



Councilors:

Attached is the Program Administrators' response to the recommendations of the Energy Efficiency Advisory Council ("Council") that were adopted in its resolution of February 28, 2018 ("Resolution"). The Program Administrators greatly appreciate the input of the Council and look forward to continuing to work together to develop an outstanding 2019-2021 energy efficiency plan for the Commonwealth. In drafting this response, the Program Administrators have focused on, and organized their reply around, the nine core strategic priorities of the Council that were articulated in the Resolution. In adopting this approach, the Program Administrators are able to speak directly to the essential priorities articulated by the Council and how they are addressing those priorities in the draft 2019-2021 Plan. It is evident that the Program Administrators and the Councilors share many fundamental core priorities – and, in a sometimes contentious process, underscoring the many areas of common cause (in addition to areas of good faith differences) is important.

As discussed in Executive Committee meetings, the Program Administrators have avoided the matrix approach utilized in the 2016-2018 planning process that led to substantial time expenditure on micro level/tactical items and some ensuing frustration for many involved. That said, in order to help guide Councilors to specific areas where recommendations on the 17 topics addressed in the Resolution are discussed, the Program Administrators also attach a cross reference summary for these 17 topics.

Importantly, the Program Administrators recognize that some Councilors may want to explore more deeply certain topics or specific tactical recommendations (the sub-bullets) from the Resolution. Accordingly, the Program Administrators offer to meet individually with any interested Councilor in a dedicated individual session to review both the 2019-2021 draft Plan and that Councilor's thoughts/recommendations, as well as the Resolution and the Program Administrators' response to it. To emphasize: if there are any specific items/specific recommendations that a Councilor wants to discuss, the Program Administrators stand ready to meet in person and engage in a collegial and direct conversation. If you would be interested in such a meeting, please contact Emmett Lyne (elyne@richmaylaw.com; (617) 556-3885) and he will arrange a session with representatives of the Program Administrators. If there are specific topics that you want to address, or specific questions that you have, please let us know in advance so we can be well-prepared for a productive session and can respond directly to your questions.

We look forward to working together and continuing the success that has been achieved in Massachusetts through hard work, innovation, and mutual respect.

Thank you,

The Massachusetts Program Administrators

Program Administrator Response to the Massachusetts Energy Efficiency Advisory Council Strategic Recommendations for the 2019-2021 Plan

The Program Administrators are grateful for the significant effort the Councilors and Council consultants have invested in the development of nine strategic recommendations and numerous supporting sector-specific recommendations. Program Administrators have appreciated being included in the Council's efforts to identify the potential opportunities and challenges of the 2019–2021 Three-Year Energy Efficiency planning period and remain committed to a continued collaborative process.

Program Administrators have reviewed and considered all recommendations, conducting additional research and analysis with an eye to understanding how each specific recommendation might be incorporated in the Draft 2019-2021 Energy Efficiency Plan (Draft Plan). The early joint planning work of EEAC Consultants and the Program Administrators' implementation teams through the EEAC's workshop process created a strong alignment in priorities for the Draft Plan. As a result, the Program Administrators' strategic vision as articulated in the Draft Plan directly responds to the Council's nine strategic priorities. The draft includes commitments that are responsive to each of the Council's strategic recommendations:

1. Reaching hard to serve populations, expanding improvements to the currently targeted hard to serve, and making systemic changes that are designed to increase access for all customers.
2. Incorporating Demand Management offerings for both the Residential and C&I sectors.
3. Including energy optimization education and support to ensure that customers are provided information about all options that can help them meet their energy goals.
4. A residential program realignment that achieves an integrated design to maintain strong savings and benefits, while increasing participation on-ramps to expand customer capture, as well as multiple enhancements and partnerships that support increased uptake of HVAC and weatherization measures.
5. A C&I program portfolio that continues to aggressively harvest savings while helping customers transition to an energy future in which more complex systems and operator interaction are increasingly critical to acquiring HVAC, process, lighting and CHP savings, as Program Administrators' deep penetration of the C&I sector drives market transformation to more efficient baselines.
6. Expansion of the Residential and Commercial New Construction programs to support Zero Net Energy ready buildings and Passive House certification.
7. A residential realignment that offers an improved delivery framework that better integrates residential and commercial offerings in the multi-family segment, with a

more customized path for multi-unit buildings with mixed residential and commercial opportunities.

8. Working with our partners in the Low-Income Energy Affordability Network to identify and deploy more coordinated solutions between the Income Eligible and Market Rate programs to increase awareness and drive participation among both income eligible and market rate customers to ensure the continued success of programs.
9. Enhanced public access and strategic utilization of program data to fully realize the vision of customer-centered programs that meet every customer where they are and support their pursuit of increasing levels of energy efficiency.

The enhancements to and realignment of programs presented in the Draft Plan demonstrate Program Administrators' commitment to aggressively pursuing all available cost-effective energy savings and maintaining our longstanding record of providing Massachusetts energy consumers with the nation's most innovative and successful suite of energy efficiency programs. In many cases, Program Administrators remain in the developmental stages of designing program enhancements and are actively fine-tuning more tactical elements. This process requires a data-driven approach, integrating the best available market and analytic information, including current or very recent assessments, to ensure the planned enhancements will support maximum savings and benefits for customers. The planning effort began last year and will continue to shape program design throughout 2018. Given the scale of the vision, the number of partners we are engaging, and the systems that will be impacted, Program Administrators anticipate a thoughtful and participatory staged implementation over the 2019-2021 term.

The following detailed responses to the nine strategic recommendations represent the Program Administrators' best effort to address all Council recommendations, including the 78 sector-specific recommendations, while recognizing the continued evolution and refinement of program details. Program Administrators offer these responses with a full recognition and expectation that programs must continue to evolve and be refined, and understand that the collaborative process of Program Administrators working with the Council will continue through the filing of the Draft Plan and over the course of its implementation.

