



DRAFT Meeting Summary

November 5, 2020
Virtual Meeting via Zoom

Participants: Over 100 people attended the workshop including 18 Councilors. A list of Councilors in attendance and Presenters (EEAC Consultants and Program Administrators) is included in the Appendix. The workshop background material and presentations can be found at <http://ma-eeac.org/planning-workshop-1-new-construction-and-active-demand/>

WORKSHOP OVERVIEW

Maggie McCarey, DOER Energy Efficiency Division Director and EEAC Chair, welcomed participants and conducted roll call. She shared the revised Energy Efficiency Advisory Council workshop schedule for the 2022-2024 cycle, which includes 6 or 7 workshops through January 2021. The schedule was revised based on feedback requesting more time focused on commercial and industrial (C&I) in existing buildings. She explained that there will not be public comment during this workshop, as there are six dedicated public listening sessions. All public comments are posted to the EEAC website. Maggie welcomed Dennis Villanueva, who was recently approved by the Department of Public Utilities as the new Large Commercial Customer Councilor seat. Dennis is the Senior Energy and Sustainability Manager at Mass General Brigham.

Dr. Jonathan Raab, facilitator for Raab Associates, provided an overview of the groundrules and the approach to making recommendations, which can be found on the meeting materials at the link above (“MA EEAC 2020 Workshop Protocols and Groundrules”). He explained that the goal of the workshop series is to develop a set of consensus recommendations for PAs to address in the development of their next 3-year plan.

APPROACH TO RECOMMENDATION FRAMING AND DISCUSSION

The same approach to recommendation review and discussion was employed throughout the meeting. First, the Consultants presented a slide describing the recommendation. Then, facilitator Jonathan Raab guided Councilors through each recommendation, one at a time, displaying the Consultant Team slides (linked above) for reference. He organized the conversation around each recommendation by breaking the discussion into three categories: clarifying questions,

comments & suggested improvements, and reservations (if any) including recommendations for addressing those reservations (Note: the responses to the last two questions are summarized together below after each recommendation under “Suggested Improvements (Voting Councilors). At the conclusion of each sector (e.g. Residential New Construction, Commercial New Construction, and Active Demand Management), Jonathan solicited ideas for additional recommendations they’d like to propose, not listed in the briefing document.

NEW CONSTRUCTION (RESIDENTIAL AND C&I) POTENTIAL RECOMMENDATIONS

Residential New Construction

Amanda Formica, program administrator (PA) representative from National Grid provided background on current residential new construction offerings. Her slides are available at the meeting materials page, linked above (“PA New Construction Presentation”). Glenn Reed, EEAC Consultant, presented on market changes and impacts to and opportunities for the residential new construction programs. His slides are available at the meeting materials page, linked above (“Consultant Team Presentation”).

1. Multi-family: Continue to grow the pipeline of new multi-family (5+ units) Passive House projects since the Passive House standard provides a step up in savings.

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- Is the recommendation all-electric or include gas? *The offering is fuel neutral.*
- Where are you finding the greatest success, and where are there opportunities to expand customer participation? *We’ve been finding success in Passive House consultant certification, workforce development, and lunch and learns, and plan to continue to build upon these efforts*
- Is the baseline based on community specific code? If a city has a stretch code, could customers receive an incentive for something that’s already required? *There is no differentiation between stretch and baseline code; it’s based on standard practice*

Councilor Comments/Suggested Improvements

- Program has been successful with large queue of interested customers
- Flesh out details including specific targets and goals, clarify workforce elements, and consider running pilots to address centralized water heating barriers

2. Investigate opportunities for promoting zero-energy modular homes. These efforts may entail working with DOER’s Zero Energy Modular Home Affordable Housing Initiative (ZE-MAHI).

Clarifying Questions (Councilor questions. PA and Consultant and DOER responses in italics).

