



July 13, 2021

To the members of the Energy Efficiency Advisory Council,

Thank you for the opportunity to submit comments relative to the draft *Mass Save Three-Year Energy Efficiency Plan*.

The UMass Center for Energy Efficiency and Renewable Energy has conducted free, in-depth audits for more than 800 New England manufacturers over the past few decades through the U.S. Department of Energy's Industrial Assessment Center program. In the past six years, UMass Clean Energy Extension has provided free audits or other technical assistance to dozens of cities and towns across Massachusetts. We frequently interact with Mass Save program administrators (PAs) to facilitate implementation of our recommendations. Our staff also has experience working for and conducting evaluations of energy efficiency programs across the country. This combined experience gives us a unique perspective on the operation of Mass Save.

Below we have described challenges that many industrial and municipal customers face in participating in Mass Save and realizing the projected savings for measures they implement. While we recognize that the current draft plan includes policies that could mitigate some of these challenges, we are sharing our observations and recommendations in order to support the EEAC and PAs during both development and implementation of the final plan.

### Challenges

- **The quality and comprehensiveness of free audits and vendor proposals vary widely.**
  - Some audits address only a few of the applicable measures, leaving the customer unaware of the full range of opportunities and the magnitude of the savings potential for their facility. Customers sometimes pass up on additional assistance such as ours, which could help them identify deeper savings opportunities, because they have completed a Mass Save audit and assumed it would include all cost-effective measures.
  - Vendors sometimes propose substantially oversized equipment, such as chillers and air compressors for manufacturing facilities and boilers for schools, without evaluating the actual loads. Oversized equipment not only comes at higher cost but usually operates less efficiently.
  - Some vendors direct municipalities to the simplest possible upgrade or the technology that is most familiar to the vendor, even when the municipality is specifically seeking more advanced clean energy options. For example, a town contacts a vendor to consider a heat pump for a facility but instead receives a proposal for a fossil fuel boiler/furnace upgrade, with no explanation as to if alternatives were considered or why the boiler/furnace is recommended instead.
  - Some audit reports calculate the energy savings potential for municipal buildings simply by assuming that the energy use intensity can be lowered to the average level for that building type, without any analysis of how that increase in efficiency would be achieved.

- Major equipment, such as a boiler or furnace, is frequently replaced without addressing important system components such as controls, pumps or fans.
- **Insufficient support for building envelope measures.** Municipalities are often told by PAs or Mass Save vendors that building envelope measures are not considered to be cost effective. Sometimes major expenditures are made on capital equipment and then building occupants are still uncomfortable because envelope issues were not addressed, which often leads to increases in HVAC energy use – for example, the heating setpoint is turned up in an attempt to make a drafty building more comfortable. We are not aware if these cost effectiveness calculations include the fact that improving the building envelope can reduce heating and cooling loads and therefore reduce the necessary size and implementation cost for new HVAC equipment.
- **Energy savings are not being realized for many measures implemented in municipal facilities.** Several municipalities we work with have actively participated in Mass Save but are not seeing the expected energy savings in their facilities. Our review of energy bills shows little to no evidence of energy savings for many major measures, so we have investigated building operation as well as other changes that may have counteracted the savings. We have often found that implementation errors have limited the energy savings or even caused energy use to increase.
  - Many energy management systems or other HVAC controls are not programmed or integrated into the system properly, which can result in substantial increases to energy use.
  - During LED lighting upgrades, fluorescent ballasts are sometimes left in the fixtures, where they continue to draw electricity, despite no longer serving any purpose.
  - The number of projects completed and incentive amounts provided sometimes appear to be the subject of more focus by PA staff than the energy savings realized. We have found this disconnect when discussing facilities in which a significant amount of work has been done but energy consumption has increased due to issues with implementation and/or operation.
- **Mass Save can be challenging to navigate.**
  - Many municipal and industrial customers have told us that they do not know or are having difficulty reaching the appropriate PA contacts.
  - When contacted about our recommendations for municipal facilities, some PA staff immediately pass it along to their preferred vendors. This causes confusion and frustration for customers who would like to either work with vendors with whom they have existing relationships or have a more open selection process.
- **The Building Operator Certification (BOC) training supported by Mass Save is not always up to date on best practices in energy efficiency.** For example, when I took the course in late 2019, they taught that it is appropriate to leave the fluorescent ballasts installed when upgrading to LED lighting. I submitted extensive feedback during the course and then recently followed up with program staff, who reported that they are in the process of updating many of the topics I mentioned, and we are planning to meet shortly to further discuss my feedback. While we appreciate the challenge of keeping course content updated, major investments of time and money are made in this program and it is important that it be as effective as possible at teaching current best practices.

## Recommendations

We offer several recommendations to address these challenges:

- Increase quality control of audits and savings projections.
- Increase emphasis on whole systems and buildings, rather than the frequent focus on replacement of major capital equipment and installation of energy management systems.
- Increase efforts to identify, address, and learn from implemented measures that are not realizing savings in the projected range.
- Provide clearer information on PA points of contact to help each customer reach the right person for their location and facility type, and improve responsiveness of PA staff.
- Provide clearer information on the process for program participation.
- Publish more specific information on which vendors are qualified to perform specific services, such as comprehensive audits, or implement specific measure types, based on their records of completing the necessary training and successful projects of that type.
- Engage the Building Operator Certification training program in more frequently updating its content to better teach current energy efficiency technologies and best practices.
- Increase ongoing collaboration between Mass Save and related programs such as ours, in order to advance our shared goals of reaching more customers and achieving deeper savings.

Please let us know if we can be of assistance by providing any additional information or working with you to support implementation of these recommendations. Thank you for your attention and your work to advance energy efficiency in Massachusetts.

Sincerely,

Lauren Mattison

Assistant Director, Center for Energy Efficiency and Renewable Energy ([ceere.org](http://ceere.org))

Municipal Services Program Director, UMass Clean Energy Extension ([ag.umass.edu/clean-energy](http://ag.umass.edu/clean-energy))

University of Massachusetts Amherst

[laurenm@umass.edu](mailto:laurenm@umass.edu)