

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF PUBLIC UTILITIES**

Bay State Gas Company d/b/a Columbia Gas of Massachusetts;)	
The Berkshire Gas Company;)	
Fitchburg Gas and Electric Light Company d/b/a Unitil (Gas);)	
Liberty Utilities (New England Natural Gas Company) Corp.)	
d/b/a Liberty Utilities;)	
Boston Gas Company and Colonial Gas Company each d/b/a)	D.P.U. 18-110
National Grid;)	through
NSTAR Gas Company d/b/a Eversource Energy;)	D.P.U. 18-119
The Cape Light Compact;)	
Fitchburg Gas and Electric Light Company d/b/a)	
Unitil (Electric);)	
Massachusetts Electric Company and)	
Nantucket Electric Company each d/b/a National Grid;)	
NSTAR Electric Company d/b/a Eversource Energy)	

**INITIAL BRIEF
OF THE
MASSACHUSETTS ATTORNEY GENERAL**

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**INITIAL BRIEF
OF THE
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The Massachusetts Attorney General, Office of Ratepayer Advocacy (hereinafter “Attorney General’s Office”) submits this Initial Brief in response to both the proposed Joint Statewide 2019-2021 Energy Efficiency Three-year Plan and the supporting Individual company plans filed by the Commonwealth’s Electric and Gas Program Administrators¹ (collectively “the 2019-2021 Joint Statewide Plan” or “Statewide Plan”).

¹ The 2019-2021 Joint Statewide Three-Year Electric and Gas Energy Efficiency Plan (common Exhibit 1) and individual PA supporting documentation were each separately filed by: Bay State Gas Company d/b/a Columbia Gas of Massachusetts (D.P.U. 18-110); The Berkshire Gas Company D.P.U. 18-111); Fitchburg Gas and Electric Light Company d/b/a Unitil (Gas) (D.P.U. 18-112); Liberty Utilities (New England Natural Gas Company) Corp. d/b/a Liberty Utilities (D.P.U. 18-113); Boston Gas Company and Colonial Gas Company each d/b/a National Grid (D.P.U. 18-114); NSTAR Gas Company d/b/a Eversource Energy (D.P.U. 18-115); The Cape Light Compact J.P.E. (D.P.U. 18-116); Fitchburg Gas and Electric Light Company d/b/a Unitil (Electric) (D.P.U. 18-117); Massachusetts Electric Company and Nantucket Electric Company

For the last eight years, Massachusetts has been ranked number one in the nation by the American Council for an Energy Efficient Economy (ACEEE) for the Commonwealth's continued success in transforming its energy industry and achieving cost-effective energy efficiency savings.² The 2019-2021 Joint Statewide Plan builds on the Commonwealth's past energy efficiency investments, with a pivot towards innovative new strategies to capture both energy efficiency savings and active peak demand management.

The Statewide Plan targets annual electric energy savings averaging 2.70 percent of retail electricity sales. Even with a projected decline in annual electric sales, planned electricity savings for 2019-2021 will total 3,465,021 megawatt hours (MWh), and 484 megawatts (MW) of savings from summer active demand and 497 MW of winter active demand.³ The targeted statewide gas savings for the 2019-2021 Joint Statewide Plan at 1.25 percent of statewide gas sales is a slight increase over the 1.24 percent planned savings target from gas efficiency measures in the 2016-2018 Three-Year Plan. And with slightly increasing gas sales projected statewide between 2019 and 2021, annual therm savings planned in the 2019-2021 Statewide Plan of 96,462,193 therms are more than 12 percent higher than the 85,809,618 annual therm savings in the 2016-2018 Three-Year Plan.⁴

Overall energy efficiency program budgets, the "costs to achieve," and proposed performance incentives in the 2019-2021 Joint Statewide Plan are higher than in prior Plans. Nonetheless, cumulative benefits to consumers are projected in the 2019-2021 Statewide Plan to

each d/b/a National Grid (D.P.U. 18-118) and; NSTAR Electric Company d/b/a Eversource Energy (D.P.U. 18-119).