- Is there a regional modular home association? *We (DOER) have presented to a modular home association in the past and the Zero Energy Modular Affordable Housing (ZE-MAHI) grant program is currently working with an organization that works with manufactured housing co-ops in Massachusetts.*
- How are you handling the fact that most manufacturers are located out of state? *The ZE-MAHI grant program is connected with out of state modular home manufacturers and working with local contractors.*
- What is the distinction between a modular and mobile homes? *Modular homes are built offsite and delivered; a primary difference is that modular homes are situated on a permanent foundation.*

Councilor Comments/Suggested Improvements

- Councilors expressed strong support for this effort and noted its importance for efficient and affordable housing for the Commonwealth
- Continue to work with out-of-state manufacturers and local contractors to advance this effort

3. Fossil-Free New Construction: Better characterize the non-energy impacts of fossil free new construction.

- Recent studies have shown significant health impacts from combustion appliances, including the health impacts of gas stoves., Properly quantifying and claiming these benefits would likely improve the cost effectiveness of all-electric new construction and or support.
- Also relevant to C&I sector

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- Is this an EM&V issue? *Ultimately yes; we're looking to other jurisdictions for information but need more data to quantify impacts and their effects on cost-effectiveness.*
- Can the recommendation be more specific, e.g. recommending a study to inform program design? And can that be conducted soon to inform the next cycle? *PAs and the Council Consultants are beginning an RNC non-energy impact study soon which will be completed in early 2021*

Councilor Comments/Suggested Improvements

- Expedite/accelerate analysis
- Include equity and health impacts of gas stoves and other end uses
- Avoid creating an average baseline to ensure equity and health impacts are not missed
- Be even-handed with analysis and implications (i.e., don't presuppose outcome)

4. 1-4 family: Develop single family and low-rise multifamily allelectric program offers.

- The single-family offer would likely entail, at a minimum, a set of stringent prescriptive envelope and HVAC equipment criteria.
- The MF offer should leverage the current Passive House activities, which should remain largely unchanged.
- The PAs should provide tools and training to promote the use of variable refrigerant flow (VRF) HVAC systems in MF buildings.

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- What are the offers in other states? *Connecticut has an all-electric NC program, based in part on advanced building guidelines developed by Efficiency Vermont; strict building envelope criteria; minimum HVAC criteria for heat pumps*
- What are the proposed R values? *The briefing document provides a link to Connecticut-program requirements, including R-values adopted in Connecticut, but these have not been established for Massachusetts*
- Are heat pumps required, or is resistance heating permitted? *This depends on modelling; need to meet savings over baseline threshold; rare to meet savings thresholds with resistance heat, but possible in smaller and/or very low load buildings.*

Councilor Comments/Suggested Improvements

- Single family and multifamily new construction homes provide opportunities to significantly cut GHG emissions in a cost-effective manner
- Quantify consumer benefits of all-electric homes
- Set goals like education and meeting 2025 GHG targets
- Consider whether to include electric resistance heating in this program and under what circumstances
- Be mindful of customer cost considerations including affordable housing and workforce issues

5. Active Demand: Develop connected home requirements.

- May start as requiring smart, Wifi thermostats or possibly over time, requirements for home energy management systems and/or connected equipment such as HVAC and hot water equipment.
- Efforts should be leveraged by actively recruiting new homeowners to participate in the PAs' active demand response (ADR) efforts.
- As part of this connected home effort, the PAs should more seamlessly integrate already available storage, EV-charger, and PV incentives into the program.

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- What is price per square foot for connected house compared to typical new construction? *It varies tremendously as there are multiple pathways to connected home; it can be as*

simple as requiring DR enabled wifi thermostats, which is relatively inexpensive, or as involved as EV chargers and storage which require more significant investment.

