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1/31/2024

RE: Charging Forward: Energy Storage in a Net Zero Commonwealth

Dear Mr. Ferguson:

Zero-Point Development, Inc. (“Zero-Point”)<sup>1</sup> appreciates the opportunity to offer the following comments on the Department of Energy Resources (“DOER”) report entitled “Charging Forward: Energy Storage in a Net Zero Commonwealth” (the “Report”) and the associated Study (“Study”), which were released on December 31, 2023. The Report is timely and thoughtful, highlighting critical needs for the Commonwealth to enhance and improve its existing policies for energy storage systems (“ESS”) in order to meet the needs for the Commonwealth to achieve its energy and climate goals in the coming decades.

DOER’s Study and Report do a good job identifying the value that short-duration energy storage (“SDES”), mid-duration energy storage (“MDES”) and long-duration energy storage (“LDES”) can provide to the Commonwealth, as well as shortcomings in the ESS policies that have been put in place to date. ESS has a critical role to play in the successful deployment of offshore wind and the continued growth of all intermittent generation resources. However, the economics provided by the existing revenue sources are not sufficient to support the development of SDES, MDES or LDES resources in Massachusetts.

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<sup>1</sup> Zero-Point is a family-owned renewable-development company committed to advancing the progress of renewable energy solutions as a viable and economically competitive resource alternative for all consumers in the United States. Having successfully developed and installed over 175MW, DC of solar capacity and 50MW of energy storage in the Commonwealth since 2011, Zero-Point believes strongly in the independent and sustainable energy production capacity of the Commonwealth.

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Zero-Point—with a 965 MWh portfolio of energy storage projects in development, nearly one third of the electric distribution company pipeline cited in the Study—has been at the forefront of developing energy storage in the Commonwealth. That experience has been frustrating at times, but positions Zero-Point to provide practical comments based on direct, first-hand experience with the challenges of bringing energy storage projects to fruition in Massachusetts.

Zero-Point intends to be engaged throughout DOER’s process for developing future programs affecting energy storage. In these comments, Zero-Point wants to highlight a handful of critical issues and questions for DOER:

1. Policy development in this space needs to be clear and consistent to attract and support investments. At times existing policies have been inconsistently pursued and implemented, with long periods of delay and changing details that frustrate project development and financing.
2. DOER should clarify that the funding support for near-term ESS deployment it proposes would be available for SDES, the type of ESS that the report and Study find are currently available to provide benefits and are most needed now.
3. DOER should define the term “Bulk Storage” or “Bulk Energy Storage” carefully and with attention to the intent of the programs it is designing. The Report uses the term “Bulk Storage” only towards its conclusion in connection with program and policy proposals, which makes it unclear what types of ESS DOER intends to include.
4. DOER should consider that ESS co-located on the same circuit as renewable generation can provide the same or even enhanced benefits as ESS co-located and directly connected with a renewable generation resource. Policy design that does not reflect this reality would result in unnecessary costs by leaving efficient and effective solutions on the table.



5. DOER should act to address critical issues in the implementation of the Clean Peak Energy Standard's ("CPS") Distribution Circuit Multiplier ("DCM") and its interaction with ESS operating tariffs that the Electric Distribution Companies ("EDCs") have recently proposed, which present unnecessary roadblocks that would freeze critical forms of ESS development. DOER should amend the recently released DCM Guideline by removing the capacity limit on each circuit and should eliminate the Circuit Selection Criteria and make the DCM allocations on a first come, first serve basis by utility territory, matching the program functionality of the SMART Program.

1. **DOER should prioritize setting clear policy goals and delivering on a clear timeline in order to support the types of investment it is seeking.**

Zero-Point's experience developing SDES targeting circuits experiencing solar saturation demonstrates how policy uncertainty can delay and frustrate project development. About 5 years ago, Zero-Point, responding to the Commonwealth's stated energy goals, made a strategic decision to pivot its business model away from large-scale solar PV development to concentrate on SDES development. Zero-Point's analysis showed that SDES paired with solar provided the most tangible value both economically and to the functioning of the distribution circuit. This approach aligned with DOER's actions developing the CPS in 2019 and 2020.

