

EEAC C&I Workshop Recommendations

WORKSHOP #1

Combined Heat and Power

1. Overall seek ways to increase CHP installations in Massachusetts
2. Reassess the CHP economic potential in Massachusetts (Note: Last assessment was done circa 2011 - <http://ma-eeac.org/wordpress/wp-content/uploads/Combined-Heat-Power-Market-Characterization.pdf>)
3. Pursue following next steps:
 - a. Identify barriers to doing more CHP projects with customers of each size, and determine if the barriers are technical, policy, financial, legislative, or market issues.
 - b. Identify potential solutions to overcome the identified barriers, and determine the feasibility, costs and ability of the Program Administrators to implement the solutions.
 - c. Investigate the challenges posed by natural gas availability and volatility in fuel prices for installing CHP systems and potential programmatic approaches to mitigating those risks
 - d. Also, continue to seek ways to install CHP safely on downtown networks
4. Enhance education campaign for CHP technology, including cost-effectiveness and the (DEP) permitting process when applicable
5. Evaluate whether CHP should be a stand-alone initiative

Retro-Commissioning(RCx)/Building & Lighting Controls/Sub-Metering

1. Overall endeavor to scale-up RCx, controls, and sub-metering initiatives in Massachusetts beyond PAs current programs
2. Seek ways to transform RCx into a continuous commissioning process by using appropriate incentives, promoting new technologies, and training system operators
3. Consider how to include continuous commissioning as part of the new construction program
4. Investigate ways to use benchmarking to identify ideal RCx candidate projects
5. Continue to incentivize new building automation, and lighting controls that exceed building codes and standard practices
6. Decide on guidelines to facilitate and incentivize a more rapid and nimble adoption of emerging new technologies
7. Educate customers and vendors about new technologies, particularly through accessible formats, like webinars and videos (including searchable C&I case studies on the Mass Save website). Webinars, and education opportunities, etc. should be regularly posted to the Mass Save site.
8. Promote open architecture in control systems to facilitate simpler system upgrading
9. Update building operator training offerings.
10. Consider using pilot programs to test new technologies or program delivery approaches in these areas

WORKSHOP #2

RECOMMENDATIONS: Small Business

1. Priorities – Deeper Savings, and Increase participation
2. Expand prescriptive menu of services to better advance natural gas energy efficiency opportunities and non-lighting electric measures.
3. Increase participation in the program and deeper savings
4. Use building analytics and benchmarking to target small business customers
5. Investigate potential for various program implementation approaches to serving the various strata of small business eligible customers.
6. Increase outreach and awareness programs for greater participation. Work with trade groups and associations.
7. More comprehensive (e.g. integrate gas/electric) marketing programs for small business.
8. Determine which implementation strategies, technologies and building diagnostic capabilities are transferable and effective for serving Small Business customers.
9. Explore HES-type approach and segmentation by size and type.

RECOMMENDATIONS: Behavioral and Engagement Programs

1. Investigate successful behavioral programs to determine the critical elements for success and their cost-effectiveness.
2. Research SEM/ CEI programs to determine their applicability, cost effectiveness, and the effort required to implement in Massachusetts.
3. Evaluate the potential savings from behavioral and/or SEM/CEI programs
4. Incentivize building operators and owners, and provide building operator training around behavior issues (develop in consultation with BOMA and others); and support peer-to-peer cohorts
5. Develop guidelines for how energy savings can be tracked from behavioral programs, and how Pas can get credit for behavioral savings
6. Explore leveraging for dispatchable load control
7. Provide technical assistance to identify opportunities and implement
8. At minimum, do a pilot during the next 3 years for large C/I customers

RECOMMENDATIONS: Commercial Real Estate

1. Implement recommendations from CRE Working Group Roadmap, Massachusetts Commercial Real Estate Survey Analysis and Office Market profile report and other supplemental strategies
2. Offer pre-packaged suites of energy efficiency options to increase energy efficiency upgrades in buildings (lighting, HVAC and other measures).
3. Increase engagement with tenants. Energy tracking and dashboards are useful to both owners and tenants. CRE actors want to know how they compare to other buildings.
4. Perform outreach to building managers and owners. Work with the owners to incorporate EE into retrofits or tenant fit-out.
5. Target marketing to CRE businesses based on building vintage. The CRE study found that the majority of energy consumption occurs in building built before 1990.
6. Energy efficiency leases are a longer term market-transformation opportunity.

