

**COMMONWEALTH OF MASSACHUSETTS
DEPARTMENT OF ENERGY RESOURCES**
Patrick Woodcock, Commissioner

EEA Greenhouse Gas Emissions Reduction Goal for Mass Save[®]

JULY 28, 2021

Outline

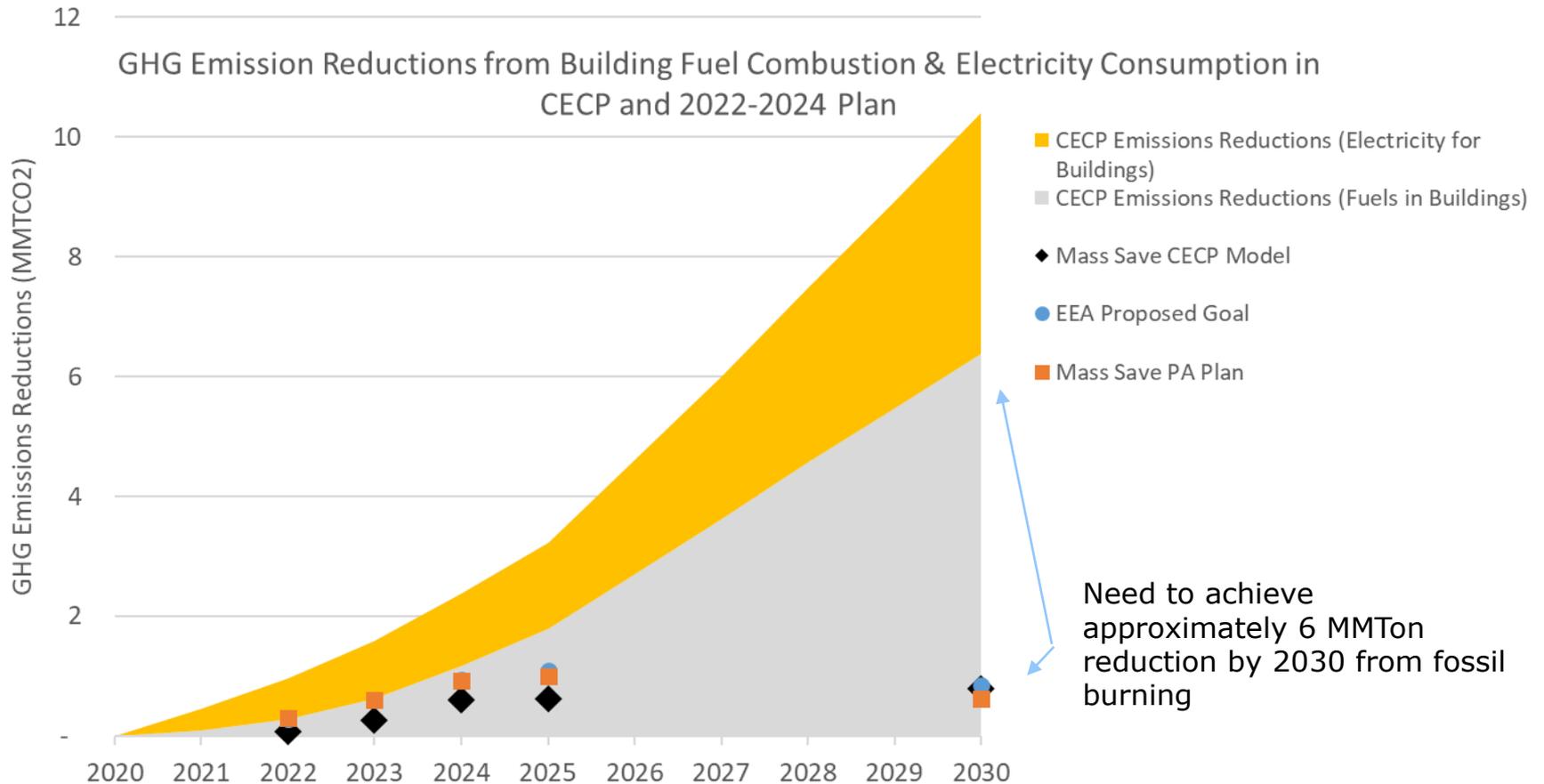
- **Legislative requirement for GHG Goal for 2022-2024**
- **Analytical Approach to Evaluating and Establishing Goal**
- **GHG Goal**
- **Other Priorities**
- **Next Steps**

