



*The Commonwealth of Massachusetts*  
*Executive Office of Energy and Environmental Affairs*  
*100 Cambridge Street, Suite 900*  
*Boston, MA 02114*

Maura T. Healey  
GOVERNOR

Kimberley Driscoll  
LIEUTENANT GOVERNOR

Rebecca L. Tepper  
SECRETARY

Tel: (617) 626-1000  
Fax: (617) 626-1081  
<http://www.mass.gov/eea>

March 1, 2024

**RE: Greenhouse Gas Emissions Reduction Requirement for Mass Save**

Dear Mass Save Program Administrators,

Pursuant to G.L. 21N, §3B, I hereby establish the following goals for the Mass Save<sup>®</sup> 2025-2027 Energy Efficiency Plans (2025-2027 Plans), which you are currently in the process of preparing with the Energy Efficiency Advisory Council (EEAC), pursuant to G.L. c. 25, § 21(c), and which you must submit by October 31, 2024, to the Department of Public Utilities (DPU) for a decision, pursuant to G.L. c. 25, § 21(d).

In 2021, [An Act Creating A Next-Generation Roadmap For Massachusetts Climate Policy](#) (the Climate Act) built upon the framework established in the Administration's [2050 Decarbonization Roadmap \(2050 Roadmap\)](#) and [2030 Interim Clean Energy and Climate Plan \(2030 Interim CECP\)](#) and allows the Commonwealth to pursue ambitious emissions reduction goals in a cost-effective and equitable manner, while creating jobs and opportunities for economic development throughout Massachusetts. The Climate Act established the requirement of a Mass Save goal in G.L. c. 21N, expressed in carbon dioxide equivalent, every three years for the succeeding Mass Save Plans' necessary contribution to meeting each statewide greenhouse gas limit (GHG) and sublimit.

**Greenhouse Gas Emissions Reduction Goals**

The Massachusetts Clean Energy and Climate Plan for 2025 and 2030 (2025/2030 CECP) recognizes of importance of the Mass Save plans in meeting the Residential and Commercial & Industrial building sectors sublimit reductions. The CECP also notes that other measures or programs could contribute to emissions reductions in the building sector. The Healey-Driscoll Administration recognizes that it is neither prudent nor possible to rely on a single program to meet the required emissions reductions. Accordingly, we are employing a suite of complementary levers to drive emissions reductions in the buildings sector. These include, but are not limited to, the stretch and specialized energy codes promulgated in 2022, the clean heat standard that is under development, decarbonization grants and incentives in the housing bond bill, the newly launched Massachusetts Community Climate Bank, Municipal Light Plants' heat pump loan, improved appliance standards, and increased federal funds, including the significant rebates and incentives available under the Inflation Reduction Act. Balancing the deployment of

these various programs requires consideration of cost-effectiveness, ratepayer affordability, and the Commonwealth's equity priorities.

There is no doubt, however, that within this multifaceted approach, our Mass Save programs are a key policy driver to meeting our GHG emissions reduction requirements and the programs must reflect this imperative. Toward that end, I direct the Program Administrators to model two scenarios as set forth below.

**Scenario 1:** Table 1 sets the statewide electric and natural gas goal for the 2025-2027 Plans at a total of 1 million metric tons with an assumed budget of less than 5 billion dollars. This goal represents the GHG emissions reductions to be achieved with energy efficiency measures and programs implemented in 2025-2027, and expressed as annual cumulative metric tons of reductions in years 2025 and 2030 to align with the Commonwealth's GHG limits and sublimits.<sup>1</sup> The specific assumptions and methodology are provided in Appendix 1, attached hereto.