7. Leverage the role of account managers. The study showed that of the CRE businesses considering energy efficiency investments, a large proportion had PA account managers.
8. Speak to real-estate professionals in their own languageExpand Sustainable Office Design program features, including streamlined review and incentives, to technologies beyond lighting
9. Explore market transformation opportunities
 - a. Advanced building operator training with input from market actors
 - b. Sub-metering and wireless submetering
 - c. Better financing opportunities
10. Mid-size office building targeted program—whole building approach
11. Use BERDO data for identifying CRE opportunities in Boston and leveraging participation in EE programs
12. Explore main drivers for CRE EE investment opportunities

RECOMMENDATIONS: Hockey Stick Pattern

1. Acknowledge existence and challenges of hockey stick, but don't spend inordinate resources to address
2. Improve pipeline forecasting and reporting to improve visibility and predictability
3. Avoid offering incentives that create inequities or unintended consequences (e.g., waiting to the end of year or not moving forward)

WORKSHOP #3

RECOMMENDATIONS: Demand Reduction

1. Continue to educate Councilors on this whole area, and consider EEAC work group on demand reduction and demand response
2. Evaluate including additional benefits for reducing demand during winter peak periods in addition to summer peak periods (in cost effectiveness analysis and PAs' performance incentives). Include emissions in evaluation.
3. Evaluate demand reduction and demand response opportunities using same cost effectiveness framework as other energy efficiency measures
4. Investigate what impact there would be on efficiency savings if the council were to place greater emphasis on demand savings or peak demand savings.
5. Investigate where there may be current or anticipated capacity constraints in the system [for areas to explore applying geotargeting]. (Is this Council's role?)
6. Explore the added potential benefits of, and impacts upon, the efficiency programs of the planned advanced metering functionality and time varying rates changes by the electric utilities.
7. Given uncertainty around wholesale demand response and trajectory of advanced metering functionality and time varying rates in MA, likely won't be resolved before 3 year plan filed—and likely need to be reevaluated during three-year plan.
8. Design, implement, and evaluate a demand reduction and/or demand response pilot in each PA's service territory

RECOMMENDATIONS: Segment Specific Approaches

1. Classify, track, report on and customize approaches to major C/I sub-sectors (e.g., municipal, health care, commercial real estate, and education; non-profits; mid-size and small C/I--both particularly challenging—may need more staffing resources (boots on ground))
2. Create more targeted communications to different market segments, explaining the benefits from, and availability of, energy savings opportunities to drive participation.
3. Provide increased access to segment-specific marketing (including using trade associations) information and educational opportunities on the Mass Save site.
4. Share marketing and sales materials among PAs
5. Ensure EM&V study, where applicable, and market research results are used to inform program design (e.g., hospital study).
6. Twice yearly feedback to the Council regarding how sector specific strategies are being implemented across the state, what kind of sector specific materials are being used by the PAs, and how market research and/or EM&V lessons learned are implemented.
7. Questions:
 - d. PAs have been doing market segmentation for a long time, does Council need to push them further on segmentation?
 - e. Can we get org chart from PAs to know how many people are working in each program area/market segment?

