Comments for the Massachusetts Mid- and Long-Duration Energy Storage Study
September 1, 2023

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Massachusetts Department of Energy Resources

From Fix the Grid Campaign Technical Committee Steering Group

Dear Dr. Ferguson,

Fix the Grid is a grassroots campaign in the six Northeast states that aims to accelerate a just transition to a democratic, transparent and renewably-sourced electric grid. We focus on pushing regional energy regulators to engage in democratic and transparent processes as they incentivize clean energy like wind, solar and storage, instead of keeping us hooked on polluting fossil fuels that exacerbate the climate emergency and harm our most vulnerable communities.

We would like to commend the state on its efforts to study the State of Energy Storage and its Future Role in the Commonwealth against the backdrop of the 2022 Clean Energy and Climate Plan for 2050 and legislative requirements for a study on energy storage, in particular Long Duration Energy Storage (LDES). We agree that energy storage will be crucial to a clean, democratic and just electric future. However, we have three broad concerns based on the two public presentations of the ongoing E3 study in summer 2023:

1) <u>Human, Ecosystem, and Environmental Costs of Storage</u>: We appreciate the analysis of current, future market outlooks and potential applications for LDES. We would like to see this study explicitly and comprehensively address not only the existing market values of different mid and long-duration storage technologies (as governed by the ISO-NE's energy, capacity, ancillary, and other markets), but also the public health, ecosystem, and carbon costs of different options. This would require the analysis of the storage value chain for different technologies, including where the "storage" resource originates, and who/what it impacts along the way.

a. For example, open-loop pumped storage hydropower has significant negative ecosystem and environmental impacts on rivers, habitats, and a variety of different types of fish, bugs, and plants. Moreover, pumped storage hydropower in Massachusetts draws more

electricity from the grid than it generates to pump water from lower reservoirs (rivers in particular) to an upper reservoir, and this electricity is currently generated in significant part by natural gas, which means that overall, the pumped storage system is not carbon free. Thus, in this case, there are both significant ecosystem and carbon costs to pumped storage.

b. In another example, lithium-based batteries have significant impacts on the communities where lithium is mined, for example related to water, pollution, and displacement of food sources resulting from the mining, and most lithium is mined today in faraway corners of the world and must be transported. An examination of lithium-based batteries would include these public health, ecosystem, and carbon costs.

It is incumbent upon a publicly-funded study of storage opportunities in Massachusetts to make visible and transparent not only the value of storage to the abstract "grid" and to corporate entities seeking to profit off of new storage technologies, but also the costs associated with these same options to people, environments and our planet. Only with these trade-offs clearly outlined and articulated will the broader public be able to comment in an informed way on future DOER policy recommendations that may involve public funding.

2) Justice and Equity Considerations: Building off the first point, the state of MA in the 2050 Plan outlined clear environmental justice principles, and for the first time, an environmental justice law was codified in the state. This legislation makes important advances in establishing processes for consultation and input, and evaluation of projects' cumulative air, water, and soil pollution in relation to existing pollution in a community. Together with President Biden's Justice40 initiative, all studies and policy decisions that involve energy and environmental justice, including this one, must be attuned to the ways in which communities will be impacted by new technologies and infrastructure, including battery storage. The presentations contain no substantive reference to justice and equity-related considerations, and the final report should rectify this by including justice considerations in its analysis of all three framing questions:

a. The first broad question about the current state of energy storage should include an overview of not only what storage facilities exist in Massachusetts, but also the justice and equity landscape of storage. What communities are these storage facilities in? How are these communities impacted (positively/negatively?) What have we learned about the equity issues in Massachusetts based on existing storage sites?

b. In the second broad question about storage markets, the study should review and consider the ways in which storage deployments can address historic equity issues, for example, in pairing microgrids with storage, replacing peaker plants, and developing community renewable and storage opportunities. Given that this report is going to a state regulatory agency that has the authority to mandate procurements, the study should evaluate non-market programs and incentives in the United States and elsewhere as relevant that have successfully provided opportunities for low-income, environmental justice communities to access the benefits of future battery storage technologies should they choose.

c. In the third broad question about the potential applications and implications of storage, the report should be focused not only on winter reliability and understanding existing ISO-NE markets, but also the ways in which EJ communities in Massachusetts could benefit from state policy initiatives. Here reference to other states and communities that have successfully (or unsuccessfully) incentivized certain types of storage without precluding opportunities for new technologies to enter markets will be instructive to MA regulators.

The report should review principles, practices and pitfalls as they relate to equity in battery storage, in both market and non-market contexts, based on existing literature from the Union of Concerned Scientists, academic journal articles, and other available case studies. The study should be clear about what storage technologies may be possible in what particular places, and make sure that existing research on the importance of inclusive and democratic processes for developing, funding, and siting storage are included in the report.

3. Demand reduction and demand response: the presentations indicated that load flexibility will be increasingly important as renewable energy sources come online. Load flexibility can be incentivized by demand reduction and demand response markets, policies and programs. As Vogel and Spector advocated in their 2022 comments to the MassCEC in advance of the study's commencement, a focus on medium and long-duration storage may miss trends and opportunities to reduce overall electricity consumption, which should be a goal along with promoting ecologically-friendly carbon free sources of supply. The storage study should interpret the concept of storage broadly to include demand reduction and demand response as important components of

load flexibility, including when storage should be discharged in relation to calls for people to reduce demand during particular times of the day or during cold snaps or heat waves. include these policy options.

In sum, the study should emphasize the range of different types of benefits and costs (monetary, public health, ecosystem, etc) of different storage options, interpret storage more broadly to include demand reduction and demand response, and infuse equity considerations in all three guiding questions of the study. Without including these points in the analysis, the DOER and other agencies responsible for making policy in this arena will not have the information and trade-offs necessary to make informed decisions that will align with Massachusetts' goals of decarbonization in a just, equitable way.

If the current consultancy that was awarded the contract for this study does not have the staffing or expertise to evaluate the public health, environmental justice, and ecosystem impacts of different storage and related options, or if more time is needed to include these dimensions of the analysis, then we recommend requesting an extension from the legislature to be able to hire other experts or incorporate the aforementioned analyses into the final report.

Thank you in advance for consideration of these comments.