Public Comment on the Mass Save Three-Year Energy Efficiency Plan for 2022-2204

HeatSmart Alliance
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The HeatSmart Alliance, a volunteer group in Massachusetts whose mission is to reduce greenhouse gas emissions by accelerating adoption of energy-efficient heat pumps in Massachusetts homes and buildings, has input on the MassSave 3 Year Plan for 2022-2024 (the Plan), released in draft form on April 30 2021.

The HeatSmart Alliance has members who have knowledge and expertise in heating and cooling with heat pumps. Alliance members engage in coaching, modeling, and heat pump advocacy in Massachusetts communities. Heat pump systems can be extremely efficient and can help The Commonwealth achieve its net zero GHG emissions goals.

As described in the Plan's Executive Summary, the top two priorities are electrification and equity. The HeatSmart Alliance views these priorities favorably. The Plan recognizes the need for a "ramp up of heat pump installations" and includes consumer education and workforce development as important for accomplishing this objective. The Plan also correctly recognizes weatherization, or improving building envelopes to reduce heating and cooling loads, as a key component to improving the economics and environmental benefits of electrifying space heating and cooling. Finally, "additional policy support that tilts the relative economics in favor of electrification will be necessary" is appropriately recognized.

The HeatSmart Alliance recommends the following improvements to the Draft Plan for EEAC consideration:

- **Align Mass Save program metrics and goals with the 2021 climate bill**
- **Entirely displace fossil-fuel incentives with weatherization & electrification incentives**
- **Place greater emphasis on workforce development**
- **Encourage Program Administrators to pilot peak demand management programs for heat pumps**
- **Focus on areas and communities with greatest potential for GHG emissions reductions**

Align Mass Save Program Metrics and Goals with the 2021 Climate Bill

Currently the Plan does not include short-term (i.e. in-plan) goals for decarbonization. The Plan does however include tracking CO_2 emissions reductions (see A.2.1 & Appendix D). It's our understanding that these emissions reductions are calculated by subtracting an estimation of actual emissions from what would have been the case without Plan incentives for energy

efficiency. In our opinion, actual GHG emissions in the Commonwealth will be lower if incentives are completely removed for fossil-fuel equipment and cooling-only air-conditioning systems, and instead placed on weatherization, electrification, and workforce development for heat pump-based heating systems.

Emissions reductions are currently not part of any primary objective in the Plan. Rather, they are a byproduct of energy-efficiency goals. The Plan recognizes that "the PAs face new challenges in pursuing all cost-effective energy efficiency, including: … (2) the achievement of aggressive GHG emissions reduction goals set pursuant to statute" (p. 182).

> ***Recommendation I***: Change Plan success criteria to ensure that the Plan plays a direct role in reaching 2030 objectives in the decarbonization of building energy. Change success metrics from energy (e.g. BTU) saved per dollar, to CO_2 (and CO_2-equivalent) emissions reduced per dollar. This change should take effect from the start of the Plan, but if not, then as soon as possible during the Plan rather than waiting for the next 3 year plan.

Entirely Displace Fossil-Fuel Incentives with Weatherization & Electrification Incentives

Based on our collective experience coaching homeowners in our communities interested in replacing their existing fossil-fuel heating systems, the Mass Save incentives and rebates provide a critical source of funding and motivation to invest. Home heating equipment is a long-lived investment, with new combustion equipment typically lasting fifteen to twenty years. To meet the Commonwealth's aggressive decarbonization targets, we should accelerate the adoption of air- and ground-source heat pumps for space heating/cooling as well as heat-pump water heaters for domestic water heating.

The Plan expresses that high-efficiency fossil-fuel equipment incentives should continue in circumstances where low-efficiency fossil-fuel equipment can be replaced with higher efficiency fossil-fuel equipment. The HeatSmart Alliance discourages continued incentives for equipment that burns fossil fuels.