² See <http://aceee.org/state-policy/scorecard>.

³ Exhibit 1, App. C – Electric (Revised, December 20, 2018), at 31;33 of 43.

⁴ Exhibit 1, App. C – Gas (Revised, December 20, 2018), at 26 of 36.

exceed: \$6.39 billion for electric savings⁵ and; gas efficiency measures over the 2019-2021 Plan will yield nearly \$2.06 billion in total benefits.⁶ In addition, customer bill impacts of the 2019-2021 Plan investments, in light of the projected levels of savings and total benefits, are both measured and sustainable. Increases in electric program costs in particular will partially be offset by funding flowing from Regional Greenhouse Gas Initiative (RGGI) proceeds and expected Forward Capacity Market auctions.

The Joint Statewide Plan is designed to further the Commonwealth's efforts to curb greenhouse gas emissions. Combined gross energy savings from electric and gas programs in the 2019-2021 Statewide Plan will have the same annual carbon-reducing effect on the environment as removing approximately 500,000 cars from Massachusetts roads.⁷ Planned electricity savings in the Statewide Plan could serve the electricity needs of approximately 580,000 homes.⁸ The planned energy savings from the 2019-2021 gas efficiency measures could heat approximately 110,000 homes.⁹ In total, the Joint Statewide 2019-2021 Plan will reduce more than 2.64 million short tons of CO_{2e}, which is 400,000 short tons higher than the emission reductions from the 2016-2018 Three Year Plan. Thus, the Joint Statewide 2019-2021 Plan advances the GCA goals of strengthening the Commonwealth's investments in energy efficiency while also contributing to the Global Warming Solutions Act¹⁰ ("GWSA") requirement to reduce carbon emissions.

⁵ Exhibit 1, App. C – Electric (Revised, December 20, 2018), at 25 of 43.

⁶ Exhibit 1, App. C – Gas (Revised, December 20, 2018), at 20 of 36.

⁷ Exhibit 1 at 172.

⁸ *Id.*

⁹ *Id.*

¹⁰ St. 2008, c. 298.

I. PROCEDURAL HISTORY

The Green Communities Act (St. 2008, c. 169, hereinafter “GCA”) requires Program Administrators to jointly prepare every three years a statewide Plan for achieving electricity and natural gas energy efficiency savings. The Statewide electric and natural gas Plan must include a detailed description of statewide energy efficiency programs, an estimate of expected savings, program budget costs, proposed performance incentives and a fully reconciling rate mechanism (*id.*). The PAs submitted an initial Plan on April 30, 2018 to the Council for its review and comment. In the weeks following the submission, the PAs engaged with the Council in a series of collaborative meetings and discussions leading to a revised Plan filed with the Council on September 14, 2018. Further refinements to that Plan were made by the PAs at the request of the Council and a revised draft version of the Three-year Plan was filed with the Council on October 22, 2018. The October 22, 2018 draft Plan was subsequently approved by Council resolution dated October 30, 2018 with the expectation that the PAs would file on October 31st a final Three-year plan with the Department of Public Utilities (the “Department”) that was fully consistent with the October 22, 2018 draft.

On October 31, 2018, the PAs filed their Joint Statewide Three-Year Electric and Gas Energy Efficiency Plan for 2019-2021 with the Department (marked as a common exhibit, Exhibit 1) in each of the individual Program Administrator proceedings, D.P.U. 18-110 through D.P.U. 18-119. The Department noticed these filings, conducted a joint public hearing on December 3, 2018 and on December 10, 11, and 17 conducted joint evidentiary hearings. Pursuant to the Procedural Schedule established by the Hearing Officers in these proceedings, the Attorney General’s Office hereby submits its Initial Brief.

