



February 5, 2019

Judith Judson, Commissioner
Department of Energy Resources
100 Cambridge St., Suite 1020
Boston, MA 02114

RE: Sunrun Inc. Responses to Clean Peak Energy Standard Stakeholder Questions

Commissioner Judson,

Sunrun Inc. (“Sunrun”) submits the following comments in response to the Department of Energy Resources (“DOER”) notice seeking responses to the Clean Peak Energy Standard stakeholder questions to assist with the development and design of the Clean Peak Energy Portfolio Standard (“CPS”). Sunrun appreciates the opportunity to provide these comments and looks forward to continued collaboration with DOER and stakeholders on the development and design of the CPS.

I. Responses to Clean Peak Standard Stakeholder Questions

Definitions of Key Terms

Clean Peak Resource

Clean peak resource is defined as “a qualified RPS resource, a qualified energy storage system or a demand response resource that generates, dispatches or discharges electricity to the electric distribution system during seasonal peak periods, or alternatively, reduces load on said system.”

Question 1. Should only resources interconnected to the electric distribution system be eligible to qualify, or should resources connected to the transmission system also be eligible to qualify?

Response: Eligible clean peak resources should include transmission system resources as well as distribution system resources. The CPS aims to facilitate deployment of resources that are able to increase clean energy deliveries (and reduce load) during peak hours. Transmission- and distribution-connected resources can serve this purpose to reduce costs and emissions. Sunrun recommends that DOER design the program to provide a carve-out requiring a certain amount of CPS resources be interconnected to the distribution system located within the Commonwealth, or in the alternative, provide a tiered incentive structure to provide greater incentives for in-state resources interconnected to the distribution level to provide clean peak and peak reduction benefits of reduced net imports from the broader ISO-NE region and non-ISO-NE regions.

Question 2. Should DOER interpret the use of the term “electric distribution system” to mean that only facilities on the electric distribution system in the Commonwealth should be eligible to qualify as clean peak resources under the CPS? Should the CPS also include all distribution and/or transmission level resources connected in the ISO-NE control area? Should it include adjacent Control Areas such as NYISO, Quebec, or New Brunswick?

Response: The CPS should include all distribution- and transmission-level resources connected in the ISO-NE control area. Because the CPS is intended to target system peak, resource qualification should be limited to resources within the footprint of that system. DOER should therefore limit geographic eligibility to resources located in the ISO-NE control area, and exclude adjacent areas such as NYISO, Quebec, or New Brunswick. Sunrun also recommends that DOER design the program to include an in-state carve-out requiring a certain amount of CPS resources be procured from resources located within the Commonwealth, or in the alternative, a tiered incentive structure to provide greater incentives for in-state resource deployment to provide clean peak and peak reduction benefits of reduced net imports from the broader ISO-NE region and non-ISO-NE regions.

Demand Response Resource

Demand response resource is defined as “changes in electric usage by end-use customers in the commonwealth from their normal consumption patterns in response to: (i) changes in the price of electricity over time, including, but not limited to, time-of-use rates for residential and small commercial and industrial customers; or (ii) incentive payments designed to induce lower electricity use at times of high wholesale market prices or when system reliability is jeopardized.”

Question 3. What types of resources should be included in this definition?

Response: Residential behind the meter (“BTM”) energy storage and solar PV should be included in the definition of a demand response resource. Residential energy storage has multiple capabilities, including the ability to shift load in response to demand response calls. This would present a new service opportunity and incentive for residential customers to change their normal consumption patterns due to the lack of current pricing signals or load shift opportunities for these customers, as compared to, for instance, commercial and industrial customers on demand rates. DOER should ensure that the CPS demand response program design does not preclude these resources from receiving incentives from other programs or participating in other pay for performance programs, such as the ISO-NE forward capacity market.

Question 4. Should electric vehicles (EVs) qualify?

Response: Sunrun supports including EVs in the definition of a demand response resource for the CPS.

Question 5. How should DOER interpret the inclusion of different types of rate designs in this definition?

