

May 28, 2015

Chair Judith Judson  
MA Energy Efficiency Advisory Council  
100 Cambridge Street  
Boston, MA 02114

Dear Chair Judson:

The New England Clean Energy Council (NECEC) would like to thank the Energy Efficiency Advisory Council (EEAC) for the opportunity to submit these comments on the Energy Efficiency Program Administrators' 2016-2018 Draft Plan. NECEC commends the EEAC and the Program Administrators (PAs) for consistently developing and refining aggressive and forward-thinking energy efficiency programs that have not only given the Commonwealth the honors of the #1 ranking for energy efficiency programs, but supported tens of thousands of jobs and thousands of businesses across the state and region.

NECEC's mission is to accelerate New England's clean energy economy to global leadership by building an active community of stakeholders and a world-class cluster of clean energy companies. NECEC is the only organization in New England that covers all of the clean energy market segments, representing the business perspectives of investors and clean energy companies across every stage of development. NECEC members span the broad spectrum of the clean energy industry, including energy efficiency, demand response, combined heat and power (CHP), energy storage, fuel cells, advanced and "smart" technologies, and renewable energy.

NECEC supports the PAs' goals to 1) capture all available cost-effective energy efficiency; (2) maximize net economic benefits; (3) achieve energy, capacity, climate and environmental goals; and (4) consider both short-term customer bill impacts and longer-term benefits expected from proposed efforts. We believe that the following comments will strengthen an already robust program and ensure that it can deliver on these goals in innovative ways that will enhance benefits to customers and support the clean energy industry in Massachusetts. Our comments are organized by strategy and include:

- A. C&I Segmentation
- B. Demand Response
- C. Private Financing and Capital Markets
- D. Behavior-based Programs and Innovation
- E. Fuel Cell Applicability for CHP Programs

**1. C&I Segmentation:**

NECEC commends the PAs for developing a diversity of programs available to C&I ratepayers, both new construction and renovation. We acknowledge that there are a number of hurdles in engaging with C&I customers, and we think that the C&I strategy could benefit from an additional depth of planning and ability to target different customer classes. Both size and type/use of building play a role in how to engage with customers on energy efficiency. For example, from the experience of our members, larger C&I companies generally indicate that up front capital is not a large barrier to energy efficiency; however, it is a potentially a large issue

for medium and small-scale projects. We suggest segmenting the plan to include information on how the strategy will address at least the following building uses:

1. Senior and assisted living
2. Hospitality
3. Health care
4. Warehousing
5. Institutional
6. NGO
7. Multifamily Housing

NECEC also comments that the proposal for targeting and marketing to the C&I market segment does not reflect many of the state-of-the art technologies and engagement approaches in use in other ratepayer-funded efficiency programs. The proposed plan correctly notes the importance of targeting all classes of commercial customers, but lacks the detail as to a strategy for identifying and including these harder-to-reach segments.

Specifically, NECEC recommends that the 3-year plan include a clearer strategy for the use of commercial customer engagement tools, analytics and advanced technologies that provide customer self-serve energy efficiency tools. In addition, NECEC recommends including a clearer strategy for the use of analytics, software, and technologies that accelerate or reduce costs of PA customer acquisition and sales to commercial customers. This includes both increasing the depth of savings for each customer in single measures and over time and multiple measures, as well as improving overall participation (total number of participants) in commercial programs, particularly in underrepresented segments such as mid-size commercial. For an example of how this has been done, see the Baltimore Gas & Electric program filing for 2015-2017, which discusses the use of sophisticated customer intelligence for targeting customers across the entire service territory.<sup>1</sup>

The proposed three-year plan references three examples of ratepayer-funded programs with a history of strong retro-commissioning (RCx) programs -- Pacific Gas and Electric, Commonwealth Edison, and BC Hydro (3 year plan p. 121). These same utilities have been early adopters of state-of-the-art customer intelligence, segmentation, and engagement tools to address a much broader set of opportunities in addition to RCx.