Climate Act Requirements

- **EEA Secretary sets a greenhouse gas emissions reduction goal for each three-year energy efficiency plan**
 - "Section 3B. Not later than March 1 of every third year of each plan approved under section 21 of chapter 25, the secretary shall set a goal, expressed in tons of carbon dioxide equivalent, for the succeeding plan's necessary contribution to meeting each statewide greenhouse gas emissions limit and sublimit adopted pursuant to this chapter."
- "Section 5. To the extent practicable, the roadmap plans...for 2025, 2030, 2035, 2040 and 2045 shall be consistent with each other, cumulative in effect and constructed to realize the 2050 statewide greenhouse gas emissions limit....Each plan, including the 2050 plan, shall:... (x) quantify the emissions reductions to be realized due to the electric and gas energy efficiency programs established under sections 19 and 21 of chapter 25..."
- **Other Mass Save Provisions:**
 - Cost-effectiveness test to include a social value of greenhouse gas emissions reductions
 - With approval of the Council, the Plan may include a mechanism to prioritize projects that reduce greenhouse gas emissions reductions

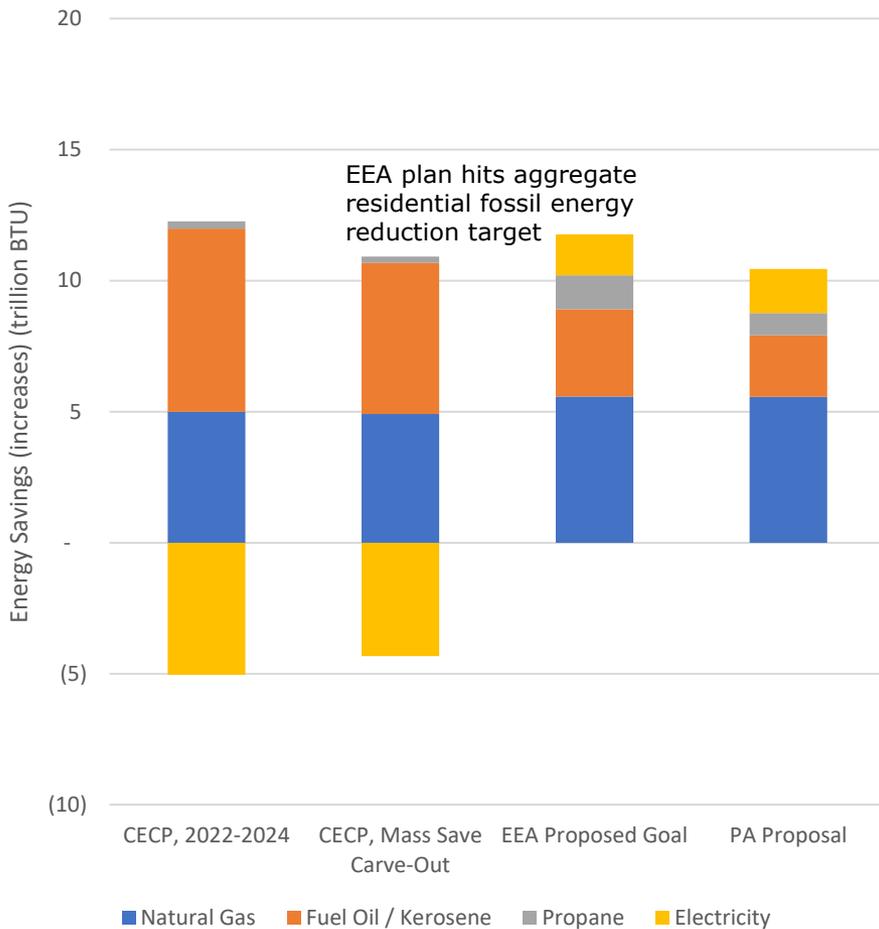
3-Year Plan in CECP 10-Year Context

- The Mass Save 3-Year Plan will provide ~16% of the 2030 GHG reduction needed from burning fossil fuels
- Additional emissions reduction will come from decarbonizing the electricity system

