

**Massachusetts Energy Efficiency Advisory Council  
Commercial and Industrial Workshop  
Tuesday June 9<sup>th</sup>, 2015  
9:30 AM – 4:00 PM  
Saltonstall Building, Second Floor, Rooms C & D  
100 Cambridge Street, Boston**

**Meeting Summary**

31 people attended this workshop (see Attachment #1). The background material and the presentations can be found at <http://ma-eeac.org/event/commercial-industrial-sector-workshop-2016-18-three-year-efficiency-plan/>

Note: This document serves as meeting minutes reflecting the discussion during the EEAC C&I workshop held on June 9<sup>th</sup>, 2015. The EEAC does not attest to full factual accuracy of comments within the document.

**WELCOME, INTRODUCTIONS, CONTEXT SUMMARY, AND WORKSHOP OVERVIEW**

DOER Commissioner Judith Judson offered opening remarks and welcomed the EEAC Councilors and Program Administrators (PAs) to the meeting. She expressed interest in hearing feedback from the participants and encouraged the Councilors to weigh in on the issues. She underscored the importance of the 2016-2018 Three Year Plan (called the 3YP or the Plan hereafter) to the Baker Administration, which is committed to maintaining Massachusetts's leadership in energy efficiency (EE). She lauded the productivity of past workshops, which have informed the draft 3YP.

Dr. Jonathan Raab, facilitator from Raab Associates, welcomed the participants to the meeting and reviewed the agenda for the day as well as the meeting's ground rules. Dr. Raab then explained the process to date and how this workshop fits into the overall 3YP process. The commercial and industrial recommendations for the 2016-2018 3YP were developed during three workshops with the Energy Efficiency Advisory Councilors. The EEAC Executive Committee used the workshop recommendations (along with the residential recommendations) to create a resolution that the full EEAC then approved on March 31, 2015. The PAs developed a draft plan that responded to many of the Council's resolutions.

The objective of this workshop was to foster discussion between the PAs and Councilors on the commercial and industrial (C&I) section of the PAs draft plan. The results of the conversation will then be integrated by the full EEAC, as one component, into its formal comments on the PA's draft plan to be provided to the Department of Public Utilities in late July. Dr. Raab noted that the approach to each topic would include a brief summary of how the PAs addressed specific Council recommendation(s) in the draft plan, a discussion, and then development of Councilor comments.

George Lawrence, EEAC Consultant, discussed that the PAs and EEAC Consultants are working together to complete an analysis of differences in key drivers in the plan goals. He listed the C&I key drivers that

are being discussed as: combined heat and power (CHP); large projects; C&I lighting; C&I large retrofit; and LED streetlights.

The group offered the following questions and comments after the meeting opening. *PA comments and responses are in italics.*

- The EEAC should prioritize the recommendations during the workshop to direct the PAs to the most important issues.
  - Some prioritization will occur during the workshop but we have very limited time and many topics. The Executive Committee and full EEAC are the appropriate groups to manage the full sorting of priorities both within the C&I recommendations and between the C&I, residential, and cross-cutting issues.
  - *The Council did not previously prioritize the recommendations following the workshops.*
- Will only the voting Councilors' votes be used to revise the recommendations?
  - Only the voting Councilors will be formally weighing in when facilitator is gauging consensus. However, the facilitator will ask non-voting, non-PA Councilors if they want to add anything, and will record that if there are differences of opinion. Although the PAs are also non-voting Councilors, and will be engaged during the discussions today, it doesn't make sense for them to ultimately be making comments to themselves.
- What is the timeframe for finalizing the key drivers discussions/negotiations?
  - The Consultants feel a sense of urgency to complete this work. They will complete as much as possible by the end of June.
  - It is important for the Council to have information before providing comments on the July resolution.

## **Segment Specific Approaches (#6)**

### **Presentation and Discussion of PA Responses**

Ms. Jennifer Chiodo's, EEAC Consultant, reviewed PA responses to segment specific approaches noting the following:

- The plan includes several examples of existing segmentation approaches and discussion of areas for new work. These include:
  - Developing strategies for mid-sized customers.
  - MOU/SEMP approach for large customers
  - Continuing to work with municipalities and water/wastewater districts
  - Commercial real estate (TBD)
  - Working with experts to engage industrial customers
  - Commercial Non-Profit Organizations
  - National Grid working on approach to houses of worship
- Specifics about new activities, materials and reporting are limited.

Following this presentation, the group provided the following questions and comments. *PA comments and responses are in italics.*

- The recent evaluation suggests mid-sized customers (MSCs) need additional attention.