In addition to supporting overall achievement of savings goals and deeper penetration of the market, data analytics are being used to target specific customer segments to achieve load reductions in constrained areas. For example, NECEC member company FirstFuel has been working with Southern California Edison to target load reductions in the region affected by the retirement of the San Onofre Nuclear Generating Station. Similarly, Pacific Gas & Electric is using customer analytics to reduce load on selected substations throughout northern California.

## **2. Demand Response:**

While Massachusetts has made tremendous progress on reducing load growth, peak demand in Massachusetts is forecasted to grow by 1.5% annually over the next decade according to ISO-NE. This increasing peak demand is contributing to the high cost of electricity in Massachusetts

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<sup>1</sup> Throughout, and especially Section 3, p. 85, and pp. 96-99.  
[http://webapp.psc.state.md.us/Intranet/Casenum/NewIndex3\\_VOpenFile.cfm?ServerFilePath=C:\Casenu](http://webapp.psc.state.md.us/Intranet/Casenum/NewIndex3_VOpenFile.cfm?ServerFilePath=C:\Casenu)

and New England. For example, in the latest ISO-NE Forward Capacity Auction (FCA) for the 2018-19 delivery year, capacity costs skyrocketed to as much as \$212,000/MW-year<sup>2</sup> in Southeastern Massachusetts, representing nearly a 600% increase over current capacity costs in 2015. Capacity costs in other parts of Massachusetts increased to over \$110,000/MW-year, or roughly a 300% increase over current capacity costs in 2015. While generation retirements are a key contributor to this increase, the rise in peak demand in New England fuels the need to procure more capacity, driving up prices. In fact, in FCA 7, the capacity requirement was 32,968 MW. During the most recent FCA, FCA 9, the capacity requirement increased to 34,189 MW, a large increase for a system the size of New England. For the Massachusetts economy to be competitive, the upward spiral in capacity costs needs to be reversed, and reducing the amount of capacity to be built is a means to that end.

The EEAC and utilities appear willing to respond to this, as the fifth articulated priority of the Council's March 31, 2015 Resolution articulates a goal to "realize electric demand savings to significantly mitigate peak demand costs to the electric sector." Further, the second cross-cutting recommendation from the Council recommends that the PAs "support products and practices that reduce winter and summer peak." Finally, the utilities' draft Plan also notes "Achievement of demand savings in 2016-2018 is a key goal shared by the PAs and the Council."

The desire to reduce peak demand is obvious, and to achieve this objective, NECEC strongly recommends that funding be allocated in the 2016-18 cycle for a pilot to support commercial & industrial peak-shaving demand response programs. Such programs are proven and would be well-aligned with the Baker Administration's goals. The costs incurred during the "peakiest" hours of the year would be reduced for all ratepayers, reliability and resiliency would be strengthened, and emissions would be avoided.

A subset of commercial & industrial customers participates in the ISO-NE demand response program, but these customers are dispatched primarily in emergency situations, and not across the majority of peak hours. For the peak hours of the year, commercial & industrial customers often lack adequate incentive to reduce their consumption. The EEAC and utilities have the power to provide sufficient incentives, and should exercise that authority by piloting peak shaving demand response programs and supporting C&I measures that can help reduce peak demand.

The New York Public Service Commission estimated that flattening demand in New York across the 100 peak hours for the year would reduce costs by \$1.2 - \$1.7 billion per year.<sup>3</sup> There are obvious differences between New York and Massachusetts, most notably size, but this number would still likely exceed \$100 -\$200 million per year in Massachusetts.

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<sup>2</sup> See Forward Capacity Market (FCA 9) Result Report. [http://www.iso-ne.com/static-assets/documents/2015/02/fca\\_9\\_result\\_report.pdf](http://www.iso-ne.com/static-assets/documents/2015/02/fca_9_result_report.pdf). Page 1. The payment rate for new resources in SEMA-RI is the FCA Starting Price of \$17.73/kw-mo, which equals \$212,000/MW-year. The payment rate for existing resources was \$132,000/MW-year.

