

June 27, 2018

Judith Judson  
Chair, Energy Efficiency Advisory Council (EEAC)  
Commissioner, Massachusetts Department of Energy Resources (DOER)  
100 Cambridge St, Suite 1020  
Boston, MA 02114

**Re: NECEC Comments on the draft three-year (2019-2021) energy efficiency plans**

Dear Commissioner Judson and members of the EEAC:

Thank you for the opportunity to comment on the draft three year (2019-2021) energy efficiency plans filed by the Program Administrators in April. We appreciate the leadership and guidance of the Department of Energy Resources (DOER) and the Energy Efficiency Advisory Council (EEAC) as Massachusetts looks to develop new plans that will preserve and build upon the Commonwealth's nation-leading work on energy efficiency, especially in the midst of the changing landscape we face. We also thank the Program Administrators (PAs) for the work that went into compiling these draft plans, and look forward to working with them and members of the Council to strengthen and improve the plans over the next few months.

NECEC is the lead voice for hundreds of clean energy companies across the Northeast, helping to grow the clean energy economy. NECEC's mission is to create a world-class clean energy hub in the region delivering global impact with economic, energy and environmental solutions. NECEC is the only organization in the Northeast 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 solar, wind, energy efficiency, energy storage, combined heat and power (CHP), fuel cells, and advanced and "smart" technologies. Our members are already – or are very interested in – doing business in the Commonwealth and helping to grow our clean energy economy.

**I. Introduction & Overview**

For the better part of the last decade, Massachusetts' energy efficiency programs have ranked first in the nation and delivered billions of dollars in benefits to the ratepayers of the Commonwealth. This track record is reason for optimism about the future of energy efficiency investment across the Bay State, and we face an exciting opportunity to pursue near-term improvements in the impending three-year plan. But significant work remains to be done to realize this opportunity, which will hinge upon our ability to embrace new, innovative offerings and expand access to savings opportunities in an equitable manner. The finalized 2019-2021 plans must live up to and maintain Massachusetts' leadership, choosing to further blaze a trail rather than rest on our laurels.

As a primary matter, NECEC urges all Councilors and the PAs to support and pursue substantially increased overall savings goals, particularly in the electric sector. While we acknowledge that it is not uncommon for draft plans to propose lower savings goals than those eventually finalized, the current draft plans fall well short of where we need to be. Specifically,

the plans propose to reach just 2.10% annual electric savings, far below the level of savings we have achieved and become accustomed to achieving in recent years. The finalized plans should chart a course much closer to, if not meeting or exceeding, the 3% annual electric savings derived through the programs since 2016. There is significant opportunity to make up the gap with strengthened commitments in existing, foundational areas of energy efficiency and with new investments in beneficial technologies and measures, ensuring that we keep pace with historical rates of savings and investments and capitalize on the emergence of innovative technology applications. It is a similar story on the gas side, too, where the draft plan proposes savings (1.1%) lower than 2017 performance (1.2%), and substantially lower than the possible savings identified by the EEAC consultants (1.65%).<sup>1</sup> More than anything else in the finalized plans, the overall savings goals will signal to energy efficiency providers – an increasingly robust and diverse pool of clean energy companies – that there will be a strong market for their products and services in Massachusetts for the next three years. And, of course, stronger savings targets will translate to deeper energy and monetary savings for customers and ratepayers in communities across the Commonwealth.

In the following comments, NECEC provides recommendations and observations in several areas that are both critical to achieving such deeper savings and of high importance and interest to our member clean energy companies. In particular, these comments focus on laying out support for expanded and improved active demand management (ADM) offerings, emphasizing the substantial opportunity for energy storage and other technologies to deliver peak-oriented benefits. A well-designed participation pathway for battery energy storage has the potential to be a game-changer for deploying customer-sited resources and reducing costs during periods of peak demand. NECEC, together with our members and partners at organizations such as Clean Energy Group (CEG), has spent a considerable amount of time thinking about and developing potential energy storage rebate proposals for consideration in these three-year plans, and we believe that the time could not be better for the PAs and councilors to fully embrace and be leaders in an emerging trend: energy *storage* as energy *efficiency*, through active demand management.