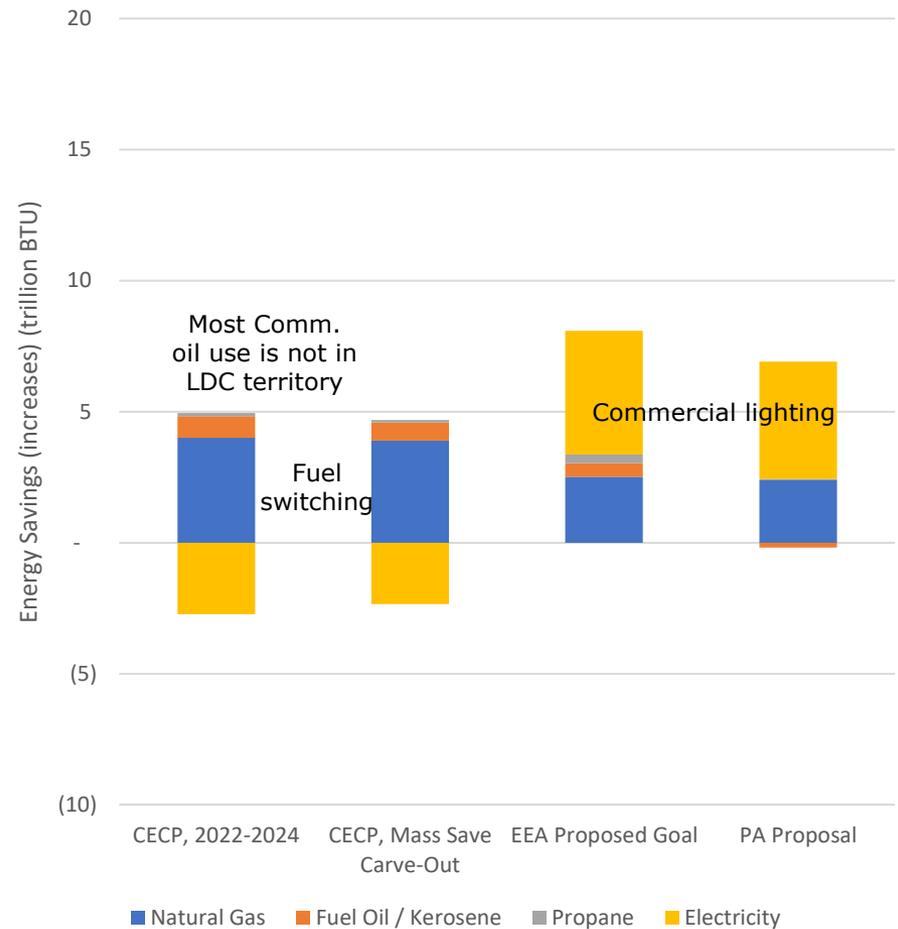


Breakdown into Residential vs. C & I

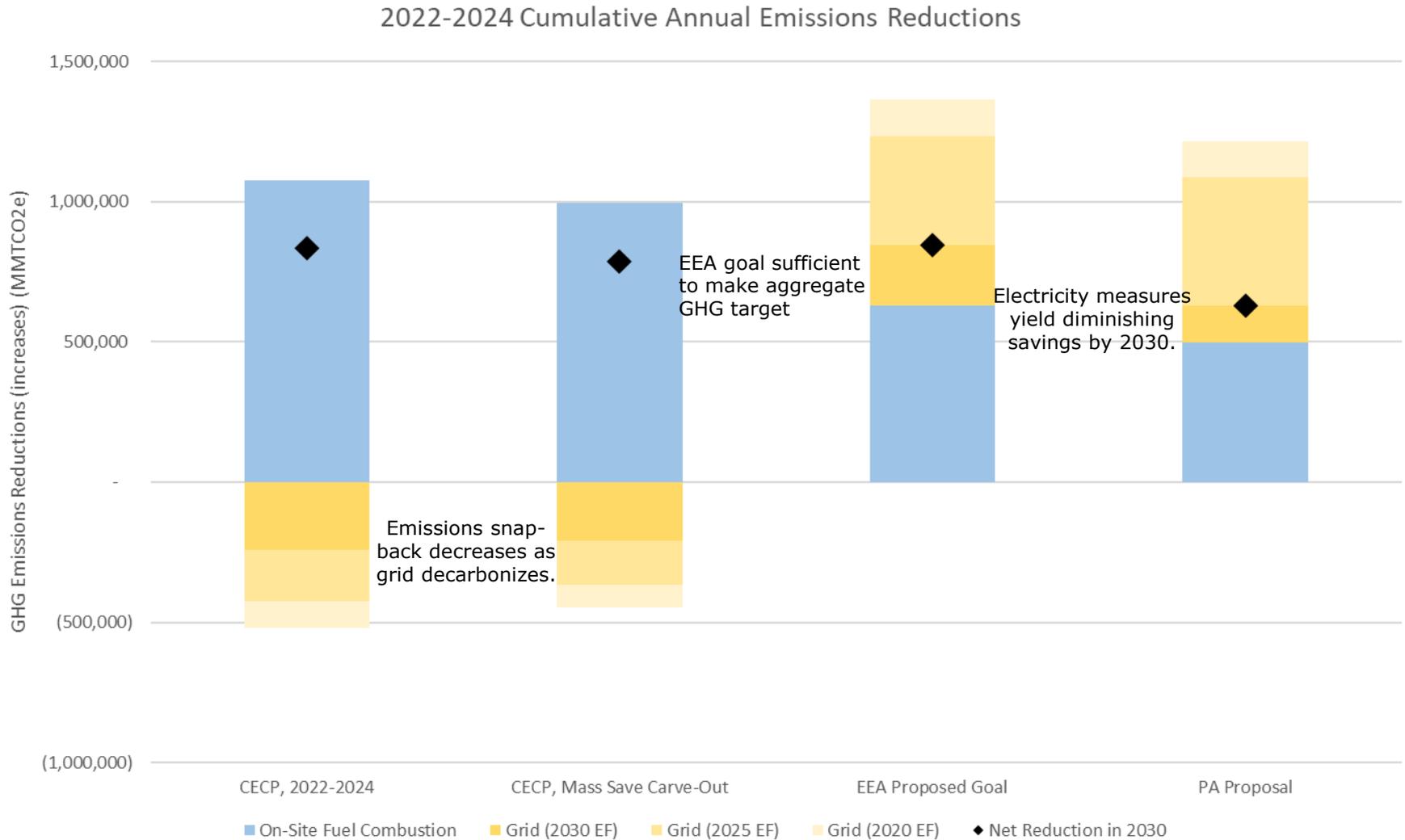
Residential Energy Savings (increases) in CECP and Mass Save Proposals