- What does engagement with MSCs look like? It would help the Councilors to have additional communication from PA on MSCs, such as grocers, to ensure resources are effectively directed.
- MSCs seemed to be underserved in the last 3YP. What is the PAs strategy for better serving MSCs, and how can the Council assist the PAs? The Council also needs data on MSCs beyond what is provided in the EM&V Reports.
- *MSCs present a unique challenge and experience distinct barriers to participation. They generally behave similarly to small customers. PAs have a dedicated MSC team that provides approximately 800 MSCs with tailored services. PAs also train representatives to work with MSCs, like Project Expeditors (installation vendors). Overall, MSCs participate heavily in EE programs, with 30% of MSCs participating in EE programs in 2014.*
- *PAs detailed their statewide vendor and staff training efforts in the Plan. PAs need to educate their staff and vendors to help customers understand the impact of EE on their profits.*
- These ideas seem positive and should be included in the next iteration of the Plan. PA should choose a goal, put it in the plan and then communicate to Council about progress.
- The 2013 Customer Profile indicates that the PAs served a substantial number of MSCs, though there could be additional opportunities to serve them.
- There should be a strong focus on small customers. They are the least likely group to participate in EE programs but achieve significant savings when they do participate.
  - *The C&I Customer Profile Report does indicate that small businesses are less likely to participate in programming, but it can be impactful when they do, since lighting entails a large percent of their overall energy use. The PAs have dedicated vendors to seamlessly deliver small business measures and combine gas and electric measures to offer one interface.*
  - *The PAs are also working to establish “on-ramps” by next year to allow customers to participate online directly. This will allow customers to participate so they don’t have to wait for somebody to call. Customers they can download applications, and select efficiency measures and submit them to the PA. This will be run by the PAs collectively and be consistent statewide and across gas and electric programs. The goal is to have this in place early in 2016.*
  - These ideas seem positive and more detail about these items, timing for implementation and information about the marketing budget should be included in the next iteration of the Plan.
- Nonprofits need more attention in the Plan and a greater level of service provided to them. The Nonprofit Network submitted a document suggesting the creation of a one-stop shop to serve nonprofits with an ombudsman to work among the multiple PAs that serve them. This would increase their participation in programming.
  - *Many nonprofits are not aware of programs, take energy use as a given, and lack the technical resources and expertise to focus on EE. National Grid is working with houses of worship to address these barriers. PAs notes non-profits are in many ways very similar to small business customers.*
- Could the PAs provide additional detail on statewide consistency, outlined on page 98 of the Plan?

- Segmentation is at the core of C&I savings. There needs to be greater participation to achieve deeper savings through identifying underserved segments and areas of potential savings, and by developing improved marketing and semi-customized customer offers (e.g., for dry cleaners). The PAs then need to report on their efforts.
  - The PAs should also discuss the initiatives already in place, their effectiveness, and the budgets for each segment (such as the large grocers program). Councilors could then provide useful information to facilitate PAs' efforts and work together on issues, such as wastewater.
  - *C&I customers are heterogeneous. Thus, representing the complexity of PA's service to various segments is a voluminous challenge. The C&I Customer Profile for example provides details for 23 C&I customer segments annually.*
  - The C&I Customer Profile is an important source of data, but the data for 2013 was not released until 2015.
  - *Commercial projects, unlike residential, need to be cost effective in order to be eligible for custom incentives. It's more expensive to deliver programming to smaller customers on a dollar per therm basis than large customers, therefore, increasing small business customer participation will increase the overall cost of efficiency in the C&I sector. Semi-annual reporting on these sub-sectors would be costly and would reduce cost effectiveness.*
- PAs should consider demand characteristics in addition to energy savings. There are particular systems within segments that are amendable to peak load reductions. As demand charges are likely to quadruple through 2016 and 2017, customers will be more interested in demand savings. For gas, the winter peak should be the focus.
- *The PAs need to balance the needs and abilities of serving various segments as some segments offer greater potential savings than others. It can be more costly to serve smaller, needier segments.*
- The PAs should use associations (like Mass Health) to reach customers and provide details on their existing outreach efforts to these groups.
  - *PAs frequently work with affinity groups and other associations.*
  - PAs should also conduct outreach through the EEAC representatives and their networks. For example, MassDEP has connections with groceries due to the food waste ban, with dry cleaners due to regulated chemicals, etc.
- PAs should leverage one another's efforts and share program results and best practices to foster joint learning.
  - *This is a positive approach, though some PA approaches will not work for other PAs due to differences among their customer bases.*

### EEAC Comments

Ms. Chiodo presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor<sup>1</sup>**

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<sup>1</sup> There was not a lot of substantive discussion whether something should be a major or minor comment, or should remain a major or minor comment. Although when comments were added they were put in one category or another. This is something the Executive Committee or full EEAC should consider.

- **Commit to a minimum level (timely/semi-annual) of reporting to the Council including content**
- **Provide a timeline (implementation schedule), details and budget for implementation of the new mid-size C&I strategies**
- **Major**
  - **Include specifics about new segmentation efforts (size, which segments, demand/energy, on-ramps, strategies, leveraging industry/ professional/ councilor associations /networks)**
    - **E.g., strategy for non-profits**
  - **Address issues of statewide consistency given the PA specific approaches (capitalizing on best practices including costs) to segmentation (and potential to deal with some segments statewide)**

## Commercial Real Estate (#7)

### Presentation and Discussion of PA Responses

Ms. Chiodo's reviewed the PA responses to commercial real estate (CRE), noting the following:

- The PAs will develop this section following the release of the CRE Working Group final report.
- The CRE WG report was released in May.

Following this presentation, the group provided the following questions and comments. *PA comments and responses are in italics.*

- To save time in the process, the Council can make a general note to request more details from PAs on their programs and response to the recommendations.
  - *C&I is a complex sector. The PAs could produce a large report, though it is impractical to review specific details within the Plan. Rather, the Plan should provide a strategy for addressing the marketplace.*
  - The Councilors want more information on the PAs' strategy, not specific details.
- The Councilors need more detail on CRE market transformation opportunities and barriers as well as information on how the Council can assist in this area.
- Utility Grade sub-metering is an important issue for CRE. CRE is typically immune to electricity pricing. The Plan should consider how to position this sector during the next three years for grid modernization (grid mod) and price responsive demand. Interval sub-meters would help accomplish these objectives.
- Boston worked closely with A Better City to develop a memorandum of understanding to make EE progress with CRE, but there were no results. How can implementation details be confirmed to ensure this inaction doesn't reoccur?
  - *The PAs waited for the final report from the CRE Working Group before developing the CRE section of the plan. The Working Group released its findings in May 2015, and the PAs will respond to them in the next draft of the Plan.*
  - The PAs should include more information based of these findings in the Plan's CRE section.