1. Increase participation by, and savings from, hard-to- reach and underserved populations and geographies, including moderate income, renters, small business, and non-profits.

The Program Administrators share the Council's desire to increase customer participation and savings to ensure equitable access to energy efficiency programs for all customers across all geographies. The realignments described in this Draft Plan provide opportunities for all Massachusetts residents and businesses, regardless of their type of residence or business, or their income, size, or geography, to improve their energy efficiency through the Program Administrators' programs. By adopting as the core and driving vision for the 2019-2021 term a commitment that Program Administrators will meet our customers where they are, Program Administrators have been able to take a more focused approach to identifying the specific barriers and challenges faced by customer sub-segments the Council has highlighted as hard to serve. The Program Administrators have systematically responded to these challenges, with

multiple program enhancements and innovations across the Draft Plan focused on simplifying access, targeting offers to overcome barriers, and increasing the opportunities for program participation.

As Program Administrators address specific access barriers for the currently considered hard to serve sub-segments, access for all customers is improved, including those not yet specifically identified as hard to serve. Evaluations have revealed that marketing unique offers to residential sub-segments has the potential to confuse customers and make it more difficult to navigate the myriad of energy efficiency offerings. Customers do not always recognize themselves as members of the same target market segment that Program Administrators are marketing to, or they may identify with more than one market segment (i.e. live in a multi-unit building, homeowner, non-English speaker, or small manufacturing business). The Program Administrators have worked hard to make the customer-facing elements more simplified and inviting, while ensuring that their delivery is highly tailored and facilitated. Program Administrators anticipate the investments in developing increased entry points, combined with the tailored and highly-facilitated program delivery pathways, once fully implemented over the 2019-2021 term, will increase participation across all customer segments, without adding complexity or confusion to the customer experience.

A. Moderate Income

The Program Administrators have designed the residential program enhancements to make energy efficiency offers more accessible to moderate income customers, with the expectation that as we increase accessibility for customers with the highest barriers to participation, including cost and time, we are also making the offerings more attractive to other hard to serve customer segments.

Program Administrators remain committed to ensuring that moderate income customers are able to successfully access and participate in all Mass Save® efficiency opportunities¹. The moderate income offer is a relatively new offer that was pioneered statewide during the 2016-2018 Plan. The Program Administrators have improved and refined the moderate income offer since its inception using customer, vendor, and evaluation feedback. Program Administrators recognize that moderate income customers face more difficulty in paying energy bills, which represent a disproportionately higher percentage of their income than for higher income customers. Program Administrators will continue to offer enhanced incentives for moderate income customers.

Evaluation, however, indicates that income is not the primary barrier these customers face. The Moderate-Income Market Characterization Survey found: “Household characteristics other than income may be a greater determinant of whether customers install energy efficiency measures.”²

¹ Program Administrators’ Draft Plan, pg 40

² 2018 Moderate Income Market Characterization Survey, Finding 6, pg 6 <http://ma-eeac.org/wordpress/wp-content/uploads/Moderate-Income-Market-Characterization-Report-Final-16Mar2018.pdf>

“Customer time and availability, perception of their need for energy efficiency, and need for more information are the greatest barriers to participation in the Moderate Income offering.”³

Program Administrators’ Draft Plan offers improvements to the customer experience that directly respond to these key barriers to participation that moderate income customers face. The PAs will combine the Home Energy Services (HES) and Multi-Family retrofit initiatives into a Residential Coordinated Delivery initiative, offering all residential customers a clear entry to our highly facilitated comprehensive energy efficiency offers.⁴ PAs will be expanding the online assessment and program enrollment options, capturing additional detail at customer intake to allow more tailored prioritization of customers, and refining the Home Energy Assessment in order to provide greater focus on education and support for customers to complete weatherization. Collectively these planned enhancements will reduce the time commitment required of customers and provide additional information, directly addressing the primary barriers to participation moderate income customers face.

The Program Administrators will continue to learn and adjust their approaches to increasing customer participation by using the best available data and insights to ensure that offers are maximally responsive to what motivates customer behavior. By taking the approach of incorporating enhancements that respond to critical barriers for a targeted group—such as moderate income customers—and making the enhancements core to our programs and available to all customers, Program Administrators are able to leverage new and existing pathways to drive participation for moderate income customers and increase capture across all customers in all income groups.

B. Renter

The Program Administrators are aligned with the Council’s recommendations to ensure equitable access to program savings and benefits for renters. This is an area in which the Council and Program Administrators collaborated to build the first-in-the-nation renter offer in the 2016-2018 Plan and have continued together to learn how best to ensure that renters experience the benefits of energy efficiency programs. We have learned a lot about the unique challenges renters face in participating in energy efficiency programs, and have identified as key barriers short-term tenure, the split incentive issue, and the complexity of navigating energy measure installation and investment decisions with a landlord. Renters may also be moderate income customers who face the time and complexity issues that we have learned are the primary barriers for moderate income customers.

The Residential realignment takes the lessons learned to date and provides a more refined set of pathways into the program to facilitate renter participation, even in instances in which the involvement of other parties (landlords, other unit owners, etc.) is required to maximize savings

³ 2018 Moderate Income Market Characterization Survey, Finding 7, pg 7 <http://ma-eeac.org/wordpress/wp-content/uploads/Moderate-Income-Market-Characterization-Report-Final-16Mar2018.pdf>

⁴ Program Administrators’ Draft Plan, pg. 37

and benefits. Within the Residential Coordinated Delivery initiative, renters will continue to be offered on-ramps to participation that involve renters working with landlords and on-ramps that allow the renters to maintain independence in pursuing energy savings.