Commercial Energy Savings (increases) in CECP and Mass Save Proposals



Comparison of GHG Impacts



GHG Goal

	2022–2024 Joint Statewide Energy Efficiency Plan (electric)	2022–2024 Joint Statewide Gas Efficiency Plan (gas)
Emissions Reductions in metric tons of CO₂e expected in 2030	504,000	341,000

	Residential and Income Eligible Electric Energy Efficiency	Residential and Income Eligible Gas Efficiency	Commercial and Industrial Electric Energy Efficiency	Commercial and Industrial Gas Efficiency
2025 Cumulative Annual Emissions Reduction (metric tons of CO₂e)	392,000	252,000	296,000	156,000
2030 Cumulative Annual Emissions Reduction (metric tons of CO₂e)	351,000	191,000	153,000	150,000

Priorities

- **Equity.** Equitable program investments that ensure weatherization and electrification of homes and businesses in environmental justice communities and low-moderate income households;
- **Weatherization.** Significantly increasing the number of buildings retrofitted and weatherized each year;
- **Electrification.** Significantly ramping up electrification of existing buildings through heat pump goals that set the Commonwealth on a path to achieving one million homes and 300–400 million square feet of commercial buildings using electric heat pump for space heating by 2030;
- **Reduce Fossil Fuel Incentives.** Eliminating measures that increase the use of natural gas for space heating, including those associated with combined heat and power or fuel cells, since they are not consistent with the GHG emission reduction goals and phase out fossil fuel incentives aligned with the Interim 2030 CECP policy recommendations; and
- **Workforce.** Significantly increasing workforce development investments through coordination with the Massachusetts Clean Energy Center, to increase diversity and expand the workforce necessary to achieve our GHG goals and provide economic opportunities.

Methodology: tracking GHG results

- **Counting GHG reductions in 2025 and 2030.**

Rather than using annual or lifetime savings, the Commonwealth is required to meet annual emissions limits and sub-limits which are set at 5 year intervals. For the 2022–2024 plans, maximum GHG reductions occur in 2025. Due to long measure lives of many measures, much of the 2022-2024 plan GHG reductions continue in 2030. 2030 is the next year with a current statutory annual emissions limit – at 50% below 1990 levels. The Mass Save 2022-2024 goals are set based on the electric and gas program investments’ impact in the year 2030, using adjusted gross savings. The plan will also be assessed based on contribution to 2025 limits.

- **What measures count.**

In 2030 all long-life measures such as insulation, air sealing, and heating equipment have measure lives long enough to count towards the 2030 goal. Short-lived measures such as lighting, behavior programs or retro-commissioning impact 2025, but are not counted in 2030. Some measures such as natural gas CHP and fuel cells increase emissions in 2030.

- **Apples-to-apples evaluation.**

The PAs 2022-2024 plan performance and final GHG reductions will be assessed using the same set of emissions factors, measure lives and other assumptions that were used to calculate the requirement initially. (Best available in July 2021) However, by 2025 and 2030 there will be updated information related to savings, measure lives, emissions factors and so we will separately quantify GHG reductions based on ‘best-available-in-2025 or in 2030’.

Methodology: Emissions factors used

- Electric emissions factors updated based of forecast for 2025 and 2030.

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

Year	Metric Tons of Emissions per MWh
2025	0.1869
2030	0.1065

- Fuel emissions factors held constant over time

Table 4: EIA Carbon Dioxide Emissions Coefficients by Fuel

Year	Natural Gas (Metric Tons / MMBtu)	Heating Oil (Metric Tons / MMBtu)	Propane (Metric Tons / MMBtu)
2025	0.05307	0.07879	0.06307
2030	0.05307	0.07879	0.06307