Response: DOER should allow CPS participation for customers who make changes in electric usage from their normal consumption patterns in response to time-of-use (“TOU”) and other rate structures. Whether or not a customer is a price-taker of peak rates or takes distribution service pursuant to a TOU, or similar rate designed to incentivize changes in customer consumption patterns, the ability to make changes in a customer’s consumption pattern in response to such rates and incentives makes the resource a demand response resource under the definition provided by statute.

Question 6. Should this definition only be limited to active demand response?

Response: No. The definition should be interpreted to include active (e.g. dispatchable battery storage, load shedding controls) and passive demand response resources (e.g. intermittent solar).

Question 7. Should standalone energy storage resources (i.e. not directly connected to another resource type) be eligible to qualify as demand response resources? What requirements, if any should standalone energy storage resources face in order to qualify as demand response resources?

Response: Sunrun takes no position on this question as this time.

Question 8. Should the DOER view thermal storage facilities as a Demand Response Resource? What requirements, if any, should thermal storage facilities face in order to qualify as demand response resources?

Response: Sunrun takes no position on this question as this time.

Qualified Energy Storage System

Qualified energy storage system is defined as “an energy storage system, as defined in section 1 of chapter 164, that commenced commercial operation or provided incremental new capacity at an existing energy storage system on or after January 1, 2019; provided, however, that such

system operates primarily to store and discharge renewable energy as defined in said section 1 of said chapter 164.”

Question 9. How should DOER define what constitutes “incremental new capacity at an existing energy storage system”?

Response: Sunrun takes no position on this question at this time.

Question 10. How should DOER interpret the requirement that a Qualified Energy Storage System operate “primarily to store and discharge renewable energy”?

Response: See response to subpart a of this question.

a. Would alignment with the federal ITC requirement that storage is eligible for a credit as long as the battery is charged by a renewable energy system more than 75 percent of the time be appropriate?

Response: Yes. Alignment with the federal ITC requirement for storage should make the system a “qualified energy storage system” pursuant to DOER rules. The 75% threshold should be the benchmark for energy storage systems to qualify as a CPS resource. Other qualification standards could also be available; however, if a system is charged by a renewable energy system in accordance with the federal ITC requirement, it should be deemed a qualified energy storage system.

b. If not directly physically or electrically connected to a renewable energy resource, how can the qualified energy storage system demonstrate that it operates primarily to store and discharge renewable energy? Purchase and retirement of RECs? Some other means?

Response: Sunrun takes no position on this question as this time.

Question 11. How should DOER view thermal storage facilities with respect to eligibility as a qualified energy storage system?

Response: Sunrun takes no position on this question as this time.

Qualified RPS Resource

Qualified RPS Resource is defined as “a renewable energy generating source, as defined in subsection (c) or in subsection (d) of section 11F that has: (i) installed a qualified energy storage system at its facility; or (ii) commenced commercial operation on or after January 1, 2019.”

Question 12. Given the requirement that RPS resources that commenced commercial operation prior to 2019 must be paired with a qualified energy storage system in order to qualify for the CPS, what, if any, requirements should DOER adopt regarding how much energy storage needs to be installed?

Response: DOER should design the retrofit rules to incentivize customers to add energy storage to RPS resources that commenced commercial operation prior to 2019. Retrofitted RPS resources should be deemed a qualified RPS resource.

a. Should there be a minimum percentage threshold on the ratio of the size of the energy storage to the size of the renewable resource (e.g. minimum installed storage capacity equal to 25% or more than installed renewable capacity)?

Response: Sunrun strongly supports the eligibility of storage retrofits under this definition, however, DOER should not adopt a minimum percentage threshold on the size of the energy storage to the size of the renewable energy resource. The CPS should allow for all clean kWh/MWh exported to the grid during the compliance window regardless of the size of the energy storage system. In the event that DOER establishes a minimum ratio threshold for certain retrofitted systems, DOER should exempt residential systems from such a requirement such that the addition of energy storage to an existing RPS system makes the entire RPS and energy storage system CPS eligible.