The Program Administrators have learned, through the current renter offer and landlord engagement protocols, that we have good success in targeting landlords, and that when landlords are successfully engaged, Program Administrators are able to deliver the whole building comprehensive weatherization work that produces the greatest energy benefits for renters. Data from the renter offer indicates that landlords are very interested in energy efficiency upgrades for their properties (8,733 full HEAs provided to landlords from April 2016 to March 2018). The efficiency upgrades that can be delivered to renters without landlord engagement remain limited, as most major energy efficiency upgrades require landlord permission for the replacement of equipment or other enhancement of the property. The programs acknowledge this by delivering as many renter benefits as possible while targeting the landlord for measures like heating systems and weatherization.

Through the Residential Coordinated Delivery Initiative, Program Administrators will be better segmenting multi-unit building participation pathways. Multi-unit buildings will be segmented based on building science characteristics to ensure that qualified vendors and contractors are in position to seamlessly facilitate energy upgrades. Program Administrators will be able to leverage the very successful and robust networks of the Home Energy Services participating contractors to serve any building for which these energy professionals have the appropriate building science capability and certifications, no longer limited by the number of units on a property. Within these usually smaller multi-unit buildings, Program Administrators are planning to offer a scaled set of incentives to encourage landlords to install energy efficiency measures for all units in a building.

The Residential Coordinated Delivery structure also creates greater flexibility for Program Administrators to provide a more customized path for larger or more complex multi-unit buildings, with custom incentives and savings methodologies that allow Program Administrators to best capture the unique opportunities of larger and mixed-use multi-family structures. Using a more custom approach for the complex multi-unit properties also allows Program Administrators to provide property owners with a tailored business case that makes energy efficiency upgrades for residents an easier decision.

Program Administrators recognize that there remain situations in which renters do not wish to engage with their landlords, or where the property in which they live is not a candidate for major measures (e.g. HVAC or weatherization). Program Administrators are working on increasing the scope and sophistication of online assessments and telephone intake to better connect customers to additional solutions, particularly for those customers who do not have opportunities for major measure adoption. For renters who do not wish to have a traditional in-home Home Energy Assessment or who live in a home that does not have major measure opportunities, the enhanced online systems and enhanced information captured at intake will allow Program Administrators

to provide the renter with a tailored energy savings package that responds to remaining savings opportunities.⁵ The package will include energy-upgrade recommendations and a variety of energy savings measures such as lighting products or water saving devices. Once a customer selects a measure, instant incentives will automatically be applied. The customer will be able to self-select and install any of the available measures based on their personal energy efficiency goals. Tailored energy savings packages will be designed for direct delivery to customers.

While renters may prove to be a receptive audience for these tailored energy savings packages, the Program Administrators' priority is to drive whole building energy efficiency upgrades, including weatherization and heating systems upgrades, along with the full complement of in-unit measures, as these comprehensive whole building upgrades provide renters, and all other residents, with the greatest savings and benefits.

Program Administrators have also learned that because landlords are the decision makers for installations of major measures, some renters may not even be aware that they have received program benefits. A recent Multi-Family Program Impact and Net-to-Gross Evaluation⁶ indicated that less than half (48%) of renters living in multi-family buildings that had energy retrofits knew that their building had participated in the Mass Save Multi-Family program. This finding indicates that the Program Administrators have an opportunity to increase renter awareness of the energy efficiency activity that has occurred or will be occurring in their building.

C. Small Business

The Program Administrators are continuing their commitment to ensuring small business customers have access to energy efficiency opportunities. Program Administrators use a suite of approaches to ensure access for small businesses, including two specialized delivery paths specifically targeted to small businesses.⁷ The Turnkey approach provides a highly facilitated process to make energy efficiency upgrades through PA contracted vendors, integrating gas and electric measures and providing simplified assessment, proposal and measure installation that directly addresses time and complexity barriers faced by smaller businesses. The second small business targeted delivery path, the Customer Directed Option allows customers to choose the installation vendor with which they are most comfortable and pursue available energy efficiency upgrades. The measures offered in the Turnkey and Customer Directed Option are the same. The small business pathways were the focus of significant refinement over the 2016-2018 term. Program Administrators are working closely with our vendor community to ensure the refinements are successfully implemented in the field. Working to fully translate the design improvements into improved access and an optimal small business customer experience will be a major focus for the 2019-2021 period.

⁵ Program Administrators' Draft Plan, pg. 43

⁶ 2017 Multi-Family Program Impact and Net-to-Gross Evaluation, Finding 6, http://ma-eeac.org/wordpress/wp-content/uploads/RES-44_Multi-family-Program-Impact-Evaluation_FINAL_SO-Rates-Updated.pdf

⁷ Program Administrators' Draft Plan, pg. 63

In addition to the small business targeted pathways, the Program Administrators ensure products are promoted and delivered through distributors at the point of sale via the Program Administrators upstream offerings that allow customers of all sizes to essentially self-serve.⁸ Small businesses are also able to and do frequently participate in all the segment specific program delivery paths, technical assistance offerings and other offers available to commercial customers through Program Administrators' commercial and industrial programs.

The small business targeted delivery approaches, along with broader access to all commercial offerings, allow the Program Administrators to effectively deliver efficient solutions to the tens of thousands of smaller business customers in the Commonwealth. The flexibility of approaches serves customer needs efficiently and has increased participation of the large number of smaller usage customers in the Commonwealth as found in the 2016 C&I Customer Profile Study.⁹

In addition to the multiple participation pathways, the Program Administrators attempt to train and develop the workforce of the Commonwealth to promote efficiency products and services to small business customers. The Program Administrators are making an increased commitment to training and education efforts in the Draft Plan with a recognition that training is becoming an increasingly critical element in serving customers. For small business customers, in particular, training our vendors to educate customers on how integrating equipment upgrades and operational solutions will help them realize the greatest benefits from energy efficiency measures is critical to the success of comprehensive energy efficiency upgrades. Training sessions delve into the many cost-effective energy conservation opportunities, including how to easily identify, quantify, and justify efficiency improvements, apply for available incentives, and support customers in optimizing operation of new equipment and systems.

