



To: Thomas Ferguson, energy storage programs manager, Massachusetts Department of Energy Resources

From: Todd Olinsky-Paul, senior project director, Clean Energy Group (CEG)

Re: CEG comments on "Charging Forward: Energy Storage Toward a Net Zero Commonwealth" report

Date: September 1, 2023

Clean Energy Group (CEG) appreciates this opportunity to comment on DOER's upcoming report, "Charging Forward: Energy Storage Toward a Net Zero Commonwealth." Clean Energy Group, a national nonprofit organization, works at the forefront of clean energy innovation to enable a just energy transition to address the urgency of the climate crisis. CEG fills a critical resource gap by advancing new energy initiatives and serving as a trusted source of technical expertise and independent analysis in support of communities, nonprofit advocates, and government leaders working on the frontlines of climate change and the clean energy transition. CEG collaborates with partners across the private, public, and nonprofit sectors to accelerate the equitable deployment of clean energy technologies and the development of inclusive clean energy programs, policies, and finance tools.

Although the original State of Charge was a watershed report, there are a number of areas we feel should be revised and/or expanded in the new report. Herein we list, and discuss in brief, those areas.

1. **Correct misleading analysis of the market for C/I customer storage for demand charge management.** The 2016 State of Charge report badly underestimated the opportunity for economic use of BTM energy storage for commercial demand charge management in the Commonwealth. This occurred because the report used a relatively low National Grid demand rate for its statewide BTM cost-effectiveness analysis, concluding that most BTM C/I energy storage would not be economic in Massachusetts. However, there is an extremely wide range of demand charge rates in Massachusetts, ranging from a low of \$3.92/kW in National Grid territories up to a high of \$41.25/kW in Eversource territories. By lumping all these areas together under a low National Grid rate, the study produced a misleading conclusion. In reality, there are tens of thousands of commercial customers in Eversource territory paying demand charges as high as any in the nation, and many of these customers could profitably install energy storage to reduce their utility demand charges. The upcoming report should correct this error by presenting a revised analysis of distributed energy storage project economics and economic opportunities in Massachusetts. For more information, see the attached filing,



“Comments of Clean Energy Group on MA DOER Energy Storage Target Docket--2017,” which CEG submitted to DOER in 2017.

- 2. Introduce equity recommendations for state energy storage policy and programs.** Despite years of advocacy by CEG and other groups, and repeated demands from the EEAC, the Massachusetts Program Administrators (with the exception of Cape Light Compact) have consistently failed to provide any equity or low-income provisions in the ConnectedSolutions program. In fact there is a lack of equity provisions in the Commonwealth’s energy storage programs in general. Not only does this failure violate Massachusetts’ longstanding commitment to equitable clean energy policy, it risks reinforcing a very harmful status quo, in which wealthy early-adopters reap the benefits of emerging clean energy technologies, while historically underserved communities, who need these benefits most, are left behind. This trajectory, which we have watched in the recent history of solar PV, will now be replayed in the history of energy storage unless the Commonwealth moves immediately to introduce common-sense equity provisions into programs such as SMART, ConnectedSolutions and the Clean Peak Standard. For a list of equity provisions recommended by CEG, see the attached “Equity Provisions in Energy Storage Programs” policy memo.
- 3. Address energy storage needs, including LDES needs, in the context of electrification of buildings and transportation; including what will be needed to build out energy storage and offshore wind.** Like other Northeastern states, the Commonwealth of Massachusetts has set ambitious clean energy goals, and is working toward electrification of the building and transportation sectors. Studies have shown that winter electric demand peaks will continue to grow as electrification (especially of the building sector) continues, until the region flips from summer peaking to winter peaking. As fossil fuel generation is retired, and winter peak demand continues to grow, it will become increasingly challenging to supply sufficient electricity capacity in the winter, when solar PV output is reduced. For these reasons, the rapid deployment of offshore wind, accompanied by large amounts of energy storage capacity, will be key to managing winter peak demand without resorting to a resurgence of fossil fuel generation. The amount of offshore wind and associated energy storage, and the timeline for its deployment, should be included in any new assessment of energy storage needs in Massachusetts.
- 4. Address EVs and EV charging systems as a source of electricity storage.** As electrification of the transportation sector advances, EVs and EV charging stations will present a growing potential source of electrical storage in Massachusetts. The new energy storage report should more comprehensively address how to optimize this resource, including allowing customers to enroll EVs and charging stations into programs such as ConnectedSolutions.