II. LEGAL STANDARD OF REVIEW

The Green Communities Act directs, among other things, that the Commonwealth’s electric and gas resource needs shall first be met through all available energy efficiency and demand reduction resources that are cost effective or less expensive than supply.¹¹ In furtherance of this legislative mandate, the Commonwealth’s electric distribution companies and municipal electricity aggregators jointly prepare every three years an electric efficiency investment plan, while the gas distribution companies develop a joint natural gas efficiency investment plan, in close coordination with the Energy Efficiency Advisory Council.¹² Collectively, the energy efficiency PAs first prepare and submit their proposed energy efficiency three-year plans to the Council for its review and comment¹³ and must subsequently file such plans with the Department for approval.¹⁴ In examining such plans and associated program budgets, the Department must consider, among other things, the effect of approving such plans on resulting rate increases to residential and commercial consumers.¹⁵

The Department’s review of the Statewide Plan must ensure the PAs have identified and properly initiated all energy efficiency and demand reduction resources that are cost effective or less expensive than supply.¹⁶ In addition, the Statewide Plan also must seek to maximize net economic benefits and achieve the Commonwealth’s “energy, capacity, climate and

¹¹ G.L. c. 25, § 21(a).

¹² G.L. c. 25, § 21(b).

¹³ *Id.*, § 21(c).

¹⁴ *Id.*, § 21(d).

¹⁵ G.L. c. 25, § 19(a). Recent legislative amendments to the GCA introduced by An Act to Advance Clean Energy Future (Acts of 2018, c. 227) are discussed in Section III.A below. Among other things, the 2018 amendments provide that cost-effectiveness now be analyzed at the program sector level. See Act to Advance Clean Energy at Section 6.

¹⁶ G.L. c. 25, § 21(b)(3).

environmental goals through a sustained and integrated statewide energy efficiency effort.”¹⁷

Lastly, the Department must establish the proposed energy efficiency plan budgets and resulting funding charges, but only after considering “the effect of any rate increase on residential and commercial consumers”¹⁸

III. STATEWIDE PLAN

A. Term Sheets

From July, 2018 through October, the Attorney General’s Office participated in a series of discussions with the Department of Energy Resources (“DOER”) and the Program Administrators culminating in an agreement in principle on the core planning objectives of the 2019-2021 Statewide Plan. These planning objectives include overall electricity and gas savings goals for the proposed Statewide Plan, related program costs, proposed PA budgets and other key priorities for the 2019-2021 Statewide Plan. These principles are captured and reflected in the respective electric and gas “Term Sheets” that are included as Appendix F to the Statewide Plan (Exhibit 1).

The Term Sheets for the electric Statewide Plan for 2019-2021 set out ambitious targeted electricity efficiency savings averaging 2.70 percent of retail electricity sales annually, which equate to projected cumulative annual energy savings of over 3.4 million MWh during the three-year plan (Exhibit 1, App. C-Electric, p. 31 of 43). An aggressive savings target of 2.70 percent of electricity sales for the proposed State Plan also equates to total forecasted lifetime electricity savings over the three-year plan of 35.662 million megawatt hours (MWh). *Id.* While the

¹⁷ G.L. c. 25, § 22(b).

¹⁸ G.L. c. 25, § 19(a). See also Petition of Bay State Gas Company, et al., D.P.U. 12-100 through D.P.U. 12-111 (2013-2015 Joint Statewide Energy Efficiency Plan) at pp. 9-10 (Jan. 31, 2013).

cumulative three-year program costs of the electric Statewide Plan for 2019 through 2021 are budgeted at \$1.970 billion (Exh. 1, App. C-Electric, p. 12 of 43), total customer benefits achieved through the statewide energy efficiency savings associated with the electric program budgets are forecast at \$6.530 billion (*id.*, at p. 18 of 43, inclusive of external avoided environmental (GWSA) compliance costs¹⁹).