RECOMMENDATIONS: Delivered Fuels, Oil, Propane and Biofuels

1. Seek ways to provide integrated thermal services, with or without incentives, to all C&I customers, regardless of delivered fuel status.
2. PAs share option that non-gas customers can do a thermal audit using a PA auditor at customer cost.
3. Evaluate and consider promoting legislative and/or regulatory changes if need be to support energy efficiency in C/I buildings that use unregulated fuels (similar to 1-4 residential buildings); [Does Council need work group on all potential legislative/regulatory changes—across all programs?]
4. Prioritize switching to renewable sources and high efficiency cold climate heat pumps over switching to natural gas
5. Get one page briefing on funding sources/uses for all Residential/Low Income and C/I efficiency. Specifically, add history and legal clarity on how measures for unregulated fuels are able to be funded in residential sector, including multi-family, but not in commercial sector.

RECOMMENDATIONS: Reporting

1. The PAs should seek to split the New Construction C&I program into separate initiatives for new construction, end of life replacement and upstream.
2. For the C&I retrofit program, the PAs should seek to increase the number of initiatives to correspond to the Council's interest in more detailed reporting data, such as:
 - a. CHP
 - b. Retrofit Programs
 - c. Control systems (including retrocommissioning, control upgrades, sub-metering and performance metrics)
 - d. Engagement programs (continuous energy improvement, strategic energy management, behavioral programs)

3. Goals should be set at the Program level, so PAs have the flexibility to expand programs if they are more effective at providing savings. However, there should still be initiative level targets provided by the PAs.
4. Provide break-down annually (or quarterly) by end use/segment
5. Provide information on cost of customer acquisition across programs and segments; identify where being most successful and what areas most challenging

RECOMMENDATIONS: Zero Net Energy Buildings

1. DOER recommended that PAs create an official ZNEB program or separate track in new construction. Support of voting Councilors was split. Concerns included:
 - a. Be mindful that ZNEB customers may not pay into EE funds
 - b. Consider including storage in definition
 - c. What’s difference between ZNEB and current New Construction program

RECOMMENDATIONS: Streamlined Energy Audits

1. DOER recommended that the PAs incorporate streamlined energy audit methodologies into their 2016 – 2018 programs and processes. All voting councilors presented support.

RECOMMENDATIONS: LED Street Lighting

1. DOER recommended that PAs create a plan to install LEDs in all utility-owned street lights by 2020. Majority of voting Councilors supported. Discussion points included:
 - a. Require utilities to do as soon as possible and not later than 2018, and change tariff if need be
 - b. Want break-down utility and municipal-owned streetlights, and map of where HPS and where LEDs exist
 - c. PAs have underspent C&I budgets; in this case, know where all the customers are
 - d. What’s relative cost effectiveness of this compared to other measures?
 - e. RI has legislation allowing advanced controls for streetlights
 - f. Monthly charge to municipality might go up
 - g. Some communities may not want to do this

Low Income Workshop Recommendations

Low Income Programs

1. LEAN should continue to pilot test new energy saving technologies and practices and incorporate them into their programs when they make sense, provided they are cost effective [DOER recommends changing/clarifying “are cost effective” to “programs as a whole remain cost-effective”]
2. LEAN should expand its eligibility criteria to include 1) low-income multi-family houses that heat with oil/propane (assuming RCS change); 2) non-profits that primarily serve low-income customers; and 3) multi-family buildings that meet 80% of HUD standard
 - o However, the two caveats are that 1) non-profits serving primarily low income need to be clearly defined; and 2) there need to be additional [or adequate?] funds available to cover these expansions without reducing resources to pre-existing LEAN markets or exacerbating the low-income weatherization queue issues

3. Defer supporting LEAN's request to also expand eligibility to households applying for but not eligible for fuel assistance (those at 60-80% of median income)
 - There were concerns that this might be inequitable to others in the 60-80% category who didn't apply for fuel assistance, or cause many more 60-80% households to apply for such assistance. In the end, it was agreed to defer this request to the broader discussion within the context of serving 60-80% category in the full HES program at the 3/9 meeting.
4. Councilors were also more broadly interested in an initiative targeted at potential retrofit opportunities when any multi-family building is being refinanced
 - State agencies that know a low-income building is coming up for refinance should share that information with PAs and LEAN so they can capitalize on it with an appropriate retrofit initiative

DRAFT EEAC Residential Workshops Recommendations

Note: The residential draft recommendations are based on the workshop discussions on 2/12 and 2/26, except as otherwise indicated in **yellow highlight** (where they've been added to subsequently by DOER/Consultant team for consideration.) These will be discussed and updated at 3/9 workshop.