Question 13. With respect to the quantity of its capacity that a Qualified RPS Resource can qualify under the CPS, should the DOER discount a Qualified RPS Resource's eligible capacity based on the capacity it can supply through the duration of each seasonal peak period (e.g. a 2 MW solar resource that can only provide 50% of its capacity value over the peak period would qualify as a 1 MW facility)?

Response: No. Qualified RPS resource performance under the CPS should be tied solely to kWh/MWh delivered during the peak windows. Any discounting according to capacity value would add significant complexity to the calculation of expected revenue streams, with no justification. Designing the program around kWh/MWh captures the power and time value of energy, which is more readily measurable and better reflects the time value of the energy.

Question 14. Should DOER adopt any additional requirements regarding the CPS eligibility of renewable energy generating sources as defined in subsection (c) or in subsection (d) of section 11F (e.g. emissions thresholds, fuel sourcing, etc.)?

Response: Sunrun takes no position on this question at this time.

Seasonal Peak Periods

Establishing Seasonal Peak Periods

DOER is required to establish seasonal peak periods, which are defined by that statute as “the daily time windows during any of the 4 annual seasons when the net demand of electricity is the highest; provided however, that a seasonal peak period shall be not less than 1 hour and not longer than 4 hours in any season, as determined by the department.”

Question 15. Given these limitations, how should DOER establish different seasonal peak periods to both optimize cost reductions for ratepayers and emissions reductions for the Commonwealth?

Response: DOER should take into account historic ISO-NE peaks when establishing the seasonal peaks and other factors. DOER should also seek input from utilities and stakeholders to establish shoulder month peaks and look to include historical RNS/LNS coincident peak hours to allow for stacking with the ISO-NE FCM to achieve the most benefit.

Question 16. DOER is considering announcing seasonal peak periods on an annual basis based on 1 to 3 years of historical data.

a. What formula should DOER use to set the seasonal peak periods to reflect real time operating conditions?

Response: DOER should ensure long-term consistency in operational requirements for developers when making resource investment decisions when establishing the formula. As a baseline, initial CPS resources should be grandfathered under their initial peak period windows for at least five years and the program should allow CPS resources to participate in one or more of the peak seasons, with no minimum participation requirements. The value of the certificate should be based on the number kWh/MWh delivered during the peak period in which the resource performs.

b. What data sources should DOER use to determine seasonal peak periods?

Response: See response to subpart a of Question 16.

c. What time period(s) should each of the 4 annual peak periods cover?

Response: Options for the four annual peak periods should be explored further, including an option for longer summers and winters (4 months each), which shorter shoulder seasons (2 months each). The summer peak could be June through September while the winter peak could be December through March, with spring and fall covering the months in between. There are other policy-based and technical considerations that should inform setting the annual peak periods and Sunrun recommends DOER explore options with stakeholders.

d. Should seasonal peak periods be different lengths depending on the season?

Response: Seasonal peak periods could be different lengths depending on the season. The timing and duration of peak periods should be based on a historical look-back of peak load events, modified as necessary for projected future peak load change. DOER should also bear in mind when setting peak periods that some resources, such as energy storage in particular, are more cost-effective in serving the peak when the performance window is shorter. Sunrun recommends DOER use ISO-NE's Passive Demand Resource (PRD) program as an example. In the PRD program are from 1-5 PM (4 hours) in June, July, and August, and 5-7 PM (2 hours) in December and January. These periods are based upon analyses performed by ISO-NE that show different peak periods during the summer and winter. Sunrun recommends that DOER take a similar approach and aim to meet system peaks according to the actual load shape in that season. This will enable resources with limited duration the ability to contribute towards reducing peak more if the peak is shorter, thereby achieving efficiencies of scale.

e. How often should the seasonal peak periods be examined and/or adjusted to reflect changes in seasonal peak demand over time? What should be the trigger and/or the process for making such adjustments?

Response: See response to subpart a of Question 16. Sunrun emphasizes that it is important to avoid "snap-back" of peaks by including grandfathering or vintaging provisions for initially qualified resources such that any changes to peak windows should be prospective only.

Question 17. Are there alternative methods of establishing seasonal peak periods the DOER should consider?