In addition, we highlight the need for greater detail and specificity in certain areas of the plans, specifically surrounding the transition to the residential coordinated delivery program. Greater clarity on concrete implementation strategies around the new integrated program design is necessary to ensure a reasoned and well thought-out transition. The energy efficiency market cannot simply flip the calendar to January 1 and begin implementing the new changes without a step-by-step transition process. Although we understand from discussions at recent EEAC meetings that 2019 is expected to be very similar to business-as-usual, the market needs to see a transition path and timeline explicitly built into the plan. At a minimum 2019 should be a year of preparation and transition, with the final years of the new plan beginning to implement the vision described in the plan.

Finally, we echo calls for the finalized plans to include specific commitments to identify and serve populations that our energy efficiency efforts have historically struggled or failed to serve, such as renters, non-English speakers, low-to-moderate income customers, and small businesses. Requiring the collection and reporting of data will be an important first step in confirming that our future programs meet their commitments, and we also recommend that the finalized plans include funds for innovative partnerships with organizations and entities that may be well suited to penetrate historically hard-to-reach communities. Additionally, these comments

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<sup>1</sup> <http://ma-eeac.org/wordpress/wp-content/uploads/Consultant-Team-June-Presentation-Final-6.20.pdf>.

echo recommendations from other stakeholders that the final plans incorporate performance incentive metrics tying the incentives that PAs receive to the actual outcomes they deliver in the areas of priorities for the EEAC (including peak load reductions in kW as well as overall energy reductions in kWh). With Public Utilities Commissions (PUC) and utilities becoming more familiar with such outcomes-based regulatory frameworks, the time is ripe for the EEAC to pursue innovative, efficiency-inducing compensation models.

## II. Active Demand Management

Our member companies have a strong interest in pursuing an expanded and improved role for active demand management (ADM) offerings in the finalized plan in order to reduce costs for all customers. The inclusion of ADM in the draft plans is an important first step for this newer category of offerings, but the scale and range of proposed demand management investments must be substantially widened for the program to live up to the opportunity at hand. NECEC strongly recommends that the PAs double or triple their emphasis on active demand management as they develop the finalized plans, focusing first and foremost on carving out a robust, dedicated role for energy storage, as described in detail below. In addition, attention should be paid to designing winter reduction measures to help address the challenges that arise during cold snaps, such as natural gas demand response. In these and other areas, clean energy providers are ready to deliver significant results *now* – not after the conclusion of more pilots or demonstrations. The finalized draft plans should take full advantage of this.

NECEC and many other stakeholders were disappointed by the size and nature of the active demand management investments included in the draft plans, both in the C&I sector and in residential. The draft plans included only \$17.7 million in ADM participant incentives in the C&I sector, and only \$25.8 million for residential. In their current state, the proposed 2019-2021 offerings fall woefully short in their low budgets and failure to meaningfully contemplate and incorporate customer-sited energy storage systems (both in the draft plans and in the demand opportunity assessments conducted by the PAs). After months of discussing this new arena of potential savings and benefits during workshops this past fall and winter, the PAs should substantially improve the ADM programs to offer more robust rebates for energy storage installations, commensurate with the immense opportunity for beneficial storage deployment across the Commonwealth.<sup>2</sup> To be clear, support for increased and improved ADM offerings should not in any way come at the expense of other more traditional energy efficiency offerings and other proposed investments, whose budgets and goals we reiterate stand to be substantially increased across the board to keep pace with existing levels of investment and outcomes.

Demand management refers to the dynamic management of end-use customers' energy demand using information, incentives, and technology. ADM products and services can include, among other things: direct load control, traditional and 'new' demand response, behind the meter battery storage, thermal storage, and more.<sup>3</sup> ADM technologies already demonstrated by the PAs include Wifi Thermostats and other energy monitoring equipment, Lighting/HVAC controls, solar+battery storage, thermal storage, and Direct Load Control (DLC) devices. ADM can manage price spikes occurring because of imbalances between energy supply and

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<sup>2</sup> National Renewable Energy Laboratory (NREL). *Identifying Potential Markets for Behind-the-Meter Battery Energy Storage: A Survey of U.S. Demand Charges*. <https://www.nrel.gov/docs/fy17osti/68963.pdf>.

