

Memo

To: **EEAC**
From: **Eric Belliveau and the EEAC Consultant Team**
Date: **December 15, 2016**
Subject: **September-November Summary Report**

The Consultant Team is pleased to provide a summary to the Council of our activities.

This report serves as a summary of key activities, accomplishments, and deliverables completed by the Consultant Team during the September-November 2016 timeframe.

SUMMARY OF MAIN TASKS COVERED IN EACH SECTION OF THE REPORT

EM&V

- Advancing 48 studies in the implementation or reporting stage and 12 new studies in the planning stage, and finalizing reports for roughly 10 studies.
- Developing and reaching consensus on ideas for new studies to be added to the research portfolio, and refining the process by which individual studies are planned and staged
- Incorporating evaluation of Demand Response programs into the EM&V portfolio
- Recruiting new EM&V contractor teams covering the Cross-Cutting Research area
- Supporting policy issues including: Term Report review, low income NEI benefits application, and DR working group activity coordination

PLANNING & ANALYSIS

- Reviewed and analyzed information and data in the PAs' 2013-2015 Term Reports; developed a storyboard and presentation of findings and results
- Participated in the Strategic Planning Group to plan for 2019-2021
- Supported the Demand Reduction Subcommittee
- Conducted a survey of Councilors on a list of topics

RESIDENTIAL AND LOW INCOME

- Prepared for and presented on residential topics to the EEAC at its November 16 meeting
- Reviewed and analyzed residential and low income information and data in the PAs' 2013-2015 Term Reports
- Completed work on Multi-family Program Overview report
- Participated in regular RMC meetings, discussing a variety of implementation topics
- Reviewed and commented on draft residential EM&V work products and continued ongoing coordination with EM&V Advisory Group members

COMMERCIAL AND INDUSTRIAL

- Analyze savings and implementation strategies by major end uses to inform program design enhancements
- Researched Strategic Energy Management to investigate the potential for implementation in Massachusetts
- Reviewed and researched new or emerging technologies and implementation approaches to provide for new sources of savings in the future
- Review and analyzed C&I information and data in the PAs' 2013-2015 Term Year Reports

- Presentations to the EEAC on HVAC, streetlights and interior C&I lighting
- Review of major C&I evaluation and market study reports

TECHNICAL SERVICES

- Continuing regular administrative functions, including EEAC meeting minutes and website maintenance and document uploads
- Completing a draft of the 2013-2015 Report to the Legislature

EVALUATION, MEASUREMENT & VERIFICATION

Oversee EM&V Planning

By the beginning of the three-month reporting period, most of the studies initially laid out in the Strategic Evaluation Plan (SEP) were well into the implementation stage. Accordingly, the most significant EM&V planning activity in this period was developing and reaching consensus on ideas for a number of new individual studies to be added to the research portfolio. Examples of new studies under development as of this writing include an impact evaluation of the Small Business initiative, a new stage of work on top-down net-to-gross research, and an analysis of potential code compliance savings in stretch communities under the new stretch code.

A second key planning activity in this period was a set of efforts to refine the process by which individual studies are planned and staged. In the C&I sector, two separate planning-related projects are nearing completion, focused on refinements to the handling of EM&V baseline assumptions and the staging of impact evaluations, respectively. More broadly, at a workshop in November, the PAs and the EEAC consultants agreed to establish a new Rapid Response study category, intended to generate results more quickly than the typical EM&V study.

A third key planning activity was the continued effort to incorporate evaluation of Demand Response (DR) programs into the EM&V portfolio. Evaluations of two direct load control pilots were moved into the implementation stage.

Finally, a fourth important planning-related activity during the contract period was the recruitment of new EM&V contractor teams covering the Cross-Cutting Research area. An RFP covering a number of specific cross-cutting EM&V functions was released in October, proposals were received in November, and proposal review is nearing completion.

Oversee EM&V Study Implementation

The Group oversaw implementation efforts for roughly 50 studies during September-November (48 studies in the implementation or reporting stage and approximately 12 new studies were in the planning stage). Most of these studies are still in the implementation stage as of this report, with many scheduled for completion by March of 2017. A comprehensive status report on the current status of the Massachusetts EM&V program can be found at <http://ma-eeac.org/studies/>.