Products Programs

1. *LED Lighting*
 - LEDs are superior to CFLs except for first cost
 - The quicker we can progress from CFLs to LEDs in all the programs the better
 - Councilors support the PAs' plan to lead with HES/whole house programs where they could move to 100% LEDs directly installed as soon as 2016 (depending on pricing), and moving as rapidly as possible to all LEDs for specialty lighting in the products program
 - Conduct a **joint PA/EEACC Consultant** assessment **[or continue assessing]** to determine the strategy for progression to only supporting LEDs for general lighting in the products program
 - The plans may benefit from flexibility on the timing of general lighting progression to LEDs because the speed of lighting product innovation and pricing is rapid and uncertain
2. *New Technologies (including Wi-fi learning Thermostats, connected devices, energy star dryers etc)*
 - Massachusetts should continue to be a leader in promoting new technologies. However, each specific technology will likely need its own road-map including where, when, and how to apply incentives
 - A one size fits all upstream approach may not be appropriate for all products, but upstream incentives have worked in other states, and so merit some further investigation **[by whom and by when, and should it include a demonstration project?]**
3. *Fuel Blind/Fuel Switching of heating and cooling equipment*
 - There is broad desire to make incentives fuel neutral/blind, to allow households to consider the best heating and cooling options for their situation, as long as it does not

inadvertently promote the excessive use of natural gas. This may include greater integration of HVAC into HES (building on the success of early boiler and furnace replacement offerings)

- Develop a methodology for claiming savings from renewable equipment

HES Initiative

1. Deeper Savings

- Focus on increasing the closure rate on weatherization—e.g., analyze why jobs are not closing and improve contractor monitoring and other methods of increasing performance
- Integrate a scorecard to communicate “home energy performance” pre and post cost-effective recommendations, and to compare to other homes
- Utilize strategic entry points for deeper savings by offering incentives timed to integrate with refinancing or other building retrofit triggers
- Reassess the insulation incentive (75% up to \$2,000), including considering whether to adjust both the \$2000 limit and the 75%, and two tiers for market rate vs. moderate income
- Collect more information to enable the targeting of customers such as high-users or those with electric resistance heat
- Improve program coordination by tracking measures at the household level where possible (i.e HEHE and HES, MF and Low-income but not retail lighting)
- Implement a means of compensating contractors for achieving overall savings rather than for installing individual measures

2. Moderate Income & Renters

Moderate income and rental populations are both difficult to reach sectors and more targeted efforts are needed. The approaches might not be identical, but may have some overlap.

- Given the on-going challenges of serving rental housing, a more renter specific initiative is needed. This could be a more step-wise program (e.g., start with LED lighting/appliances and expand to weatherization and other measures)
- A new statewide initiative for moderate income households (60-120% AMI, building on what was learned from EN+) should be implemented, but not rely on straight income qualification to qualify customers, and should instead look at alternatives (e.g. by zip code, rent costs, or other ways)
- Form partnerships with community groups to help market the HES program including coordination with municipal efforts

3. HEAT loan/financing

- Financing options including on-bill financing or modifying the HEAT loan through the establishment of a loan loss reserve for lower credit scores, would better serve low and moderate income households/zipcodes
- HEAT loan eligible measures currently funded by DOER should be considered for inclusion either statewide (DER and biomass) or as moderate income specific offerings (pre-weatherization incentives, landlord 2-3 unit loans)

- Maintain 0% loans for moderate-income households/zipcodes and consider modest (2%?) loans for market rate to improve cost-efficiency

4. *New measures and practices*

- Continue to identify promising energy saving technologies and practices and analyze the circumstances in which they make sense. While cost-effective screening is important, the programs rather than individual measures have to be cost-effective, which can allow promising technologies to be introduced and get to scale