The Plan makes the case that, without the incentives, old low-efficiency equipment will be replaced by *new* low-efficiency equipment when breakdowns occur. First, while this may be true in some cases, lower fuel costs for high-efficiency equipment will attract the largest users to high-efficiency equipment regardless of whether or not there are incentives. Second, the HeatSmart Alliance believes the problem of low-efficiency replacements is better addressed through setting more stringent efficiency requirements for fossil-fuel equipment in building codes, which should be part of the Codes & Standards Compliance and Technical Support (CSCS) initiative described in Section 1.3.2 of the 2022-2024 Plan, pp. 29-31. In any case, installation of new fossil-fuel-fired boilers and furnaces slows down the process of decarbonization by locking in fossil-fuel consumption for many additional years, and, in the case of natural gas, the maintenance of distribution networks for longer periods of time.

***Recommendation II**:* Focus on weatherization and electrification of the least fuel-efficient energy users, many of whom are also in the market segment targeted by the drive toward equity. Immediately cease all incentives for fossil-fuel-fired equipment and cooling-only air-conditioning equipment..

***Recommendation III**:* Provide higher incentives for ground-source heat pumps compared to air-source heat pumps to reflect their performance advantages and up-front cost hurdles.

Place Greater Emphasis on Workforce Development

The Plan notes that "there is a high degree of difficulty hiring qualified candidates for some occupations, especially weatherization installers, HVAC technicians, and plumbers." Data in Figure 1-4 "Employer Survey" support that view, with over 60% of HVAC contractor and installer respondents reporting that it is "Very difficult" to fill workforce positions. This is not a short-term phenomenon--the HVAC industry has experienced a technician shortage for decades. Aside from the market development program mentioned in the Plan, the surest way to attract a much larger workforce to these segments is to pay workers higher wages.

***Recommendation IV**:* With a very low unemployment rate, as is the case in Massachusetts, higher wages are needed to attract enough workers to this market segment to reach state goals. Target outreach to high-school students and support the long-term need for well-paying positions in this area.

Encourage Program Administrators to pilot Peak Demand Management programs for heat pumps

The Plan calls for active demand management (ADM) to lower demand peaks. Lowering peak demand reduces peak generation, transmission and distribution, potentially affecting ISO-NE's Installed Capacity Requirement (ICR), as well as the price of capacity in the forward capacity market (FCM). As more heating and cooling systems become electrified, and more power is provided by intermittent sources such as wind and solar, demand management at a more granular level will become increasingly important. Weatherization of buildings is an effective passive form of demand management, as it lowers peak demand for individual buildings. Improved weatherization also allows buildings to "coast through" demand reduction events with little-to-no perceptible change in comfort to the occupants.

***Recommendation V**:* Gain experience with active-demand-management heat-pump-control strategies, including metered demand strategies in homes plus energy storage. Heat pumps can be used for heating and cooling, domestic water heating, clothes dryers. All of these end uses should be considered ripe for heat pumps in the Plan. The value stack of higher efficiency plus ability to support peak demand reduction should be measured and included in future reports.

Focus on Areas and Communities with greatest potential for GHG Emissions Reductions

Due to the heterogeneous mix of housing in the Commonwealth, and aging, leak-prone gas distribution assets in some areas, the opportunity to reduce GHG emissions varies from building to building, neighborhood to neighborhood, and community to community. Factoring in equity objectives, this new Plan can become much more effective at supporting GHG emissions reductions where these emissions are highest today.

> **Recommendation VI**: PAs should consider focusing on the electrification of heating and cooling of buildings currently connected to older and leak-prone parts of their natural gas distribution networks.
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> PAs could also develop models for identifying properties or communities most likely to benefit from electrification and weatherization. This new approach to targeting would be more effective at improving efficiency and reducing GHG emissions, rather than using the more generalized MassSave programs that worked so well in the past with lighting and boiler/furnace efficiency upgrades.

About the HeatSmart Alliance

The HeatSmart Alliance is a group of volunteers with members and associates from 25 communities in the Boston metrowest area. Our mission is to reduce greenhouse gas emissions by accelerating adoption of energy-efficient heat pumps in Massachusetts homes and buildings. We primarily work at the grassroots level to achieve this mission.

Our experience is primarily with single-family homes. A number of us are veterans of the MassCEC HeatSmart initiative and we also have members who are professionally knowledgeable in the areas of retrofits, heat-pump technology, community outreach, and overall approaches to reducing greenhouse gas emissions.

Learn more about the Alliance at https://heatsmartalliance.org