### EEAC Comments

Ms. Chiodo presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor**
  - **The PAs should provide a draft of this section for EEAC review in advance of the EEAC Comments in July (including implementation strategies, timelines, and budgets)**
  - **Explore all EEAC recommendations**
- **Major**
  - **Explain how sub-metering will be included or evaluated for the CRE sector and if it will be considered for inclusion in the Sustainable Office Design or other offerings**
    - **Consider grid mod and price responsive demand, demand response, and dispatchable load control**

### **Combined Heat and Power (39)**

#### Presentation and Discussion of PA Responses

Mr. Lawrence reviewed the PA responses to combined heat and power (CHP), noting the following:

- Commitment to CHP is clearly present.
  - The plan includes a review of CHP best practices and reassessment of potential
  - The plan outlines a method to identify barriers to implementation
  - The plan commits to education and technical assistance to promote CHP
- There is no firm timeline for completion and the content of the potential study is under consideration.

Following the presentation, the group provided the following questions and comments. *PA comments and responses are in italics.*

- There could potentially be a separate goal for CHP or for programs other than CHP. This would allow core programs to operate at steady states and provide businesses with predictable targets. CHP would still reside with the EE program, but this separation would serve to separate savings from other core programs.
  - This is a good idea given the lumpy nature of CHP. In 2010, six facilities produced 26 of the 33 CHP megawatts (MW). Only a few utilities are paying for CHP through the forward capacity market (FCM). More needs to be done to eliminate CHP barriers, outside the scope of EE programs, including addressing gas availability.
  - The lumpiness of CHP is overstated, as it averages out over a decade, but more reporting needs to examine this. Though, CHP should be separated out and reported on separately from other programs to ensure it does not adversely affect the reporting of other programs. The consultants' estimated CHP potential varies dramatically from that in the Plan.
  - Separating out CHP would allow for better reporting and quantification of the performance of key programs. The Council could create a three-year timeframe for further studying a separated-out CHP program.
  - A separate CHP program could disable cost sharing among programs. Cost sharing should be kept in place. PAs could simply establish separate goals within the program to track the progress of CHP.

- *The CHP program is growing and there is greater potential to serve customers. CHP is a long-term measure, taking 600 days on average to complete a project with multiple installation steps and requires a long-term financial commitment by the customer. PAs need to ensure a CHP project is appropriate for the customer to implement and properly right-sized. PAs can only assume a certain level of risk for large projects.*
- Separating the CHP program would reduce PAs' risks.
- PAs should provide a marketing budget for CHP.
- A Councilor stated that municipalities are increasingly planning district energy zones and want specific budgets for barrier investigations, especially for gas availability. Boston is examining this type of approach.
- Only a few customers that participate in the forward capacity market utilize CHP. The Councilors need more detail on reporting and timelines to address this issue.
- CHP projects need both APS program credits (alternative energy credits) and PA efficiency incentives to be viable or FCM monies. Massachusetts will experience a large growth in CHP over the next three years. It was stated that MIT is progressing with a 20 MW project. CHP is a powerful measure, with one of the highest indexes of efficiency. It both saves natural gas [Note: on a system wide basis] and reduces demand. Utilities need to assess and report on the current state of CHP instead of past trends.
  - As CHP is incredibly cost-effective, it supports other less cost-effective programs.
  - Fitchburg achieved its entire energy savings goal through a single CHP installation.
  - *CHP is an important measure with a potential large positive impact, and PAs have a dedicated CHP program manager. PAs estimates for CHP are not conservative; PAs fell short of their CHP goal in the last 3YP, and MIT still has significant hurdles before it can implement its CHP project.*
  - *Franklin and Hampshire Counties, served by Berkshire Gas, have moratoriums on new natural gas services, which will likely limit CHP projects until at least November 2018. Gas-electric integration has been a major theme since 2010. Berkshire Gas has worked to save its customers money by partnering with Eversource to identify customers that produce large thermal loads in the summer in gas-available areas – customers that may be well-suited for a CHP project. There is an opportunity for gas and electric PAs to partner to achieve savings in this way.*
- There is a need for both a bottom up and top down analysis of policy issues affecting and hindering CHP expansion, including access to natural gas.
  - *Should these issues be addressed before or after the release of the statewide study*
  - Other states offer direct incentives for clean energy technology, including CHP. Massachusetts is not a leader in CHP. If CHP is a potential panacea and there is available gas, the 3YP should identify barriers and potential incentives and target sectors (like healthcare) for CHP. Since only one CHP project bid into the FCM, it's a difficult sale at the moment.

### EEAC Comments

Ms. Chiodo presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor**

- **The plan should include specifics for the CHP statewide potential study:**
  - **Deliverable dates for best practices review and potential study**
  - **Analysis to determine potential (including barriers (e.g., gas availability, etc.) and customer segmentation)**
  - **Specific mention of pre-packaged and third-party CHP options**
- **Major**
  - **Make firm commitment to complete CHP report and implement findings**
  - **Establish separate goals for CHP (and tracking)**

## **C&I Multi-Family (#28)**

### Presentation and Discussion of PA Responses

Ian Finlayson from DOER reviewed the PA responses to C&I multi-family (MF) and noted it was a major topic during the residential workshop and that the:

- Outcome from Residential discussion is that the C&I team needs to be engaged because most multi-family refinance opportunities are with commercial buildings.