- The briefing doesn't appear to include a deep discussion of EV chargers. What is our expectation of how PAs will engage with EVs? And are EV charger costs covered by developer? *The intention was to leverage existing activities and make integration more seamless*

Councilor Comments/Suggested Improvements

- Good to connect homes from start, and support leveraging other programs during new construction when measures are more cost-effective
- Look more deeply at connectivity options other than just wifi thermostats
- Integrate EV charging into offering
- Ensure PAs also target income eligible customers, and address unique barriers for different types of customers

Additional Recommendations for Residential New Construction

No additional recommendations were proposed during the meeting.

C&I New Construction

Kimberly Cullinane, program administrator (PA) representative from Eversource gave a brief presentation framing C&I new construction program elements from a national context. She noted that the Massachusetts PAs' ZNE Program is one of the most progressive in the nation. Her slides are available at the meeting materials page, linked above ("PA New Construction Presentation"). EEAC consultant Jennifer Chiodo gave a brief background presentation before the first recommendation (below). Her slides are available at the meeting materials page, linked above ("Consultant Team Presentation").

6. Efficiency: Increase thresholds for participation to ensure significant impacts on building energy use through investments in very high efficiency building envelopes and electrification to avoid more costly future deep energy retrofits.

- Ensure EUI baselines used for Paths 1 and 2 are stringent enough to drive projects towards the highest efficiency achievable with modern construction practices.
- Emphasize Path 1 (ZNE ready) as often as possible – including with smaller buildings that are motivated to achieve ZNE status. Include bonus incentives for electrification and reduced thermal loads by focusing on high-performance building envelope.
- Address barriers to and find means for consistently shifting new construction to all electric buildings to avoid more costly deep energy retrofits in the future.

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- Are a majority of projects going for more comprehensive paths 1 and 2? Should we design additional pathways for smaller buildings? Participant size *Thresholds exist to*

protect project cost-effectiveness; e.g. path 1 involves detailed modelling. There is a fair amount of interest in paths 1 and 2, and the PAs expressed a willingness to address smaller projects committed to ZNE under paths 1 and 2..

- *How has EUI not improved considering efficiency efforts? A recent analysis did not find significant changes in EUI as code progressed; the reasons were not studied.*
- *How is EUI measured – at site or source? The site vs source issue is under discussion between the PAs and DOER. The Program will use site EUI in the customer-facing analysis. Hospitals with CHP facilities would be treated uniquely and not compared to average EUI. The briefing document contains additional details.*

Councilor Comments/Suggested Improvements

- Supportive of increasing thresholds
- Increase incentives to push for deeper efficiency
- Consider differentiating between site and source EUI, and lowering total source energy not just site energy
- Enhance pathways for smaller buildings

7. Modern Buildings: Run pilot projects with small or mid-size participants in the less comprehensive new construction Paths 3 & 4 that utilize modern building envelopes and high performance HVAC systems such as Variable Refrigerant Flow or Ground Source Heat Pumps paired with Dedicated Outdoor Air Systems. Include commissioning and operator training, and study project impacts on energy and non-energy benefits including:

- Energy and cost savings
- Carbon emissions
- Operations and maintenance cost
- Indoor air quality and occupant comfort improvements

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- *Is the focus on smaller projects due to cost constraints or design considerations? This is a relatively new pilot/demonstration*
- *Is remote monitoring and commissioning part of this project? Need to do more than training maintenance staff. PAs discuss monitoring-based commissioning (MBCx) with customers, but that is expensive, and this program doesn't provide a direct incentive for MBCx. Incorporated monitoring into construction design but low adoption rate; potential for MBCx for existing buildings that aren't operating as designed – this will be discussed during existing buildings topic*

Councilor Comments/Suggested Improvements

- Reframe “pilot” language to “actively promote” instead
- Reflect takeaways from recent Eversource rate case
- Add greater focus on on-going optimization and operator training

8. Active Demand: Develop Connected Buildings offerings for all four C&I new construction paths that build ADR capabilities into the design of new buildings.