In designing the CPS, DOER incorporated a disincentive to ESS paired with solar (*see* 225 C.M.R. 21.05(6)(f)), presumably so as not to over incentivize and have ESS "double dip" with the storage adders available to solar projects under the SMART Program. In contrast, independent stand-alone ESS located on PV-saturated circuits would be able to participate in the CPS without disincentive. The result being that the way to provide the value similar to paired ESS (the same value DOER listed in its recent Study and Report) was to connect ESS to the same physical distribution circuit wires as solar



resources by selecting solar saturated circuits, but not on the same parcel, and guarantee that the ESS operated according to a schedule that ensured charging during hours of solar generation and discharging outside of those hours using not only an agreement with the EDC, but physical hardware control to restrict its operation.

The CPS was intended to provide the incremental incentive needed to make these types of ESS projects economically viable. Unfortunately, the CPS's ACP rate was ultimately set at a level that assumed projects would realize value from revenue streams that actually have little or no value for ESS that can only operate in a way that provides the direct ESS value of shifting PV energy to high-load hours. Because the CPS value assumed this revenue, it was too low to support development of this type of project, and the DCM became the only tool provided by the CPS that could compensate for this flaw and support deployment of ESS on PV saturated circuits – an intended policy goal in line with providing both the paired ESS value and tangible physical benefits to the distribution circuit. In the winter of 2022, DOER released a straw proposal for the DCM with a multiplier of 2 that was proposed to be available for ESS located on PV-saturated circuits. This renewed hope in the economic viability of ESS assets of this type, allowing Zero-Point to move forward with developing an approximately 965 MWh portfolio, accounting for nearly a third of the EDC pipeline sited in the Study, and representing a large capital investment. This includes 198MWh with ISA's that have to decide now, to either make the payments and begin construction or withdraw, 407MWh in CIP dockets and 363MWh in later stage study, all of which will need to make that same decision soon, Unfortunately, implementation of that policy was slow, and, following significant staff turnover occurred at DOER, the DCM that was ultimately released as a guideline in December of 2023 did not include PV-saturated circuits and specifically eliminated projects pulled into CIP areas from consideration. As a result, five years of policy stop-and-go have held



Zero-Point, and other similar developers, in limbo preventing the significant deployment of the very type of resource that the CPS was intended to incentivize.

2. **DOER should clarify that the funding support for near-term ESS deployment it proposes would be available for SDES.**

In Section I of the “Recommended Policy & Program Designs” set forth in the Report (*see* pages 14-17), DOER outlines four areas in which it proposes program funding “to support near-term energy storage deployment and MDES and LDES technology development.” One of those areas is explicitly the commercialization of MDES and LDES technology. However, while it seems implied, DOER’s proposal is not clear whether the other three areas (standalone bulk storage, resiliency, and ESS siting) are open to SDES.<sup>2</sup> They should be, and DOER should make that clear.

Zero-Point supported DOER incentivizing MDES and LDES technologies, specifically flow batteries, when the first stakeholder meetings were convened to create the CPS about five years ago. DOER decided **not** to pursue incentivizing MDES and LDES incentives due to the status of the technology and decided to focus support on SDES, like lithium-ion based stand-alone ESS, under what is now the CPS. DOER made this choice for a reason – because it represented a way to bridge the time between the need for immediate energy storage deployment now and the advancement of MDES and LDES technology to become financially viable in the future.

While supporting the long-term path for MDES and LDES makes sense, the basis for DOER’s decision then remains true today: SDES is needed now and positioned to provide benefits now. Nor have the intervening years solved the problems associated with deploying SDES; there continues to be a

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<sup>2</sup> All the report says is that the grant funding should “focus on projects that can be optional in the near term and provide CPEC’s for CPS compliance . . . .” Report at 14.

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need for policy supporting SDES deployment. It is critical that DOER not deviate from its plan and continue to support the development of needed SDES resources.

Similarly, DOER should generally not design its programs based on assumed technology categories, but instead on the ability of a project to meet a need. DOER proposes that its MDES/LDES grants exclude all lithium-ion technologies. It is not clear why DOER explicitly excludes lithium-ion technologies even if they are capable of delivering the same benefits at lower cost and higher round-trip efficiency. DOER should explain this aspect of its proposal. For instance, is this restriction due to the self-discharge rate of lithium-ion, a desire to not rely on the development of coordinated scheduled discharge of multiple sites one at a time to meet the long duration requirement, or a desire to push the long duration technologies forward?