<sup>3</sup> CASE 14-M-0101 – Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision. Order Adopting Regulatory Policy Framework And Implementation Plan Issued and Effective: February 26, 2015. Page 20

To address these costs, New York has implemented peak shaving programs. One example is Con Ed's Commercial System Relief Program, which dispatches commercial & industrial customers to reduce consumption whenever the forecasted day-ahead load is at 96% of system peak. This allows Con Ed to incorporate DR into their planning and avoid costly capital infrastructure. The Con Ed program delivers system benefits that include avoided transmission, distribution, energy, and environmental costs for all consumers.

In addition to the avoided costs outlined above, customers enrolled in just the Con Ed program also avoid capacity costs. This is important to remember in the context of Massachusetts, where many customers are not participating in the wholesale market, and a peak shaving program could engage a broader range of customers, in turn reducing capacity costs.

These programs can be cost-effective in regions that do not face the same distribution constraints as New York City. In Pennsylvania, consultants to the PUC have projected that utility peak-shaving commercial & industrial demand response programs could achieve a statewide TRC of 1.88.<sup>4</sup> This TRC can be delivered in a state with significant wholesale participation, minimal distribution constraints, and lower avoided costs than Massachusetts. For example, the cost of capacity in Pennsylvania in the latest PJM auction ranged between \$25-\$50/kw-year, compared to \$114-\$212/kw-year in MA.

NECEC notes the EEAC's interest in reducing winter peak, and believes that peak-shaving winter programs could mitigate energy price spikes due to high natural gas prices.

Besides cost savings, several other benefits would result from C&I peak shaving demand response programs, some of which align with the Baker administration energy goals:

- Reducing demand during peak periods enhances reliability by relieving pressure from the electric grid when it is most stressed. Given the region's strong dependence on natural gas, it is critical to have a dispatchable resource such as demand response that doesn't rely on pipelines to meet delivery obligations.
- For customers who are not engaged in energy efficiency, demand response serves as a gateway to energy efficiency, as demand response customers receive checks for participating that can be reinvested in energy efficiency.
- For customers already participating in energy efficiency, demand response programs unlock new measures that aren't being utilized, such as temporarily turning off lighting, lowering HVAC set points, or shifting a manufacturing process during times of system peaks. These measures would not be realized with a portfolio solely consisting of energy efficiency.
- Innovation will be unleashed, as peak shaving programs require customers to reduce consumption for more hours than emergency programs. For customers that want to participate but don't want to interrupt their business processes, they may opt to deploy advanced technologies such as energy storage. Such technologies will strengthen resiliency, as customers will have on-site sources of power even when the electric grid is not delivering power.

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<sup>4</sup> See Release of the Act 129 Statewide Evaluator Energy Efficiency and Demand Response Market Potential Studies and Stakeholder Meeting Announcement Secretarial Letter, at Docket No. M 2014 2424864, served February 27, 2015. Table 7-6 at P. 94

- These reductions would reduce dependence on the heaviest emitting fossil-fueled units, and therefore lower carbon emissions.

For all of these reasons, the NECEC urges the EEAC and utilities to pilot commercial & industrial peak-shaving programs. We look forward to further discussion on this topic.

### 3. Private Financing and Capital Markets:

The Program Administrators recognized that the successes of prior years' programs have left fewer 'low hanging fruit' across sectors. PAs indicate that over the next three years, they will "need to find ways to mine remaining savings from more difficult and challenging projects"(p. 8). The implication is that there are higher costs for existing programs to secure additional savings and that incentive dollars *as currently distributed and utilized* will buy less energy efficiency.

In order to maximize the impact of the funds available in the programs and cost-effectively reach aggressive energy efficiency goals, program participants will need to be able to access enhanced and increasing levels of third-party finance and capital markets. Funding for energy efficiency programs through the PA programs is a limited resource, and if it is going to be utilized to reach increasingly difficult or more comprehensive and expensive retrofits, the energy efficiency funds need to be leveraged with private investment.