- The PAs should leverage controls for end uses like lighting and HVAC in new buildings, which are now required by code in most cases, for active demand reductions (ADR) from early in the design process
- Co-market EE and DR for all customers, not just those who express an interest in ADR, to help ensure all new buildings become flexible grid assets.
- The U.S. Department of Energy has coined the term “Grid Interactive Efficient Buildings”, which integrates technologies ranging from EE, to DR, to distributed generation and EV charging. The PAs should integrate the themes of this concept into the New Construction programs.

Clarifying Questions (Councilor questions. *PA and Consultant responses in italics*).

- How are you addressing legacy controls on campuses? *PAs are exploring ways to integrate legacy controls; this is an issue for existing buildings not new construction, so will be covered in the upcoming Existing Buildings workshop*

Councilor Comments/Suggested Improvements

- Similar to residential: look more deeply than just wifi thermostats at connectivity options
- Look at (and differentiate by) all building sizes
- Separate out EV-readiness programs
- Address multiple building campuses where controllers in new buildings may not be compatible with legacy systems (and in those cases address legacy systems simultaneously using NC and/or retrofit budgets)
- Co-market ADR in this New Construction Path 4
- Better accommodate integrated controls and not just centralized controls
- Expand program marketing

Additional Recommendations for C&I New Construction

Jonathan then invited the group to brainstorm additional recommendations for C&I as a whole.

- Elevate recommendations for performance-based or monitoring-based commissioning
- Rethink HVAC systems in light of COVID: provide incentives for ventilation and filtering and variable speed drive (VSDs), and address impacts of higher energy use and EUIs by considering energy recovery and optimizing systems for ventilation
 - *This should also be flagged for C&I existing buildings discussion*

ACTIVE DEMAND MANAGEMENT (ADM) POTENTIAL RECOMMENDATIONS

Jeff Schlegel, EEAC Consultant, gave a brief background presentation framing current active demand management efforts, and teeing up the recommendations. In short, the presentation focused on the key question of how to build on early and current efforts, and the Consultants’ recommendation to expand and grow current ADM offerings by increasing participation of

customers and vendors, revising and expanding offerings, adding end uses, and leveraging other programs. He summarized that the key questions are how much and which types of active demand management are needed, how will they be valued, and what should be done through EE programs in the next plan vs. through other avenues. The “2020 active demand reductions performance” shows preliminary performance reported by PAs (slide 14). He noted that the November Council meeting will include a focus on ADM. Jeff’s slides are available at the meeting materials page, linked above (“Consultant Team Presentation”).

1. Direct Load Control: Increase participation in existing DLC offerings, incorporate new end uses, and expand DLC offerings to low income customers

- Increase wifi thermostat DLC penetration through tactics including bundling wifi thermostats and DLC with heating and cooling system installations including heat pumps, and comarketing and delivery coordination of DLC with in-home audits and wifi thermostat rebates. Increase enrollment and penetration of wifi thermostats in DLC, e.g. from 3% of wifi thermostats to 15% (residential and small business).
- Incorporate new end uses by expanding or adding EV charging and pool pumps and revisit the cost-effectiveness and potential addition of appliance DLC opportunities such as water heaters and dehumidifiers.
- Expand DLC offerings to low income customers.

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- Why didn’t the briefing doc include National Grid’s EV charging effort? *The table in the briefing document is preliminary and will be updated for the mid-November discussion. In short, the offer is under development and National Grid anticipates customer recruitment mid 2021.*
- Do any recommendations address gas ADM? *The briefing document references the very recent DPU order on the Eversource gas rate case that directs PAs to pursue gas ADM. (Note: this will likely result in a sixth recommendation on ADM.)*
- Thermostat DLC penetration is currently 3% of wifi thermostats; there appears to be room for growth. Are incentives adequate? *3% is not the most accurate indicator because it applies to all wifi thermostats, and not all customers with wifi thermostats have the required connection to central AC or technically-capable window units. Total eligible population size is unknown currently though the consultants suggested revising the eligible population (denominator) once data or estimate is available. Small capacity reductions add up to a significant portfolio reduction; current incentive is aligned with system value to Commonwealth. Participation levels are good relative to Plan targets and cost-effectiveness value, with 30,000 customers enrolled.*
- Is there an incentive for fuel switching? *Program rules recently changed to include incentives for switching from fuel oil but not from existing gas*

