering of training for LSPs with DOER and MassCEC titled “Siting renewable Energy on Contaminated Land in Massachusetts.” The training attracted 100 attendees.

In June 2013, MassDEP’s Brownfield’s Director presented “Energizing Tax Credits: Turning Brownfield’s into Brightfields” at the Cherry Tree Group Tax Credit Conference in Boston

In October 2013, MassDEP presented at the 29th Annual Conference on Soils, Sediments, Water & Energy in Amherst. The platform presentations included the topics of Anaerobic Digestion, Energy Efficiency at WW/DWTP’s, Solar PV on Closed Landfills, Solar PV on Brownfields and Green Remediation at a Federal Superfund site.

Extensive, Targeted Outreach – Green Remediation

In April 2013, BWSC was invited to present as one of the plenary speakers for ASTSWMO’s Annual Mid-Year meeting in Billings, MT. BWSC presented several topics including: Green & Sustainable Remediation (GSR) 101, ASTSWMO’s Greener Cleanups Workgroup activities (speaker is Chair of this group), USEPA’s Green Cleanups Workgroup collaboration on the ASTM Greener Cleanups Standard Guide, the State of Massachusetts efforts with Green Remediation and the New York Department of Conversations efforts with GSR.

In May 2013, MassDEP was invited by USEPA as a panelist to attend the 13th Annual Brownfield’s Conference in Atlanta, GA. BWSC presented Massachusetts’s efforts with Green Remediation and its likely adoption of ASTM’s “Standard Guide for Greener Cleanups.” Also in May, MassDEP completed an internal outreach effort on CERP activities with its regional waste site cleanup staff and DOER colleagues.

In October 2013, MassDEP participated as a panelist at the Environmental Business Council (EBC) Site Remediation Program titled “Considering Green Remediation in Site Cleanup under the New MCP.”

In December 2013, MassDEP participated as a two-day presenter at the Northeast Waste Management Officials Association (NEWMOA) Workshop titled “Moving Toward Sustainable Remediation.”

Clean Energy Support Teams

Technical Assistance

MassDEP Clean Energy Support Teams continue to provide project proponents and other parties with a range of MassDEP expertise on the environmental and regulatory aspects of siting clean energy projects. The Clean Energy Support Team leads are meeting monthly to share information on renewable energy projects and experiences in their region.

January 1 – March 31

- The Southeast Region Team provided pre-permitting assistance to a project proponent of solar arrays at one landfill. Technical assistance was also provided to two solar array projects on Brownfield sites and two anaerobic digester projects.
- The Northeast Region Team provided pre-permitting assistance to project proponents of solar arrays at two landfills. Technical assistance was provided to three companies interested in anaerobic digestion and two universities interested in combined heat and power.
- The Western Region Team provided technical assistance to six project proponents of solar PV on landfills and issued a post-closure use permit on a solar PV project at one landfill site. Technical assistance was also provided to seven wind turbine projects, two biomass projects, two solar array projects on Brownfield sites, one anaerobic digester project, one in-pipeline conduit hydro project, two solar arrays at water supply projects and two biofuel projects. Additionally, the Region addressed regulatory issues that evolved on two projects involving transmission line upgrades near wetlands.
- The Central Region Team provided technical assistance to a project proponent interested in solar arrays and a food processing facility interested in anaerobic digestion.
- The Clean Energy Support Team (Boston and Region) worked collaboratively with the MA Department of Public Health responding to comments on the Wind Turbine Health Impact Study. An acoustic study of operating wind turbines in MA was initiated along with the development of a Technical Advisory Group.
- MassDEP provided technical assistance to municipalities and other partners throughout this quarter to help interpret the agency's noise policy and applicable regulations.
- MassDEP Municipal Assistance Coordinators provided technical assistance to several communities looking to pilot organics collection for residents including Newton, Ipswich and Hamilton.

April 1 – September 30

- The Southeast Region Team provided assistance to a solar PV developer (Blue Wave Capital) to modify a proposed solar array project in the buffer zone of a wetland in the Town of Dartmouth to have less impact on wetland resource areas.
- The Northeast Region Team provided permitting assistance to project proponents of solar arrays at three landfills, which are in construction. Technical assistance was provided to a farm interested in anaerobic digestion and two farms that are proceeding with anaerobic digesters. A pre-permit meeting was held with a casino proponent on a combined heat and power plant proposal and pre-permit reviews were done for two solar projects with wetland resource impacts.
- The Western Region Team provided technical assistance to four solar PV on landfill projects.
- The Central Region Team conducted a study to identify drinking water plants in Massachusetts that could benefit from grants, technical assistance or energy audits.
- The Boston Team provided technical assistance to several communities interested in piloting composting as a cost savings measure, develop solar PV arrays on former landfill sites and developed a feasibility study to site an anaerobic digester at UMass Amherst.

- The Clean Energy Support team (Boston and Regions) assisted publicly owned water treatment facilities with electrical equipment upgrades that will result in long-term kilowatt reductions at those utilities. In addition, the Boston team issued 82 Underground Injection Control registrations for geothermal heating/cooling systems and completed negotiations with the Massachusetts Board of State Examiners of Plumbers and Gas Fitters and DPH to resolve the board's health concerns associated with the dual use of a well for both private potable water supply and as a discharge well for an open-loop geothermal system.
- The Boston Team established a 16-member Wind Turbine Technical Advisory Group (WNTAG), prepared a scope of work for the group and worked to identify potential members with technical expertise and knowledge of the issues and a range of stakeholder perspectives and views. The Consensus Building Institute (CBI) facilitated WNTAG meetings. MassDEP and CBI collaborated to define roles and responsibilities of project participants; established meeting dates and locations; prepared agendas and meeting materials; planned communications for the project on MassDEP and CBI websites; and determined how interested members of the public could participate in the meeting deliberations.
- As part of the MassCEC/DEP Research Study on Wind Turbine Acoustics (RSOWTA), noise monitoring was completed at four wind turbine locations in eastern MA. Wind turbine testing and mitigation was also performed in Fairhaven, MA.
- The Boston and Regional teams continued to work on a technical and financial feasibility study for the Town of Chelmsford for the potential clean-up and development of a solar PV installation on Katrina Road. Technical assistance was also provided to the Town of New Bedford for the possible clean-up and renewable energy development opportunities at the Payne Cutlery and Former Elco Dress Sites, which could serve as a model through the CERP's green remediation efforts.