Table 1<sup>2</sup>

	<b>Joint Statewide Energy Efficiency Plan</b>	<b>Joint Statewide Gas Efficiency Plan</b>
2030 Annual Cumulative GHG Emission Reductions (tons)	625,000	375,000

As the Climate Act requires both economy-wide and sector limits, I recommend that the plans include emissions reductions in the following individual sectors:

Table 2

<b>2025-2027 Plans</b>	<b>Residential and Income Eligible Electric Energy Efficiency</b>	<b>Residential and Income Eligible Gas Efficiency</b>	<b>Commercial and Industrial Electric Energy Efficiency</b>	<b>Commercial and Industrial Gas Efficiency</b>
2025 Annual Cumulative Emissions Reduction (tons)	125,000	89,000	63,000	14,000
2030 Annual Cumulative Emissions Reduction (tons)	415,000	325,000	210,000	50,000

**Scenario 2:** To further examine the investment required to meet the CECP requirements, I direct the Program Administrators to model achievement of 2.2 million metric tons of emission reductions by 2030, using the same relative sector allocations as guidance and maintaining a

<sup>1</sup> It should be noted that the Mass Save programs help to reduce emissions across multiple sub-limits, in addition to significant contributions to the building thermal sector sub-limit.

<sup>2</sup> There is some flexibility in the allocation of the emission reductions by sector to facilitate the program administrators' achievement of the overall goal and optimizing opportunities in the delivery of the programs.

similar ratio of equity/market rate investment.<sup>3</sup> This analysis will support a decision on securing more resources for the implementation of energy efficiency and decarbonization programs in the Commonwealth.

## Priorities

Meeting the Climate Act's 2050 Net Zero limit and 2030 limit of at least 50% reduction from 1990 will require significant investment and an increase in the scope and scale of building retrofits, through a focus on envelope improvements and efficient electrification. Consistent with the EEAC Resolution of December 20, 2023,<sup>4</sup> I expect the Mass Save Program Administrators to achieve the GHG goals established above through:

- Continued prioritization of measures to decarbonize buildings that are consistent with the 2050 Roadmap and 2025 & 2030 CECP, such as insulation and heat pumps;
  - Significantly increasing the number of residential and commercial buildings retrofitted with heat pumps and weatherized each year, with a focus on buildings served by delivered fuels, to set the Commonwealth on a path to installing efficient electric space heating in 500,000 homes and 300-400 million square feet of commercial buildings this decade;
  - Development of a green schools decarbonization initiative, in coordination with the Department of Energy Resources (DOER) and other state agencies, that supports the decarbonization of schools in disadvantaged communities through commercial sector investment;
- Further reflection of the Commonwealth's equity priorities, providing a greater emphasis on intergenerational equity and facilitating the plan's increased focus on decarbonization and the equitable delivery of programs;
  - Equitable program investments that ensure weatherization and electrification of low-moderate income homes and rental units through focused efforts in communities that have had low program participation and high rental populations, increased support of Community First Partners and the provision of end-to-end language services;
- Adopting a plan framework to support market transformation actions to further the long-term achievement of increasing residential heat pump installations and the electrification of commercial building space;
- Utilizing a 1.5% discount rate for the social cost of greenhouse gases, as published in the 2024 Avoided Energy Supply Cost study.
- Continued enhancement of the customer journey by adopting programmatic designs that support customer understanding and the adoption of clean energy technologies, including simplified income qualifications, technical assistance and turnkey services; and
- Significantly increasing workforce development investments through and in coordination with the Massachusetts Clean Energy Center, to increase diversity and expand the workforce necessary to achieve our GHG goals and provide economic opportunities.

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<sup>3</sup> The modeling of the 2.2 million ton reduction should utilize all cost reduction strategies, such as bulk purchasing, outside funding and the possibility of streamlined administration of the program and refrain from the use of linearly increasing program costs, without justification.

<sup>4</sup> <https://ma-eeac.org/wp-content/uploads/EEAC-Resolution-and-Priorities-for-2025-2027-Plan-12.20.23.pdf>

## Conclusion

As set forth above, the Mass Save 2025-2027 Energy Efficiency Plans filed with the Department of Public Utilities in October of this year must be designed to realize the GHG goal set forth above and should focus on programs that accelerate market transformation needed to achieve Net Zero in 2050. The Plans should reflect the GHG reduction goals set forth above, prioritize equity in program investment, and include a performance incentive mechanism that ensures that the electric and gas utilities are incentivized to achieve these goals, invest in market transformation and advance equitable actions.

