

UMASS CLEAN ENERGY EXTENSION

Quarterly Progress Report to MA Department of Energy Resources

Period ending December 31, 2016

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This Progress Report provides a summary of work accomplished by the UMass Clean Energy Extension (CEE) during the period October 1, 2016 to December 31, 2016.

During this reporting period, the Clean Energy Extension has functioned with its full core staff, has nearly completed the drafting of its strategic plan with a work plan for 2017. CEE continued its assistance to Green Communities and helped a number of towns prepare their designation applications. We have prepared the work plan and research collaborations to kick off our activities in support of the Mohawk Trail Woodlands Partnership, and have prepared for the Energy Corps student work to support these efforts. This report provides a summary of progress in the administrative development of the extension, outreach, and research activities.

1. Extension Administration and Management

Staff Resources

Upon reaching his 6-month term with CEE, Research Engineer Chris Beebe moved from half time to full time. This change was anticipated upon Chris' hiring, and was based upon mutual agreement. This move has brought additional technical resources to CEE as we embark on our 2017 work plan.

To provide targeted assistance to effort on renewable thermal generally, and wood heating specifically, Rob Rizzo has been engaged to serve as a part-time, as needed, contractor to CEE. The contracting process with Rob and the University is underway.

Strategic Planning

CEE focused significant effort during this reporting period to strategic planning, and the preparation of a 3-year Strategic Plan to serve as an internal guide to inform our decisions and activities, and as a guide for stakeholders to appreciate what we do and do not do. The Strategic Plan will also serve as an important document to recruit and discuss with an Advisory Committee, which we plan to attend to early in 2017. CEE anticipates sharing the Strategic Plan with DOER for review and discussion in February 2017.

As a part of the strategic planning, CEE has also developed a 2017 Work Plan identifying and organizing the activities it plans to focus on during the calendar year, along with staff and

affiliated resources allocated to the activities. The Work Plan is a guide, and will be reviewed and adjusted as informed by results, other opportunities, and our mission and goals.

Office Move

In coordination with the College of Natural Sciences, CEE moved its offices across campus to the Agricultural Engineering Building on December 21st. The move brings us in closer proximity to colleagues in CAFE and the Department of Environmental Conservation. CEE established an office for DOER that is currently being used. As part of our move, CEE reconfigured its phone numbers so that a main CEE phone number is available, and our direct phone lines are in close sequence from this main number.

2. Market Support and Extension Outreach Activities

The Clean Energy Extension continues to provide support and outreach as opportunities arise. As part of our strategic planning, CEE will begin in 2017 more proactive market assessments, while continuing to provide more strategic ad-hoc services to serve our mission. 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
UMass Center for Agriculture, Food and the Environment (CAFE) Retreat	October 18, UMass Amherst	Breger, Strong	<i>Supporting Clean Energy in Massachusetts: Clean Energy Extension</i>	UMass Extension program directors and staff	70
32 nd Annual International Conference on Soils, Sediments, Water, and Energy	October 19, UMass Amherst	Breger	Toward a Sustainable Energy Future Session: <i>Clean Energy Policy and Markets in Massachusetts</i>	Energy, environmental professions	25
Green Your Bottom Line in Food & Beverage Businesses: An Energy & Environmental Workshop	November 17, Springfield, MA	Mattison, Breger	Co-organized workshop; led breakout sessions	Food and beverage businesses, state agencies, utilities, vendors	35
Montachusett Regional Planning Commission	November 22, Fitchburg, MA	Mattison	Technical Assistance to Reduce Energy Consumption and Costs	North central Massachusetts communities	15
Environmental Business Council of New England (EBC), Energy Resources	November 29, Boston, MA	Breger	Program Chair – welcome, introduced panels; prepared agenda and	EBC members; technical, legal, policy professionals	75

Program: <i>Energy Storage Comes to MA – Next Steps and Beyond</i>			organized panels/speakers		
Massachusetts Forest Forum	November 30; UMass Amherst	Breger	Overview of Clean Energy Extension; work with Mohawk Trail Woodlands Partnership	Forestry sector, EEA	20
Franklin Regional Council of Governments, Comprehensive Economic Development Strategy Committee	December 7, Greenfield, MA	Mattison	Technical Assistance to Reduce Energy Consumption and Costs	Franklin County communities, businesses, non-profits	15

Activities at University and State Agencies

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

In coordination with UMass Lowell and participating state agencies, Lauren Mattison has been actively working on this initiative now being partially supported through a U.S. EPA Pollution Prevention grant. During this reporting period, Lauren contributed substantial outreach and organizing for the second workshop, and she, Dwayne, and Beka Kosanovic participated in that workshop on November 17 in Springfield. An outcome of that workshop was an Industrial Assessment Center audit of an attending food processor who recognized opportunities for energy efficiency measures for his facility.

Mohawk Trail Woodlands Partnership

CEE has worked with DOER to finalize a scope of work to offer support to the Mohawk Trail Woodlands Partnership on the behalf of the state. CEE has reached out to other faculty at UMass to provide technical expertise for the air emissions monitoring, business modeling, and regional economic impact analysis.

CEE held a kick off meeting with Franklin Regional Council of Governments and the Berkshire Regional Planning Commission on December 19th to introduce the scope of work and UMass faculty collaborators. CEE will present the work plan to the MTWP Advisory Committee on January 31st.

MassCEC Energy & Water Deploy Mass Technology Expo

River Strong attended this half-day interactive expo with the goals of learning about Massachusetts-based clean energy and water innovation companies, and state agencies focused on reducing energy use and costs. River made connections with Eric Friedman of the Leading By Example program, MassCEC staff, Metropolitan Area Planning Council energy staff, and representatives of XLHybrids, SunDrum Solar, Air Motion Sciences, WrightGrid, and SmartCloud, among others.