October 1 – December 31

- The Boston team held or attended the following meetings: a community meeting regarding solar PV development at the Payne Cutlery and Former Elco Dress Sites, New Bedford; a meeting with Town of Chelmsford officials regarding cleanup remedy for solar PV development at 27 Katrina Road in Chelmsford; a pre-construction meeting with various stakeholders regarding solar PV development at Shaffer Landfill and the Iron Horse Park Superfund Site, Billerica.
- Boston team held discussions with the Town of Amesbury regarding solar PV development at the MicroFab site.
- MassDEP Boston team worked with the City of New Bedford and all stakeholders to clean up the landfill and develop solar PV at Sullivan's Ledge Superfund Site, New Bedford
- MassDEP Boston team continued to work on the clean up and possible solar PV development at the Baird & McGuire Superfund Site, Holbrook.
- MassDEP had been contacted by Alpha Surveying and Tighe & Bond on behalf of Citizens Energy which is considering developing a solar PV system at Charles George Landfill, Tyngsboro

Outreach

CERP outreach continued in 2013 with support teams sharing information and materials at forums and other venues throughout the state. MassDEP participated in the following meetings and forums to help further advance energy efficiency and renewable energy opportunities:

January 1 – March 31

- Prepared and presented CERP information at the Annual Mass Municipal Association Conference
- Presented information on the Clean Energy Results Program to the Mass Military Reservation.
- Responded to Public Records Request to obtain all information related to the Independent Expert Panel work preparing its Wind Turbine Health Impact Study. Work on this continues.
- Participated in a public meeting in Shirley, MA to discuss anaerobic digestion at MCI Shirley.
- Presented information on wind power and the CERP Program to Mass Health Officers.
- Hosted a meeting with AIG to discuss insurance opportunities for renewable energy projects.
- Held a meeting with Synapse Clean Energy to discuss performance standards.
- Participated in a public meeting in Norfolk to discuss anaerobic digestion at MCI Norfolk.
- Held a meeting with Bloom Energy and DOER to discuss fuel cell technology and state regulations.
- MassDEP, DOER, EPA New England and the Energy Efficiency Utility providers met with five drinking water and wastewater facilities to discuss energy efficiency opportunities that were identified for the facilities.
- Responded to a second Public Records Request focused on how information received from the public comment period was provided to the Expert Panel conducting the Wind Turbine Health Study.
- Conducted workshops at the MA Association of Conservation Commissions' Annual Conference at Holy Cross College in Worcester to explain clean energy regulatory revisions to MA Wetlands and Waterways regulations.
- Met with Renewable Waste Solutions, DOER and MassCEC to discuss anaerobic digestion.
- Presented information to UMass Amherst Engineering Studies program on Anaerobic Digestion and WWTP efforts.
- Hosted 3rd Quarterly Green Remediation workgroup meeting with Licensed Site Professionals.
- Co-Hosted with The Environmental Business Council and US EPA a workshop on "Project Financing Strategies for Developing Renewable Energy on Contaminated Properties in Massachusetts".

April 1 – September 30

- The Southeast Region Team attended the second and third monthly public meetings held by the Massachusetts Clean Energy Center (CEC) regarding the proposed construction of the Marine Commerce Terminal in the South Terminal area of New Bedford.

- The Western Region Team had discussions with the Town of South Hadley regarding a food waste AD unit at their landfill site, the Town of Amherst regarding a sludge pyrolysis unit, a Berkshire County solid waste hauler regarding a food waste pyrolysis unit and the Towns of Deerfield and Northampton regarding solar on landfill potential.
- The Central Region and Boston Teams organized a tour of the Anaerobic Digestion (AD) unit at the Jordan Dairy Farm for representatives of Shirley, Lancaster, Norfolk, Walpole, Amherst and Hadley. These 6 communities are being considered for AD on state land.
- The Central Region and Boston Teams held meetings for municipal officials and interested residents of Shirley, Lancaster, Norfolk and Walpole to learn more about MassDEP plans to site anaerobic digesters at MCI-Shirley and MCI-Norfolk.
- The Boston Team and Drinking Water Program conducted a second round of notifications to 139 public drinking water systems informing them of the Mass Energy Insight (MEI) Program and providing them with MEI informational material.
- The Boston team also distributed CERP brochures during Source Water Protection technical assistance/outreach work and provided information to Massachusetts public water suppliers and representatives from other states about DWP's solar/wind policy & guideline documents and review/approval process.
- The Boston Team hosted weekly meetings for the MassCEC and MassDEP Consultants working on the Research Study on Wind Turbine Acoustics (RSOWTA). The RSOWTA Project Management team also spent several weeks working with the Town of Hull about their potential involvement with the project.
- The Boston team met with the Town of Fairhaven officials to review their wind turbine testing and mitigation preliminary sampling data.
- Commissioner Kimmell and the Boston Team had meetings with Coal Free Coalition, Veolia Energy and Mayor Warren of Newton to discuss AD potential, Israeli Company Blue Sphere to discuss AD potential and a clean energy policy discussion with Britain's Minister of Energy.
- The Boston Team had meetings and conference calls with: Brown to Green Solar, Inc. to discuss solar PV opportunities at junkyard property in Harwichport; various LSP's seeking consult; USEPA Region 1 and the Clean Energy Collective to provide an overview of community solar and/or "solar gardens" on contaminated land and how it could work with Massachusetts's clean energy build out and; Franklin Electric to discuss application of their GSHP and solar PV powered products for possible green remediation applications.
- The Boston Team Co-hosted with LSPA the second offering of "Siting Renewable Energy on Contaminated Land in Massachusetts"; as one of the plenary speakers for ASTSWMO's Annual Mid-Year meeting in Billings, MT. presented several topics including Green & Sustainable Remediation; attended the New Bedford Marine Commerce Terminal groundbreaking ceremony; Hosted the State House "Clean Energy Day" CERP information booth with MassCEC; attended the 13th Annual Brownfield's Conference in Atlanta, GA. to present Massachusetts's efforts with Green Remediation and its likely adoption of ASTM's "Standard Guide for Greener Cleanups"; attended the Massachusetts Attorney General's 2013 Energy Summit in Norwood, MA on behalf of the CERP program; Hosted 4th Quarterly Green Remediation Workgroup

Meeting and; presented “Energizing Tax Credits: Turning Brownfield’s into Brightfields” at the Cherry Tree Group Tax Credit Conference in Boston.

October 1 – December 31

- The Boston Team Presented at the Environmental Business Council (EBC) Site Remediation Program titled “Considering Green Remediation in Site Cleanup under the New MCP” held in Westborough, MA [25 Attendees]
- Presented at the Northeast Waste Management Officials Association (NEWMOA) Workshop titled “Moving Toward Sustainable Remediation” held between Dayville, CT and Westford, MA respectively. The workshop covered the topics of both renewable energy developments on contaminated lands and green remediation. [100 Attendees]
- Hosted 6TH Quarterly Green Remediation Workgroup Meeting [10 attendees]

Outreach Materials

MassDEP prepared educational outreach materials to help the advancement of renewable energy projects and energy efficiency in the MassDEP regulated community. Some of the materials developed this quarter include:

January 1 – March 31

- Published database listing 700 contaminated sites with redevelopment characteristics favorable to renewable energy developers.
- Published article on "Active Remedial Systems: Creating Clean Energy Sources and Encouraging the Integration of Energy Efficiency".
- Finalized and posted to the web a fact sheet which addresses leasing and "ground leases" under the MassDEP Waste Site Cleanup program: "Addressing Renewable Energy Development at Contaminated Properties in Massachusetts - Managing Chapter 21E Liability".
- Created new maps to showcase and encourage renewable energy in Massachusetts including the Statewide Clean Energy Map, Geothermal Map, Alternative Fuel Stations Map, Compost Site Map, Thermal Well Map, Water/Wastewater clean Energy Map, Anaerobic Digestion Map and Public Utility Providers Map. MassDEP Regional Geographical Information Systems (GIS) Coordinators continue to support CERP Support Teams with these maps and custom material for regional clean energy efforts.