I look forward to the collaborative work of the Program Administrators and the Energy Efficiency Advisory Council as they transform Massachusetts' nation leading energy efficiency efforts into comprehensive decarbonization programs that will deliver GHG emission reductions to further the Commonwealth's climate mandates.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Tepper', is written over a faint, light-colored rectangular stamp or watermark.

Rebecca Tepper  
Secretary of Energy and Environmental Affairs

Attachments

## APPENDIX 1 ASSUMPTIONS AND METHODOLOGY

### **Greenhouse Gas Emissions Reduction Requirement for Mass Save® - Methodology**

This section is largely consistent with the Secretary's letter for the 2022-2024 plan with alterations due to new information.

### **Clean Energy & Climate Plan for 2025 & 2030**

The primary actions in the Clean Energy & Climate Plan (CECP) for 2025 & 2030 relevant to the Mass Save® plans<sup>11</sup> include retirement and replacement of space heating and cooling equipment, domestic hot water equipment, and key components that comprise a building's envelope, such as windows and insulation. These actions directly contribute to the Building Sector sublimit, although other actions within the Mass Save plan may impact other sublimits. Since Mass Save only covers the service territories of the Commonwealth's investor-owned gas and electric utilities, for the purposes of this computation, a portion of the changes to statewide energy savings (reflecting an estimate of built square feet serviced by municipal-owned utilities) are excluded from the Mass Save GHG reduction requirement. The resulting annual energy savings from each of the three years are summed to produce a cumulative annual energy savings representing the impact of all relevant measures installed from January 1, 2025 through December 31, 2027. Since the actions described in the CECP reflect long-lived building components, no degradation by 2030 is assumed.

In the CECP, cumulative annual energy consumption is multiplied by the emission factors noted below to arrive at the cumulative annual GHG emission reduction that the 2025– 2027 Mass Save plans should contribute to in order to align with the reductions specified in the CECP. Because the emissions limits and sublimits specified in M.G.L. Ch. 21(N) reflect emissions in 2025 and 2030, separate quantifications of GHG emission reductions are estimated, anticipating future deployment of non-emitting electricity resources.

### **Mass Save Plans by Fuels**

The Mass Save® programs are established every three years and require two joint statewide plans; an energy efficiency plan funded through electric ratepayers, and a gas efficiency plan funded through gas ratepayers. The joint statewide energy efficiency plan includes electric, heating oil, and propane energy efficiency measures, including fuel switching from delivered fuels to electricity and active demand management programs. The joint statewide gas efficiency plan includes measures that apply to natural gas usage. The net change in use of these fuels (electricity, gas, heating oil, and propane) is the source of GHG emissions reductions achieved through the Mass Save program. In 2022 “An Act Driving Clean Energy and Offshore Wind” disallowed the Mass Save program from incentivizing most fossil fuel measures with some exceptions. This change was well aligned with Commonwealth policy, however, does limit fossil fuel savings through the program in the short term.

### **Sectors**

The budgeting and implementation of these two statewide plans is conducted on a sector basis, with funding provided by residential ratepayers for residential and income-eligible programs, and by commercial ratepayers for commercial and industrial programs.

### **Measures**

The Mass Save plans are implemented through investments that result in a reduction and/or shift in fuel or energy use in buildings over time. Measures are assessed for cost-effectiveness based on their energy and emissions savings utilizing best known information including the Social Cost of Carbon. For the 2025-2027 there is agreement that the Mass Save program should use the Social Cost of Carbon at a 1.5% social discount rate. These fuel-use and energy-saving quantities are calculated in the benefit-cost models during the development of each of the three-year plans. The plans include a budget and target energy-savings level for each program, initiative, and measure to be implemented over the three-year term. Each measure also has an expected

measure life, calculated based on independent monitoring and evaluation studies. The “measure life” is a forecast of the average expected time that a measure is predicted to perform above and beyond what would otherwise have occurred absent the Mass Save program. These energy savings by fuel and the evaluated timespan of these measures were used to calculate GHG emissions reductions. Measure lives are rounded to the nearest 6 months and range from 1 year to 25 years, depending on the durability of the measure.