The PAs' 2019-2021 Statewide electric Plan also includes an emphasis on new goals and objectives consistent with recent amendments to the GCA passed by the Legislature this past summer. The prior approved Statewide Plans authorized a wide range of energy efficiency investments designed to reduce the consumption of regulated electricity and natural gas. Funding to implement the Energy Efficiency Plans is collected from electric and gas customers and thus the plans primarily sought to achieve systems savings in both energy (electricity and gas) and system capacity. While energy efficiency investments indirectly foster and achieve the Commonwealth's environmental goals of reduced greenhouse gas emissions and a greater reliance on renewable sources of energy, the GCA's efficiency provisions focused primarily on energy cost savings, not environmental goals, that can be achieved directly from more efficient, reduced consumption of electricity or gas.

However, on July 31, 2018, the Legislature passed An Act to Advance a Clean Energy Future (Acts of 2018, c. 227). Among other things, this Legislation amends provisions of the GCA governing the statewide Energy Efficiency Plans. The recent amendments make changes

¹⁹ The PAs presented total projected program benefits both with, and without, the estimated foreseeable avoided costs to comply with the GWSA's required emission reductions. Including external avoided GWSA compliance costs in the evaluation of energy efficiency benefits offers a useful lens through which the Department should assess the merits of the 2019-2021 statewide energy efficiency Plan.

designed to broaden the scope and focus of energy efficiency measures to expressly include considerations of environmental impacts associated with energy use.

First, amendments to subsection (2) of Section 21 of the GCA broaden the scope of policy goals to be achieved through energy efficiency to expressly include “measures that are designed to result in cost-effective reductions in greenhouse gas emissions” (*see* Act to Advance Clean Energy, § 2). The amendment also makes clear such emission reducing measures include initiatives such as “strategic electrification” that will have the immediate effect of triggering “expanded electricity consumption,” provided the resulting emission reductions are achieved “while minimizing ratepayer costs.”

A further amendment to subsection 2 of Section 21 expressly authorizes the energy efficiency plans to promote “customers switching to renewable energy sources or other clean energy technologies” (*see* Act to Advance Clean Energy, §4). This provision intends to boost emerging behind-the-meter technologies such a heat pumps (air source and ground source), heat pump hot water heaters, solar and other renewable thermal hot water technologies, and energy storage technologies.²⁰ Thus, a substitution of a renewable energy source in place of an existing regulated fuel (*i.e.*, electricity or gas) or unregulated fuel (*e.g.*, oil or propane) is now a tool that can be explicitly supported through the energy efficiency plan and budgets.

All of the foregoing amendments are evolutionary in nature in that they push future energy efficiency planning in a direction already urged by stakeholders under prior existing law. The amendments remain, however, subject to existing checks and restraints in the GCA on

²⁰ Section 20 of the Act to Advance Clean Energy establishes an energy storage target for the Commonwealth of 1000 MWh by December 31, 2025. To achieve this end, the Department of Energy Resources is encouraged to consider, among other things, “the use of energy efficiency funds under [the Green Communities Act] if the [D]epartment of Energy Resources] determines that the energy storage system installed at a customer’s premises provides sustainable peak load reductions on either the electric or gas distribution systems”

overall funding cost-effectiveness and ratepayer bill impacts which were not affected by an Act to Advance Clean Energy.

The gas Terms Sheets for the 2019-2021 Statewide Plan show similar, steady and proportionate increases in therm savings goals over the 2016-2018 Statewide Plan results. The PAs have targeted total average annual gas savings from their 2019-2021 energy efficiency portfolio of 1.25 percent of retail sales statewide during 2019-2021 (Exhibit 1, App. C-Gas, p. 26 of 36). With an expected increases in annual retail gas sales in each year of 2019 through 2021, the higher statewide gas savings goals in the 2019-2021 Statewide Plan translate into cumulative annual energy efficiency savings in gas equal to 96.462 million therms over the three year life of the Plan.²¹ If achieved, these annual savings translate into lifetime therm savings from the Three-Year gas energy efficiency programs of 1.249 billion therms (id.).