April 1 – September 30

- The Boston and Regional Teams published their 6th and 7th articles in the LSPA Newsletter titled “Green Remediation: Tools for Implementation” and ““A Closer Look: ASTM’s Standard Guide for Greener Cleanups” respectively; published article for “In The Main” about Source Water Protection and DWP’s solar/wind policy and guidelines and: created new maps to showcase and encourage renewable energy development in Massachusetts including state-wide maps of renewable energy sites including compost, anaerobic digesters, thermal wells, public utility providers and alternative fuel.

October 1 – December 31

- The Boston Team published its 8th article in the LSPA Newsletter titled “New Developments: Siting Renewable Energy on Contaminated Land in Massachusetts

Wind Turbines

During this reporting period, MassDEP continued to undertake several activities to address reported noise impacts of wind turbines.

Wind Turbine Noise Technical Group

Based on information from the study and public comments on wind turbine noise issues, MassDEP, as part of EEA’s Community Wind Initiative, established an external technical advisory group and an associated process for purposes of advising MassDEP on potential revisions to its noise regulation and policy, including revisions that are responsive to the health impact study and comments. MassDEP worked to prepare a scope of work for the effort and discussed potential membership of the group, keeping in mind that the goal was to create a group with technical expertise and knowledge of the issues and a range of stakeholder perspectives and views. A potential list of members was prepared and shared with Commissioner Kimmell for review. The Wind Turbine Noise Technical Advisory Group (WNTAG) was then appointed by Commissioner Kimmell. MassDEP finalized the scope of work and reached out to the potential members of the group. CBI assisted MassDEP to further scope out roles and responsibilities of project participants; establish meeting times and locations; prepare agenda and meeting materials; plan communications for the project on MassDEP and CBI websites; and to determine how interested members of the public could participate in the meetings.

The WNTAG meetings have been very well attended and the members have offered valuable information and differing perspectives to MassDEP on options for revising its noise policy. Key accomplishments include: producing a webinar for WNTAG members on basic acoustics and noise measurements to educate some of the members who would benefit from such training; providing a summary of noise policies from other states/regions/and countries; identifying options for revising the noise policy, including the development of criteria for what would represent a good policy that is protective of public health; outlining protocols for monitoring wind turbine sound with discussions of accuracy; and discussing options for MassDEP’s permitting wind turbines of different size and power levels and associated specifications and requirements. Meeting summaries have been prepared to document WNTAG’s advice and information for MassDEP to consider.

Technical Assistance to Communities - Wind

January 1 – March 31

MassDEP continued to provide technical assistance to municipalities and other partners to help interpret the agency’s noise policy and applicable regulations. MassDEP continued to conduct sound sampling in Fairhaven related to the two wind turbines installed in that town. Sampling in Fairhaven

began in the summer of 2012 and additional sampling was necessary to cover all wind directions at key receptor locations.

MassDEP also worked with MassCEC to develop a scope of work for sound sampling in Kingston and assisted the Town of Scituate to develop a scope of work for sound sampling. In Kingston, the scope defined the protocol to be used to determine the sound impacts of the Kingston Wind Independence Turbine. In Scituate, the scope defined the procedure to be used to perform the same sound impact analysis for the single Turbine at the town's Waste Water treatment plant. Both studies were conducted by third party contractors. MassDEP worked with Iberdola Renewables, the owner/ operator of Hoosac Wind, a multi-turbine wind farm in Florida and Monroe, to scope a study of sound impacts from that installation. MassDEP's Western Regional Office is the contact for and has been documenting citizen complaints as well as meeting with affected parties since the project commenced operation. A sound study was performed by a third party consultant to determine the impacts from Hoosac Wind. In addition, MassDEP has met with a number of developer and citizen groups to discuss our noise regulation and the methods we use to determine if the levels defined as noise in our noise policy have or have not been exceeded.

April 1 – June 30

During this quarter, MassDEP continued to conduct sound sampling in Fairhaven related to the two wind turbines installed in that town. Available results were reported to the Fairhaven Board of Health in May. Sampling in Fairhaven began in the summer of 2012 and additional sampling is necessary to cover all wind directions at key receptor locations. A sampling event in June covered one of the needed wind conditions. In addition, MassDEP was asked to conduct testing of mitigation strategies to assist in the discussions between the Board of health, Board of Selectmen and the Turbine Operator to address citizen complaints as well as the results of the MassDEP study. Mitigation Strategies include curtailment of one turbine and/ or feathering the turbine blades. Assessment of the mitigation involves determining how much the sound levels are reduced from implementation of one of these measures. Mitigation sampling was conducted early July 2013.

MassDEP also worked with MassCEC to develop a scope of work for sound sampling in Kingston and assisted the Town of Scituate to develop a scope of work for sound sampling. In Kingston, the scope defines the protocol to be used to determine the sound impacts of the Kingston Wind Independence Turbine. In Scituate, the scope defines the procedure to be used to perform the same sound impact analysis for the single Turbine at the Waste Water treatment plant. Both studies are being conducted by third party contractors. MassDEP worked with Iberdola Renewables, the owner/ operator of Hoosac Wind, a multi-turbine wind farm in Florida and Monroe, to complete the study of sound impacts from that installation.

July 1 – December 31

MassDEP continued to provide technical assistance to municipalities and other partners to help interpret the agency's noise policy and applicable regulations. During this quarter, MassDEP worked with the owner/operator of Fairhaven Wind LLC and Town Boards to conduct sound sampling of sound

mitigation strategies in Fairhaven related to the two wind turbines installed in that town. Mitigation Strategies include curtailment of one turbine and/or feathering the turbine blades. Assessment of the mitigation involved determining how much the sound levels are reduced from implementation of one of these measures. Based on the results of the mitigation sampling, the Fairhaven Wind LLC developed a mitigation plan that MassDEP reviewed and commented on. MassDEP staff, including MassDEP's Deputy Commissioner also attended a number of meetings with Fairhaven Wind LLC and Town Representatives for the purpose of negotiating an affective and acceptable mitigation strategy. The Fairhaven Board of Health voted to approve the mitigation strategy in early 2014.

MassDEP also worked with MassCEC to implement the scope of work for sound sampling in Kingston. The scope defines the protocol to be used to determine the sound impacts of the Kingston Wind Independence Turbine. After a number of delays because of mechanical issues with the turbine, sampling began in December 2013 using a third party contractor. MassDEP is also working with Iberdola Renewables, the owner/ operator of Hoosac Wind, a multi-turbine wind farm in Florida and Monroe, to complete the study of sound impacts from that installation. MassDEP's Western Regional Office is the contact for the study and a third party consultant is conducting the sound sampling. Initial sampling results have been shared with MassDEP and local residents. Additional sampling began in December and continued into early 2014 to collect samples under additional weather conditions.