Program Administrators are committed to translating the overarching vision for the 2019-2021 Draft Plan of customer centric delivery into a small business customer experience where the unique challenges of the small business customer are addressed regardless of whether they participate in the specially designed small business delivery pathways, targeted segment specific delivery, or upstream or midstream channels. The Program Administrators will be continuously seeking customer feedback and reviewing experiences in the field, looking for opportunities for continuous improvement of our services to small business customers.

D. Non-Profit

The Program Administrators continue to offer a broad suite of solutions for the non-profit businesses in the Commonwealth. Similar to the multifaceted approach to serving small businesses described above, the Program Administrators offer all products and services to non-

⁸ Program Administrators' Draft Plan, pg. 73

⁹ 2016 C&I Customer Profile, Finding 3, <http://ma-eeac.org/wordpress/wp-content/uploads/Final-MA-CIEC-stage-5-one-pager-2016-CI-Customer-Profile.pdf>

profit customers and non-profits participate in every initiative the Program Administrators offer. Whether they are improving an existing space or building or constructing a new facility, the Program Administrators provide multiple solutions and participation pathways.

The Program Administrators have utilized a variety of approaches over the years to serve non-profit customers. In addition to the standard offers available to all C&I customers, some Program Administrators have and continue to offer service area specific solutions, including additional incentives, up to 100% of project or incremental cost, for small non-profits (typically <\$2 million unrestricted annual operating revenue) and a turnkey service for specific non-profit segments.

2. Include goals specific to active demand management and integrate the delivery of active demand management offerings within the EE programs in the 2019-2021 Plan.

The electric Program Administrators share the Council's desire to include active demand reduction offerings and integrate delivery with energy efficiency in the 2019-2021 term. The Draft Plan adds active demand reduction offerings in both the Residential and Commercial and Industrial sectors.¹⁰

The Program Administrators have worked closely with the Council and Council Consultants, sharing findings and program design from the two active demand reduction demonstrations authorized and implemented in the 2016-2018 plan (National Grid and Cape Light Compact Residential Direct Load Control (2016 & 2017 summers) and National Grid's Load Curtailment (2017 summer)). Based on what has been learned together, the Program Administrators have proposed state-wide cost-effective active demand reduction offerings in the April Draft. The Program Administrators carefully designed the offering to allow for broad, scalable, and flexible customer participation. The Program Administrators are proposing delivery channels for the Active Demand offers that are fully integrated with traditional energy efficiency delivery. The separate initiatives also offer clear paths for customers that have already participated in the energy efficiency programs and have connected devices to enroll. In addition, the Program Administrators will transparently report on active demand reduction savings achieved in the initiatives.

The Draft Plan includes a residential direct load control offering which targets customers with connected efficiency equipment to enroll in the active demand offering. As part of encouraging the adoption and installation of Wi-Fi thermostats, the Program Administrators will also seek to enroll customers in the active demand reduction offering. The program is designed so that as additional connected devices reach the market in significant numbers the design can easily accommodate expansion.

¹⁰ Program Administrators' Draft Plan, pg 47, 75, and Draft Plan Tables April Electric Statewide

The commercial offer is a large commercial technology-agnostic performance-based load curtailment offering. Both the residential and commercial program designs target system peak to capture the highest avoided cost benefit.

Also during 2016, the Program Administrators worked with the Demand Reduction Subcommittee¹¹ to explore demand reduction opportunities. The Program Administrators developed additional multi-year demonstration projects to inform development of broader demand reduction programs and initiatives. These demonstration projects include residential and C&I battery storage, energy management systems, controls, thermal storage, and other peak demand reducing strategies. The Council unanimously supported the implementation of these demonstrations, and the Department ultimately approved many of the proposed demonstrations in late 2017. The respective Program Administrators (e.g., Eversource and Unitil) are currently working to implement these demonstration projects in 2018 and 2019. The Program Administrators will follow those demonstrations closely and look for additional cost-effective offerings that can complement the currently planned offerings or be completely new offerings included in the portfolio, as applicable.

3. Promote & incentivize fuel switching strategies, in all sectors, that support the Commonwealth's long term greenhouse gas reduction requirements, as established under the Global Warming Solutions Act.

Under the Green Communities Act (GCA), the Program Administrators are charged with meeting the electric and natural gas needs of customers through energy efficiency and demand reduction. For this Draft Plan, the Program Administrators have adopted an Energy Optimization approach,¹² a holistic approach that assists customers in addressing their overall energy needs by lowering total energy usage. Under this approach, the Program Administrators educate customers in a fuel neutral manner about technologies offered through the programs in order to give customers the tools to make informed decisions about their energy use and equipment. The Program Administrators will provide information such as costs, benefits, payback periods, and emission reductions to help customers achieve their energy goals and to promote energy efficiency. While the Program Administrators do not recommend one fuel source over another, some customers may elect to adopt high efficiency equipment that uses a different fuel source than their existing fuel source (e.g., an electric heat pump instead of an oil boiler). Customers are able to take advantage of any offers available through the programs for any highly efficient equipment. Consistent with the GCA and Department precedent, the goal of Energy Optimization and the Draft Plan is to help customers lower their overall MMBTU energy use.

¹¹ The Demand Reduction Subcommittee was formed by the Council to engage with the Program Administrators and provide input and feedback on demand reduction efforts. <http://ma-eeac.org/wordpress/wp-content/uploads/EEAC-Demand-Reduction-Subcommittee-Charter-FINAL-2-17-16.pdf>.

