

UMASS CLEAN ENERGY EXTENSION

Quarterly Progress Report to MA Department of Energy Resources

Period ending September 30, 2016

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This Progress Report provides a summary of work accomplished by the UMass Clean Energy Extension (CEE) during the period July 1, 2016 to September 30, 2016.

During this reporting period, the Clean Energy Extension has begun to function with a full core staff and has begun to develop strategic planning to hone in on its goals and activities. CEE has extended its pilot program engaging staff and students to support municipal participation in the Green Communities program, and has continued to provide support directly to the state, and to towns, businesses, and non-profits that seek our assistance. This report provides a summary of progress in the administrative development of the extension, outreach, and research activities.

1. Extension Administration and Management

Staff Hiring

The Clean Energy Extension completed the hiring of Gregory ‘River’ Strong for the Market Analyst & Outreach Coordinator position. River started with the CEE in late July. Soon after his start, and to better represent his role and responsibilities, River’s title was revised to Assistant Director for Market Development.

2. Market Support and Extension Outreach Activities

The Clean Energy Extension continues to provide support and outreach as opportunities arise. With the core staff now coming into place, CEE expects to begin more proactive outreach strategies in targeted market sectors later in 2016. Our current support and outreach extends within UMass and to local municipalities, state agencies, and private sector businesses and institutions.

Public Events and Presentations

Event	Date and Location	Extension Presenter	Presentation Title	Audience	Estimated Attendance
Franklin Regional Council of Governments	Greenfield, MA. September 13	Dwayne Breger, with Kevin	“Clean Energy Support for MA Towns: Clean Energy Extension”	Regional town energy	30

(FRCOG), Regional Energy Committee		Calatone (student)		committee members	
2016 Sustainability Summit: Energizing & Democratizing New England's Energy Economy. Chaired Session on <i>State-level Programs that Drive Renewable Investment in Communities</i>	Smith College, Northampton, MA. June 8	Dwayne Breger and River Strong	“State Programs Driving Renewable Energy in Massachusetts Communities” and “Supporting Clean Energy in Massachusetts: Clean Energy Extension”	Professionals, builders, activists	25
MA Clean Energy Conference, UMass Clean Energy Extension (see full summary below)	Worcester, MA, September 22	All CEE staff (Breger, Weil, Strong, Beebe, Mattison)	Chaired sessions, and “Green Building and Retrofit Planning for Urban Revitalization and Redevelopment”, “Supporting Clean Energy in Massachusetts: UMass Clean Energy Extension”	MA municipalities, stakeholders, clean energy vendors	92

MA Clean Energy Annual Conference

The Clean Energy Extension hosted its 3rd Annual MA Clean Energy Conference on September 22 at the Beechwood Hotel in Worcester. The Conference provided four sessions with varied topics applicable to towns, and a vendor room with related technologies and programs.

Conference was attended by 92 people, broken down as 40 municipal staff, 15 general public, 10 students, 10 speakers, 10 sponsors, and 7 CEE staff. Based on 30 returned conference surveys, attendees rated the conference with an average overall score of 4.5 (1 = poor, 5=excellent).

Detailed survey responses were also very favorable and provided useful feedback. The total Conference direct expenses totaled \$6374, which was partially displaced by \$3450 of income from sponsors and registrations. CEE has followed up with Conference participants, and posted the Conference presentations on its website.

Environmental Business Council of New England (EBC) Energy Resources Committee, Chair, Energy Storage Program

Dwayne Breger was appointed to the EBC Energy Resources Committee and was tasked with serving as Program Chair for a program on energy storage scheduled for November 29. Dwayne has worked with EBC leadership to draft an agenda and a slate of potential speakers. The program has been shared with DOER for discussion, and has coordinated with the Commissioner’s staff to secure Commissioner Judson as the keynote speaker.