5. **Address building electrification and controllable loads in combination with BTM solar and storage.** As building electrification proceeds in Massachusetts, more controllable devices, such as thermostats/HVAC, water heaters, etc. will become available for use as controllable load. The new report should address regulatory and programmatic changes needed to allow these devices to be aggregated into virtual power plants, along with distributed solar PV, storage, and other distributed resources, to provide grid services through programs such as ConnectedSolutions.
6. **Update energy storage economics in Massachusetts based on changes in pricing and in national incentives such as the ITC.** Since State of Charge was published in 2016, the cost of battery storage has fallen significantly, while new national incentives such as the federal energy storage investment tax credit (ITC) have emerged. This should significantly improve the economics for energy storage systems in Massachusetts. The analysis presented in State of Charge should be updated to reflect these changes.
7. **Update assessment of market opportunities in Massachusetts in light of newer FERC orders and ISO market rules.** Since the publication of State of Charge in 2016, new FERC orders and ISO market rule changes have opened new wholesale energy markets to distributed resources in general, and to energy storage in particular. While all these changes may not be fully implemented as yet, this represents an important change to the regional markets, and the new energy storage report should reflect the improved outlook for energy storage business cases in Massachusetts.
8. **Update and address barriers to energy storage deployment in Massachusetts, including those presented by siting and permitting challenges and interconnection barriers.** A number of high profile reports and dockets have recently highlighted the significant barriers to energy storage deployment represented by siting and permitting requirements and interconnection delays and costs. An updated energy storage report should provide information on these barriers and make recommendations to the state on how they may be overcome.
9. **Assess existing state energy storage policy, regulation and incentive programs with regard to progress to date, and make recommendations on program expansion and revisions needed to reach Commonwealth policy targets including the energy storage procurement target, emissions reduction target, and renewable portfolio targets.** Since the publication of State of Charge in 2016, Massachusetts has adopted a number of breakthrough programs and policies, including the energy storage procurement target, the ConnectedSolutions program, and the Clean Peak Standard. However, while these programs have been successful to some degree, progress in the state needs to accelerate significantly if the Commonwealth is to meet its various clean energy goals. The new energy storage report should track the Commonwealth's progress and recommend program expansions needed to meet clean energy targets.



Clean Energy Group respectfully submits these comments and recommendations in the hope that they will be of value. We will be happy to discuss further or provide additional resources at DOER's convenience.

Todd Olinsky-Paul
Clean Energy Group

Equity provisions

Numerous states have requested CESA's input on how to best incorporate equity provisions into a customer battery incentive program. We recommend the following equity provisions:

- Justice40 commitment in incentive program (40% of awards go to projects benefiting underserved communities)
- Incentive adder for income-eligible participants and commercial entities serving historically underserved communities
- Front-loaded incentive payments for income-eligible participants
- Low- or no-cost financing
- Pre-development technical assistance to determine technical and economic feasibility and project optimization
- Optional on-bill financing
- Community benefits requirement
- Incentives for owned and leased systems

Discussion of these equity recommendations follows.

Justice40 Commitment/Carve-out

For energy storage located in and serving historically overburdened communities, a carve-out is necessary to ensure that these communities will have the opportunity to participate. Without a carve-out, there is a risk that distributed storage incentives will be fully subscribed by more advantaged customers before overburdened communities are able to access the program. With regard to the size of a carve-out for overburdened communities, states should consider the Justice40 standard as recommended by the federal government and adopted by Connecticut in their Energy Storage Solutions program. For more information on the federal Justice40 initiative, see <https://www.whitehouse.gov/environmentaljustice/justice40>.