¹² Program Administrators' Draft Plan, pg 6

In advancing the objectives of the GCA, the energy efficiency programs also support the Commonwealth's broader policy objectives. While the GWSA does not govern the Program Administrators' energy efficiency efforts, the Program Administrators remain committed to achieving reductions in GHG emissions through implementation of their Three-Year Plans. Program Administrators are committing to reporting the GHG reductions resulting from energy efficiency and demand reduction programs. Reduction in the use of electricity, natural gas, and other resources through energy efficiency and demand reduction provides significant environmental benefits to Massachusetts and the region. These benefits include reduced air pollution, improved air quality, and beneficial impacts on water systems. Decreasing energy consumption often results in less demand for energy from power plants and natural gas pipelines. Reduced plant operating time can lower the volume of emitted air pollutants and greenhouse gases. The Energy Optimization approach will help our customers to make informed decisions to decrease overall energy use. This approach is expected to lead to the adoption of equipment that is cleaner and cheaper, which has the additional benefit of aligning with the Commonwealth's emission reduction goals.

- 4. Provide a new, integrated residential program design that maintains strong savings and benefits for all residential homeowner and rental initiatives by:**
 - a. Increasing customer capture,**
 - b. Providing new methods for realizing savings,**
 - c. Expanding HVAC, behavioral, financing, and upstream offerings, and**
 - d. Increasing conversion rates for HVAC and weatherization measures.**

During the 2019-2021 term, residential programs are being realigned to allow Program Administrators to start with the customer and design every interaction to maximize savings and benefits. The integration of the best elements of the Home Energy Services (HES) and Multi-Family retrofit initiatives supports the Program Administrators' commitment to reaching every Massachusetts resident and to delivering a seamless customer experience.

The HES program has been the most successful residential whole building program in the nation, reaching the highest penetration of any residential efficiency program. Many aspects of the HES delivery have been honed over multiple cycles of implementation. As a result, a robust network of highly experienced vendors and participating contractors are available to meet customer energy needs.

The Program Administrators' Multi-Family Program is another first in the nation, multiple award-winning design. In the 2013-2015 term Program Administrators added a Multi-Family Market Integrator function that matches projects with our skilled vendors to ensure fully integrated comprehensive project facilitation. In the current 2016-2018 term, the Program Administrators added the Project Point of Contact (PPC) to guide Multi-Family implementation, regardless of electric, gas or delivered fuel measures, and regardless of residential or C&I meter.

Under the Residential Coordinated Delivery initiative, the Program Administrators plan to eliminate the artificial use of the number of units on a property as the key mechanism for matching customers with contractors. Instead, recognizing that HES vendors and participating contractors have already proven themselves highly effective in serving both single family and 2-4 family multi-unit buildings, and that the HES delivery protocols support accelerated customer enrollment and broader penetration, Program Administrators will leverage these strengths to reach an even broader set of customers. Similarly, the Multi-Family MMI and PPCs will continue to bring specialized capabilities for addressing more complex or larger buildings. By sharing these strengths in an integrated initiative, Program Administrators will build on our strengths for serving all building types and improve every customer's path through the program. The increased capture of small multi-unit buildings by unleashing our network of HES vendors and contractors, and the potential for more customized approaches for complex and larger multi-unit structures, should lead to increased customer capture and higher savings.

The Program Administrators will look to broaden partnerships with trade allies, including HVAC contractors and electricians, to expand facilitated services for our customers and provide new on-ramps for customer participation.¹³ Through these partnerships we anticipate creating better coordination so that when customers are working with trade allies for services ancillary to weatherization, they are encouraged to engage in the deeper suite of comprehensive home energy efficiency upgrades offered through the Residential Coordinated Delivery Initiative. The Program Administrators will also explore how to facilitate customers' connections to trade allies for barrier mitigation, such as evaluation of knob-and-tube wiring, and offer customers support in securing competitive services from HVAC providers to install new heating, cooling, or hot water systems. The increased partnerships with trade allies will offer opportunities to increase customer capture and drive more customers to comprehensive efficiency upgrades, including both weatherization and HVAC measures.

The new additions and renovations offer in the New Homes and Renovation Initiative provides an additional on-ramp for customer participation and savings.¹⁴ While total gut renovations have long been part of the program, the new offer provides a pathway for customers who are engaging in a partial renovation and/or addition to their existing home. This approach leverages the program's effective model of supporting builders and verifiers during design and construction to secure energy savings.

The Program Administrators will be exploring strategies to capitalize on additional retail opportunities during the 2019-2021 term. The Program Administrators plan to utilize field trials to inform adoption of a point-of-purchase rebate platform.¹⁵ The platform will allow customers to receive instant rebates in retail stores using digital coupons. Program Administrators are also planning on expanding the Mass Save online store, where customers can also receive instant

¹³ Program Administrators' Draft Plan, pg 41

¹⁴ Program Administrators' Draft Plan, pg 32

¹⁵ Program Administrators' Draft Plan, pg 43

rebates. Program Administrators remain committed to engaging with customers in situations where customers are not participating in facilitated energy solutions and energy efficiency is a priority. To successfully influence consumer choice at the point of purchase, Program Administrators will seek to offer a broad portfolio of EE products.

5. Increase program savings in the C&I sector from HVAC, process, lighting, and CHP measures.

The Program Administrators continue to pursue aggressive plans for capturing savings in the C&I sector, including planning for electric HVAC and process gross savings to increase over 2016 levels. However, once net-to-gross factors, realization rates, and rising baselines are applied, average net annual savings proposed in the Draft Plan are down slightly from 2016. Gross lifetime MWh and net lifetime MWh follow similar patterns. While technology breakthroughs have impacted programs in the past, with no significant new technology advancements in equipment efficiency, Program Administrators are focusing on maximizing savings from optimization of existing systems. It is important to note that customers and the system at large, experience gross savings, and the benefits that flow from those gross savings produce benefits for all customers and the Commonwealth, even when Program Administrators are not credited with net savings. A multitude of factors including realization rates, net to gross ratios, industry standard practices, dual-baseline assessments, progressing building codes, measure life and market transformation, impact claimable savings of measures. While any one of these factors may have an impact in a positive or negative direction, as a general rule, successful activity increasingly results in a reduction of the amount of net savings the Program Administrators can claim. So even as *gross* savings may be planned to increase for certain measures or approaches, the resultant *net* savings may stay level or decline. As always, and in spite of these realities, the Program Administrators propose aggressive levels of lifetime persistent savings benefiting all customers in Massachusetts.