### **Timing of GHG Emission Reductions**

For the 2025–2027 Mass Save plans (2025–2027 Plans), investments begin on January 1, 2025, and continue until December 31, 2027. As a result, the first full year during which the maximum energy reductions for the 2025–2027 investments will occur is calendar year 2028. Due to the long measure lives of many Mass Save investments, the majority of GHG emission reductions from investments made during the 2025–2027 Plan are expected to continue in 2030, with a smaller proportion in 2040, and have little quantifiable emissions impact in 2050. The increased focus on market transformation and savings with a longer time horizon will increase Mass Save’s impact on the period of 2040 to 2050.

Historically, the Mass Save programs have reported GHG emissions on both an annual basis, and over the full lifetime of a measure or set of measures. Both metrics take a single year in isolation and ignore the emissions reductions of preceding and subsequent years, the gradual decay of the emissions reductions over time, or changes to the emissions impacts of a unit of energy conserved (see electricity emission factors below). This approach does not allow for alignment and comparison between the historical Mass Save program reporting and the annual statewide inventory of Mass DEP<sup>[2]</sup> and the GHG reporting requirements of the Commonwealth.

Accordingly, the Mass Save GHG emissions reduction goals are being set, and will be required to be reported on, as the aggregate GHG emissions reductions to be achieved with energy efficiency measures implemented in 2025–2027 and are expressed as aggregate metric tons of carbon dioxide equivalent, to be measured at the conclusion of the three-year plan period.

### **Evaluated Measure Lives**

Because evaluated measure lives can be changed by future evaluation studies, DOER and the Mass Save program administrators will use the measure lives as currently calculated effective March 1, 2025 and anticipated for the 2025–2027 plans as the basis for setting and assessing achievement towards this GHG emissions reduction goal.

### **Part Year Measure Application**

For a subset of measures, their expected measure life results in the end of life part-way through either 2025 or 2030. For example, measures with a measure life of 5 years installed in the 3rd quarter of 2025 would be modeled to end their expected energy savings and corresponding GHG emissions reduction in the 3rd quarter of 2030. In the real world, there will be a gradual decay in measure emission reductions over a much wider time horizon, averaging 5 years in this example. For simplicity of calculation, DOER and the Program Administrators will assume that all measures installed at any time during a plan year, for example in 2025 with a 5-year measure life, will count as having 50% of their annual GHG emissions reduction in calendar year 2030, and so forth for other measure lives that end during calendar year 2025 or 2030. An exception to this policy will be behavior and active demand management savings occurring during a goal year, which are verifiably occurring as a full year benefit.

### **Adjusted Gross Savings**

The Mass Save programs conduct evaluation studies to assess the extent to which supported measures would have been otherwise installed absent their intervention. Based on these evaluation studies, they apply net-to-gross adjustment factors that generally reduce claimable ‘net’ savings from the adjusted gross savings achieved by the measures installed. Net savings are the best way of showing the economic benefit of the Mass Save program investments. However, adjusted gross savings are the more applicable metric for the purpose of quantifying GHG emission reductions. Accordingly, the adjusted gross savings are used to set and assess progress towards achieving the Mass Save GHG reduction goal.

## Emission Factors

To set a transparent and fair GHG emissions reduction requirement, the emission factors used to set the GHG reduction goal should also be used to report and assess progress towards achieving the Mass Save GHG reduction goal. This consistency across multiple years argues for simplicity and transparency in selecting the emission factors, while accounting for predictable changes in these factors over time.

### Electric Sector GHG Emission Factors

For the purposes of developing the CECs for 2025 & 2030<sup>[3]</sup> and 2050,<sup>[4]</sup> the Executive Office of Energy and Environmental Affairs (EEA) produced a forecast of emission factors from the electric generation sector for each 5-year increment from 2020 to 2050 and an interpolation for each year in between. This use of the current EEA forecast of average electric emission factors, shown in Table 3 below, allows for a consistent basis for both planning and evaluating the 2025–2027 plans’ achievement of their GHG emissions reduction goals. Based on the broad mix of Mass Save program measures and the years-long time horizon for evaluating them, the average annual emissions factor, rather than more granular marginal emission factor will be applied to all measures.