The Statewide Plan also includes the PAs' estimate of the effect of the proposed 2019-2021 electric and gas Statewide Plan on the Commonwealth's environmental objectives under the GWSA to reduce carbon emissions related to fossil fuel. Increased targeted electricity and gas energy savings in the proposed 2019-2021 Statewide Plan over 2016-2018 yield higher annual reductions in CO₂ equivalent emissions. An illustrative Table the PAs' prepared and included at p. 172 of 209 of the Statewide Plan (Exhibit 1) shows annual greenhouse gas (GHG) emission reductions associated with the 2019-2021 Statewide Plan (electric and gas) equal to 2.6 million short tons of CO₂ equivalents. Taking into account annual GHG reductions occasioned by the statewide energy efficiency programs, the PAs estimate that the emissions reductions from energy efficiency savings over the 2019-2021 term is the equivalent impact of taking over a half-million vehicles off the road; or powering through electricity EE savings the electricity needs of

²¹ Exhibit 1, App. C-Gas (Revised, December 20, 2018), at p. 26 of 36.

583,000 homes; or heating through gas EE savings over 112,000 Bay State homes (*see* Exhibit 1 at p.172 of 209). Accordingly, the level of efficiency savings forecast in the 2019-2021 Statewide Plan not only furthers the GCA objective to employ energy efficiency as the Commonwealth's first energy resource, but also contributes to fulfilling the GWSA requirement for the Commonwealth to reduce carbon emissions by 80 percent by 2050.

The planned efficiency savings goals for 2019-2021 in the proposed Statewide Plan are closely linked to the proposed program budgets and projected program benefits, also shown on the Term Sheets. While the program budgets and associated cost to achieve energy savings (measured per annual kWh, or per annual therm) are higher than the level approved by the Department in the 2016-2018 Plan, the costs are proportionate to the targeted electric and gas savings through the 2019-2021 Statewide Plan. In addition, the bill impacts presented by electric and gas Program Administrators show the effects of the 2019-2021 Statewide budgets on typical non-participating customers' monthly bill are measured and sustainable.

The Attorney General's Office remains vigilant as to the overall level of energy efficiency costs customers can reasonably bear. However, the increase in energy efficiency costs must be contrasted with both the avoided energy supply cost savings (and all other program benefits), as well as the likely alternative costs to the Commonwealth to comply with required GHG emission reductions mandated by the GWSA. The Term Sheets' savings goals and related program budgets submitted as part of the 2019-2021 Statewide Plan strike an appropriate balance in accommodating cost-effective energy savings investments, achievement of environmental goals and customer rate impacts.

B. Residential Coordinated Delivery and Renewed Emphasis on Reaching Hard-to-Serve Communities

The PAs plan substantial revisions and improvements to the delivery of energy efficiency services within the Residential sector portfolio. A principal initiative within the Existing Home program category is what the Program Administrators have termed “Residential Coordinated Delivery” (or “RCD”), an on-going redesign by the PAs of the traditional Home Energy Services (HES) initiative. RCD strives for a more expanded focus in existing dwellings on weatherization and home energy upgrades directed towards holistic energy savings regardless of customer fuel choice. *See* Exh. 1, p. 48 of 209. The RCD initiative encompasses all home energy savings measures including lighting, water savings devices, weatherization, duct sealing, and heating, cooling and water heating equipment. *Id.*, at p. 50 of 209.

The PAs pledge and describe new support and fresh ideas in the RCD for better engaging residential customers in efficiency measures, particularly residential customers that have been challenging to reach under prior Plans. The process begins with better participant screening and enhanced intake and assessment experience. Exh. 1, pp. 51-52. New screening tools will seek to match customers efficiency needs and opportunities, encouraging home assessments and site visits for customers interested in major measures such as weatherization and heating, ventilation and air conditioning (HVAC) upgrades (*id.*).