Activities at University and State Agencies

Mohawk Trail Woodlands Partnership

The Clean Energy Extension has worked with DOER and the Executive Office of Energy and Environmental Affairs to establish a scope of work for the CEE to offer support to the Mohawk Trail Woodlands partnership on the behalf of the state. Key activities include air emissions testing and public health assessment, analyzing potential regional demand for wood pellets for municipal and private sector thermal loads, assessment of a wood pellet manufacturing plant and business plan options, and a regional economic impact analysis. CEE has reached out to other faculty at UMass to provide technical expertise. CEE and DOER are working on the administrative and funding needs to complete the scope of work.

Technical Support to DOER on APS Regulation

Dwayne Breger assisted DOER in the application of the lifecycle greenhouse gas analysis guideline tool developed for the RPS Class I program for the consideration of biomass thermal under the on-going revisions to the APS regulations.

Green Communities Technical Assistance

Town	Status	Technical Assistance
Ware	Planning to submit Nov 2016 designation grant application	CEE completed MEI accounting and analysis, reviewed energy audits, recommended energy reduction plan, and drafted Criteria 3 portion of application. Awaiting town review and final drafting.
Southampton	Planning to submit Nov 2016 designation grant application	CEE completed MEI accounting except for transportation fuels which is still being provided by town. Town is expecting audits but unclear on details and schedule.
Erving	Planning to submit Nov 2016 designation grant application	CEE is developing MEI accounts. Town is expecting audits but timing uncertain.
Chicopee	Planning to submit Nov 2016 designation grant application	Working with PVPC to review audits and offer recommendation on Energy Reduction Plan.
Westfield	Planning to submit Nov 2016 designation grant application	Working with PVPC to review audits and offer recommendation on Energy Reduction Plan.
Plainfield	Planning to submit Nov 2016 designation grant application	Working with PVPC to offer technical assistance to town on reviewing audits and developing energy reduction plan.
Conway	Green Community, seeking support	Town is in need of updating their MEI and annual reporting to DOER. CEE will provide assistance but after the designation application deadline.

MA Food and Beverage Processing Sector – with UM Lowell, MassDEP, DOER and others

Lauren Mattison has been actively working with UMass Lowell, EPA and several state agencies to continue this initiative after the success of the first workshop held in May. During this reporting period, Lauren and UMass Lowell/TURI staff represented the initiative at the Massachusetts Advanced Manufacturing Summit (September 27 in Worcester) and the team began planning the next workshop, scheduled for November 17 in Springfield.

Completion of Green Communities and Renewable Thermal Case Studies

In collaboration with DOER, Lauren Mattison completed four case studies about use of renewable thermal technologies in Massachusetts. Two of them are now posted on DOER website.

Girls Inc. of Holyoke, Eureka Summer Program

Dwayne Breger and River Strong led a two-day session on clean energy for 20 girls from Holyoke and nearby towns selected for the Eureka Summer Program which brings them to UMass for exposure to STEM disciplines. One day included discussion on energy and hands-on construction of solar ovens; the second day was field trip to renewable energy sites including Holyoke dam hydroelectric station and the Barstow Longview Farm anaerobic digester in Hadley.

Attendance at State Energy Stakeholder Meetings

Dwayne Breger attended DOER Stakeholder Meeting on Next Solar Program Straw Proposal, September 23, Boston.

Dwayne Breger, River Strong, and Richard Bryce (affiliated engineering graduate student) attended DOER/MassCEC Stakeholder Presentation on Energy Storage Report *State of Charge*, September 27, Boston.

Businesses, Organizations, and Municipalities

The Clean Energy Extension staff held substantive direct interactions with the following municipalities, organizations, and businesses.