Following this presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- Business owners are the decision-makers for MF properties, so effective programs should draw on the C&I sector's sales capabilities.
  - A commercial sector representative should participate in the MF meetings.
  - The C&I and residential sectors should partner on MF buildings.
- PAs should try to understand these buildings holistically and aggregate accounts at the building level.
- Sub-metering needs to play a role in MF programming.
  - *PAs consider savings, cost, and benefit-cost ratio and also support sub-metering for cost-effective projects that will lead to actionable results. Some projects likely do not need utility-grade meters.*
  - How do PAs determine if sub-metering is cost effective for large MF projects?
  - *PAs holistically examine a project to determine potential energy savings and identify appropriate cost-effective strategies. It is important not to shoehorn one particular solution into a problem.*
  - Sub-metering is cost-effective in MF buildings.
  - *Sub-metering achieves no savings without additional measures.*
- Why are the PAs not adopting a pay-for-performance approach?
  - *PAs still need to ensure the correct mechanisms are in place for the program to achieve optimal results and avoid unintended consequences. PAs need to further study other pay-for-performance approaches.*
  - There may be an opportunity to use a pay-for-performance approach supported by benchmarking when buildings are undergoing refinancing or other wholesale changes. DOER would like to see a commitment in the Plan to demonstrate or research this approach. This is more of a C&I than residential issue.

- *MF units only comprise 1% of the C&I electric load and 8% of the gas load, so MF presents more of an opportunity on the residential side, as it's a larger percentage of that sector's total load.*
- Boiler replacement is more of a new construction opportunity. New Construction programs could possibly be extended to address some MF opportunities.
- *PAs currently offer/use a pay-for-performance approach if customers can prove savings with sub-metering.*

### EEAC Comments

Dr. Raab and the DOER Team presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Outcome from Residential discussion is that the C&I team needs to be engaged because most multi-family refinance opportunities are with commercial (multi-family) building owners**

### Continuous Technology Improvement (#10-11)

#### Presentation and Discussion of PA Responses

Mr. Lawrence reviewed the PA responses to continuous technology improvement, noting the following:

- The plan does not propose any pilot programs.
- In addition to the MTAC, "PAs propose a consolidated research and development ("R&D") effort to (a) support the work of the MTAC, and (b) pursue technologies of interest in order to remain at the top of the "innovation curve."
- The plan proposes a budget of \$275,000 on electric side, and \$356,000 on gas side for R&D.

Following this presentation, the group provided the following questions and comments. *PA comments and responses are in italics.*

- If the budget will not be spent on pilot projects, towards what will it be directed?
  - *Pilots have a specific regulatory meaning with the Department of Public Utilities. PAs will allocate funds to demonstration projects to determine the potential of achieving verifiable, cost-effective, and repeatable savings.*
  - *The Massachusetts Technology Assessment Committee (MTAC) continually tests and approves new technologies, which are then pushed out by the implementation group. MTAC has 6-7 technologies it reviewed in 2014 and is ready to share on its website after resolving a legal issue.*
  - *MTAC allows business partners to present technologies for consideration. The PAs also examine new technologies, such as carbon fans for HVAC systems, to realize EE savings.*
- The Council's recommendation encourages the PAs to take a more active role in the assessment and evaluation of emerging technologies, similar to the California Technical Forum model. PAs can spend 1% of their funds on pilot projects without authorization from the Council.
  - *MTAC conducts outreach to identify emerging technologies.*
- How does MTAC evaluate EE tools that are not technologies, like OPower?

- *MTAC runs an open proposal process in which anyone can submit an approach for consideration.*
- How do the proposed gas and electric budgets [pilot/demonstration projects] compare to those of the last 3YP, and can they be adjusted mid-Plan if necessary?
  - *In the last 3YP, only the residential side had this budget category.*
  - *These budgets are included within the hard-to-measure line item, similarly to a core initiative program category. If there is space within the overall hard-to-measure line item, the pilot budgets can be adjusted within the larger category.*
- Is there currently any reporting of MTAC's activities, including its projects demonstration budget?
  - *The displayed budgets are a combination of all the budgets. They are not MTAC's budget.*
  - *MTAC documents its findings whenever it evaluates a technology. MTAC is determining how to legally share its findings through the Mass Save website when reviewing proprietary technologies.*
  - *It would help the Council to have additional information on the technologies under MTAC's examination.*
- The Council would like updates beyond the MTAC because the PAs also innovate through MOUs with large C&I customers.
- The PA's proposed demonstration budgets should be larger, though they probably do not need to reach the 1% level.
  - *Since there are no specific demonstration budget allocation details, it is unclear what the PAs could do with larger demonstration budgets. The Council wanted to hear more about innovative technologies being tested.*
  - *The PA's demonstration budgets are acceptable as long as they have the ability to adjust them as necessary.*
- Do the PAs have pilot projects planned during the next three years?
  - *The PAs need to ensure they do not increase their budget without adding savings. While there are no planned pilots, the PAs have other mechanisms to test and demonstrate technologies. As this is the first time this demonstration program has existed as a separate budget item for C&I, within the hard-to-measure budget, the PAs are still deciding the best course of action.*
  - *Savings from a successful pilot program could be counted in a subsequent 3YP.*
  - *DOER and the PAs appear to have different views on the proposed pilot/demonstration budgets. They should jointly identify one to three 'pilot' ideas that could be funded.*
  - *The Council and PAs both want to innovate in the energy efficiency space. The Council should eliminate barriers that hinder PAs from establishing pilot programs.*