In spite of the challenges, the Program Administrators continue to believe and are aggressively pursuing cost-effective savings from the HVAC and process end uses and will continue to support customer investments in their facility's long-term efficiency. The success of this aggressive approach has resulted in ever increasing baseline efficiency levels, which while a positive consequence of improving the profitability of businesses operating in the Commonwealth, creates a very real challenge for sustaining programs. While Massachusetts energy consumers continue to realize the benefits of the savings that have been achieved, this success will continue to limit claimable savings levels going forward.

The Program Administrators' Draft Plan anticipates lighting gross savings to decrease, below 2016 levels, due in large part to the precipitous decline in LED screw-in opportunities through the upstream participation pathway due to market saturation as a direct result of the Program Administrators' robust program and push over past years. While strong savings opportunities are expected to remain in most areas of lighting, (i.e. LED systems and troffers, linear LED tubes,

streetlights, and lighting controls), a decline of almost 74%¹⁶ in the upstream LED screw-in bulbs planned values from 2016 achieved levels creates a void that is difficult to fill. Fortunately, while LED screw-in bulbs are subject to the same EISA transition impacting the Residential sector, they make up a proportionally smaller part of the C&I lighting savings projections at only 11% of the total in C&I in the Draft Plan, down from 39% they contributed to C&I lighting savings in 2016. As a result, the C&I lighting savings planned for 2019-2021 in C&I remains a significant contributor to overall portfolio savings. The Program Administrators will continue to assess and improve offerings (such as moving measures to upstream), expand market adoption and proper use of lighting controls, work with municipalities using a case-by-case approach to assess opportunities to convert streetlights, and look for opportunities to increase the lighting market transformation already underway.

The Program Administrators 2019-2021 planned CHP savings is slightly below the 2016-2018 period and on average the 2019-2021 values are below the 2016 actual CHP savings levels. The Draft Plan reflects continued emphasis on and strength of CHP savings while not attempting to precisely forecast these difficult to predict projects. The planned savings incorporate the Program Administrators' efforts to evolve this measure to a broader market and promote application of smaller CHP units. It is important to recognize, however, one very large CHP system can eclipse the savings from dozens of smaller systems and the challenges to installing CHP do not scale. Currently, the Program Administrators do not foresee the installation of any very large systems on the horizon.

6. Actively promote zero energy ready buildings (ZEBs) & Passive House for new construction and major renovations in all sectors.

The Program Administrators share the Council's desire to promote Zero Net Energy ready buildings and Passive House for new construction and major renovations in both the Residential and Commercial & Industrial sectors. The Program Administrators have included residential and commercial strategies in the 2019-2021 Plan that will drive the Massachusetts construction industry toward Zero Net Energy ready and Passive House standards¹⁷.

Through the Residential New Homes and Renovation initiative, the Program Administrators have outlined their commitment to Zero Net Energy ready buildings and Passive House through the delivery of targeted education and trainings, technical support and incentives.¹⁸ The Program Administrators are particularly excited to add a specific new Passive House offer to our Residential New Homes and Renovation initiatives. The Passive House approach is well aligned with the Program Administrators' core mission to secure all cost-effective energy efficiency. Program Administrators will use the 10+ current and former residential new construction initiative projects that are using Passive House techniques to garner Massachusetts specific lessons and leverage that information to broaden Passive House market penetration. Program

¹⁶ Draft Plan BC Tables for all Program Administrators

¹⁷ Program Administrators' Draft Plan, pg 7 and 10

¹⁸ Program Administrators' Draft Plan, pg 33, 34, and 35

Administrators will focus on multi-unit and mixed-use new construction projects to begin these efforts, as Passive House techniques are shown to be best applied to larger facilities. The Program Administrators will be developing additional specifics on the new Passive House offers for the final 2019-2021 Plan submission.

Through the Commercial & Industrial New Buildings initiative, the Program Administrators have been actively involved with non-residential Zero Net Energy buildings for many years, working since 2012 with the Division of Capital Asset Management and Maintenance (DCAMM) Office of Design and Construction on early state sponsored capital projects and participating in the Zero Energy Advisory Council since 2009.

The Program Administrators' C&I Whole Building Approach for large new construction buildings serves as a robust pathway to drive building owners and developers to consider, design, construct, and operate high performance buildings, of which buildings constructed to Zero Net Energy ready or Passive House criteria are the most cutting edge and farthest beyond code. In practice, there is a building efficiency continuum that developers and building owners consider, from code-compliant to Passive House or Zero Net Energy ready. The Program Administrators use many tools and strategies to incentivize C&I customers to go as far along the continuum as makes sense for their business or institution.

The Program Administrators will continue to use the following ways to incentivize commercial building owners, design teams, and building operators to envision, design, construct, and operate high performance buildings, including Zero Net Energy ready and Passive House criteria in the Commonwealth¹⁹:

- Early Design Charrettes Incentives (sometimes called “Green Charrettes”) – to bring owners and design teams to the table early to consider efficiency as integral to the design and not a bolt on after major building decisions have been made.
- Design Team Incentives – to motivate design teams, architects and engineers, to take the time to integrate efficiency into the building plans early and often.
- Cost-Share Building Modeling and Technical Assistance – provides independent review to estimate strategies savings for building owners and Program Administrators.
- Design Savings Based Performance Incentives for Building Owners – to motivate the inclusion of more efficiency into the design and hold onto more through the construction and value engineering processes. The more energy saved, the more the building owner is incentivized.