Councilor Comments/Suggested Improvements

- Expand low-income participation in DLC; (specifically change from “Expand DLC offerings to low income customers” to “Increase participation of low-income customers”)
- Incorporate additional measures and new end uses like hot water heaters, which are efficient and have strong load shifting potential
- Carefully analyse the potential value streams (currently without dynamic retail pricing value of load reduction goes to basic service provider) in order to justify increasing incentives.
- Continue to analyse the reasons for non-participation
- Add a target date for National Grid EV charging effort

2. C&I Load Curtailment: Grow the C&I load curtailment resource through integration with normal program and market sales channels and with the new construction program. Before 2022, assess the eligibility for new CHP/generators to participate in C&I load curtailment for the 2022-2024 Plan, and consider phasing out existing CHP/generators that are currently enrolled during the 2022-2024 period.

Clarifying Questions (Councilor questions. *PA and Consultant responses in italics*).

- What percent of existing C&I load curtailment comes from generators or CHP, to assess the benefits of utilizing during peak? *PAs don't have clarity on what technology a customer is using; PA can see how meter adjusts demand in response to a DR event, but don't have insight into technology*
- How does this recommendation on CHP address conflicting objectives (reducing GHG emissions by burning fewer fossil fuels for generation, and managing or reducing demand through CHP and onsite generation)? *That conflict is precisely why we need to assess system impacts to assess future eligibility. Future eligibility of CHP will be assessed for the 2022-2024 Plan overall, and not just for ADM.*
- What options beyond CHP do customers have? *The assessment would look at other options, e.g. reducing set points and reducing other loads*

Councilor Comments/Suggested Improvements

- Acknowledge competing objectives of GHG emission reductions and reducing demand through CHP; align efficiency efforts with GHG targets and policies
- Add specific guidance in this recommendation to include assessment of GHG impacts

3. Storage: Significantly expand the program behind-the-meter (BTM) storage targets to contribute to the Commonwealth’s overall storage goal of 1,000 MWh by 2025 (or 500 MW with storage duration of 2 hours), Revise the program outreach and integration processes to enable increased and broader participation of customers and storage/inverter providers, and help integrate the storage program offerings into a statewide framework that leverages SMART and the Clean Peak Standard.

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- Will integrating with other programs like Clean Peak Standard and SMART result in lower EE program incentives for storage? *Not necessarily. The main driver will be as storage costs come down, so too will incentive levels. Proposing co-developed offering that makes sense to storage developers and customers alike, with overall incentive levels that are effective and that likely will be revised as storage prices change.*
- If we achieve 1,000MWh by 2025, we'll need to increase storage 20x. How will that be achieved? *By addressing barriers like cost, revising program processes to make it easier to participate, stacking benefits to customers and benefits, and integrating and co-delivering with other storage offerings*

Councilor Comments/Suggested Improvements

- Consider ongoing appropriate incentive levels and storage targets
- Leverage additional value streams and aggregation opportunities to increase greater adoption
- Consider improved integration with other programs and requirements

4. Electric Vehicles (EV) Charging and Mobility

- Increase enrollment and participation of EV chargers in the bring-your-own-device (BYOD) program offering
- Consider targeted incentives for wifi-enabled EV chargers and/or vehicle-controlled chargers for new or used EVs,
- Consider co-marketing and targeted incentives for EV chargers for some customers to provide equitable opportunities to benefit from transportation electrification
- Explore/investigate co-delivery and integration with other state EV and charger programs including potential co-funding sources
- Explore possible program support for other mobility solutions beyond individual automobile approaches Christopher Porter, program administrator representative from National Grid, presented on EV possibilities and integration in the 2022-2024 EE Plan. His slides are available at the meeting materials page, linked above (“PA EV Presentation”).