<sup>3</sup> EEAC, "Active Demand Management (ADM) Briefing Document for January 30 EEAC Planning Workshop," pg. 1.

demand, which are “ultimately borne by ratepayers.”<sup>4</sup> We also know that ADM can and will help manage the load associated with electric vehicles (EVs) and strategic electrification.<sup>5</sup>

Energy storage stands to play a pivotal role in Massachusetts’ pursuit of ADM in the forthcoming three-year plans and beyond. The interplay of energy storage as energy efficiency was contemplated explicitly by the Legislature in 2016, when it authorized the use of energy efficiency funds to promote the cost-effective deployment of energy storage systems – in the case of this statutory language, through sustainable peak load reductions on either the electric or gas distribution systems.<sup>6</sup> The role of energy storage was also evaluated in tremendous depth in the *State of Charge* report, which highlighted numerous areas of benefits derived by energy storage acting as ADM, such as for ramping, operational needs, shortage events, and peak demand reductions. And, since the peaks of our consumption are not only expensive, but also emissions-intensive, *State of Charge* also revealed that storage can reduce overall energy system emissions by greater than 1 MMT CO<sub>2</sub>e emissions reductions over a 10-year time span. All in all, *State of Charge* found an overall energy storage benefit-cost ratio of 1.7 to 2.4 for ratepayers. While the benefit-cost analysis used for the report is likely different from the Total Resource Cost (TRC) test used in the three-year plans, the report is a substantial, favorable indicator of the cost-effectiveness of storage deployment.

For the above reasons, we believe that the finalized plan should place a much greater emphasis on the role of energy storage within expanded ADM offerings. There are models that the PAs can look to as examples of successful storage/ADM programs, including ConEdison’s demand management program in New York. This program separates demand management offerings by type/category and provides the highest incentives for thermal and battery storage (\$1,500/kilowatt, up to 50% of project cost).<sup>7</sup> A properly designed storage/ADM program will reduce capacity cost allocation and transmission and distribution (T&D) costs, and will further serve to suppress peak energy prices. A more concrete and itemized analysis of the benefits and costs of storage/ADM is now being developed, thanks to the work of our partners at CEG and consultants at the Applied Economics Clinic (AEC). This supplemental analysis will be submitted to the EEAC and PAs as soon as possible after it is completed.<sup>8</sup>

To provide a roadmap for increasing the amount of cost-effective ADM, while stimulating investments in innovative technologies, NECEC provides the following seven recommendations:

- 1. To stimulate investments in energy storage, the PAs should create an upfront rebate that passes cost-effectiveness testing. We propose the following as an illustrative construct:**

The PAs have taken the position that ADM programs can be technology-neutral, and that energy storage can participate in those programs. We support this approach, but recommend consideration of a modified payment structure for energy storage customers, based on three steps. The first step is determining the total benefits that accrue to ratepayers over the three-year plan from 1 MW participating in the ADM program, regardless of technology type. That

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<sup>4</sup> EEAC, “ADM Briefing,” pg. 3.

<sup>5</sup> EEAC, “ADM Briefing,” pg. 1.

<sup>6</sup> Chapter 188 of the Acts of 2016, Section 15(a).

<sup>7</sup> <https://www.coned.com/en/save-money/rebates-incentives-tax-credits/rebates-incentives-tax-credits-for-commercial-industrial-buildings-customers/demand-management-incentives>.