Oversee EM&V Reporting

Final reports for roughly 10 studies were either finalized or under way during this reporting period, including the following:

- *Finalized:* C&I on-site study; multifamily impact evaluation; residential lighting operating hours update study; and residential new construction baseline/compliance study (some volumes).
- *In Progress:* minisplit field monitoring; lighting decision-making study; residential condensing boiler study; several reports on individual CSSI-related research activities; and residential new construction baseline/compliance study.

EM&V Policy Issues

EM&V policy issues that the Group engaged on in this reporting period included:

- Term-Year Report review
- Application of results from the low-income non-energy benefits study
- Coordination with DR working group activities

Council and Stakeholder Engagement

Council and stakeholder engagement activities in this reporting period focused on coordination with DOER, through both monthly overall check-in calls and discussions on issues regarding individual studies.

PLANNING AND ANALYSIS

Participate in EEAC Meetings; Brief and Support the Council

The P&A Advisory Group prepared for, attended, and provided technical support during the meetings of the EEAC and coordinated through Executive Committee each month. The Group coordinated with DOER as chair of the Council on a weekly basis, and briefed individual Councilors in advance of the EEAC meeting and during the month. Also, the P&A Advisory Group assisted with the development, planning, and coordination of potential topics for future EEAC meetings. EEAC Meeting and Council support was an on-going and regular monthly task area.

As described in the September 2016-August 2017 Work Plan, the Consultant Team is tasked with providing the Council with up-to-date information, analysis, and recommendations that help Councilors understand issues and facilitate decision making. The Team has started a process to explore the degree to which an increase in direct, in-person support for the Council may aid in fostering Councilor engagement. Through this process, the Team will work with DOER to determine the activities not currently being supported or conducted by the Team and whether they can be covered by the current Team or whether additional local resources are necessary. The Team started this process by conducting an informal survey of EEAC Members, the results of which will be described in a memo.

Provide Technical Analysis and Review/Assess Reports

The Group spent a significant amount of time in September-October following up on its initial review of the PAs' 2013-2015 Term Reports. The Group completed additional analysis and developed a "storyboard" document to summarize results and conclusions. A draft of the storyboard is posted to the December EEAC meeting materials. The Group also began preparing a presentation on a subset of the storyboard content for the December Council meeting.

The P&A Group also participated in the Strategic Planning Group's effort to think about new issues that may be important in the 2019-2021 Three Year Plan. These issues may have long lead times and policy considerations that need to be addressed. For example, during the next goal setting process, we may need to rethink how we measure and track achievement, consider strategic electrification and what it means, and consider the impact of changes in lighting savings on future programs. A residential group has formed to strategize on lighting considerations. A separate scheduling group has been formed to look at a detailed two-year timeline to coordinate Council topics, planning deadlines, and Three-year Plan deliverables in an effort to avoid an information log jam in the first quarter of 2018.

The Consultant Team is exploring changes to the Workplan to accommodate new topics to be covered by the Planning & Analysis Group.

Planning and Analysis Support for Implementation of the 2016-2018 Plan

The P&A Advisory Group provided technical support for the Demand Savings Group, which is making progress on

demand related issues in Massachusetts. In the coming months, we will be reviewing responses to an RFQ soliciting vendors to implement programs in the summer of 2017.

RESIDENTIAL AND LOW INCOME SECTORS

Technical Support for Programs and Effective Practices

The Residential Advisory Group focused on three major projects this quarter: 1) preparing presentations for the EEAC meeting (described in the section below), 2) completing the Multi-family Program Overview report, and 3) analyzing the residential and low income content and data from the PAs' 2013-2015 Term Reports.

Since the summer, the Group has been working to prepare summaries of the PAs' multi-family program offerings for the Residential, C&I and Low Income sectors. Part of this work included compiling some basic quantitative indicators to compare and assess performance. This latter effort proved more challenging than anticipated. As a result, the [Multi-family Program Overview report](#) that the Consultants completed in early November also includes a review of the challenges and recommendations for addressing them. The content of the report was summarized for the Council in a presentation for the November 16 meeting (see below). The Consultants hope to work with the PAs in coming months to further assess the challenges noted in the report and potential solutions.