Clarifying Questions (Councilor questions. PA and Consultant responses in italics).

- Are there opportunities to partner with auto dealers? *This is an opportunity for journey mapping*
- How do you incentivize EV charging on public property? *By managing timing of charging, and through targeted incentives to certain types of customers and technologies*

Councilor Comments/Suggested Improvements

- Add concrete deadlines to recommendations. (For example, include a state-wide program for BYOD for EV chargers and/or vehicle-controlled charging by a specific date)

- Change language of recommendations b and c from “consider” to “do” (e.g., “develop and implement”)
- Consider focusing on a pay for performance approach for charging
- Clarify participation targets through technology paths: EV Charger vs. Vehicle Control paths
- Provide co-marketing and grant funding to further equity opportunities related to EV charging
- Pay attention to equity and provide opportunities for all type of customers to benefit from program-supported or co-delivered transportation electrification
- With respect to vehicles:
 - a. Consider focusing on full electric vehicles rather than hybrids, and also support other mobility options than just cars
 - b. Partner with dealerships

5. Winter Demand Management: Revisit the performance and cost-effectiveness of winter ADM by mid-2021 after the AESC 2021 study is complete, and consider combining summer and winter efforts into an annual ADM offering. Continue winter ADM efforts in the interim in 2020-2021 by leveraging investments in summer ADM to increase utilization in winter.

Clarifying Questions (Councilor questions. *PA and Consultant responses in italics*).

- Is there a specific date for avoided cost study, and will it include Massachusetts? *We anticipate preliminary Dec 2020 and final values in March 2021, in time for April draft plan.*

Councilor Comments/Suggested Improvements

- Consider winter gas ADM recommendation, recognizing that this draft of recommendations intentionally didn’t include gas ADM recommendation given the (then) pending Eversource rate case decision

Additional Recommendations for Active Demand Management

Jonathan Raab suggested that the group discuss any additional recommendations at November’s EEAC meeting, considering today’s time constraints.

WRAP UP & NEXT STEPS

In closing, the group welcomed new Council member Dennis Villanueava. Jonathan explained that his colleague Scott McCreary will facilitate workshop #2, which is focused on Income Eligible services. Jonathan closed by inviting participants to provide feedback during the meeting or via email.

APPENDIX: Meeting Attendees (not including the public attendees)

Attendance: Nov. 5, 2020 EEAC First Workshop: New Construction & Active Demand	
Voting Councilors	
Maggie McCarey	DOER
Cindy Arcate	Non-Profit Network
Jo Ann Bodemer	AGO
Amy Boyd	Acadia Center
Tim Costa	ISO-NE
Fran Cummings (for Paul Gromer)	Peregrine Energy
Mike Ferrante	MEMA
Elliott Jacobson	Action Inc.
Paul Johnson	Greentek
Cammy Peterson	MAPC
Bob Rio	Associated Industries of MA
Dennis Villanueva	Mass General Brigham
Mary Wambui	Planning Office for Urban Affairs
Sharon Weber	DEP
PA Non-Voting Councilors	
Maggie Downey	Cape Light Compact
Cindy Carroll	Unitil
Frank Gundal	Eversource
Stephanie Terach	Liberty Utilities
Presenters (Consultants and PAs)	
Jennifer Chiodo	EEAC Consultant Team
Glenn Reed	EEAC Consultant Team
Jeff Schlegel	EEAC Consultant Team
Kimberly Cullinane	Eversource - PA - Lead C&I NC
Amanda Formica	National Grid - PA - Lead Res NC
Chris Porter	National Grid, PA-Lead ADM