<sup>8</sup> We note our appreciation for the PAs providing live versions of the TRC spreadsheets, which was crucial to make this analysis possible.

exact number is not clear from the spreadsheets that have been provided publicly to date. By way of example, we will assume it is \$300,000/MW total. The second step is take that total benefit stream, and turn it into an upfront rebate for energy storage. Given upfront capital and ongoing financing costs, having an upfront rebate is critical to storage deployment, and was part of the Massachusetts Advancing Commonwealth Energy Storage (ACES) program design, along with New York's Demand Management Programs. The upfront rebate would be for a total amount as close to the \$300,000/MW as possible to ensure cost-effectiveness. The third step would be to require the battery storage device to participate and perform in the ADM program for three full years. Since the storage owner already received the rebate, they would not receive any additional compensation from the ADM programs. Therefore, the total cost of the 1 MW would be lower than the benefits that accrue to ratepayers. It would be reasonable to require that the storage owner provide financial assurance that would be fully returned after three years of program participation.

## **2. Increase the proposed C&I ADM program size, while potentially separating the program size that determines budget from the PA targets for incentives**

Unfortunately, the EEAC does not have the benefit of a comprehensive potential study for energy storage/ADM in Massachusetts, especially in the C&I Sector. A valuable but imperfect proxy is how much C&I demand response is participating in the ISO-NE market, as these customers are clearly willing and able to reduce their load when dispatched. Not every customer in the ISO-NE market will want to participate in the PA's ADM programs, and there will be customers who want to participate in the ADM programs and not ISO-NE. Moreover, if there is an upfront rebate for energy storage, it will meaningfully expand the potential number of customers that can participate, especially when considering the substantial pool of customers who have installed solar and other forms of distributed generation (DG) to date but have not yet pursued energy storage. Existing distributed energy resource (DER) customers are the most likely to be early adopters of energy storage/ADM, and their participation could accelerate the deployment of ADM resources. Many customers have mission-critical operations that do not enable them to curtail load, but with a battery (or a battery paired with DG), they can sustain operations while reducing consumption from the grid.

The proposed ADM program size for C&I appears to ramp from 44 MW in 2019, to 70 MW in 2020, to 107 MW in 2021. By way of comparison, in 2019, there are 123 MW participating in the ISO-NE program in Massachusetts, or nearly triple the proposed size of the utility programs. In 2021, there will be 220 MW in the ISO-NE program in Massachusetts. Based on these comparisons, we would recommend a 100 MW target in 2019, a 150 MW target in 2020, and a 200 MW target in 2021 for C&I ADM in the three-year plans. While more potential may exist in 2019, there is limited time between DPU approval and the program start to recruit new customers to participate.

Since there is not a potential study, and limited experience for these PAs with ADM, the PAs may be inclined to be conservative in their program size if it is tied to incentives/penalties. We would therefore support bifurcating the targets used for incentives from the program size for the upcoming cycle.

## **3. Provide Longer-Term Signals for ADM Programs**

There needs to be a strong signal that as long as these ADM programs continue to be cost-effective, they will continue in future three-year cycles. Given that the Green Communities Act

statute requires all cost-effective demand reduction, it seems reasonable for PAs and the EEAC to provide such a signal. This is important because if the program size is expected to increase from 2019-2021, customers and DR/DER aggregators will be reluctant to participate in programs or expend resources if they only have one or two years of participation. This is especially true for battery storage projects. Visibility and certainty into comparable offerings in future three-year planning cycles will be a major assistance in this regard.

#### **4. Provide Flexibility in ADM Program Caps**

While we recognize the need to determine a program size for budgeting purposes, the PAs should not have a strict cap on the ADM programs at what they believe to be the potential. This is especially true when there is no potential study. In case the market can deliver more cost-effective MW than projected in the target, additional enrollment should be allowed upwards of 20% above the program size. The budgets should reflect this possibility and can always be returned to ratepayers if unused.

#### **5. Set Incentives to Maximize Net Benefits**

Similar to more traditional energy efficiency, participation in the ADM programs will be a function of incentive size. In jurisdictions such as ConEdison in New York City, increasing the incentive for ADM programs has more than doubled participation in recent years, and led to higher net benefits to ratepayers. On a per-MW basis, the programs will still be cost-effective, although with the higher incentive, not as cost-effective as if there were a lower incentive. But ratepayers can realize higher net benefits as a result of greater participation.