### EEAC Comments

Ms. Chiodo presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor**
  - **Provide regular (e.g., semi-annual) updates on emerging technology/process/approach research**
- **Major**

- **Provide more details about the scope and operation of R&D projects**
- **Explain why the use of pilot funds is not included in the plan**
- **Identify mechanisms to advance innovation (joint PA/EEAC effort) e.g. through demonstration projects**

## **Retro-Commissioning, Building Controls, and Sub-metering (#12)**

### Presentation and Discussion of PA Responses

Ms. Chiodo reviewed the PA responses to retro-commissioning (RCx), building controls, and sub-metering, noting the following:

- The PAs report that RCx program redesign to align MA programs with the “Retro-commissioning Best Practice Study” is in progress.
- The plan appears to target buildings more than 30 years old for RCx.
- The plan includes a definition of monitoring based commissioning.
- No discussion of benchmarking, in the context of commissioning, or legacy controls replacements is included in the plan.
- Existing training programs are outlined, but no new training programs proposed.

Following this presentation, the group provided the following questions and comments. *PA comments and responses are in italics.*

- These opportunities present tremendous potential savings for gas and electricity. Targeting one large lab building with these initiatives would dwarf other savings projects. The Plan should provide more detail on sub-metering and have targeted timelines.
  - Comprehensive RCx is expensive for complicated, large facilities and may result in 10% savings. The costs need to be balanced against the potential savings.
  - Studies of completed projects show that RCx analyses by HVAC and building engineers can produce cheap savings. Furthermore, improving EE by 10% in a large facility results in significant savings.
  - *The PAs estimate that RCx has the potential to meet only 1% of the annual, overall C&I EE goal.*
- The walkthrough energy assessment proved problematic for RCx programming. The PAs should consider new incentives to target this issue.
- It is positive that the PAs marked data analytics and benchmarking as a #1 [included in plan] in the matrix.
- *RCx is an important measure, and PAs offer this service to their customers. While RCx is expensive alone, it’s an effective measure when paired with other programs and opportunities. RCx measures also need to be persistent to be effective, which requires training customer facility personnel at customer sites. PAs offer this training; it is a long-term commitment.*
  - It would help the Council to have additional information about the approach and timelines for expanding operator training.
  - The industry asked for expanded Building operator training in public comment, and the group should be responsive to their request.
  - The Greater Boston Real Estate Board/BOMA requested additional building operator training. The PAs plan shared information about exiting offerings.

- *The Building Operator Certification Program has existed since 2003/2004. It is most effective to deliver custom trainings at operators' own facilities rather than through group training.*
- RCx only has a three-year measure life. Could this period be extended if RCx is combined with monitoring-based/continuous RCx?

### EEAC Comments

Ms. Chiodo presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor**
  - **The plan should commit to completing specific program enhancements that they are adopting from the RCx Best Practices Study with a specific timeline**
  - **Commit to increasing the availability of qualified RCx providers**
  - **Address issues of persistence (e.g., monitoring based Commissioning)**
- **Major**
  - **The plan should specifically discuss how legacy controls will be addressed**
  - **Include a discussion of how the use of sub-metering and pre/post metering will be integrated into programs**
  - **Expand building operator training program, developed with input from customers**

### Behavioral and Engagement (#13)

#### Presentation and Discussion of PA Responses and Review of Recommendations

Mr. Lawrence reviewed the PA response to behavioral and engagement as well as the potential EEAC comments, noting the following:

- The plan describes Strategic Energy Management (SEM) in the context of expanding already occurring activities, including RCx, training, and behavior approaches for SEMP/MOU customers.
- The plan states that expansion of SEM is being considered, and that the PAs will engage with the early adopters in the Pacific Northwest to integrate their knowledge.
- The plan contains little detail about behavioral activities or load control.
- The plan does not commit to deliver reports on either SEM or behavioral programs as requested by the Council.

Following this presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- The PAs should look for opportunities to employ technology for new approaches with customers other than the few large customers with which they currently have MOUs.
  - *Strategic energy management best serves large customers using more than 10 million KWH according to the Council Consultants and there are only 300 customers of that size in all of Massachusetts. These approaches entail concentrating more resources towards a small cohort of customers.*
- The PAs should provide further detail on load control and consider methods to engage customers on demand response for winter peak demand.

- SEM and SEMP are separate approaches. The PAs could launch a pilot program in the first year of the 3YP.
  - The PAs could launch a demonstration project and draft a resulting report on its cost effectiveness.
  - *This approach would likely result in savings of less than 1% of the total C&I goal.*
  - According to the EEAC Consultants, SEM is most successful with the largest customers, since it is cost-effective. Experience by PAs in the Northwest with SEM demonstrated that it produces a new source of untapped potential savings and the corresponding engagement process results in a three to five-fold increase in traditional capital EE projects as well.
- Measurement will drive these types of programs so that the PAs can claim the savings.

### EEAC Comments

Mr Lawrence presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor**
  - **Consider using the CEE Minimum Elements document as a reference when discussing SEM programs, in order to ensure a common understanding of what is included**  
[http://library.cee1.org/sites/default/files/library/11283/SEM\\_Minimum\\_Elements.pdf](http://library.cee1.org/sites/default/files/library/11283/SEM_Minimum_Elements.pdf)
  - **Provide more details on behavior approaches (outside of MOUs) and how/if savings are claimed from behavior changes**
  - **Provide more detail on load control**
- **Major**
  - **Assess cost effectiveness and evaluate/develop a SEM demonstration project**

### Small Business (#8)

#### Presentation and Discussion of PA Responses and Review of Recommendations

Mr. Lawrence reviewed the PA response to small business as well as the potential EEAC comments, noting the following:

- The plan addresses the Council recommendations and is considering:
  - Ways to realize deeper savings
  - Expansion of the number of gas measures
  - Segmentation in order to reach more customers
  - New approaches such as a Home Energy Services approach for very small commercial customers
- The plan states that any changes may be made as a series of incremental improvements
- The matrix states that 8.b.i “use building analytics and benchmarking...” is under consideration. The plan discusses customer engagement portals as a means to do comparisons amongst customers.