Entity and Attendees	Date and Format	Extension Staff	Purpose and Outcomes
W.D. Cows Land Company, Inc., with Mass Forest Alliance	August 3, meeting at Cows' offices	Breger, Strong, Beebe	Discussed opportunities for biomass district heating in planned mix-use real estate development in North Amherst
Erich Scherer, NYSERDA	August 5, phone call	Breger	Discussion on renewable thermal strategies in MA and NY. Connected Erich with DOER.
Coop Power, Isaac Baker, Director, Community Shared Solar program	August 8, meeting at CEE	Breger, Strong	Discussed barriers to CSS and reviewed Coop Power mission, goals, and business plans.
NREL, Travis Lowder, Market and Policy Impact Analysis Group	August 11, phone call	Breger	Discussed Mass Solar Loan Program – goals, development
Grey Lee – US Green Building Coalition MA; and Living Building Challenge	August 12, meeting at LBC site tour	Breger, Strong	Toured two LBC buildings recently opened in Amherst. Discussed collaborations with Grey Lee.
Roberts Brothers Energy Renewables, Ashfield MA, Lenny Roberts, Joan Roberts, John Gardiner	August 17, lunch meeting	Breger, Strong, Beebe	Discussed Robert Brothers gasifier project and renewable energy business plan.

Energia, Laura Porter & Mark Tajima	August 22, meeting at CEE	Breger, Strong	Discussed common areas and opportunities for collaboration
Water Innovation Network for Sustainable Small Systems (WINSSS), UMass Department of Civil and Environmental Engineering, Prof. David Reckhow, Director and Patrick Wittbold, Quality Assurance Manager	August 30, meeting at UMass	Breger, Strong	Discussed common challenges and collaboration opportunities.
DCM Logic LLC, David Spindler and Henry Spindler	September 7 webinar/call, and subsequent phone calls	Breger, Strong, Beebe	Discussed DCM Logics work on biomass boiler monitoring and controls, and analysis of the effectiveness of thermal energy storage.
Winchester, MA, Susan McPhee	September 1 site visit and meeting, and phone calls	Mattison, McDaniel	Reviewed geothermal feasibility study for town library, and provided memo report analyzing options and offering recommendations
Goshen, Hampshire Council of Governments, and Hilltown CDC; Bernie Kubiak, Dave Christopolis, Joe Roberts	September 26 meeting at town offices, and subsequent phone calls	Breger, Strong, Beebe, Calatone	Discussed energy issues and opportunities to achieve Green Communities reduction plan, discussion of clean energy options for planned senior living development
Berkshire Regional Planning Commission; Lauren Gaherty	September 29 phone call	Breger, Strong	Discussed energy issues and opportunities to achieve Green Communities reductions, municipal project development planning and challenges.
Buckland, MA, Harvey Schaktman	September 30 and October 17 phone calls and emails.	Strong	Town contacted CEE for assistance in exploration and funding opportunities for an in-conduit hydro project in the Buckland/Shelburne water system. CEE is awaiting further information and buy-in by the town, at which point CEE will explore opportunity with MassDEP/CERP, and funding options with MassCEC.
Northfield Mount Herman School, Gill, MA	Follow up emails and phone calls	Beebe	Provided evaluation of central plant and options for pellet heating systems for buildings at end of steam lines.

3. Extension Research Activities

During this reporting period, the Clean Energy Extension has supported the following research activities.

Response to MassCEC Solar/Storage RFP – Lead applicant Exponent

CEE joined a team, led by Exponent, of consultants and solar/storage companies in an application in response to a MassCEC RFP for Technical and Financial Assessment of Solar + Storage Systems for Manufacturing Facilities in Massachusetts.

CEE Student Research Activities

GIS Database of MassDEP Permitted Boilers

An undergraduate summer intern completed his ArcGIS project to map MassDEP permitted boilers and evaluate opportunities to target businesses and institutions for CHP, renewable thermal, and district energy opportunities. CEE was awarded a stipend from inaugural *Center for Agriculture, Food and the Environment (CAFE) Undergrad Summer Scholars* program to support the student. The project provides a database for outreach by CEE to target boiler owners.

Policy Issues and Options for Community Shared Solar

A graduate student in public policy completed a working policy paper examining the Community Shared Solar market, and the economic impact and business challenges confronting community organized/owned projects compared with third-party owned projects with subscription off-takers.

PV Assessment for Commonwealth College, UMass Amherst

An undergraduate summer intern completed a site and performance assessment for the installation of solar PV on the roofs of the Commonwealth College building clustered on the UMass campus. The assessment was provided to the UMass sustainability coordinator.