Since the PAs' 2013-2015 Term Reports were filed in August the Group has been reviewing and analyzing residential and low income content. The Group has also been working to turn the analysis into a deliverable for the Council and other stakeholders. The Residential Advisory Group's work included compiling performance overviews, information on expenditures and benefits, and a deeper look at drivers for savings and cost to achieve. The Groups work focused especially on residential lighting and the Home Energy Services initiative as major cost and savings drivers. The storyboard also presents information on the performance of individual PAs. Given the length and detail of the Consultants' full work product and inability to focus on the residential and low income content during the December Council meeting, the Residential Advisory Group would be happy to provide a more focused review of the residential and low income content with any interested Councilors.

In addition to the major activities, the Group continued to participate in meetings of the Residential Contractors Working Group convened by DOER. The Group supported development of the Market Adoption Model, discussed planned program changes for the new construction low rise initiative with the PAs, initiated a discussion with the PAs about the future of residential programs, conducted ongoing coordination with DOER staff, and supported the Council through responding to various requests for information.

Participate in RMC and Council Meetings

A significant amount of the Residential Advisory Group's time in this quarter was dedicated to preparing for two presentations at the November 16 EEAC meeting, briefing Councilors, and participating in the meeting. The first presentation was the [Residential Savings Forecast](#), which included the Groups' preliminary assessment of how savings levels in the 2019-2021 plan period compare with the current plan period. This included a particular focus on the impact of the PAs' reduced ability to claim lighting savings over the next several years. The Group also noted other relevant developments likely to increase and/or decrease savings and highlighted fuel substitution and strategic electrification as strategies with potential to increase savings in the 2019-2021 plan period.

The second presentation was the [Multi-Family Program Overview](#). The overview presented findings and recommendations of the Consultants' latest review and analysis of the various multi-family programs offered by the PAs for low income and market rate customers, both residential and commercial and industrial. In addition, the Group reviewed and provided comments on the PAs' draft update presentation on the moderate income and renter initiatives, which was also presented and discussed at the November Council meeting.

The Residential Advisory Group met with the Residential Management Committee four times during this past quarter. On September 14, the Group and RMC discussed several behavior program issues. The [Reducing the Size of the Control Group in the Home Energy Report Program Memorandum](#), published in March 2016, documented EM&V Group findings that National Grid could transition 100,000 customers from control groups to treatment groups and Eversource could transition 50,000 from control groups to treatment groups. In the PAs' Q2 report (p.20), they stated, "As there are currently no plans to expand the HER program the results currently do not

have a direct effect on program design.” For the September 14 meeting, the Consultants asked the PAs to share additional information/reasoning for why the customers would not be added to treatment groups at this time with attendant electric and gas savings. National Grid indicated it has concerns about costs relative to savings, though it did not provide specific cost and savings information. Eversource has not provided its reasoning despite repeated inquiries. The Consultants also asked about any enhancements to the existing Home Energy Report model and new behavior program models being assessed. The PAs indicated they are looking into these matters for several reasons, including the relative maturity of the programs being offered by National Grid and Eversource, expected declining savings over time, and new opportunities posed by technologies such as wireless thermostats.

At the October 12 RMC meeting, the Consultants and PAs discussed revised incentives and program criteria for heat pump water heaters and a new homeowner demonstration the PAs and Massachusetts Association of REALTORS are planning to deploy in early 2017. DOER staff joined the end of this meeting to discuss the availability of additional funding for the expanded HEAT Loan it has been supporting (these include central wood pellet heating systems, deep energy retrofits, expanded 2-4 family loans, and grants to mitigate pre-weatherization barriers).

The primary focus of discussion at the October 26 and November 9 RMC meetings was the three residential presentations for the November 16 Council meeting. We reviewed the drafts prepared by the PAs on the new initiative updates and by the Consultants on the residential savings forecast and multi-family program overview. The Group exchanged comments and questions to support revisions and other meeting preparations. The Consultants and PAs also reviewed and discussed the Consultants’ draft Multi-Family Program Overview report on October 26.

Coordinate with EM&V Efforts and Incorporate Feedback from EM&V Studies into the Programs

The Group continued its monthly coordinating calls with the EM&V Advisory Group to exchange information and discuss priority evaluation issues and implications for implementation. The Group also reviewed and provided comments on several in-progress residential evaluations, including the multi-family impact evaluation, HVAC manufacturer panel report, and HEHE condensing boiler report.