Following this presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- The PAs should include additional details about building analytics in the Plan and make it a priority #1 issue.
  - *The PAs are examining various approaches to improve upon an already successful Small Business program, including the inclusion of building analytics and benchmarking. These measures may not make it into the program if they are found to be ineffective or not cost-effective.*
- It is difficult to integrate gas measures into Direct Install-type programs. Following a whole building approach, like the home energy services initiative, could allow more comprehensive inclusion of gas measures. The effort could target both smaller and larger small businesses. Renew Boston operates a successful small business service program.
  - *The home energy services approach can be expensive to use for small businesses. But is under exploration by the PAs.*
  - *Benchmarking requires measuring building square footage, which would be difficult to do for small businesses.*
- What size small businesses are the focus of PA programs?
  - *All small businesses. They are a size [less than 300 KW peak demand] cohort spanning all C&I customer segments.*
- The PAs should report on the success and failure of tested initiatives and explain the result.

#### EEAC Comments

Mr. Lawrence presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor**
  - **Commit to making changes to the small business program by a certain date**
  - **Use the data collected by online portals to analyze and benchmark energy use to effectively target small businesses**
  - **Evaluate potential/cost effectiveness of building analytics and portals for small business customers by 3<sup>rd</sup> quarter 2016**

#### LED Streetlights (#14)

##### Presentation and Discussion of PA Responses and Review of Recommendations

Mr. Lawrence reviewed the PA response to LED streetlights as well as the potential EEAC comments, noting the following:

- Cape Light has retrofitted 17,000 streetlights in 20 towns
- Eversource and National Grid have retrofitted 58,000 streetlights in 21 municipalities
- More than 75 municipalities (out of 351) have purchased their streetlights
- PAs do not commit to any LED street lighting goals

Following this presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- LED streetlight conversion is a proven technology that offers long-term, public benefits. The PAs should develop LED streetlight conversion goals, file a tariff for utility-owned LED streetlights, and begin conversions as soon as possible. If a municipality owns the streetlights and won't convert them, the PAs should report back to the Council.
  - If the tariff issue prevents PAs from converting streetlights, the Council would submit comments to DPU to expedite the tariff process. It is the Council's role to eliminate barriers preventing the PAs from achieving EE savings.
  - *The tariff is a very large and complex undertaking; the PAs' energy efficiency staff do not have control over the process.*
  - *PAs are working with DPU on the rate schedules, but the PAs need the tariff to charge customers.*
  - *Unitil is in the process of converting 3,800 municipally-owned streetlights to LEDs.*
  - *LED conversion does not necessarily decrease the expense rate per streetlamp. While LEDs use less energy, they have high installation costs. PAs have examined the Vermont model to understand the cost structure.*
  - *PAs do have incentives in place to convert municipal owned streetlights to LEDs. There is information available on these incentives.*
  - *90% of Eversource's municipal customers in NSTAR service territory own their streetlights, with 60% of these converted thus far. Boston has partnered with us for five years to convert streetlights. There are many barriers to conversion: some municipalities have limited budgets, and others hesitate to convert due to existing performance contracts.*
- What was the impact of Unitil's utility-owned utility tariff?
  - *The tariff was a municipal owned tariff for charging project KWH per year. [Note: Unitil has rates<sup>2</sup> for LED streetlights in both its municipally-owned and utility-owned streetlights]. Fortunately, there were limited LEDs remaining at the end of the project.*
- The PAs should produce a breakdown report of the owners of streetlights and a timeline for the conversation schedule.
  - The PAs should also include a date for tariff filing.
  - *Each utility operates different rate case strategies, which run on different time tracks, making rate cases much larger issues than just EE.*
- The PAs should assist municipalities with bulk procurement of LEDs to reduce costs.
  - *The PAs would need to consider this approach.*
- *PAs cannot share customer specific information about municipal EE activities without their permission.*
  - The towns should be subject to public information requests. Could the Council request this information?
  - *PAs just need the towns' consent to share this information.*
- According to a Councilor, LED streetlights could achieve approximately 80 MW of savings, but they operate at night-- off peak.
  - LED streetlights will reduce winter peak demand at night.

## EEAC Comments

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<sup>2</sup> [http://unitil.com/sites/default/files/tariffs/E\\_dpu281\\_Summary\\_of\\_Rates\\_060115.pdf](http://unitil.com/sites/default/files/tariffs/E_dpu281_Summary_of_Rates_060115.pdf)  
 MA Energy Efficiency Advisory Council  
 Commercial and Industrial Workshop (6/9/15): Draft Meeting Summary

Mr. Lawrence presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Major**
  - **Develop a strategy and timeline to retrofit majority of utility-owned street lights to LEDs within this Plan’s timeframe (including filing of an appropriate tariff at the DPU)**
  - **EEAC should support such as tariff at the DPU**
  - **Deploy innovative actions to stimulate rapid conversion for municipally-owned street lights; for example:**
    - **Cape Light Compact managed a joint conversion process for all of its municipalities, providing technical assistance and project management through the entire process**
    - **Upstream or bulk purchase pricing**

### **PUBLIC COMMENT ON C&I RETROFIT**

The public provided the following comment:

- Maggie Downey, Cape Light Compact, provide an update on the activities of the Compact. She noted that the Compact’s Governing Board would evaluate and respond to the outcomes of the workshop. She requested the Council direct its Consultants to conduct evaluations of the initiatives it’s requesting, such as renewable thermal, and demand response, etc. to determine appropriate savings and benefits for these proposed measures. These evaluations are important to make progress and claim savings. In addition, granting the Compact flexibility beyond the kWh standard will allow it to move forward on addressing demand.