The PAs note that uptake on their traditional finance offerings have been modest. NECEC and our members agree that just the mere existence of low-cost capital has not been (and will not necessarily be) a driver of increased activity. Our members report that they have found that while third party capital alone is not sufficient, it is necessary. Successful deployment of third party financing should include the following attributes:

- Capital must be linked to project development capabilities.
- Capital must be offered in innovating models that provide for off balance sheet treatment.
- Capital must be available for medium and small customers for whom capital is a limiting factor.

NECEC and its member companies offer the following specific proposals for third party financing:

- I. *Educate: Integrate third party finance education and information into all delivery mechanisms.* This would include supporting training for PA staff and contracts on the role of and options for third party finance projects, integrating third party finance options into the service and participation options delivered to customers, and integrating third party finance into upstream programs by introducing this option to the statewide network.
- II. *Integrate: Modify existing incentives programs to accommodate third party finance deal structures.* This would include clarifying that direct install and other projects can be coupled with third party finance for project implementation (as an alternative to on-bill financing) for both small business and large. The customer in third party finance project may utilize rebates to the fullest extent and then sign with third party

capital provider to pay the vendor contract. Further, it would require PAs to clarify and coordinate access to low/no interest loan programs in third party projects. Confirm that third party project owners may access low interest debt as a proxy for the end use customer/facility.

- III. Pilot and Expand: *Pilot and test third-party financed energy efficiency project with specialized initiatives for small business, multifamily housing, and CHP.* The PA's currently are hosting a pilot in the non-profit sector. We recommend that they build and expand on this pilot to integrate third party funding for small business retrofits across the Commonwealth. We further recommend that they partner with the Massachusetts Housing Department to initiate a targeted pilot programs to expand third party financing into multifamily housing, using incentives to accelerate uptake.

Further, the PA's report that customer surveys suggest that there is limited uptake for CHP projects with payback periods greater than three years. We suggest that they pilot third party finance models for CHP projects to unlock the potential for longer payback period projects.

- IV. Leverage: *Encourage the investment of private capital and develop a robust capital market for investment in energy efficiency.* The PAs could coordinate or work with the Commonwealth as it develops a green bank type-clearing house to provide targeted products (e.g., credit enhancement; senior or subordinated debt) to promote private financing and capital markets development throughout the individual market sectors.

This could further include implementing strategic energy management (SEM) and Continuous Energy Improvement (CEI) programs for medium and large customers. Educate building owners on the opportunities to fund projects in innovative ways, and link them to increased availability of third party financing models to allow for cost-effective programs that will not have adverse impacts on capital budgets.

#### **4. Behavior Based Programs and Innovative Technologies:**

There are a number of innovative companies (both startups and established companies) pioneering new technology and behavioral science-based approaches for energy efficiency; PAs should be encouraged to undertake pilots for new behavior-based efficiency approaches, and for exploring new and novel technologies.

In addition to continued support for behavioral programs for residential customers, which have demonstrated long-term, sustained, and predictable energy and demand savings, NECEC encourages the EEAC and utilities to expand on the utilities' use of behavioral energy efficiency programs for the commercial segment, particularly small and medium business (SMB) customers. SMB customers are generally a hard to reach segment for utilities. Participation in efficiency programs usually is low, and JD Power reports that this market has the lowest customer satisfaction. Most such customers usually have a very lean operation, with an owner and a small handful of employees largely consumed with their customers, not with managing energy.

The diversity of customers within this market also makes it difficult for utilities to reach them, with hundreds of different customer types. Yet business customers overwhelmingly want targeted, personalized savings recommendations and solutions from their utility<sup>5</sup>, with proactive communication being key to improved business customer satisfaction<sup>6</sup>.

Behavioral energy efficiency programs can engage thousands of untapped customers in their energy usage and serve as a gateway to more concerted energy efficiency efforts. Given the lean nature of these businesses, information must be presented in a manner which is clear, easily actionable and compelling. Key information for this customer type includes the cost of energy relative to previous time periods and other customers, simple steps that can be taken to reduce consumption, and the cost savings that are likely to result if the customer does act. As customers using these lightweight tools either grow their businesses or become more sophisticated in their energy management, they can be seamlessly migrated to more advanced tools where a platform approach has been employed.