COMMERCIAL AND INDUSTRIAL

Technical Support for Programs and Effective Practices

The C&I Advisory Group provided support, feedback and analysis on a number of topics in the September-November timeframe. These areas included reviewing the upstream lighting program, analyzing process and CHP savings, and analyzing demand reductions achieved by the programs in Massachusetts. The Group also provided coordination and support for the ongoing Strategic Energy Management (SEM) research that is being conducted by the PAs’ consultant. The Group worked with DOER to define the deliverables outlined in the consultant’s work plan, and began work on a memo addressing industrial process. The Team attended and participated in the National Grid Summit.

Technical Support for New Technologies and Innovation

The C&I Consultant Team investigated several new technologies and implementation approaches. Technologies reviewed include rooftop unit retrofit controllers, streetlight controls for demand reduction, laminar flow water restrictors for use in healthcare applications, and heat pumps that use carbon dioxide as the refrigerant. The water restrictor and CO₂ heat pump measures were brought to the attention of the MTAC, along with the appropriate documentation. Implementation approaches included work on SEM, reviewing small business contractor training, and reviewing the Efficiency Vermont new relight program. The Consultant Team findings were brought to the attention of the CIMC for discussion, and the Consultants participated in a regional SEM meeting, organized by NEEP, on behalf of Massachusetts, Connecticut and Rhode Island. The Consultants also participated in demand response discussions, and reviewed and provided input on the demand pilots proposed for summer of 2017.

Reporting Updated and Best Practices

The Team spent significant time analyzing the 2013-15 Term Year Report in order to provide a summary for the EEAC. The analysis looked at savings and costs versus what was planned, as well as the causes of discrepancies from the plan. The Group studied trends related to the primary sources of savings by the end uses, such as lighting, HVAC, CHP, and process, to increase our collective understanding of for the opportunity for future savings. Finally, the differences in savings and costs between the different PAs provide insight into their territories and relative strengths and weaknesses.

The Group also looked at long term trends by comparing the two previous and current Three Year Plans. Some measures, such as CHP, which vary greatly from year to year, are better served by taking longer term view.

The Group also reviewed and tracked the PAs' progress towards commitments made in the 2016 Annual Plan.

Participate in CIMC and Council Meetings

The Group researched, created and presented three presentations for the September EEAC meeting. During an informal session before the meeting the Consultants provided an overview of LED streetlight technology. This included a summary of how advanced controls work, and the results municipalities such as Cambridge, Massachusetts have seen through their use. The Consultants also partnered with Council member Rick Malmstrom to provide an overview of the various components of Heating Ventilation, and Air Conditioning (HVAC) technologies and controls. Rick was able to provide some first hand examples from his work at Dana Farber Hospital. The third presentation was an overview of the indoor Commercial and Industrial lighting market. While the PA programs have made great progress with screw-in lighting, there is still significant opportunity in the linear lighting market.

The Group participated in a number of CIMC meetings and informal calls with the PAs to discuss implementation methodology, share best practices, and progress towards savings goals to date.

Incorporate Feedback from EM&V and Studies into the Programs

Two major EM&V reports were released in the time covered by this report: the C&I Onsite Study and the 2015 C&I Expedited Customer Profile. The Group is in the process of reviewing both of these reports and sharing significant findings with the PAs and the EEAC. The Team also reviewed evaluation reports on the small business program, the establishment of baselines, the application of interactive effects, the gas boiler market, and a work plan to interview HVAC market actors.

TECHNICAL SERVICES

Produce Minutes from all EEAC Meetings

The Consultant Team is charged with producing draft and final meeting minutes for each EEAC monthly meeting. The Team produced draft minutes for the August 17, September 21, and October 19 EEAC meetings and forwarded them to the EEAC Chair. These minutes along with all documents and presentations distributed at the September-November meetings have been posted on the EEAC website.

EEAC Website Upgrades, Revisions & Maintenance

Consultant Team staff continue to manage the updated website on a day-to-day basis. In September-November, this included posting materials for EEAC meetings and other meetings that occurred during the month.

For the September-November 2016 time period, there were:

- 3,932 sessions
- 1,902 users: 42% new visitors and 58% returning visitors
- 10,807 page views with an average of 2.7 page views per session

Produce the Annual Report to the DPU and Legislature

In November, the Team completed a draft of the 2013-2015 Report to the Legislature.