## Net Zero Energy Ready Buildings (#17)

### Presentation and Discussion of PA Responses and Review of Recommendations

Ms. Chiodo reviewed the PA response to net zero energy ready buildings as well as the potential EEAC comments, noting that the PAs should act as a market leader in the space and noting the following:

- The plan suggests involvement could be (1) R&D and/or (2) support for demonstration projects.
- Goal = “establish a basis of technical knowledge and expertise, and framework for program support”
- There is no commitment to a completion date for establishing the framework for program support.

Following the presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- When analyzing the program and potential barriers, the PAs should assess whether it would be effective to create a new tier in the New Construction Program for zero net energy (ZNE) buildings, as done in Vermont. ZNE building tiers appear to be the future of the market. DOER operates the Pathways to Zero Program, which has showed there are people building to a ZNE standard.
  - *ZNE and zero net ready buildings should be split, since Mass CEC, not the PAs, controls renewable programming.*
  - The New Construction Program tier refers to optimally efficient buildings practices, which the PAs oversee, not to renewable programming.

### EEAC Comments

Ms. Chiodo presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Major**
  - **Commit to assessing a ZNE ready building tier and timeline for a new construction offering**

## C&I Reporting (#4-5)

### Presentation and Discussion of PA Responses and Review of Recommendations

Mr. Lawrence reviewed the PA response to C&I reporting, noting the following:

- New Construction has two initiatives:
  - New Buildings & Major Renovations
  - Initial Purchase & End of Useful Life (hvac and dhw)
- Retrofit Program has four Initiatives:
  - Existing Building Retrofit
  - Small Business
  - Multifamily Retrofit
  - Upstream Lighting

- The plan has addressed the request to separate Upstream and End of Life Replacement from New Buildings & Major Renovations
- The plan includes commitments to assess other products in addition to lighting in Upstream.

Following this presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- *Upstream lighting should not be included as part of the New Construction initiative.*
  - *To compare, 99% of HVAC and domestic hot water has involved new equipment, while 95% of upstream lighting has been retrofit.*
  - *The intent of upstream is to supply a delivery mechanism for both New Construction and retrofit. The measures will be pertinent in both programs.*
  - *Due to the volume and magnitude of savings for upstream lighting, it was separated out as its own line item.*
  - *Upstream projects generate unique data, and embedding these programs in various other initiatives will make it more difficult to compare and evaluate their data without the influence of confounding variables. The group should therefore consider the impact of embedding upstream initiatives on PAs ability to accurately evaluate program success.*
- If CHP was a separate initiative, would it have a separate budget, and would it not have a separate budget if only a separate goal?
  - *Upstream offerings are typically broken out to become brand new offerings once they have proven sufficiently robust. CHP is combined with other retrofit offerings to increase its flexibility and increase the size of the offering.*
  - CHP should then be made a separate goal rather than a separate initiative.
  - PAs should report on the separate CHP goal but not be required to notify DPU when they go above or under the program budget by 15%, as is now required.
  - *PAs need to share the information that is already available for each initiative through the benefit cost ratio model and the comprehensive quarterly reports.*

### EEAC Comments

Mr. Lawrence presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Minor**
  - **Consider adding an Upstream Products break-out for New Construction to reflect the intent to include additional products**
- **Major**
  - **Establish CHP goal and track/report on the goal**
  - **Continue to report annually on control systems and engagement programs**

### Renewable Thermal (#3)

#### Presentation and Discussion of PA Responses and Review of Recommendations

Mr. Lawrence reviewed the PA response to renewable thermal as well as the potential EEAC comments, noting the following:

- PAs will remain engaged with Council to develop strategies to address renewable thermal savings.

Following this presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- *The PAs should develop a shared definition of renewable thermal with DOER at a later date.*

### EEAC Comments

Mr. Lawrence presented potential comments and the voting Councilors approved the following comments after some discussion:

- **Major**
  - **PAs commit to working with the Council to collaboratively create a work plan and timeframe for integration of renewable thermal technologies within the plan timeframe**

### Delivered Fuels and Thermal Efficiency

#### Presentation and Discussion of PA Responses and Review of Recommendations

Ms. Chiodo reviewed the PA response to delivered fuels and thermal efficiency as well as the potential EEAC comments, noting the following:

- PAs do not mention marketing comprehensive assessments to C&I customers

Following this presentation, the group then provided the following questions and comments. *PA comments and responses are in italics.*

- The PAs should actively market an electric customer's ability to self-fund the thermal portion of a comprehensive audit if they use delivered fuels (with the electric portion being cost-shared between the electric PA and the customer) rather than having customers seek programming themselves.
- A Councilor raised a questions about the incremental cost to add a footnote to existing marketing materials.
- *PAs cannot utilize EE funds for delivered fuels programming, but they do as a matter of course informally tell their customers about existing program opportunities.*
  - A trade association, such as the Oil Association, might pay for the marketing of these programs. The PAs should leverage outside resources to act on the recommendations beyond the current ad hoc approach.
  - *That approach could be effective.*
  - What would be the costs incurred by the PAs for creating marketing materials?
  - *The PAs have not analyzed what the total cost of such an approach would be.*