Green Communities and Municipal Technical Assistance

Both working directly or through regional planning agencies, CEE completed assistance to a number of towns in preparing for the November 2016 deadline for Green Communities

designation applications. CEE held a de-briefing meeting with Jim Barry, DOER on December 9 to review the role and work of CEE with the communities and plan for continued efforts to support the Green Communities program.

CEE also responded to towns for offer assistance outside the Green Communities application or granting process.

City or Town	Status	Technical Assistance
Ware	Town submitted Nov 2016 designation grant application	CEE drafted technical portions of Criterion 3 and met with town for final review.
Southampton	Town abandoned Nov 2016 designation grant application due to factors apart from CEE input.	CEE offered guidance on maintaining records for transportation fuel use. CEE offered the town support if they re-seek qualification next year.
Erving	Town submitted Nov 2016 designation grant application	CEE provided input and review of town's energy reduction plan.
Chicopee	Town submitted Nov 2016 designation grant application	CEE offered support calculating the impact of the proposed energy reduction plan and provided guidance on assessing potential ESCO projects
Westfield	Town submitted Nov 2016 designation grant application	CEE offered support calculating the impact of the proposed energy reduction plan and provided guidance on assessing potential ESCO projects
Plainfield	Town submitted Nov 2016 designation grant application	CEE offered support calculating the impact of the proposed energy reduction plan
Conway	Town submitted Nov 2016 designation grant application	CEE offered support calculating the impact of the proposed energy reduction plan
Manchester-by-the-Sea	Responded to request by MAPC to assist town in considering EE and renewable energy options for town hall/police station.	Offered ideas for renewable thermal including water-sourced heat pump from proximate WWTP.
Goshen	Town is preparing to spend Green Communities grant funding	CEE offered technical assistance on ASHP options and evaluation of municipal solar photovoltaic projects
Winchester	Current Green Community	CEE provided input on options for new HVAC equipment in the library.
Woburn	Current Green Community	Lauren Mattison met with the Mayor and Green Communities program coordinator to discuss additional energy savings opportunities for the city, and arranged an audit of the municipal drinking water treatment plant by the UMass Industrial Assessment Center.

Response to MassCEC Clean Heating RFQ

CEE provided a response to the Mass Clean Energy Center RFQ for support of clean heating programs and markets. CEE offered qualifications and recommended services to support early stage project development, which it deemed would not be in conflict with services that businesses and consultants could offer.

Response to DOER biomass and GSHP data analysis request

CEE was contacted by DOER in December regarding a DOER/MassCEC joint effort to monitor the operation of several biomass and GSHP systems across the Commonwealth. As part of that

effort, the agencies are considering how best to analyze the monitoring data and developing reporting. This effort aligns with some other CEE biomass monitoring goals, and CEE expressed interest in assisting in the project. DOER is currently developing a scope of work and research questions related to the data set. We have integrated this project into our 2017 work plan and anticipate next steps in February 2017.

Energy Storage for Campus – Physical Plant

CEE coordinated a collaboration with the campus Physical Plant Department, its energy services firm, and colleagues in the CEERE to investigate the opportunity for energy storage on campus and provide technical and modeling support for a proposal to the state in response to the anticipated funding opportunity for energy storage demonstration projects.

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
Power Development International, Pat Cloney, Holyoke Gas and Electric	Oct/Nov; phone conversations	Breger	Explore funding and demonstration opportunities for new hydro technology
Mass Solar	Oct/Nov; phone conversations	Breger	Explore research project to evaluate interconnection costs and barriers to solar installations
Resonant Energy, Isaac Baker	Oct/Nov meeting and phone calls	Strong, Breger	Discussed Resonant business plan for community shared solar
DCM Logic; David Sandler, Henry Sandler	Oct 15 meeting and follow up phone calls	Beebe, Strong, Breger, McDaniel	Discussed companies biomass boiler monitoring and evaluation efforts and findings. Discussed opportunities for collaboration
CDM Smith; Mike Miller	Oct 31 meeting at CEE	Breger, Strong	Discussed capabilities of CDM Smith and common areas of interest
Biomass Thermal Energy Council (BTEC)	November 4 phone call, and follow up emails	Strong, Breger	Discussed BTEC role and membership opportunities; CEE joined as an Education and Government Associate member
Amherst College	November email exchanges	Breger	Request for assistance from Amherst College regarding central plant operations, potential upgrades, and renewable energy technology integration of renewables
Roberts Renewables	Nov 21 phone meeting	Strong, Beebe, Breger	Discussed gasifier project and broader vision for renewable energy business
Co-op Power	November 22 meeting	Strong	Discussed latest clean energy and community development efforts of Co-op Power and potential collaborations
Berkshire Management Group, Michael Lehan	December 8 meeting	Breger, Strong	Discussed progress on NREL sponsored project on dual use solar installations on agricultural lands
Carbon Neutral Cities Alliance / Meister	December 14 team meeting	Breger, Strong, Beebe	Discussed CEE’s support of the CNCA grant project aimed at increasing renewable

Consulting Group / City of Northampton			thermal technology penetration in Northampton
City of Holyoke / CEERE / Cool Green Power	December 20 meeting	Strong, McDaniel	Discussed deployment of Cool Green Power efficiency technology in Holyoke municipal facilities and use of UMass interns in a parallel monitoring program

3. Extension Research Activities

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

CEE Student Research Activities

Collaborated with Prof. Bogdan Prokopovych in Isenberg School of Management to provide his Sustainable Enterprise class (2 sections) with project to look at wood pellet manufacturing and alternative business models (precursor work for Mohawk Trail Woodlands Partnership).

Provided advisory support for student class project in Isenberg School of Management working on business plan on hydrogen.