¹⁹ Program Administrators' Draft Plan, pg 55

- Monitoring Based Commissioning Incentives – to motivate the building owner/operator to operate the building as intended and within design parameters.
- A pay-for-performance pathway has, historically, been used as a primary pathway for customers pursuing retro-commissioning (“RCx”) and monitoring-based commissioning (“MBCx”). The process allows customers to hire an appropriate technical resource and then identify and implement energy efficiency measures.
- Lastly, the Program Administrators note there are many industry supported training opportunities already available for Passive House, and continue to look for opportunities to promote and train the industry while not duplicating efforts.²⁰

7. Establish a multi-family framework that better integrates residential and commercial offerings and is cost-effective.

During the 2016-2018 term, Program Administrators transitioned to a fully integrated residential and commercial offering. Through improvements in the field and applying updated electric impact evaluation factors,²¹ Program Administrators have been able to ensure a sustainable multi-family offering and anticipate realizing additional benefits as we continue to improve field work moving forward into the 2019-2021 term. Program Administrators are committed to comprehensively serving all multi-unit buildings through the Residential Coordinated Delivery Initiative. To continue improvements, Program Administrators are segmenting small multi-unit buildings and large multi-unit buildings based on building science. Multi-unit buildings will be triaged to qualified vendors and contractors according to specific building type. Smaller multi-unit buildings will use the HES-style delivery, with a scaled set of incentives to encourage landlords and condo associations to install energy efficiency measures for all units in a building. Larger multi-unit buildings will follow a more customized path, with custom incentives and savings methodologies, to maximize capture of the unique opportunities of larger and mixed-use multi-family structures and provide a strong business proposition that makes energy efficiency upgrades for residents an easy decision for property owners.

Multi-unit delivery is both an art and a science, therefore Program Administrators are leveraging all of our potential delivery options to ensure we have the flexibility and depth to provide full tailored solutions for all potential multi-unit building types. Program Administrators will ensure delivery and customer-experience for each multi-unit segment is seamlessly provided.

²⁰ <https://usgbcma.org/event/certified-passive-house-designer-consultant-training> and <http://passive-house-conference-2018.phius.org/>

²¹ http://ma-eeac.org/wordpress/wp-content/uploads/RES-44_Multi-family-Program-Impact-Evaluation_FINAL_SO-Rates-Updated.pdf

8. Review low-income programs for potential improvements in participation and achievement of savings, and seek additional savings & cost-efficiency opportunities, to ensure continued success.

The Income-Eligible Coordinated Delivery Initiative will continue to be administered in coordination with the Low-Income Energy Affordability Network (“LEAN”) and implemented by local Community Action Program (“CAP”) agencies. Program Administrators and LEAN are collaborating to identify and deploy increased coordinated solutions and partnerships between the Income Eligible and Market Rate programs. Special focus will be placed on aligning, to the extent possible, contractor and auditor protocols, delivery to customers, and program measures. For instance, Program Administrators will enhance coordination within mixed income 2-4 unit buildings for both income-eligible and market rate customers. Coordination for these customers will be shaped by streamlining backend processes and ensuring high-quality, predictable home energy assessments are administered for all participating customers.

In collaboration with LEAN, Program Administrators will develop and implement workforce retention, recruitment, and training efforts to maintain a sustainable and highly trained workforce. This effort will support existing experienced workers and prevent a shortage of skilled agency staff due to impending large-scale retirements and subsequent loss of institutional knowledge. Program Administrators recognize the success of the Income-Eligible initiative heavily relies on the availability of skilled and well-trained CAP agencies. Program Administrator and LEAN investments will ensure their continued success as trusted energy service partners in communities across the Commonwealth.

9. Modernize data management across all PAs and sectors, enhance accessibility to and usefulness of the data to the public, and leverage additional data sources to accomplish items 1-8 above.

Program Administrators remain committed to providing transparent, accessible, and useful data to the public on the performance of energy efficiency in Massachusetts. The Program Administrators continue to explore ways for [Mass Save Data](#) to provide additional relevant and detailed information. For example, based on discussions with various stakeholders and municipalities, the Program Administrators have added a page to the geographic tab that provides usage data by town by month. This will allow municipalities and other stakeholders to weather-normalize the data and look for other usage patterns throughout the year. It is important to note that when providing publicly available data at more specific levels, such as town and zip code, the Program Administrators must ensure that appropriate aggregation standards are used in order to protect their customers’ privacy.

The Program Administrators make use of the confidential databases controlled by third-party EM&V vendors in order to populate Mass Save Data, and also prepare Customer Profile

Studies²² to provide additional data to stakeholders about customers. In addition to providing data on Mass Save Data, the Program Administrators have also improved all of their energy efficiency data tables filed with the Department of Public Utilities as plans and reports in order to make them consistent across Program Administrators, easy to use and understand, and suitable for detailed data analysis. Additionally, the Program Administrators improved their screening models, which now have consistent measure IDs and formatting. Furthermore, the Program Administrators provide a publicly accessible [Technical Reference Library](#) that ensures program assumptions are accounted for uniformly, and algorithms are applied in the same manner across Program Administrators, which can be accessed via Mass Save Data.

The Draft Plan provides several examples demonstrating how Program Administrators continue to integrate data and technology to enhance the customer experience. Program Administrators have implemented the [Mass Save Application Portal](#) (“MAP”),²³ a modernized, fully-digital tool for C&I customers to search for program offers and apply for incentives electronically. MAP includes features such as real-time error detection and intelligent routing of applications that will decrease end-to-end processing time and provide better and more consistent data. On the residential rebate processing side, the Program Administrators and their vendors remain committed to improving their existing online rebate application system, in addition to exploring instant incentives where feasible. National Grid and Eversource have built an interface between the Environmental Protection Agency Portfolio Manager tool and tenant/landlord usage data. While different Program Administrators explore specific opportunities that directly respond to their service territory, the Program Administrators always share learnings and best practices with each other as successful models and approaches emerge.