Program Administrators have also heard and responded to concerns that the Commonwealth’s most challenging to reach Residential participants merit additional attention. Residents of moderate income, especially those earnings above the 60 percent of state median income that limits participation in traditional low-income measures; residents where English is not the primary language spoken and; residents that lease (rather than own) their primary dwelling have been thought to be underserved by prior energy efficiency plans. Constituents of

these hard-to-reach communities pay the same energy efficiency surcharges and costs as all other Residential customers but arguably face greater barriers to full participation.

The Program Administrators' RCD redesign includes important improvements to respond to the challenges faced by moderate income residents; non-English speakers; and renters. *See generally* PA Response to DPU-Common-1-8. Importantly, work in this area is ongoing and the PAs intend to conclude a comprehensive examination of the residential customer journey by July of 2019 and have promised implementation of additional program enhancements by September 2019. Exh. 1, p. 53 of 209. Towards that end, the PAs also have described a decision to engage in more expansive community and municipal partnerships, including municipal governments “whose local knowledge and trusted relationships can be a valuable connection point for increasing awareness and participation in ... energy efficiency offerings.” *Id.*, at p. 55 of 209. “Partnering with municipalities and communities is a critical pathway, particularly to gain insights on reaching renters/landlords and multilingual populations.” *Id.*

The PAs' proposed Residential Coordinated Delivery program updates are very much “a work in progress.” A great deal of implementation work by the PAs needs to carry through to 2019 and beyond. The Attorney General's Office intends, through its role on the Council, to monitor the RCD's rollout in the 2019-2021 Plan and to ensure the PAs deliver on their promises.

C. Renter Performance Incentive and Metric

At the Council's active encouragement, the PAs have included in their proposed Performance Incentive model a separate \$2 million incentive payment for the electric PAs and \$1 million for gas PAs to achieve design level enrollment in various energy efficiency measures by households that rent their principal dwellings. A separate and distinct performance indicator

associated with serving renters was developed during term sheet negotiations to act as a proxy for PA delivery of efficiency services to several traditionally hard-to-serve constituencies, including renters, individuals with moderate incomes, and residents where English is not the first language spoken in the household. Renters, moderate income households and non-English speakers face additional burdens participating in traditional MassSave offerings yet pay the same energy efficiency-related surcharges as Residential customers that own their own homes. While PAs have strived to serve these communities in the past, little objective data is collected to confirm whether the PAs have generally succeeded. *See generally*, PA Response to DPU-Common-1-4 (measures and savings tracked by PAs regardless of form of home ownership).

Accordingly, the Council and the PAs have focused initially in this three-year Plan on renters, in the assumption that the “renter” category also likely includes both individuals with moderate household incomes and residents whose first language is not English. Renters do not have the ability to adopt major efficiency measures, such as insulation and heating system upgrades. Exh. 1, at p. 165 of 209. Progress by the PAs on serving renters thus likely indicates and confirms progress on serving moderate income households and non-English speakers as well.

The Council and PAs first agreed on projected renter participant levels. Exh. 1, at p. 165. The proposed metric thus represents a component based on clearly defined goals that can be sufficiently monitored, quantified and verified. *Id.* The renter metric was also designed to operate similar to existing performance measures, with a threshold of 75% needed to trigger payments and payout capped at 125%. Thus, the structure of the renter incentive should afford sufficient incentive for the PAs, yet not create or contribute perverse incentives to obtaining all cost-effective efficiency savings. *Id.*

Renters, without support and active participation by landlords, face unique challenges subscribing to energy efficiency measures, yet renters pay the same per kilowatt hour energy efficiency program surcharges as homeowners that can elect far deeper and advantageous energy efficiency saving measures. In order for the MassSave program to continue with the full support, acceptance and participation of all residential customers, it is essential that PAs re-new their focus on serving traditionally hard-to-serve communities. The proposed renter performance metric is an additional and necessary step to both encourage and to document PA success in meeting such challenges. The proposed renter performance metric should be approved.