MassCEC Research Study on Wind Turbine Acoustics

January 1 – March 31

In February, wind turbine noise monitoring was undertaken at Scituate, MA. In March, monitoring was initiated at the Massachusetts Military Reservation's wind turbine (MMR North). A second meeting with the Technical Advisory Group was held to specifically address the infrasound monitoring protocol. After monitoring was finished at MMR North, monitoring began at the third project site, MMR South. Weekly meetings were held among MassCEC, MassDEP and the project consultants (the management team) for updates on progress, project management considerations and site selection of additional projects to include as part of the research study. In January, a conference call was held with Health Canada to share information about each others' research studies on wind turbine noise.

April 1 – June 30

Weekly meetings were held among MassCEC, MassDEP and the project consultants (the management team) for updates on progress, project management considerations and site selection of additional projects to include as part of the research study. In April, noise monitoring was completed at three wind turbine locations, namely in Scituate, the Massachusetts Military Reservation (MMR North) and MMR South. Also in April, the management team discussed next steps for the project. While a number of wind turbine projects had expressed an interest in participating in the study, no agreements had yet been finalized. In case this situation did not change and fewer turbines could be tested, the project management team discussed alternative noise assessment analyses that would be beneficial to the agencies (e.g, retesting at locations in different seasons, conducting more infrasound testing, altering meter settings etc).

July 1 – December 31

Weekly meetings were held among MassCEC, MassDEP and the project consultants (the management team) for updates on progress and project management considerations. In addition, two meetings were held with the project's Technical Advisory Group for external advice on the project's progress and direction. Noise monitoring was completed at four wind turbine locations, namely in Scituate, the Massachusetts Military Reservation (MMR North), MMR South and in Hull.

To support the WNTAG work efforts, the project consultants were asked to prepare a preliminary report, which was completed and presented at the October WNTAG meeting. The preliminary report used the data collected to evaluate sound meter settings and sampling rates to see how these affect the levels reported for wind turbine and ambient sound. In addition, an evaluation was completed on the spectral and temporal characteristics of amplitude modulation with turbines operating and in ambient conditions. The report focused on three of the four sites where data had been collected. For this report, over 63 million sound level samples were collected. The project consultants have also been working on a second preliminary report to compare pre-construction wind turbine modeling to monitored noise levels.

PROGRAM DEVELOPMENT ACHIEVEMENTS

During 2013 MassDEP continued to expand its efforts under the Clean Energy Results Program. A high-level management team, the Inter-Agency Management Team (consisting of senior officials from DOER, MassCEC and MassDEP) continued to meet twice a month to ensure clean energy work across the three agencies is fully aligned and management is timely apprised.

Staffing & Program Activities

MassDEP continues to engage existing agency staff in its Boston and regional offices on tasks necessary to accomplish key activities and goals identified under the Clean Energy Results Program. The sixteen Clean Energy Points of Contact and Clean Energy Director have continued to work with MassDEP staff to expand program activities, implement action plans and track and report progress.

In 2013, 139 existing MassDEP staff worked on activities under this program. 65 existing MassDEP staff dedicated a significant portion of time (between 10-100% FTE) to perform activities under the program. An additional 74 existing staff also worked on tasks for the program during this year (under 10% FTE).

A detailed breakdown of **FTE counts can be found in Appendix A.**

Database

MassDEP, DOER and EEA advanced development and use of the new MassDEP-DOER Clean Energy Results Database. This new database eliminates the need for three different databases and spreadsheets previously used to track information by MassDEP and DOER. It enables streamlined inter-agency sharing of information on activities and outcomes that will save significant staff resources (and paper/electronic resources) that were previously required to manage separate databases. It also ensures that information being tracked and communicated by MassDEP and DOER is consistent across programs and agencies. Both MassDEP and DOER staff are using the database and the **list of projects in Appendix B** of this quarterly report was generated using the database. We look forward to refining the queries and reports from the database in the months ahead as we all learn and improve on its capabilities.

Mapping

During 2013, the MassDEP Regional Geographical Information Systems (GIS) Coordinators continued to support CERP Support Teams with the development of various maps and custom material for regional clean energy efforts. The MassDEP GIS program created new maps including the Statewide Clean Energy Map, Geothermal Map, Alternative Fuel Stations Map, Compost Site Map, Thermal Well Map, Water/Wastewater Clean Energy Map, Anaerobic Digestion Map, Landfill Map and Public Utility Providers Map.

In addition, the following GIS data was created and continuously updated:

- Advanced Biomass / Organics
- Combined Heat and Power

- Fuel Cells
- Hydroelectric
- Landfill Gas
- Solar PV
- Wind Energy
- Green Communities
- Geothermal Energy
- Alternative Fuel Stations
- Compost Sites
- Anaerobic Digestion Sites
- Biobased Companies
- Electric, Gas and Cable
- Water/Wastewater

The MassDEP GIS program also worked with MassCEC to refine the Request for Qualifications for the Community Energy Strategies Pilot Program solicitation ([Community Energy](#)).

Appendix A: Clean Energy Results Program Budget – Part 1

(July 1 thru September 21, 2013)

Summary	Salary	Total Expenditures
Starting Balance	\$3,370,745.46	\$5,638,559.04
July 1 2013 Thru September 21, 2013	\$334,376.28	\$469,884.55
Overtime		
Employee Refund of Non-Tax Benefits		\$15.09
Total Salary	\$3,705,121.74	
Grand Total of Expenditures Through September 21, 2013		\$6,108,458.68

Title	Location	FTE	Salary (\$)
Program Manager Specialist IX	CERO	0.10	2,556.64
Environmental Engineer IV	CERO	1.00	19,278.34
Environmental Analyst IV	Boston	0.15	2,891.73
Environmental Engineer V	CERO	0.25	5,205.06
Environmental Analyst VI	Boston	0.10	2,186.81
Program Manager VIII	Boston	0.10	2,045.63
Environmental Analyst IV	Boston	0.40	6,661.86
Program Manager VII	Boston	0.10	1,868.38
Administrator IX	Boston	0.10	2,653.32
Environmental Analyst IV	Boston	0.10	5,426.98
Environmental Engineer V	Boston	0.30	4,164.02
Environmental Analyst IV	Boston	0.20	2,891.76
Administrator VI	SERO	0.15	1,852.76

Environmental Engineer IV	SERO	0.10	1,927.82
Administrator VII	Boston	0.10	942.11
Environmental Analyst IV	SERO	0.30	1,552.60
Accountant V	Boston	0.50	9,033.28
Environmental Analyst IV	SERO	0.10	1,682.97
Environmental Analyst V	CERO	1.00	20,820.12
Environmental Analyst IV	Boston	0.30	4,318.37
Program Manager IX	Boston	0.10	2,364.14
Program Manager VII	Boston	0.25	5,750.79
Regional Planner V	Boston	0.35	7,071.90
Administrator IX	Boston	0.20	4,875.11
Administrator VII	Boston	1.00	14,981.31
Regional Planner V	Boston	0.30	6,246.05
Environmental Analyst IV	Boston	0.50	8,100.99
Administrator VII	SERO	0.10	2,110.77
Program Manager IX	WERO	0.10	2,735.75
Regional Planner IV	Boston	0.30	5,783.52
Environmental Engineer VI	WERO	0.50	11,266.70
Program Coordinator III	Boston	0.65	11,743.22
Administrator XII	Boston	0.10	3,128.63
Environmental Engineer V	CERO	0.25	5,205.04
Administrator VIII	Boston	0.10	2,364.17
Administrator VII	Boston	0.35	7,657.72
Regional Planner V	Boston	0.30	4,996.83
Regional Planner V	Boston	0.10	2,082.02
Administrator VI	Boston	0.10	2,237.23
Administrator VI	Boston	0.10	1,965.34
Counsel II	Boston	0.20	4,127.93