The Mass Save online retail platform will also be enhanced to build a more customer friendly experience. The Mass Save online assessment tool continues to receive positive Home Energy Services evaluation results²⁴ and will continue to collect customer participation data and serve as a critical intake point in the Residential Coordinated Delivery Initiative. The Program Administrators also have long standing relationships with third party marketing research data firms that are able to provide relevant information on an ad-hoc basis. Many Program Administrators already use third-party data to inform marketing campaigns and to tailor messaging and promoted measures. The Program Administrators have and will continue to integrate and explore cost-effective integration of modernized tools and strategies consistent with the primary focus on customer experience, rather than the usefulness of customer data itself.

The Council Consultants have expressed an interest in a residential statewide, consolidated platform that incorporates customer data across all systems (billing, participation, purchased data, etc.) as a means to improve participation, increase operational efficiency, and to achieve

²²2016 C&I Customer Profile Study. <http://ma-eeac.org/wordpress/wp-content/uploads/Final-MA-CIEC-stage-5-one-pager-2016-CI-Customer-Profile.pdf>

²³Program Administrators’ Draft Plan, pg 73

²⁴ http://ma-eeac.org/wordpress/wp-content/uploads/MA-RES-35-HES-Process-Evaluation-Comprehensive-Report_FINAL_31MAR2018.pdf

other potential benefits. They have highlighted work undertaken by the Tennessee Valley Authority (“TVA”) as an example. The Program Administrators investigated and continue to learn about TVA’s work.

The Program Administrators appreciate the enhanced connections designed into the TVA system and tools available for both customers and partners. Unfortunately, the TVA system is only designed to serve single family property owners. To reach this level of system design took TVA multiple years of development and significant capital expense. The TVA platform is only in the first years of implementation with no third-party evaluation of the platforms impact on savings, participation or cost efficiencies. Program Administrators remain intrigued by the early anecdotal information and are taking the key elements – enhanced connections and tools available for customers and vendors and are working to add similar capabilities to Mass Save systems. Program Administrators believe these enhancements can be made to the existing Program Administrator systems without needing to make additional high cost investments in development of a new shared system.

There are also concerns associated with trying to move to one, statewide platform to house comprehensive customer data. With such a system, customer security becomes vastly more important, but also more challenging because of the number of users. Furthermore, relying on a single vendor for such an enormous investment with massive switching costs would compromise the Program Administrators’ leverage in such a relationship. With one statewide vendor, there would be limited opportunity for different Program Administrators and different vendors to innovate and share best practices. Finally, the undertaking would be not only enormously expensive and time consuming, but also result in stranding considerable investments made in existing Program Administrator systems.

Given the challenges associated with moving to one comprehensive, statewide residential customer system, the Program Administrators are focused on better understanding the benefits of combining specific datasets. Program Administrators are currently exploring, and in some cases, implementing modifications to existing systems to build more comprehensive customer profiles. By learning as much as possible from other implementers like TVA, innovating with new and existing systems, and sharing best practices, the Program Administrators will continue to enhance how they cost-effectively leverage data to improve the delivery of their programs.

**CROSS-REFERENCE ROADMAP TO COUNCIL'S
17 SPECIFIC AREAS OF RECOMMENDATION**

Cross-Sector Recommendations

1) Active Demand Management

See Response to Priority 2; Draft Plan at 46-48, 75-76, Electric Tables; see also discussion of new goals measurement, Draft Plan at 11-14.

Commercial and Industrial Sector Recommendations

2) Combined Heat and Power

See Response to Priority 5, Draft Plan at 71-72; see also discussion on evaluation feedback loop, Draft Plan at 123-128.

3) C&I Process Savings

See Response to Priority 5, Draft Plan at 59-60, 65-68; see also discussion on sharing best practices, Draft Plan at 68-69, 87-91.

4) Data-Driven Customer Acquisition and Engagement Strategies; and Big Data

See Response to Priority 4 and Priority 9.

5) Small Business

See Response to Priority 1, Draft Plan at 63-65.

6) New Construction

See Response to Priority 6, Draft Plan at 32-35 and 54-57.

7) Lighting & Controls

See Response to Priority 5; Draft Plan at 67, 74-75; Draft Plan generally at 51-76; see also discussion on streetlights and need for municipalities to choose to participate, Draft Plan at 71.

8) HVAC & Controls

See Response to Priority 5; Draft Plan at 58-59, 61-62, 65-68, 69-71.

9) Fuel Switching

See Response to Priority 3; Draft Plan at 9, 41-42, 120-121.

10) Municipal

See Draft Plan at 71.

Residential Sector Recommendations

11) Heating and Cooling Equipment

See Response to Priorities 1, 3, 4; Draft Plan at 37-42.

12) Serving Hard to Reach and Underserved Populations and Geographies

See Response to Priority 1; Draft Plan at 40-41.

13) Behavior Programs

See Draft Plan at 45-46.

14) New Construction

See Response to Priority 6; Draft Plan at 31-35.

15) Integrated Residential Program Design

See Response to Priority 4; Draft Plan at 29-30; see also discussion on customer capture, Priorities 4 and 9 and Draft Plan at 37-42; new methods of realizing savings, Priorities 2 and 3 and Draft Plan at 29-30, 32-33, 37-38, 41-42, 43, 47-48, information on conversions, Priority 2 and Draft Plan at 37-42.

16) Multi-Family Program

See Response to Priority 7; Draft Plan at 32, 37-42.

17) Low-Income Sector Recommendations

See Response to Priority 8; Draft Plan at 40-41, 48-51.