Table 3. Average Electric Emission Factors by Year for Massachusetts in 2025 and 2030

Year	Metric Tons of Emissions per MWh (metric tons of CO <sub>2</sub> e)
2025	0.2359
2030	0.1277

### On-Site Fuel GHG Emission Factors

The emission factors of fossil fuels relevant to the Mass Save programs, natural gas, #2 heating oil, propane, are much more stable over time than the average emission factor for electricity utilized by buildings in Massachusetts over the course of a calendar year. While the carbon content and GHG emissions of these fuels vary over time, for ease of transparency and simplicity, the Program Administrators should hold emission factors constant, based primarily on carbon dioxide emissions from combustion of these fuels, using currently reported national values from the US Energy Information Administration (EIA)<sup>[5]</sup> with the addition of a coefficient adjustment to incorporate upstream emissions as quantified in the 2024 Avoided Energy Supply Components (AESC) Study.<sup>5</sup> These emissions coefficients are reproduced below with units of metric tons of CO<sub>2</sub>e per million BTU in Table 4:

Table 4: Carbon Dioxide Emissions Coefficients by Fuel

Year	Natural Gas (metric tons of CO <sub>2</sub> e/MMBtu)	Heating Oil (metric tons of CO <sub>2</sub> e/MMBtu)	Propane (metric tons of CO <sub>2</sub> e/MMBtu)
2025	0.06534	0.08848	0.07849
2030	0.06534	0.08848	0.07849

These emissions factors ignore the potential for renewable fuel blending such as bio-fuels and renewable natural gas or green hydrogen being introduced into these fuels in the 2025 and 2030 time horizon, which would reduce the GHG emissions reductions from energy efficiency measures. This assumption of unchanged fuel emissions factors assists in the avoidance of double-counting between Mass Save investments and other potential policy actions that might change the carbon content in the supply of these fuels. It allows Mass Save to compare investing in a measure to a counterfactual of not doing so.

### Other Unanticipated Variables

In the event of unforeseen and unanticipated variables leading to notable changes between the 2025–2027 plan forecast and the 2025 and 2030 reporting years, the Mass Save Program

<sup>5</sup> [AESC 2024.pdf \(synapse-energy.com\)](#)



Administrators and the Massachusetts Department of Energy Resources will endeavor to follow the principles of transparency and simplicity in quantifying any modifications needed and agreed to by both parties in reporting the results of the 2025–2027 plans.

### **Reporting on the Mass Save GHG Emissions Reduction Goal**

To provide a fair evaluation of the Mass Save program implementation results, the final set of energy savings and resulting GHG emission reductions need to use a consistent set of assumptions to the set that were used to calculate the requirement initially. However, by 2030 there will be updated information related to savings, measure lives, emissions factors and so on, that if applied would change the results. Some of these changes will be impossible to roll back, such as shifting baselines due to appliance standards, code, or other outside influences. In recognition of this inevitable outcome, the reporting on the success of each plan's achievement of its GHG emissions reduction goal will be done in two separate sets of calculations. The first is as close to an 'apple-to-apples' calculation as possible, using the available information in March 2024 to evaluate the Mass Save plan results using the same set of assumptions used to set this goal. Some assumptions will be impractical to revert to March 2024 assumptions, so it is important to recognize that this comparison is as close to 'apple-to-apples' as feasible. The second is a 'best-available-data' calculation using updated assumptions on emissions factors, measure effectiveness, measure lives, and other variables that incorporate updated data at the time of reporting. The former 'apples-to-apples' calculation is intended to provide a fair benchmark to evaluate the success of the plans in meeting this goal. The 'best-available-data' calculation is intended separately to inform progress towards the Commonwealth's GWSA limits and sub-limits.

<sup>[1]</sup> Mass Save refers to the joint effort of the Massachusetts electric and gas program administrators to implement energy efficiency measures pursuant to G.L. c. 25, sec. 21

<sup>[2]</sup> <https://www.mass.gov/lists/massdep-emissions-inventories>

<sup>[3]</sup> <https://www.mass.gov/info-details/massachusetts-clean-energy-and-climate-plan-for-2030>

<sup>[4]</sup>

<sup>[5]</sup> [https://www.eia.gov/environment/emissions/co2\\_vol\\_mass.php](https://www.eia.gov/environment/emissions/co2_vol_mass.php)