Fiscal Officer VII	Boston	0.10	2,118.64
Regional Planner IV	Boston	0.50	9,639.17
Regional Planner IV	Boston	0.10	1,927.85
Administrator VI	Boston	0.10	1,445.18
Administrator XI	Boston	0.10	2,936.55
Environmental Analyst III	NERO	0.25	4,135.04
Environmental Analyst V	Boston	0.80	16,656.07
Program Manager VII	Boston	0.30	6,126.77
Program Manager IV	Boston	0.15	2,608.11
Program Manager VIII	Boston	0.20	5,340.02
Administrator V	Boston	0.20	4,014.97
Administrator IX	Boston	0.25	6,817.65
Environmental Analyst IV	Boston	0.25	4,819.60
Environmental Engineer VI	Boston	0.20	4,506.68
Environmental Analyst VI	Boston	0.10	2,253.34
Environmental Analyst IV	Boston	0.70	13,494.82
Administrator X	Boston	0.30	8,634.21
Administrator V	SERO	0.40	5,438.99
Administrator IX	Boston	0.15	4,141.85
Administrator VII	Boston	0.30	8,157.77
Administrator VIII	NERO	0.10	2,407.28
<i>SubTotal Salary Expenditures of Dedicated Employees</i>		16.95	\$334,376.28

Appendix A: Clean Energy Results Program Budget – Part 2

(September 22 thru December 28, 2013)

Summary	Salary	Total Expenditures
Starting Balance	\$3,705,121.74	\$6,108,458.68
September 22, 2013 Through December 28, 2013	\$376,592.40	\$539,110.19
Travel		\$762.85
Employee Refund of Non-Tax Benefits		\$22.86
Total Salary	\$4,081,714.14	
Grand Total of Expenditures Through September 21, 2013		\$6,648,354.58

Title	Location	FTE	Salary (\$)
Program Manager Specialist IX	CERO	0.10	3,144.29
Environmental Engineer IV	CERO	1.00	20,940.65
Environmental Analyst IV	Boston	0.15	3,382.68
Environmental Engineer V	CERO	0.25	6,088.78
Environmental Analyst VI	Boston	0.10	2,557.60
Program Manager VIII	Boston	0.10	1,777.26
Environmental Analyst IV	Boston	0.40	7,881.48
Administrator VI	CERO	0.30	5,393.44
Program Manager VII	Boston	0.10	2,260.06
Environmental Analyst V	Boston	0.10	2,435.50
Administrator IX	Boston	0.10	3,209.58
Environmental Analyst IV	Boston	0.30	6,517.27

Environmental Engineer V	Boston	0.20	4,871.03
Environmental Analyst IV	Boston	0.15	3,382.69
Administrator VI	SERO	0.10	2,241.22
Environmental Engineer IV	SERO	0.10	2,255.16
Program Manager VIII	Boston	0.30	8,307.81
Environmental Analyst IV	SERO	0.10	933.60
Accountant V	Boston	0.50	10,564.86
Environmental Analyst V	CERO	1.00	24,355.05
Environmental Analyst IV	Boston	0.30	4,690.74
Program Manager IX	Boston	0.10	2,859.78
Program Manager VII	Boston	0.25	6,956.45
Regional Planner V	Boston	0.35	8,334.16
Administrator IX	Boston	0.20	5,897.12
Regional Planner V	Boston	0.30	7,306.52
Environmental Analyst IV	Boston	0.50	9,470.64
Administrator VII	SERO	0.10	2,581.61
Program Manager IX	WERO	0.10	3,309.28
Regional Planner IV	Boston	0.30	6,765.48
Environmental Engineer VI	WERO	0.50	13,179.61
Program Coordinator III	Boston	0.65	13,734.20
Administrator XII	Boston	0.10	3,784.54
Environmental Engineer V	CERO	0.25	6,088.76
Administrator VIII	Boston	0.10	2,859.78
Administrator VII	Boston	0.35	9,263.11
Regional Planner V	Boston	0.30	5,427.71
Regional Planner V	Boston	0.10	2,435.52
Administrator VI	Boston	0.10	2,519.35
Administrator VI	Boston	0.10	2,377.38

Counsel II	Boston	0.20	4,827.80
Fiscal Officer VII	Boston	0.10	2,562.81
Regional Planner IV	Boston	0.50	11,275.76
Regional Planner IV	Boston	0.10	2,255.15
Administrator XI	Boston	0.10	3,552.17
Environmental Analyst III	NERO	0.25	4,876.13
Administrator VII	Boston	0.10	2,035.70
Environmental Analyst V	Boston	0.80	24,355.01
Program Manager VII	Boston	0.30	7,411.23
Program Manager IV	Boston	0.15	3,154.90
Program Manager VIII	Boston	0.20	6,459.55
Administrator V	Boston	0.20	4,856.71
Administrator IX	Boston	0.25	8,246.96
Environmental Analyst IV	Boston	0.25	5,637.89
Environmental Engineer VI	Boston	0.20	5,271.84
Environmental Analyst VI	Boston	0.10	2,635.94
Environmental Analyst IV	Boston	0.70	2,255.15
Administrator X	Boston	0.30	10,444.35
Administrator V	SERO	0.40	7,169.13
Administrator IX	Boston	0.15	5,010.16
Administrator VII	Boston	0.30	8,548.63
Administrator VIII	NERO	0.10	1,407.70
<i>SubTotal Salary Expenditures of Dedicated Employees</i>		16.25	\$376,592.42

Project expected to be completed 12/2013

Municipality: Dartmouth	Project Type: Solar PV (Ground)	Status: Planning	Project Type: Solar PV (Ground)
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Activity type: Status Change	Date: 6/19/2013	Description:
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REGION Western

Project #: 3665	Project Name: DWTP 85 kW Hydro Turbine	Project description: Upgrade existing turbine (new inlet piping and hydraulic valves); add monitoring system. Work increased turbine efficiency by 10-20%. Turbine runs around 20-29 kW although it is an 85 kW machine.
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Municipality: Lee	Project Type: Hydro (Inline)	Status: Complete	Project Type: Hydro (Inline)
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Activity type: Municipal Services	Date: 5/24/2013	Description: DEP submitted SQA for Class I and Class II RECs. Still need to submit final documentation of historic production, capacity and split between Class I and Class II.
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Activity type: Municipal Services	Date: 6/21/2013	Description: Final documentation submitted to DOER (H. Bernstein) on Capacity factor, typical production and percentage Class I vs. Class II. Arp calculated capacity factor of 25%, historic production at 184,302 kWh/yr and 15% of power is Class I eligible.
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Activity type: Municipal Services	Date: 7/10/2013	Description: DOER approved facility as generator of Class I and Class II RECs. Therefore, facility will be able to generate Q1 2013 RECs.
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Activity type: Municipal Services	Date: 7/12/2013	Description: DEP staff checked NEPOOL to verify Q1 2013 REC generation. Numbers accurately reflect DECK monitoring values. Facility generated 20 RECs; 3 are Class 1, 17 are Class 2.
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Project #: 3691	Project Name: Coltsville DW 66 kW Inline Hydro Turbine	Project description:
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Municipality: Pittsfield	Project Type: Hydro (Inline)	Status: Complete	Project Type: Hydro (Inline)
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Technical Assistance 7/19/2013 Discussed potential application for RECs. Facility was being held up by LIHI but DEP informed AECOM (Doug Gove) that LIHI not required. Gove to work on metering and third party verification in order to get REC certified. DEP offered assistance.