Response: DOER should seek incorporate in its method alignment of seasonal peak periods with the hours that carry the highest proportional cost to Massachusetts ratepayers and have the highest GHG-emissions embedded in the fuel mix.

Atypical Peak Events

Not all system peaks occur within the same 1-4 window throughout the course of a season (e.g. a 95 degree day on a weekday in May will almost certainly not have a peak that occurs at a similar time of day as the bulk of peak periods in the same month).

Question 18. Should DOER establish peak periods other than the seasonal peak periods during which clean peak resources are eligible to generate clean peak certificates?

Response: Sunrun supports DOER creating a mechanism to incentivize peak-responsive performance that may fall outside the predetermined CPS windows. There should be a means of compensating resources for performing during actual peak events rather than the expected/pre-determined peak windows.

a. If so, what criteria should DOER use to establish these periods and what mechanism(s) and should be used to trigger and announce these events in advance of them occurring?

Response: A day-ahead program that provides a higher incentive payment than the payment for scheduled peak is one possibility. Incorporating program design options to respond to atypical events would provide a more comprehensive program to further the CPS goals of reducing costs and GHG emissions.

b. Should DOER specifically target ISO system peaks?

Response: Generally speaking, DOER should seek to target and overlap with ISO-NE system peaks. Please also see response to Question 15 above.

Generation of Certificates

Some clean peak resources may only be capable of generating clean peak certificates during a portion of a seasonal peak period. For example, a solar resource trying to deliver energy for the duration of a summer seasonal peak period that lasts from 6-9 PM may generate a significant number of certificates in the early part of that window compared to the latter.

Question 19. Should only resources that can provide value for the entire duration of a peak period be able to generate certificates?

Response: No. Certificate generation should be tied solely to kWh/MWh delivered during the peak windows, not the duration of performance. Any discounting according to capacity value or

duration of performance would add significant complexity to the calculation of expected revenue streams, with no justification.

Question 20. Should there be different values provided to resources that can provide value for a portion of a peak period versus the entire peak period? If so, how should DOER differentiate these value Streams?

Response: No. Determining those values becomes very complex and would result in a strong likelihood of significant administrative complications and additional costs. Certificate value should be based on kWh/MWh, similar to RECs.

Question 21. Should there be a penalty (i.e. negative credits) if a resource under-produces during the actual monthly peak?

Response: No. CPS crediting should be based only on performance during the peak windows. Including a penalty structure implies a capacity-based program, which is not appropriate or necessary for the CPS, which should be designed as an energy-based program (kWh/MWh). Similarly for an atypical peak event structure, there should not be a penalty or negative credit for resources that choose to perform during the predetermined peak windows instead of during actual peaks (though they may forego potentially higher revenues from Atypical Peak Event performance).

Question 22. How should resources participating in other state programs (e.g. section 83 procurements, SMART, EE programs, etc.) interact with the CPS?

Response: Resources enrolled in other programs should be able to participate in and interact with the CPS program. This is consistent with the recognition that certain resources, particularly energy storage, have the capability to provide discrete, separate grid services. These multiple use-case applications must be facilitated in the CPS program design to ensure that resources participating in the CPS program may realize multiple value streams by participating in the CPS as well as other programs, provided that the service and compensation provided in one program is “incremental” to the service and compensation provided in another program. Simply put, a resource that is capable of and managed to provide multiple grid services should be compensated for each of the services provided, regardless of the number of programs the resource is participating in. This is consistent with DOER’s State of Charge assessment and furthers the goal of closing the “revenue gap” for energy storage project owners who are currently unable to monetize all of an energy storage system’s benefits.¹

¹ Massachusetts DOER and MassCEC, *State of Charge: Massachusetts Energy Storage Initiative* at 79 and 115 available at <http://www.mass.gov/eea/docs/doer/state-of-charge-report.pdf> (describing the value propositions of energy storage and the need to close the “revenue gap” for energy storage project owners who are currently unable to monetize all of an energy storage system’s benefits).

Question 23. Should qualified energy storage systems that can demonstrate they were charged during minimum load windows be provided additional incentives or benefits under the CPS? If so, how should these be structured and how should minimum load windows be established?

Response: Sunrun takes no position on this question at this time.