Leading states and utilities across North America are implementing such behavioral programs in the commercial segment, including Pacific Gas & Electric, ComEd, Duke, and Consumers Energy in the US, and British Gas and BC Hydro in Canada. Similar to the residential sector, such programs can result in 1%-3% savings in untapped customer segments at a low cost near \$0.03/kwh. Proven methodologies to measure savings from behavioral energy efficiency have emerged that allow these savings to be counted toward energy efficiency and peak demand reduction goals. The development of behavior energy efficiency programs for the SMB segment in Massachusetts will bring savings to untapped commercial segments while solidifying Massachusetts' position as a leader in energy efficiency.

It is also important for Massachusetts to remain on the leading edge of innovation for energy efficiency technologies. A new innovation in the demand side management field is the emergence of "EM&V 2.0" technology, such as savings measurement software, which can accurately quantify savings from the installation of an energy savings measure in near real-time. Savings measurement software is powering a comprehensive, faster and cheaper approach to M&V because it measures savings at the meter, analyzes all projects in a program (i.e. a census approach) and provides continuous quantification data to empower PA's to optimize programs continuously, rather than after the full formal evaluation period. As the EEAC plans for the next cycle, consideration should be given to testing EM&V 2.0 approaches on a variety of programs.

## **5. Fuel Cell Applicability for CHP programs:**

The Massachusetts Combined Heat and Power (CHP) initiative is currently structured to exclude customers without a matching thermal load from participation in the program. As a result, the majority of electricity customers in the Commonwealth is paying for the program, but cannot benefit from it. In recognition of the inherently exclusionary nature of an approach that requires external thermal utilization, both California and New Jersey have acted to expand their

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<sup>5</sup> The New Energy Consumer Handbook, 2013. Accenture. Page 189.  
[http://nstore.accenture.com/acn\\_com/PDF/Accenture-New-Energy-Consumer-Handbook-2013.pdf](http://nstore.accenture.com/acn_com/PDF/Accenture-New-Energy-Consumer-Handbook-2013.pdf)

<sup>6</sup> J.D. Power 2014 Electric Utility Business Customer Satisfaction Study. February 12, 2014  
<http://www.jdpower.com/sites/default/files/2014010%20Electric%20Utility%20Business.pdf>

CHP programs to allow the most efficient non-combustion all-electric fuel cells to compete.<sup>7</sup> Massachusetts should do the same. NECEC is not proposing that the CHP program be in any way diminished, but rather that it be augmented to allow more customers to increase the efficiency of their electricity supply through a form of distributed generation that produces less overall air pollution and other forms of environmental impact than many of the projects currently funded by the program.

The Benefit Cost Ratio test excludes a lot of factors that could make fuel cells economically viable. The BCR only takes into account efficiencies of specific measures, not their impact on the system overall. Consistent with G.L. c. 25, § 22(b) the BCR test for the CHP program should be expanded to include consideration of system efficiency and system reliability benefits, in addition to project level considerations and avoided T&D expenditures.<sup>8</sup> This would help demonstrate the actual benefits of fuel cells and help integrate this technology into energy efficiency programs for the benefit of ratepayers.

Thank you for considering our comments and suggestions. NECEC is available as a resource as the EEAC continues to review the PAs three-year plan. We welcome any opportunity to better acquaint you with our member companies, which are growing and doing more business in Massachusetts and across the country in support of energy efficiency. We hope that you and your staff will consider NECEC a primary resource when looking for information about the clean energy industry.

Sincerely,



Peter Rothstein  
President



Janet Gail Besser  
VP, Policy & Government Affairs

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<sup>7</sup> The California Self Generation Incentive Program (SGIP) initially required a minimum electric and external thermal efficiency, but thereafter an alternative “functional equivalency” was created for all-electric systems that exceed 40% HHV efficiency.

<sup>8</sup> See *also* Energy Efficiency Guidelines, §§ 3.4.4.1(a)(iii) and (iv) (Energy Efficiency Program Cost-Effectiveness, Avoided Transmission and Distribution Benefits); D.P.U. 08-50-B at 50 (2009).