**3. DOER should define the term “Bulk Storage” or “Bulk energy Storage” carefully and with attention to the intent of the programs it is designing.**

The Report uses the term, “Bulk Storage” only in the final section where DOER describes its policy recommendations. This is potentially confusing. The term is used in the Study primarily in connection with use of that term by NYSERDA as “a contract-based investment incentive program designed for projects above 5 MW. It should be noted that NYSERDA also has a robust Retail Storage Incentive Program that is an investment incentive program targeting distribution-connected projects under 5 MW. This program is also described in the Study.

Critically, a robust SDES incentive policy is something DOER and the Commonwealth do not have. DOER must address the need for an effective SDES first, before it can move forward with a MDES or LDES incentive program.

The Report further suggests that, like NYSERDA, program elements for “Bulk Storage” should provide incentives for “Bulk Storage” installed at both the transmission and distribution level, at least suggesting that by “bulk” DOER may have in mind participation in wholesale markets and not the level



of interconnection. DOER should support ESS deployment connected at both the distribution and transmission levels.

However, it is critical that DOER understand that the EDC's have stated that they will not allow ESS over 5 MWac to be installed at the distribution level on a majority of circuits. These restrictions are built into the tariffs the EDCs recently filed with the Department of Public Utilities. ESS over 5 MWac would only be able to interconnect to 25kV class and higher circuits. DOER needs to understand how its programs will interact with EDC tariffs and policies. If the EDC tariffs are approved in their current form, or similar policies are adopted, it is not clear how DOER could provide adequate incentives for ESS over 5 MWac to be installed at the distribution level.

4. **ESS Co-Located on the Same Distribution Circuit as Renewable Generation Can Provide the Same Benefits as ESS Co-Located with Renewable Generation.**

ESS co-located on the same circuit with renewable generation and observing an appropriate operating schedule can provide the same benefits as ESS co-located behind the meter with renewable generation and should be treated as if it is charged by that resource.

The Study states, "Currently 2- to 4-hour duration storage can help meet daily peak needs but has a negligible impact on emissions since renewables are rarely on the margin." (See Study at 7.) The Study and Report suggest, in places, that only ESS actually interconnected behind the meter with renewable generation can claim it is charged by that resource, i.e. that the concept ESS "paired" with renewable generation is the only way for the ESS to charge from a clean, renewable source.

That is overly prescriptive and not consistent with the actual effect of ESS on the electrical system. ESS that connects on the same distribution circuit and operates pursuant to a schedule such that it charges during the day, coincident with the discharge hours of solar, and discharges in the evening, coincident with the peak load hours, serves the same purpose as "paired" ESS and solar, and may be



preferable in many situations. In many scenarios, adding ESS to a distribution circuit may have benefits relative to interconnecting behind the meter, for instance because the renewable generation is already in place, or the ESS can be better sited at a different location.

Figure ES-1 shows the need for ESS to be Transmission connected, Distribution connected (paired or stand-alone), and behind the meter. This is the better view of the benefits that ESS can provide. At each of these three levels, ESS can promote the integration of OSW and other renewable resources, the firm delivery of renewables from periods of low energy demand to those of high energy demand and enhance the reliable delivery and security of electricity to consumers.

ESS enables wholesale electricity markets to integrate renewable energy and absorb and shift excess renewable generation, which will ultimately lower wholesale energy costs and reduce the need for new grid infrastructure, directly benefiting the Commonwealth's ratepayers. It can do this without being interconnected behind the meter to a generation resource. Failing to recognize the benefits of standalone ESS on the distribution system in particular, may unduly restrain the development of ESS solutions.

5. **The Current DCM Guideline Is Flawed and, in Combination with Recently Filed ESS Tariffs, Will Create a Major Roadblock to ESS Development.**

Right now, DOER is inadvertently fostering a Catch-22 situation for ESS development. The DCM Guideline requires that ESS be located on specific circuits to benefit from it. However, ESS operating tariffs filed by the EDCs would largely make it difficult for ESS to target interconnection on those very circuits due to a limit in those tariffs that prevents ESS from connecting if they would result in a substation transformer or distribution circuit from exceeding 75% of its rating at peak load.