It is important to understand the customer mindset with program incentives. If customers are accustomed to certain payment and dispatch level in the ISO-NE program, they may have similar expectations for a utility/EE program. If customers are going to be dispatched more in a utility program because it is a peak shaving program, they will be reluctant to participate if the payment level is well below the ISO-NE payment level. It is not totally clear what the proposed incentive is for 2019-2021 on a \$/MW-year basis, although it appears to be in the \$55k/MW-year range in 2019 which is an improvement over the National Grid pilot program of \$35k/MW-yr. Incentives that low will restrict participation.

#### **6. Ensure Robust Role for Residential Storage as ADM**

Residential storage also deserves greater attention as an opportunity for ADM in the three-year plan. Though only one PA studied the potential for residential ADM (Cape Light Compact), recent storage deployment totals suggest that states will overlook residential storage at their own peril: GTM Research reported that 35.8 MWh of energy storage were deployed in the residential grid-connected segment of the U.S. in the first quarter of 2018, rivaling utility-scale deployments for the first time.<sup>9</sup> The rapid growth in residential storage installations reflects a mounting desire for the resilience benefits that storage can provide alongside and in parallel with ADM-oriented performance/operation. And, without the need to contend with demand-based rate structures (namely, demand charges), residential system owners and aggregators may have fewer restraints in responding to ADM call events than certain C&I customers may face. We note that National Grid has recently announced new additions to its

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<sup>9</sup> <https://www.greentechmedia.com/articles/read/residential-batteries-almost-beat-utility-scale-deployments-last-quarter#qs.Yb=HUkw>.

ConnectedSolutions program in Massachusetts and Rhode Island, including residential energy storage systems.<sup>10</sup> The program was expanded just this month to include more thermostats and add eligibility for solar plus storage customers. Clearly, the ConnectedSolutions program has identified an opportunity to bring ADM-compatible technologies to residential customers, and these recent inputs should be magnified and extrapolated across the state in the three-year plan.

## **7. Target Winter Peak Demand Reduction Benefits with DR Program for Gas**

NECEC also recommends that Councilors and the PAs look closely at adding strong *winter* peak demand management programs, including but not limited to gas demand response offerings. Given the challenges that arise during peak winter periods and the savings that could be reaped, it would be a substantial missed opportunity to forego any winter and gas-related demand reduction/management efforts under the three-year plans. Innovative gas demand response offerings are emerging in neighboring jurisdictions and across the country,<sup>11</sup> and Massachusetts should embrace comparable “non-pipeline solutions” in the finalized three-year plans.

## **III. Transition to Residential Coordinated Delivery Program**

As previewed above, our members also wish to highlight the need for greater detail and specificity in certain areas of the plans, specifically surrounding the transition to the residential coordinated delivery program. Clarity on discrete implementation strategies for transitioning to the new integrated program will be critical to market confidence in a smooth and relatively seamless transition to the new program. Given the importance of getting the program changeover right, we recommend the PAs take extra measures to lay out an explicit transition process under the finalized plans.

As the Council is certainly aware, the market of energy efficiency providers and suppliers cannot simply flip the calendar to January 1 and begin implementing new changes without a step-by-step transition process in place. While we gather from discussions at recent EEAC meetings that 2019 is expected to be very similar to business-as-usual, the market needs to see a transition path and timeline explicitly built into the plan. At a minimum 2019, should be a year of preparation and transition, with the final years of the new plan beginning to implement the vision described in the plan. Whatever the chosen transition milestones, the PAs must give visibility into the transition process through the inclusion of a step-by-step timeline in the finalized plans.

Ultimately, the transition to and substance of the new program must live up to the Council’s recommendation of maintaining strong savings and benefits for all residential homeowner and rental offerings. The four points emphasized by members of the Council remain of paramount importance under the new program: increasing customer capture, providing new methods for realizing savings, expanding HVAC, behavioral, financing, and upstream offerings, and increasing conversion rates for HVAC and weatherization measures.<sup>12</sup> On all four points and beyond, many implementation strategies remain unclear or nonexistent. Stakeholders need greater clarity, specificity, and detail in all of these programmatic goals for new residential coordinated delivery.