Project #: **Project Name:**

Project description:

3720 WERO Outreach Calls & Meetings

Municipality:

Springfield

Project Type:

Outreach - Calls & M

Status:

Active

Project Type:

Outreach - Calls & M

Activity type:

Date:

Description:

Status Change

1/8/2013

Project #: **Project Name:**

Project description:

3721 WERO Outreach Materials

Municipality:

Springfield

Project Type:

Outreach Materials

Status:

Active

Project Type:

Outreach Materials

Activity type:

Date:

Description:

Status Change

1/8/2013

Project #: **Project Name:**

Project description:

3722 WERO Technical Assistance Projects

Municipality:

Springfield

Project Type:

Technical Assistance

Status:

Active

Project Type:

Technical Assistance

Activity type:

Date:

Description:

Status Change

1/8/2013

Project #: **Project Name:**

Project description:

3723 WERO Research Projects

Municipality:

Springfield

Project Type:

Research

Status:

Active

Project Type:

Research

Status Change 1/8/2013

Project #: **Project Name:** **Project description:**

3724 WERO Regulation Reform
Projects

Municipality: **Project Type:** **Status:** **Project Type:**
Springfield Regulation Reform Active Regulation Reform

Activity type: **Date:** **Description:**

Status Change 1/8/2013

Project #: **Project Name:** **Project description:**

3725 WERO Policy Development
Projects

Municipality: **Project Type:** **Status:** **Project Type:**
Springfield Policy Development Active Policy Development

Activity type: **Date:** **Description:**

Status Change 1/8/2013

Project #: **Project Name:** **Project description:**

3726 Solar PV- Ioka Farm-Hancock Approved installation of Solar Panels in Zone 1 of PWS.
15 kW PWS

Municipality: **Project Type:** **Status:** **Project Type:**
Hancock Solar PV (Ground) Complete Solar PV (Ground)

Activity type: **Date:** **Description:**

Technical Assistance 1/8/2013 Pre-permitting/Technical assistance for approved installation of solar panels in water supply protection area 30.24KW

Project #: **Project Name:** **Project description:**

3727 Solar PV- Crane site -
Brownfield WMECO Springfield Brownfield Solar project (Crane Property)

Municipality: **Project Type:** **Status:** **Project Type:**
Springfield Solar PV (Ground) Complete Solar PV (Ground)

Status Change 1/8/2013 Completed late 2012

Activity type: **Date:** **Description:**

Technical Assistance 1/8/2013 Pre-permitting- Brownfield's, Springfield Indian Orchard 2.3MW

Project #: **Project Name:** **Project description:**

3728 Biodiesel-Northeast Biodiesel

Municipality: **Project Type:** **Status:** **Project Type:**
Greenfield Biofuel CHP Complete Biofuel CHP

Activity type: **Date:** **Description:**

Permit Issued 1/8/2013 Pre- Permitting/ Technical Assistance. Revised DON an air quality permit issued for 5.2 MGY biodiesel production.

Activity type: **Date:** **Description:**

Status Change 4/19/2013

Project #: **Project Name:** **Project description:**

3729 Wind Turbines Lee Water Department Wind

Municipality: **Project Type:** **Status:** **Project Type:**
Lee Wind Planning Wind

Activity type: **Date:** **Description:**

Technical Assistance 1/8/2013 Pre-permitting/ technical assistance / Approval for Met Tower. DWP policy Discussion and plan design. Met Tower Proposed.

Activity type: **Date:** **Description:**

Status Change 4/18/2013

Project #: **Project Name:** **Project description:**

3734 Alternative Fuel Change of Fuel

Municipality: **Project Type:** **Status:** **Project Type:**
Springfield Technical Assistance Proposed Technical Assistance

Activity type: **Date:** **Description:**

Status Change 3/29/2013

Project #:	Project Name:	Project description:		
3735	Solar PV-Landfill	Ludlow Landfill - 2.6 MW Solar PV Project.		
Municipality:		Project Type:	Status:	Project Type:
Ludlow		Solar PV (Ground)	Complete	Solar PV (Ground)
Activity type:	Date:	Description:		
Outreach Calls & Meet	1/8/2013	Pre-Permitting. Minor coordination with the Town. The town has executed the contract with Borrego. A meeting will be held late April/ early May to go over panel layout and other details. Construction anticipated in 2012.		
Activity type:	Date:	Description:		
Status Change	2/7/2013	Under construction		
Activity type:	Date:	Description:		
Public Outreach	10/28/2013	Ribbon cutting at Ludlow LF PV.		
Activity type:	Date:	Description:		
Status Change	10/28/2013	Ribbon Cutting for Project Completion.		

Project #:	Project Name:	Project description:		
3736	Solar PV-Landfill	0.46 MW photovoltaic solar farm to be located on approximately 2.5 acres of the capped unlined closed landfill. Broadway Electrical Inc/Renewable Strategies, LLC expects construction to begin Sept 2013		
Municipality:		Project Type:	Status:	Project Type:
Lee		Solar PV (Ground)	Planning	Solar PV (Ground)
Activity type:	Date:	Description:		
Permit Issued	3/1/2013	Post closure use permit approval - 0.46 MW		
Activity type:	Date:	Description:		
Status Change	6/26/2013			
Activity type:	Date:	Description:		
Status Change	6/26/2013	Post Closure Permit Issued by DEP		

Project #:	Project Name:	Project description:		
3737	Solar PV- Elks Landfill			
Municipality:		Project Type:	Status:	Project Type:
Chicopee		Solar PV (Ground)	Active	Solar PV (Ground)

Other 1/8/2013 Pre permitting. Minor Coordination with the Elks and Partyka Development Corp.

Project #: **Project Name:** **Project description:**

3738 Solar PV- Amherst Landfill Amherst Landfill Solar Array Pre-permitting

Municipality: **Project Type:** **Status:** **Project Type:**
Amherst Solar PV (Ground) Planning Solar PV (Ground)

Activity type: **Date:** **Description:**

Other 1/8/2013 Limited coordination with the town. This landfill received a capping grant which precludes post closure use as contemplated. Legislation has been filed to overcome this hurdle. Legislation nearing completion.

Project #: **Project Name:** **Project description:**

3740 Solar PV - Greenfield Water Division Proposed solar project in Millbrook wellfield

Municipality: **Project Type:** **Status:** **Project Type:**
Greenfield Solar PV (Ground) Proposed Solar PV (Ground)

Activity type: **Date:** **Description:**

Technical Assistance 1/8/2013 DWP Policy discussion and plan design.