D. Cape and Vineyard Electrification Offering (CVEO)

The Cape Light Compact's 2019-2021 Efficiency Plan includes a proposal designed to address several of the policy amendments added to the Statewide Energy Efficiency Plans by recent Legislative amendments (An Act to Advance Clean Energy, Acts of 2018, c. 277). The 2018 amendments to the GCA encourage electric PAs to pursue total energy efficiency savings (not just reductions in electricity) and to promote programs that result in customers switching to renewable energy sources or other clean energy technologies. Acts of 2018, c. 277, §§ 1, 4. The amendments also encourage PAs to consider energy storage and active demand management technologies within their three-year energy efficiency plans. *Id.*, at § 2. The amendments also add that initiatives to be encouraged include strategic electrification, designed to yield cost effective reductions in greenhouse gas emissions through judicious substitution of electricity for other fuels. *Id.*

While all PAs harmonize their existing energy efficiency plans to reflect the 2018 statutory amendments, the Cape Light Compact has advanced an ambitious demonstration offering to promote adoption of air source heat pumps (ASHP) in the Residential heating sector

to replace existing heating sources of electric resistance heating or delivered fossil fuels (oil and propane). Cape Light Compact proposes an integrated offering that combines aggressive incentives on cold-climate high efficiency heat pumps when combined with solar PV distributed generation and incentivized behind-the-meter battery storage. *See generally* Exhibit Compact-2 (Joint Testimony of Downey, Song and Brandt). The Compact’s proposal thus seeks to reduce overall customer energy use and associated GHG emissions, and to provide electricity storage to offer both system resiliency and potential demand response. *Id.*, at pp. 4-5. Cape Light Compact terms this ASHP, solar PV and battery storage proposal its “Cape and Vineyard Electrification Offering” (or CVEO).

The Compact envisions recruiting over the three-year Plan a total of 700 Residential customers on the outer Cape and on Marthas Vineyard currently heating with baseboard electric resistance heat, oil, or propane to participate in the CVEO. Potential participants will be carefully screened for technical viability to host all three related technologies (ASHP, solar PV and battery storage). Cape Light proposes varying levels of incentives on all three measures, associated with four proposed income-level groups: twenty-five percent of targeted participants will be eligible low-income participants (*i.e.*, household income less than 60 percent of state median income (SMI)); twenty-five percent would be at 61-80 percent of SMI; twenty-five percent would be at 81-120 percent of SMI; and the final twenty-five percent of the targeted pool would be “market rate” household income levels (*i.e.*, greater than 120 percent of SMI). Exh. Compact-2 at p. 6. Proposed customer incentive levels vary under Cape Light Compact’s proposal, starting at 100 percent reimbursement of the cost of installing all three measures for low-income participants. At the other end, market rate participants would receive, under the

Compact's proposal, 100 percent incentives on the cost of battery storage; 45 percent incentive levels on ASHPs; and interest-free financing on the cost of solar PV. Exh. Compact-2, p. 8.

The Compact's proposed budget for CVEO is set out at Exhibit Compact-2 at pp. 9-10 and cumulatively totals nearly \$38 million over three years, assuming full participation at 700 total Residential customers. *Id.* Cape Light Compact indicated that it is actively seeking other funding sources for CVEO in order to lessen the proposal's financial impact on the three-year Plan's budgets. *Id.*, at p. 12. The Compact also continues to interface with Eversource to work out the implementation of the CVEO proposal within Eversource's affected distribution service areas. *Id.*, at p. 13.

The Compact's CVEO proposal merits serious consideration and evaluation by the Department. Strategic electrification of thermal heat sources for residential dwellings (replacing oil and propane) is an imperative, given current technologies, for achieving long-term GHG emission reductions sufficient to satisfy GWSA 2050 emission reduction objectives. In addition, strategic electrification without support from distributed energy resources (such as solar PV) and/or demand side management strategies (such as battery storage) would likely occasion upward costs on the electric grid. Accordingly, the Compact is correctly striving to get ahead of the curve on these policy considerations.