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<sup>10</sup> <https://news.nationalgridus.com/2018/06/national-grid-announces-home-batteries-are-now-eligible-for-connectedsolutions-program-across-massachusetts-and-rhode-island/>.

<sup>11</sup> <https://www.coned.com/en/business-partners/business-opportunities/non-pipeline-solutions>.

<sup>12</sup> <http://ma-eeac.org/wordpress/wp-content/uploads/Consultant-Team-June-Presentation-Final-6.20.pdf>, slide 25.

#### **IV. Additional Considerations**

Below, we briefly highlight additional areas of importance for consideration by the Council and PAs.

Equitable access: As mentioned above, the final plans should commit to identifying and serving populations that our energy efficiency efforts have historically struggled or failed to serve. We can't afford to let the groups who stand to benefit the most from energy efficiency – renters, non-English speakers, low-to-moderate income customers, and small businesses – to be left behind in the delivery and outreach associated with our programs. Requiring the collection and reporting of data will be an important first step in confirming that our future programs meet their commitments, and we also recommend that the finalized plans include funds for innovative partnerships with organizations and entities that may be well suited to penetrate historically hard-to-reach communities. We hope that greater strides can be taken to allow energy efficiency providers to bring customer-friendly, money-saving products and solutions to historically underserved populations.

Performance incentive metrics: we also recommend that the final plans incorporate performance incentive metrics tying the incentives received by PAs to the actual outcomes delivered in the priority areas identified by the EEAC. Regulators and utilities are becoming more familiar with such outcomes-based regulatory frameworks, including through recent rate cases in Massachusetts and Rhode Island, so the time is ripe for the EEAC to pursue innovative compensation models that promote positive outcomes for ratepayers and streamlined, efficient operations by utilities/administrators.

Cost of carbon: NECEC supports the ongoing efforts for the finalized plans to incorporate modeled results of a Massachusetts-specific cost of carbon. Our understanding of the cost-effectiveness of all energy efficiency investments will benefit from proper valuation of carbon avoidance, especially as Massachusetts takes steps to integrate Global Warming Solutions Act (GWSA) compliance efforts across programs and sectors. We support DOER's effort to undertake an analysis of a Massachusetts-specific cost of carbon, and we look forward to seeing the direct and indirect benefits of including these figures in the finalized plan.

Incomplete savings goals: As referenced in the introduction, the finalized plans should report savings goals as a percentage of statewide sales (electric and gas, respectively) in addition to conveying goals under a shared/combined MMBtu metric. Retaining statewide sales percentages will allow stakeholders to properly compare and benchmark the finalized plans to the investments and savings in the most recent three-year plans. This benchmarking ability will be critical to assess whether Massachusetts is staying on track through the forthcoming plans and beyond.

Pending Legislation – H.1724: As members of the Council are aware, legislation pending at the State House promises substantial positive impacts to the three-year planning effort and energy efficiency investment generally. H.1724 proposes a number of important changes to the energy efficiency statute in Massachusetts, including adding renewable energy, energy storage, demand management, electrification, and other new measures/technologies as eligible to receive funding under the three-year energy efficiency plans. The bill would also allow for consideration of economic development benefits in the benefit/cost testing as part of the all cost-effective efficiency mandate, and would permit benefit-cost analyses to be conducted at the sector level rather than on a measure-by-measure basis. The bill obviously comes at a critical

uncture amidst the ongoing planning efforts and against the backdrop of a rapidly changing energy efficiency landscape. We strongly encourage the PAs to follow the development of this bills and update final plans accordingly.

### **Conclusion**

Thank you for your consideration of our comments. Please do not hesitate to contact us if you have any questions or we can provide any assistance.

Sincerely,



Peter Rothstein  
President



Janet Gail Besser  
Executive Vice President

Cc: Jamie Dickerson, NECEC  
Hogan Dwyer, NECEC