Metering

Verification of Metered Data

DOER proposes that all clean peak resources be registered with NEPOOL GIS as Non-NEPOOL participants. This would mean that, as required by the NEPOOL GIS operating rules, all resources would be required to report their eligible output to NEPOOL GIS by a DOER approved Independent Third-Party Meter Reader. This entity would be responsible for verifying the accuracy of the reported data before uploading it to NEPOOL GIS for the creation of certificates. To ensure that all data is collected, reviewed, and reported to NEPOOL GIS in a consistent manner, DOER would select a single entity to act as the Independent Third-Party Meter Reader, similar to the process used under the SREC programs, in which the Production Tracking System at the Massachusetts Clean Energy Center serves in this role.

Question 24. Do you support this proposal? If not, please describe why.

Response: Sunrun takes no position on this question at this time, but recommends DOER solicit additional input through a stakeholder process.

Question 25. If DOER procures the services of a single Independent Third-Party Meter Reader:

a. What criteria should DOER use to evaluate the capabilities of the entity that is selected to act as the Independent Third-Party Meter Reader?

Response: The Third-Party Meter Reader should be able to accept data from a wide range of metering devices so that participants are not locked into specific equipment that may be more costly than acceptable alternatives, and to ensure that a Third-Party Meter Reader specifications do not hinder innovation in inverter data and home gateway information availability. The Third-Party Meter Reader must allow additional metering devices to be installed and owned by developer (not the utility or the Third-Party Meter Reader).

b. Do you support the establishment of a fee structure to support the ongoing services provided by the Independent Third-Party Meter Reader?

Response: To reduce the number of individual transactions occurring in connection with the CPS program, any fee structure developed with the Third-Party Meter Reader should be paid directly by DOER or the CPS program administrator, rather than individual CPS resource participants.

c. How should this Third-Party verification take place?

Response: Sunrun takes no position on this question at this time.

Metering Specifications and Requirements

Because clean peak certificate creation is dependent not just on the quantity of energy output, but also its timing, more sophisticated metering will be required than that which is required for many RPS eligible systems, which only require monthly meter reads.

Question 26. Describe in as much detail as possible the metering standards and requirements (type, accuracy, etc.) that DOER should employ to ensure the accurate collection of data.

Response: DOER should adopt metering standards and requirements that allow for innovation and ensure that the flexibility needed to adopt new technologies is not hindered.

Question 27. Should different standards apply to different sizes and types of facilities? If so, please describe your recommendations in as much detail as possible.

Response: Generally, meter accuracy requirements should align with the rules for SREC and SMART, including lower accuracy/granularity requirements for smaller systems. Additionally, qualified energy storage resources that charge 100% from solar (or other qualified RPS resources) additional metering standards should not apply to these resource configurations.

Question 28. What other verification mechanisms could be deployed to simplify the process, particularly for small-scale systems for which some types of metering solutions may be cost-prohibitive?

Response: See response to Question 26.

Value of Certificates

DOER must establish an alternative compliance payment rate and potentially other mechanisms that will help establish the value of clean peak certificates. Please describe in as much detail as possible:

Question 29. How much value is likely needed on a per MWh basis to incentivize different types of existing resources to operate during peak windows and/or new resources developed or financed using CPS revenue streams?

Response: Sunrun would welcome the opportunity to have confidential discussions with DOER to address this question.

Question 30. How should DOER establish these values?

Response: In establishing the value of a CPS certificate, DOER should focus on the value of clean resources in avoiding the cost of using emitting resources during those hours. As such, values such as the Social Cost of Carbon and the marginal emissions rate during that hour could be used to estimate the value of those avoided emissions during that hour. Additional attention should also be given to transmission constrained areas where there may be a need for more local renewable energy to achieve a clean peak. Importantly, however, Sunrun recommends that DOER maintain a methodology and value of clean peak certificate values that is transparent and predictable to provide certainty to developers on revenue expectations and encourage resource deployment. As such, while the CPS certificate value may be based upon a collection of real-time values for avoided emissions over the hours and seasons of a given year, that the eventual price should be relatively simple and consistent to allow developers to deploy these resources without excessive risk. DOER should initiate a stakeholder process to determine an appropriate methodology for establishing clean peak certificate value.