Activity type: **Date:** **Description:**

Technical Assistance 1/31/2013 pre permitting guidance

Activity type: **Date:** **Description:**

Status Change 4/5/2013

Project #: **Project Name:** **Project description:**

3741 Wind Turbines-Savoy/Adams Preliminary Discussion- 20 Turbine wind project

Municipality: **Project Type:** **Status:** **Project Type:**
Savoy Wind Proposed Wind

Activity type: **Date:** **Description:**

Status Change 1/9/2013

Technical Assistance 1/9/2013 Met with proponent to discuss the noise policy. 30MW
Discussion of noise policy and wetlands. Towns of Savoy/ Adams

Activity type: **Date:** **Description:**

Status Change 3/29/2013

Project #: **Project Name:** **Project description:**

3742 Wind Turbines- Savoy Turbine- 12.5 mw

Municipality: **Project Type:** **Status:** **Project Type:**

Savoy Wind Planning Wind

Activity type: **Date:** **Description:**

Status Change 1/9/2013

Activity type: **Date:** **Description:**

Technical Assistance 1/9/2013 Pre-permitting/ technical assistance. Proposed 12.5 MW project. Project went through MEPA and is in Wetlands appeal process.

Activity type: **Date:** **Description:**

Technical Assistance 3/29/2013 Discussion of sound study and proposed post construction monitoring. Proposed construction 2013 to be completed 2014

Project #: **Project Name:** **Project description:**

3743 Wind Turbines-Russell Wind turbine very preliminary

Municipality: **Project Type:** **Status:** **Project Type:**

Russell Wind Planning Wind

Activity type: **Date:** **Description:**

Status Change 1/9/2013

Activity type: **Date:** **Description:**

Technical Assistance 1/9/2013 Pre-permitting/ Technical assistance. Discussions Regarding the Noise Policy.

Project #: **Project Name:** **Project description:**

3744 Biomass

Municipality: **Project Type:** **Status:** **Project Type:**

Westhampton Technical Assistance Proposed Technical Assistance

Status Change 1/9/2013

Activity type: **Date:** **Description:**

Other 1/9/2013 Proposed wood gasification plants. 1.5MW

Project #: **Project Name:** **Project description:**

3745 Wind Turbines-Florida
(Duplicate - need to merge) 19 Turbine- 28.5mw wind project. On two ridges one in Florida and one in Monroe.

Municipality: **Project Type:** **Status:** **Project Type:**

Florida Wind Complete Wind

Activity type: **Date:** **Description:**

Technical Assistance 1/9/2013 30 Mw wind project under construction.

Activity type: **Date:** **Description:**

Status Change 3/29/2013

Activity type: **Date:** **Description:**

Technical Assistance 3/29/2013 Fully Functional mid December 2012. Noise complaints came into MassDEP immediately. Noise study is currently being conducted. March 2013

Project #: **Project Name:** **Project description:**

3746 Solar PV- Landfill Cottage St. Companies: Cottage Developers Waste Management, City of Springfield

Municipality: **Project Type:** **Status:** **Project Type:**

Springfield Solar PV (Ground) Active Solar PV (Ground)

Activity type: **Date:** **Description:**

Technical Assistance 3/15/2013 Post closure Approval 4.9mw

Project #: **Project Name:** **Project description:**

3747 Brownfield Solar-Palmer

Municipality: **Project Type:** **Status:** **Project Type:**

Palmer Technical Assistance Planning Technical Assistance

Activity type: **Date:** **Description:**

Status Change 1/9/2013 In early stages of development.

Technical Assistance 1/9/2013 This Large commercial site recently submitted a permanent solution (Class A-RAO), completing cleanup under MassDEP/BWSC program. Installation of a Solar Array would be compatible with the site closure (RAO)

Project #: **Project Name:**

Project description:

3748 Biodiesel

Municipality:

Project Type:

Status:

Project Type:

Erving

Fuel Conversion

Complete

Fuel Conversion

Activity type:

Date:

Description:

Technical Assistance

1/10/2013

Converted to use of biodiesel and replaced #6 fuel. They performed emissions testing and demonstrated an across the board reduction in emissions when burning this fuel.

Activity type:

Date:

Description:

Status Change

4/19/2013

Project #: **Project Name:**

Project description:

3749 Biomass

Municipality:

Project Type:

Status:

Project Type:

Russell

Technical Assistance

Complete

Technical Assistance

Activity type:

Date:

Description:

Permit Issued

1/10/2013

Proposed 50 MW biomass. Permitted by MassDEP, Air, WMA, (NPDES- pending) litigation-permit upheld.

Activity type:

Date:

Description:

Status Change

4/19/2013

Project #: **Project Name:**

Project description:

3752 Biomass

Municipality:

Project Type:

Status:

Project Type:

Springfield

Technical Assistance

Complete

Technical Assistance

Activity type:

Date:

Description:

Other

1/10/2013

Biomass permit under appeal.

Status Change 4/19/2013

Project #: **Project Name:** **Project description:**

3755 Solar PV- Landfill 8918 solar panels

Municipality: **Project Type:** **Status:** **Project Type:**
Greenfield Solar PV (Ground) Complete Solar PV (Ground)

Activity type: **Date:** **Description:**
Permit Issued 1/10/2013 Permit issued on September 1, 2010. Minor Coordination with the town and Axio. Facility commenced construction late December 2011 and most of the ballasts racks are now laid out.

Activity type: **Date:** **Description:**
Status Change 2/19/2013

Project #: **Project Name:** **Project description:**

3896 Solar PV- Landfill- Pittsfield

Municipality: **Project Type:** **Status:** **Project Type:**
Pittsfield Solar PV (Ground) Active Solar PV (Ground)

Activity type: **Date:** **Description:**
Status Change 1/23/2013

Project #: **Project Name:** **Project description:**

3897 Solar PV-Landfill Adams 1.1 MW 1.1 MW Solar PV array

Municipality: **Project Type:** **Status:** **Project Type:**
Adams Solar PV (Ground) Active Solar PV (Ground)

Activity type: **Date:** **Description:**
Status Change 1/23/2013

Municipality: Holyoke **Project Type:** Wind **Status:** Active **Project Type:** Wind

Activity type: Status Change **Date:** 1/23/2013 **Description:**

Activity type: Permit Issued **Date:** 1/23/2013 **Description:** Pre-permitting 20 MW project, noise policy, wetlands. NESHAPs issued to be resolved.

Project #: 3899 **Project Name:** Wind Turbines-Hancock
(Duplicate need to merge) **Project description:** Under Construction 15 MW

Municipality: Hancock **Project Type:** Wind **Status:** Complete **Project Type:** Wind

Activity type: Status Change **Date:** 1/23/2013 **Description:**

Activity type: Technical Assistance **Date:** 1/23/2013 **Description:** Pre-permitting/ Technical assistance

Project #: 3919 **Project Name:** Hydro-Electric **Project description:** Small in pipeline conduit proposed.