The Compact's proposed level of incentives (and budget impacts) to enroll and furnish up to 700 residential locations with ASHPs, solar PV and battery storage, however, are significant (\$37.351 million over three years, assuming full enrollment, *see* Exhibit Compact-2, at pp. 9-10). The Compact's preliminary cost-effectiveness analysis for the CVEO demonstration offering is presented in Exhibit Compact-12, a study prepared for the Compact by Synapse Energy Economics of the costs and expected benefits associated with solar PV and behind-the-meter

battery storage. Synapse’s analysis suggests an overall Benefit-Cost Ratio (BCR) for residential solar of 1.9 (Exhibit Compact-12, at p.3 of 36) and a BCR associated with battery storage of approximately 2.5 (*id.*, at p. 26 of 36).

While Synapse’s analysis suggests that both solar and storage are cost-effective and merit inclusion in the Compact’s energy efficiency plans, the BCR conclusions presented in Exhibit Compact-12—as can be expected for a demonstration offering—are preliminary. For example, Synapse did not provide firm estimates of the interconnection costs and system integration costs each CVEO solar installation would impose on Eversource (as the local distribution company). Exh. Compact-12, at p. 7 of 36. It is also unclear whether Synapse included in its analysis any interconnection or distribution system costs for the installation of battery storage.²² Solar installation costs, expected to top \$31,000 per installation (*id.*), are discounted within the study by significant Federal and State tax incentives totaling more than \$10,000 (*id.*, at p. 8, Table 4). Including such subsidies, available through tax laws, improves the estimated cost-effectiveness of solar investments.

Synapse’s analysis suggests that customers participating in the CVEO would likely experience annual energy savings in heating their homes of between \$2,160 to \$2,450, or approximately \$180 to \$204 per month. Exh. Compact-12, at p. 23 of 36. In addition, the solar PV and battery functions of CVEO would qualify to earn annual SMART credits of \$1,840, or approximately \$154 a month. *Id.* In total, the CVEO participants would experience a monthly combined net benefit of \$333 to \$358 a month. *Id.*, at p. 24 of 36, Table 11.²³

²² See Exh. Compact-12, at pp. 30-31. Battery “installation costs” are discussed only as the costs incurred by customers to install battery storage.

²³ Synapse notes that Moderate Income and Extended Moderate Income participants would incur HEAT loan repayment obligations on the solar installation costs that would offset the expected monthly net benefits for the first seven years of installation/participation. See Table 11, at page 24 of Exh. Compact-12.

The Department must balance these estimated customer benefits against the overall impact of the CVEO on the Compact's three-year budgets. In light of the 2018 GCA amendments, the Statewide Plan can now lawfully address renewable energy technologies, storage and strategic electrification. However, all measures must be cost-effective and resulting customer bill impacts must remain reasonable. In light of these parameters, the Department needs to ensure that the CVEO proposal satisfies these criteria and ensure that spending in new areas authorized by the statutory amendments does not come at the expense of progress on traditional energy efficiency measures. The Department should use care in reaching a decision on CVEO.

IV. CONCLUSION

For the reasons set forth above, the Attorney General's Office supports approval of the 2019-2021 Joint Statewide Energy Efficiency Plan.

Respectfully Submitted,

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**COMMONWEALTH OF MASSACHUSETTS
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The Berkshire Gas Company;)	
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Liberty Utilities (New England Natural Gas Company) Corp.)	
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NSTAR Electric Company d/b/a Eversource Energy)	

CERTIFICATE OF SERVICE

I hereby certify that I have this day caused the foregoing document to be served upon all parties of record in these proceedings in accordance with the requirements of 220 C.M.R. §1.05 (1) of the Department's Rules of Practice and Procedure. Dated at Boston, Massachusetts this 31st day of December, 2018.

/s/ Donald W. Boecke

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cc: Service List