Incentive adder

A carve-out, while important, will not by itself be sufficient to overcome the additional cost and risk barriers associated with equity projects (for an example, the California SGIP program initially had a carve-out but no adders for low-income communities; there was little uptake until CA instituted equity adders, at which time the LMI budget was fully subscribed almost immediately). Therefore, we recommend that states adopt both a separate, reserved capacity block and an additional incentive adder for overburdened communities.

Front-loaded payments

An up-front incentive is important to help offset higher costs and also the higher risks of financing for historically overburdened communities, because the initial cost barrier to an energy storage project can be difficult or impossible to overcome. While annual incentive payments do add up over time, this type of payment structure requires a greater initial investment and the ability to wait a number of years to fully recoup costs. Additionally, financiers may view future payments as riskier, and therefore less bankable, than present payments. Therefore, CESA recommends that fixed incentives/rebates be provided to equity projects up-front in full, and/or that a separate up-front equity incentive is provided, to reduce the initial cost barrier for these communities. (Note also that the NPV of an incentive is greater when offered up-front than when paid out in a series of annual installments).

Financing

Several of the state programs cited in this memo offer low- or no-cost financing for equity or income-qualifying customers. Examples include the Massachusetts ConnectedSolutions program, which is housed within the state's energy efficiency plan and includes access to interest-free HEAT loans, and the Connecticut Energy Storage Solutions program, which is co-administered by the Connecticut Green Bank, which provides low-cost financing. While it is true that many energy storage developers offer financing to their customers, it can be very helpful for the state to provide low- or no-cost loan options that do not require high credit scores to qualify.

Technical assistance

CESA's sister organization CEG has regranted more than \$1 million in technical assistance fund grants for hundreds of equity solar+storage projects. These small grants allow an equity project to obtain pre-development technical-economic analysis, which is necessary to determine A) whether the project makes sense, and B) how to design the system to optimally provide benefits that are important to the customer. Several early energy storage and resilience grant programs launched shortly after Superstorm Sandy in the Northeast did not include provisions for pre-development technical assistance, or provided insufficient technical assistance, and the grantee projects suffered as a result (for example, a number of the Massachusetts CCERI grantee projects have still not been completed nearly a decade after grants were announced). CESA recommends technical assistance funds be included in an energy storage incentive or grant program, especially for equity customers.

On-bill financing

This is an option that can be useful for some equity customers, and it should be considered in combination with other financing options.

Community benefit requirement

When awarding equity incentives or project grants, it is not enough for equity projects to be located in overburdened communities – they must provide real benefits to those communities. We therefore recommend that developers of equity energy storage projects be required to demonstrate how their project will benefit the host community, in order to qualify for equity project incentives. Note that such community benefits need not be monetary in nature, and in fact in some cases they cannot be (because monetary benefits may negatively impact other benefits such as housing credits). Benefits such as increased energy independence, critical facility resilience, increased deployment of distributed solar PV, and the retirement of polluting fossil fuel generators can all be important non-monetary benefits to historically underserved communities.

Incentives for owned and leased systems

In some communities, there is a premium placed on ownership of clean energy resources. Energy independence can be an important benefit; also, owning clean energy resources such as solar PV and battery storage increases property values, whereas leasing such resources does not. Therefore, incentive program design should include provisions (such as low- or no-cost financing) that would help income-eligible customers to purchase and own battery storage.

On the other hand, it can be very helpful to some customers if leasing options are available. Solar leasing played a large role in scaling up solar PV, and we believe that battery leasing is likely playing the same role with distributed energy storage in markets where it is available.

To provide the broadest set of options and make battery storage accessible to the most customers, it makes sense to provide incentives for both owned and leased systems; to provide a range of financing options; and to encourage the participation of developers and aggregators, who will bring their own financing to the market and may play a significant role in enrolling customers.