Municipality: Ludlow **Project Type:** Technical Assistance **Status:** Planning **Project Type:** Technical Assistance

Activity type: Other **Date:** 1/30/2013 **Description:** Reviewed for potential impacts.

Activity type: Status Change **Date:** 1/30/2013 **Description:** Pending

To energy system

Municipality: Sheffield	Project Type: Combined Heat Power	Status: Complete	Project Type: Combined Heat Power
Activity type: Technical Assistance	Date: 1/30/2013	Description: Anaerobic digestion/ biogas to energy system to generate biogas, electric heat. Biogas fired CHP engine/ generator set, back up flare, and anaerobic digestion.	
Activity type: Status Change	Date: 1/30/2013	Description: Pre permitting/ permitting	
Activity type: Status Change	Date: 1/31/2013	Description:	
Project #: 3921	Project Name: Biodiesel	Project description: A Missouri based company- uses turkey offal to digest into biodiesel. Fuel is currently being used at Erving paper. Looking to expand customer base in the region. This fuel requires replacement of burner piping with stainless steel. CWT pays up front bu	
Municipality: Erving	Project Type: Technical Assistance	Status: Complete	Project Type: Technical Assistance
Activity type: Status Change	Date: 4/19/2013	Description:	
Project #: 3922	Project Name: Solar PV	Project description: Wetlands circuit rider contacted local con com to provide assistance	
Municipality: Charlemont	Project Type: Solar PV (Ground)	Status: Active	Project Type: Solar PV (Ground)
Activity type: Status Change	Date: 1/31/2013	Description: On- going	

Granville Wind Active Wind

Activity type: **Date:** **Description:**

Status Change 1/31/2013 On going

Activity type: **Date:** **Description:**

Other 1/31/2013 DWP Policy Discussions.

Project #: **Project Name:** **Project description:**

3929 Solar PV

Municipality: **Project Type:** **Status:** **Project Type:**
Deerfield Solar PV (Ground) Active Solar PV (Ground)

Activity type: **Date:** **Description:**

Status Change 1/31/2013 On going

Project #: **Project Name:** **Project description:**

3930 Solar PV

Municipality: **Project Type:** **Status:** **Project Type:**
Lenox Solar PV (Ground) Active Solar PV (Ground)

Activity type: **Date:** **Description:**

Status Change 1/31/2013 On going

Project #: **Project Name:** **Project description:**

3931 Befouls Mechanically extract biofuel from POTW sludge and burn in CHP to use steam and energy at the POTW.

Municipality: **Project Type:** **Status:** **Project Type:**
Erving Biofuel CHP Active Biofuel CHP

Activity type: **Date:** **Description:**

Status Change 2/1/2013 On going

West Springfield Biomass Thermal Active Biomass Thermal

Activity type: **Date:** **Description:**
Status Change 2/1/2013 On going

Project #: **Project Name:** **Project description:**
3933 Alternative Fuel Project proposed to burn as a fuel the emission created from production of Styrofoam.

Municipality: **Project Type:** **Status:** **Project Type:**
Springfield Technical Assistance Proposed Technical Assistance

Activity type: **Date:** **Description:**
Status Change 2/1/2013 On going

Activity type: **Date:** **Description:**
Status Change 3/29/2013

Project #: **Project Name:** **Project description:**
4662 Solar PV at Reservoir Rd Water Treatment Plant 35.1 kW solar arrays on roof of WTP. Installed by GroSolar. Includes 156 Solon Blue 225W panels, Satcon inverter, and Panel Claw mounting). Monitoring by DECK (see link in notes). Project funding by DWSRF #3304

Municipality: **Project Type:** **Status:** **Project Type:**
Lee Solar PV (Roof) Complete Solar PV (Roof)

Activity type: **Date:** **Description:**
Municipal Services 1/31/2013 SQA application submitted by DEP on behalf of the Town. Awaiting document from Town to finalize submission (expected in March).

Activity type: **Date:** **Description:**
Municipal Services 7/5/2013 Facility approved by DOER to generate Class I RECs. Facility SQA SL-1276-13. Nepool ID NON36097.

Activity type: **Date:** **Description:**
Municipal Services 7/11/2013 DEP SRF reviewed NEPOOL account to verify first generation of RECs. Facility has 3 Class I RECs for Q1 2013. Value is consistent with inverter data.

Westfield	Hydro (Inline)	Active	Hydro (Inline)
Activity type:	Date:	Description:	
Municipal Services	3/14/2013	Project Regulatory Agreement sent to facility (PRA DWP-12-18). Basically a loan is being preferred.	
Activity type:	Date:	Description:	
Status Change	4/19/2013		
Activity type:	Date:	Description:	
Inspections	8/28/2013	MassDEP/SRF inspection by M. McGrath. Report indicates "Submitted WMECO application for hydro turbine."	
Activity type:	Date:	Description:	
Inspections	9/19/2013	MassDEP/SRF construction inspection by M. McGrath. By October, expect to receive WMECO permit application approval and order hydro turbine.	
Activity type:	Date:	Description:	
Inspections	10/17/2013	MassDEP/SRF construction inspection by M. McGrath. WMECO hydroturbine application still not complete/received.	
Project #:	Project Name:	Project description:	
4777	STCC- Decentralization of Heating system	Decentralization of heating system and conversion from oil to natural gas. Decommissioning of central oil heat system to be replaced with individual natural gas units.	
Municipality:	Project Type:	Status:	Project Type:
Springfield	Fuel Conversion	Proposed	Fuel Conversion
Activity type:	Date:	Description:	
Status Change	3/28/2013		
Project #:	Project Name:	Project description:	
4778	Solar PV- Pittsfield	Installed Solar Array	
Municipality:	Project Type:	Status:	Project Type:
Pittsfield	Solar PV (Ground)	Complete	Solar PV (Ground)
Activity type:	Date:	Description:	
Status Change	3/29/2013	2011	

Lee Anaerobic Digestion Proposed Anaerobic Digestion

Activity type: **Date:** **Description:**

Status Change 3/29/2013

Project #: **Project Name:** **Project description:**

4780 AD-Muckbuster Ad unit for WWT to Organic handling on site only.

Municipality: **Project Type:** **Status:** **Project Type:**
Lenox Anaerobic Digestion Proposed Anaerobic Digestion

Activity type: **Date:** **Description:**

Status Change 3/28/2013

Project #: **Project Name:** **Project description:**

4781 Solar PV-Landfill 1.98 MW Solar PV

Municipality: **Project Type:** **Status:** **Project Type:**
Agawam Solar PV (Ground) Active Solar PV (Ground)

Activity type: **Date:** **Description:**

Status Change 3/29/2013

Project #: **Project Name:** **Project description:**

4817 62 Orchard Street/Ground
Source Heat Pump

Municipality: **Project Type:** **Status:** **Project Type:**
Belchertown Geothermal Complete Geothermal

Activity type: **Date:** **Description:**

Status Change 4/25/2013

Project Count by Region

Region **Project Count:**

Central 38

Northeast 43

Southeast 23

Western 59

Total Project Count: 163

Activity Count by Region

Region **Activity Count:**

Central 63

Northeast 132

Southeast 33

Western 99

Total Activity Count: 327