Long-term Contracts

In establishing certificate values, DOER “may include a process by which electric distribution companies competitively procure clean peak certificates from clean peak resources and enter into long-term contracts, subject to the approval of the department of public utilities.”

Question 31. If DOER does require competitive procurements:

a. What types of facilities should be able to participate in solicitations? Should it be limited to certain types of facilities (e.g. facilities that are either new and/or not already supported by another type of long-term contract or financing tool)?

Response: CPS program participation, including solicitation-based participation, should allow and encourage the participation of third party aggregators. Moreover, CPS program participation should allow aggregators and asset owners with resources that participate in other programs or receive other incentive payments, to participate in the CPS program. In other words, resources that can perform within the program specifications for an individual program while also being able to perform for other programs should be allowed to participate in different programs to meet those distinct grid service needs and receive the respective incentive payments for each program. See also response to Question 22.

b. How frequently should solicitations take place?

Response: Solicitations should occur annually or twice-annually.

c. How large should the procurements be (e.g. percentage of total load or annual requirement)?

Response: Sunrun takes no position on this question at this time.

d. How should the contract price be established? Pay as bid? Reverse auction mechanism with a single clearing price for all resources? Other?

Response: DOER should aim to establish the price for clean peak resources according to the value that resource has in avoiding emissions. Reverse auction mechanisms have been successfully used in the past to achieve a competitive price that prevents gaming of the procurement process. Sunrun supports DOER's option of establishing a reverse auction with a single clearing price, though acknowledges that there may be a need for locational values in transmission constrained areas.

Post-2019 Minimum Standard Requirements

DOER has established a baseline Minimum Standard requirement of 0% for 2019. Each year after 2019, DOER is required to establish a Minimum Standard requirement for retail suppliers that increases at a rate of at least 0.25% of total retail sales annually.

Question 32. What methodology should DOER use to establish post-2019 Minimum Standard requirements (e.g. fixed annual requirements in a published schedule, supply reactive formula, other)?

Response: DOER should establish fixed requirements at five or ten-year milestones in order to encourage the resource development and energy supply communities to make multi-year

development and multi-year procurement decisions, respectively. On a year-to-year basis, a supply reactive formula should be used to set individual year compliance obligations. We support additional analysis to determine the optimal percentage of clean peak resources that the state would like to achieve at these milestones (e.g., 30% clean peak by 2030) based on estimated costs and benefits and alignment with the state's greenhouse gas emissions reductions goals. Please also see response to Question 30.

Question 33. How large should the minimum standard be?

Response: The annual targets should be determined following an initial minimum standard and further analysis that identifies the CPS levels needed to support the state's broader greenhouse gas reduction and policy goals. Given the substantial grid, cost, and environmental benefits to be gained from targeted peak improvements, DOER should be aggressive in setting initial targets and annual compliance trajectories.

Demand Response Resource Carve-out

Separate from the total Minimum Standard requirement, DOER is required to establish "a minimum percentage of clean peak certificates that must be derived from demand response resources."

Question 34. How should DOER interpret this requirement?

Response: A demand response carve-out is appropriate to ensure that the end-use customers that are ultimately paying for the Clean Peak program have an opportunity to directly participate. A 10%-20% minimum carve-out for demand response would be reasonable and we recommend that DOER retain flexibility as necessary to adjust this year to year. Solar and energy storage resources located at a single location (e.g. a single family residence) should be treated as a unified resource and DOER's program design rules should allow for these resources to be aggregated and deployed by a third party aggregator.

Question 35. What methodology should DOER use to establish this carve-out of the larger Minimum Standard?

Response: Sunrun has no further comment at this time.

Other

Question 36. Please discuss any other implementation issues not addressed above.

Response: Sunrun takes no position on this question at this time.

II. Conclusion

Sunrun appreciates the opportunity to provide these comments and looks forward to continued collaboration with DOER and stakeholders on the development and design of the CPS.

Respectfully submitted,

/s/ Chris Rauscher

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