### EEAC Comments

Ms. Chiodo presented potential comments and the voting Councilors approved the following comments after some discussion

## Minor

- **PAs should commit to marketing, in-print, online, and in-person, a non-gas customers' ability to self-fund the thermal portion of a comprehensive energy assessment using a PA auditor**
  - **Assess any barriers or limitations to implementing, and work with EEAC to seek ways to address**

## Demand Response and Demand Savings

Dr. Raab asked the group if they wanted to discuss any additional C&I topics not covered during the earlier presentations. The following conversation focused on demand savings and demand response. The group provided the following questions and comments. *PA comments and responses are in italics.*

- Both demand savings/demand response recommendations, item 2b, are listed as #4 priorities in the PA Matrix response to EEAC's Resolution Recommendations.
- *The PAs are forming an ad hoc group to discuss demand response. It is an important issue that needs to remain part of the EE dialogue.*
  - The ad hoc group should report on the issues it is exploring.
  - *The ad hoc group is creating a plan to address demand response. It would cost hundreds of millions to achieve significant savings through demand response.*
- The full EEAC will address demand savings/response as it is a cross-cutting issue. Will the PAs further address demand savings in the Plan?
  - *The PAs will decide if and how to address demand savings/response before the final plan.*
  - The Council should know the PAs strategy towards the issue before the last July EEAC meeting.
  - *Demand response is an enormous and complex issue. The PAs should not be expected to fully address the issue before July or even in this next 3YP.*
  - The group requires additional time to examine demand reduction and demand response for both the C&I and residential sectors. These issues need to be included within the next 3YP. In addition, the group needs to further study the effects of winter peak demand and to analyze kW beyond kWh.
  - *The PAs do include demand reduction as part of their programs now.. Demand reductions are part of most projects and are valued in the screening process for custom project cost effectiveness. The PAs demand reduction performance is reported in every annual report to the legislature. Once this is better established, the PAs will focus on demand response*
  - A Councilor raised a question if Massachusetts should consider focusing more attention on demand savings and less on energy savings.
  - *These are complex issues, and it would take a multi-year effort to grow [redirect] already successful programs to focus more on demand savings.*
- Demand savings – an artifact of lowering peak demand – and demand response – dispatchable load control – should not be confused. They entail different costs and benefits. Demand response is a much more relevant issue on the C&I side than the residential side, given the existing infrastructure.
- The PAs should provide information about bidding into the forward capacity market.

## EEAC Comments

The voting Councilors approved the following comments:

- **Demand reduction and demand response need PA proposals/approaches well-ahead of Plan finalization.**
  - **Consider having another workshop and/or webinar on these issues**

## Other Topics

The group then provided the following additional comment.

- **The Council should provide comments on the draft Plan that are as positive as possible, so it needs additional information to help it analyze the Plan before July 14<sup>th</sup> at the latest and preferably by July 3<sup>rd</sup>. It needs the CRE Working Group Report immediately.**
  - **The PAs and consultants are working on the Key Drivers Analysis, which overlaps with these reports.**

## **PUBLIC COMMENT ON C&I NEW CONSTRUCTION, CROSS-CUTTING, AND OTHER**

The public provided no additional question or comments on C&I New Construction, cross-cutting issues, or other topics.

## **WRAP UP AND NEXT STEPS**

Dr. Raab thanked the participants. He noted that the EEAC Executive Committee and the full EEAC will need to figure out how to prioritize the recommendations from today's workshop together with the recommendations from the Residential Workshop, and craft the recommendations into their formal July comments.

**Attachment #1: C&I Workshop Participants**

<b>EEAC Commercial &amp; Industrial Workshop, 6.9.15, 9:30-4 - Saltonstall Bldg, 100 Cambridge St. 2nd Floor, Rooms C &amp; D Boston</b>			
<b>First Name</b>	<b>Last Name</b>	<b>EEAC Councilor</b>	<b>Company</b>
Douglas	Baston	No	NAEA
Donald	Boecke	Yes	MA Attorney General's Office
Amy	Boyd	Yes	Acadia Center
Jennifer	Chiodo	No	EEAC Consultants
Larry	Chretien	Yes	Mass Energy Consumers Alliance
Maggie	Downey	Yes	Cape Light Compact
Erin	Engstrom	No	Eversource
David	Gibbons	No	National Grid
Paul	Gromer	Yes	Peregrine Energy Group
Robert	Gyurjan	No	Berkshire Gas
Adam	Jennings	No	Eversource
Paul	Johnson	Yes	Greentek/EEAC Small Business Rep.
George	Lawrence	No	EEAC Consultants
Paul	Lipke	No	Health Care Without Harm
Rick	Malmstrom	Yes	Dana-Farber Cancer Institute
Maggie	Mc Carey	No	MA DOER
Ezra	McCarthy	No	National Grid
Nelson	Medeiros	No	Eversource
Meredith	Miller	No	Cape Light Compact
Thomas	Palma	No	Unitil
Alex	Pollard	No	MA DOER
Aimee	Powelka	No	MA DOER
Robert	Rio	Yes	AIM
Nancy L.	Seidman	Yes	MassDEP
Margaret	Song	No	Cape Light Compact
Bradford	Swing	Yes	City of Boston
John	Wells	No	Action for Boston Community Dev.
Eric	Winkler	Yes	ISO New England
Andrew	Belden	No	Meister Consultants
David	Strauss	No	A Better City
Derek	Buchler	No	First Fuel