5. Home Energy Assessment/Delivery Models

- Help people better understand how their house uses energy and what they can do to save energy and money through combination of an assessment and some type of energy scorecard
- Provide all homeowners with the opportunity to switch fuels if they so decide [Note: Also mentioned under Products programs]
- Create more integrated one-stop shopping and provide more comprehensive information to the customer. Programs (including both Mass Save and non-Mass Save incentives/rebates; and Products and Whole House programs) are too segmented—and it's hard for the customer to figure out the best package
- Assess methods of streamlining offer to customer at the point of the home energy assessment and improving sales process to secure greater participation

Behavior Initiative

1. Expand savings from behavior programs including linking to home automation technology (such as learning thermostat)
2. Movement in Massachusetts toward time varying rates could create an opportunity with technology to get greater energy savings and demand reductions from behavior programs, but unlikely to happen in timeframe relevant to the development of the 2016-18 plan

Multi-Family Retrofit Initiative

1. *Comprehensive Integrated Approach*

- Seek better ways to segment the sector due to the variety of ownership patterns, building types, meter configurations, etc.
- Benchmarking would be helpful/critical in identifying retrofit candidate buildings and giving feedback to owners and tenants
- Whole building based performance remains the gold standard
- Implement a new initiative in partnership with housing finance institutions to target retrofit opportunities such as refinancing, rehab, etc. of larger commercial/residential multi-family buildings to piggy-back retrofit work on.
- Provide a fully-integrated (Residential/C&I) Multi-Family program
 - Single point of contact
 - Report C/I side energy use and savings information and integrate with the residential information, to allow a view of how programs are serving entire multi-family buildings

- Similarly, there is a desire to look at incentives on both the residential and the C/I sides and to make them more integrated

2. Benchmarking

- Massachusetts already has important experiences with benchmarking including WegoWise for the low-income multi family program. Benchmarking and public disclosure is also happening in Boston and Cambridge for large multi-family buildings as part of building disclosure ordinances.
- Broader benchmarking of some or all sub-sectors of multi-family housing would be beneficial both from individual owners perspective and from PAs perspective of identifying and motivating owners to save in various ways
- Need to develop a plan/initiative for how benchmarking would be used. **Benchmarking allows a 'pay for performance' approach to retrofits including pre and post retrofit baselines for evaluation.**
- Concerns around more extensive benchmarking include privacy concerns and cost issues.
 - Privacy concerns could be addressed by looking at other states, and Boston disclosure ordinance where this problem was addressed (e.g., at least 3 units with no one unit with over 50% of the consumption). Benchmarking also does not require disclosure e.g. Low income multi-family program
 - Benchmarking has a cost; but WegoWise does not seem to be cost prohibitive, and other companies offer these services

3. Serve Buildings with Unregulated Fuels

- Allow PAs to account for the benefits that they get from saving unregulated fuels similar to in HES
- Revise the metrics or seek alternative metrics. For example, a metric could be added for oil, or translate all savings into btus, or use a carbon metric or some combination
- Other areas that might allow PAs to appropriately claim savings from renewable fuels would be renewable thermal credits (regulations are in development at DOER) and the proceedings at the DPU to add an avoided cost of GWSA compliance to the set of avoided costs used to calculate the benefits of energy efficiency programs

Cross Cutting Issue: Demand Reduction

- **Support products and practices that reduce winter and summer peak demand**
- **Develop a demand reduction strategy for the 2016-2018 plan**

New Construction

TBD at 3/9 meeting

DRAFT Cross-cutting Council Recommendations

1. **Lifetime Savings:** Increase the emphasis on lifetime savings by including both lifetime and annual savings as goals in the savings goals framework and in future reporting.

2. Program participation and penetration:

- a. For perspective, review past/current penetration to more clearly understand the 2013-2015 program impacts
- b. Use findings from EM&V studies to learn about program penetration, where it was studied
- c. Determine how to better track and measure program penetration and participation over the next three years

1. Demand Savings: TBD