National Grid initially agreed to allow stand-alone ESS to operate according to a prescribed schedule that avoided constrained hours, however, National Grid pivoted from this idea and is now





requiring all ESS to follow a charging schedule that includes constrained hours. Data on the times at which these peaks occur per circuit are not currently available to developers until after they pay for an impact study, and are not available at all on many circuits outside of certain assumptions, however, even then the EDCs have stated that peak hours can move, and that the EDCs are not willing to give circuit-specific schedules. Eversource has only recently begun offering seasonal and hourly curtailments. Although the method Eversource has proposed seems reasonable, it has not been formally put in place as a policy, is not aligned with the Clean Peak Standard schedules, and similar to other EDC's, may change months or years after projects pay for studies based on these proposals making the certain economic impact of the new 75% limit on the high peak to average circuits listed under the DCM an unknown. That, along with not having circuit load data to inform when these peaks exist, creates an unknown erosion of revenue if a project intends to target the DCM.

Under the electric distribution companies' current policies (near term without a DERMS), it does not matter how an ESS will actually be operated or what guarantees a developer provides, a proposed ESS will be studied as if it could charge and discharge at any time or anytime within a period that overlaps with constrained hours when assessing whether it triggers the 75% capacity cutoff. There may be circuits in National Grid territory that could qualify for the DCM multiplier, given the fact that National Grid allows seasonal schedules, however, the systems could be curtailed to 0 MW during the Summer constrained hours when the Clean Peak Program provides a 4x multiplier as a Seasonal Multiplier. This restriction would result in a 40% loss of the CPEC revenue an ESS asset qualified under the CPS could obtain by trying to target circuits that are qualified under DOER's most recent version of the circuit selection criteria. It isn't clear how a developer could target a circuit in the guideline with any certainty that it could successfully interconnect in a way that provides financial viability. At this point, it is unknown if economics for a project located in Eversource will be better or worse. The intersection of



the DCM Guideline in its current form, and the operational tariffs release the month prior to that creates this uncertainty.

These hurdles to ESS deployment are occurring at the same time that the Study and Report reconfirm that near-term SDES on solar-saturated circuits (as close to paired with solar as possible without the erosion of revenue) is the most beneficial and needed resource to assist the Commonwealth of reaching its decarbonization goals by 2030. And, although the Report seems to indicate that there may be a new incentive program to support SDES deployment, it is unclear what the selection criteria are and how it would work – see our comments in each of the above numbered sections.

Further, Zero-Point is concerned that a new SDES incentive program might be restricted to newly proposed ESS or ESS that has not begun the interconnection process on the mistaken assumption that ESS currently in development will materialize without further support, thus providing no benefit to ESS under development and ready to begin construction now. Developers working on ESS projects that have ISAs should be eligible for a new program, not penalized for developing ESS in response to the Commonwealth's goals and in advance of firm supportive policies.

Zero-Point has already been forced to withdraw and resubmit ESS applications due to the change to 24-hour operating schedules imposed because the reduction in revenue resulting from those operating schedules made the assets uneconomic. Although these projects, which will be resubmitted in order to be evaluated without an operating schedule, will participate in the CPS, revenues from CPECs alone will not be sufficient to support the projects. More projects may suffer the same fate without further support.

Zero-Point urges DOER to act now and ensure that the Commonwealth does not miss this opportunity to support the near-term realization of SDES benefits, which the Study and Report conclude are vital. Without action to support SDES deployment now, SDES resources will not materialize and



will not enable new DG resources or attainment of the Commonwealth's electrification goals with intermittent renewable energy sources.

In conclusion, although we are excited about the development of new programs that will serve to incentive ESS in the future, we feel DOER is putting an opportunity to implement the installation of ESS right now in jeopardy if DOER does not fix policy that is place today. The Report states that, assuming a 20% attrition rate, that the 550 MWh of installed energy storage plus an additional 3,200 MWh proposed to connect to EDC systems in the pipeline would result in the Commonwealth achieving 50% of its energy storage target. Zero-Point's portfolio alone accounts for 965 MWh portfolio of energy storage projects in development, nearly one third of the electric distribution company pipeline cited in the Study. Without significant change, this entire portfolio is at risk of not moving forward, leaving the Commonwealth significantly further away from achieving its goals.

Zero-Point looks forward to continuing communication and collaboration with DOER as the Program evolves and the Circuit Multiplier Guideline is finalized. We are available to discuss these comments at DOER's convenience.

Sincerely,



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