

Marblehead, August 31, 2023

To the attention of Dr. Tom Ferguson,
Programs Manager, Energy Storage, DOER
thomas.ferguson@mass.gov

Dear Dr. Ferguson:

This letter is sent on behalf of stakeholders working for, or on the boards of:
Marblehead Municipal Light Department, and
Reading Municipal Light Department.

The 41 Municipal Light Plants (MLPs) in Massachusetts bring electric power to close to 20% of the Commonwealth's population. Given the fact that we are owned by our communities, we remain very close to the customers we serve, and to our mission to provide reliable, low-cost, decarbonized electricity.

Municipal Light Plants are setting aggressive goals to decarbonize the electricity we provide to our residents, with some setting target dates earlier than the state-mandated goals. As an example, the Marblehead Municipal Light Department (MMLD) with 43% carbon-free power portfolio in 2022, is aiming to reach 70% carbon-free electricity by 2028, 85% carbon-free by 2033. Battery electric storage is a critical element to make these goals achievable. As such, we're very interested in implementing innovative Long Duration Electric Storage (LDES) solutions in our systems. We have followed the progress of the "Charging Forward" study that you are implementing with great attention and would like to provide some comments on the study itself, as well as on some of the next steps we believe will accelerate the integration of LDES into the grid.

With regards to the modeling serving as a base for the Charging Forward report recommendations, we would like to bring to your attention the following three comments.

1. Use of historical and predicted future weather patterns to determine grid reliability adequacy in 2050. While we understand that historical data allows modeling to be based on observed facts, it is also clear that climate patterns are changing, creating new, observable factual patterns that will carry through to 2050 and beyond. Any analysis that includes long term planning must take into account stresses on the grid caused by more frequent and extreme weather conditions.

NOAA LOCA v2 datasets provide Tmin and Tmax projections for New England and Massachusetts thru 2100. An additional stress test of the models developed by E3, using the more extreme conditions predicted by NOAA, may increase weather projection accuracy and make the grid adequacy recommendations more relevant to the anticipated 2050/2100 climate.

.../.

2. Importance of disseminated storage. While we are at the beginning of the penetration of EV in the Commonwealth, MA's CECP anticipates around 5 million light duty EVs by 2050. These EVs will regularly connect to the distribution systems, and their combined stored energy will greatly exceed the capacity of some stationary storage assets. While still in its infancy today commercial use cases for "Vehicle to Grid" (V2G) technology already exist both in the US and abroad. In fact, Reading Municipal Light Department (RMLD) is in the process of starting a V2G pilot project at its Reading headquarters using a Beverly High School electric school bus.

Disseminated storage has the benefits of being located close to the consumer load, easing transmission losses and constraints, and requiring relatively smaller distribution system infrastructure investments to become a reality, when compared to those investments necessary to create stationary storage. With the right incentives, V2G technology deployment has the potential to become a significant complement to stationary storage solutions. There are also many reasons why this potential may not be realized, some of which can be avoided by well-coordinated regulatory and/or legislative actions.

Given the likely size of the opportunity, we would encourage the final report to:

- Quantify this opportunity, and
- Identify some of the likely pain points (safety, warranty or insurance considerations come to mind), and develop an action plan that could be taken by the administration and/or the legislature to allow the EV fleet to fully participate in improving grid reliability.

3. Ensuring Municipal Light Plants can participate in LDES deployment

We commend you for having organized informative and well-publicized stakeholder sessions. We hope that the final report recommendations will take into consideration all actors, including Municipal Light Plants.

While the situation of each MLP is different, we would hope that policy recommendations can equally consider all stakeholders, including MLPs, to encourage installation of LDES where technically and economically feasible, to ensure the participation of all of the Commonwealth's energies and resources to contribute to building our future resilient electric grid.

...

Municipal Light Plants as Test Beds for LDES

As mentioned above, some Municipal Light Plants in Massachusetts are very interested in integrating innovative storage systems into our networks and are very well suited to be test beds for the deployment of LDES.

- As (relatively small scale) load serving entities, we know the problems that utilities face, and we efficiently handle those issues every day.
- We can react quickly and efficiently; we do not have multiple layers of decision making internally.
- Our comparatively small scale makes the deployment and testing of novel solutions faster, easier, more cost effective and less risky.
- As public power, nonprofit entities, we are fiscally conservative, motivated to minimize our customer rates, and are always looking for cost effective solutions that increase reliability and further decarbonize the power we provide.

As a result, Municipal Light Plants are ideal first deployment sites for LDES and to test a multitude of real-life economic and reliability scenarios.

- **Interest.** Some of our systems are already in advanced discussions with LDES providers: we understand that initial costs and unproven financial benefits are barriers to overcome.
- **Various business cases.** Several MLPs already offer TOU rates, or are going to implement them very soon, which will help test LDES in a variety of technical / business scenarios.
- **Speed to Market:** MLPs interested in storage have well-identified reliability needs and know the sites where LDES systems could help relieve our distribution system constraints. Storage solutions can quickly be deployed at a scale relevant for the MLPs without negatively impacting ISO-NE grid operations.

In summary, MLPs are willing and able to participate in near term, real-life testing of LDES solutions. We welcome the opportunity to collaborate with DOER and other stakeholders to advance these promising technologies to help us all meet our Climate Change challenges.

Respectfully submitted,

On behalf of

Reading Municipal Light Department
Greg Phipps, General Manager
Bill Bullock, Director Integrated Resources
Tom Ollila, Integrated Resources Manager

Marblehead Municipal Light Department
Joseph Kowalik, General Manager

Marblehead Municipal Light Commission
Simon Frechette; Adam Smith; Lisa Wolf, Chair
Jean-Jacques Yarmoff, Ph.D.

