

Nature & People First Responses to Some of the DOER CPS Questions submitted February 5, 2019

Clean Peak Standard (CPS) 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.”

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? All resources including those connected to the transmission system.

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? All resources connected to the ISO-NE control area but not adjacent control areas.

3. 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.” What types of resources should be included in this definition? **4. Should electric vehicles (EVs) qualify?** **5. How should DOER interpret the inclusion of different types of rate designs in this definition?** **6. Should this definition only be limited to active demand response?** Only active demand response should apply and there should be an excellent justification for the baseline. Only EVs that deliver power to the grid at peak times and which were charged using renewable power generated in ISO-NE should qualify.

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? Standalone energy resources should qualify as a CPS resource if they demonstrate that by contract they were charged using renewable power generated in ISO-NE control area. Energy storage resources that deliver power during the peak hours, start commercial operation on or after January 1, 2019, and charged either directly or by contract with renewable power generated in the ISO-NE control area (charged by “Renewable Power”) should be considered renewable power resources.

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? 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.”

Thermal storage facilities that use the energy to produce power should be power resources. Thermal storage facilities that use the energy to offset power use that can otherwise be demonstrated to be needed at peak times (e.g., ice storage replacing chiller use) should qualify as Demand Response Resources provided they are charged with Renewable Power.

9. How should DOER define what constitutes “incremental new capacity at an existing energy storage system”? Incremental new capacity is equal to the amount of capacity at such system less the greater of a) the historically demonstrated peak prior to 2019 or b) the nameplate peak capacity prior to 2019. Systems installed prior to 2019 shall be deemed to be 100% existing capacity unless they can demonstrate through a certification process that more capacity has been added and what that amount is.

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

Qualified Energy Storage Systems should buy or generate time-demonstrated RECs at non-peak times and retire the RECs. DOER should create a CPS REC that is demonstrated to meet the CPS. Systems should charge with Renewable Power to account for round trip efficiency, e.g., an energy storage system with an 80% round trip efficiency should need to buy or generate on-site 125 kWh of Renewable Power during an off-peak hour to produce 100 kWh during a peak hour.

11. How should DOER view thermal storage facilities with respect to eligibility as a qualified energy storage system? 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.”
See the response to question 8 above.

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? 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)? RPS resources should not be required to install energy storage on site or be required to be paired contractually with an energy storage unit.

13. With respect 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)? The DOER should adjust for less than 100% delivery during the peak period. The DOER should measure CPS certified power delivered in MWh and compare that with the MWh wholesale demand plus offset retail demand (i.e., the amount of MWh Massachusetts utilities and other buyers bought from ISO-NE plus the CPS RECs produced by CPS qualifying facilities such as demand response, solar delivered to buildings and energy storage) during the peak period.

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.)? 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.” **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?** DOER should not optimize for emissions. DOER should start with a 4 hour peak period per season that includes the time period ISO-NE charges utilities for capacity or transmission. Such 4 hour period should be the 4 hours when the most ISO-NE power was purchased. To the extent that a) the load curve flattens or b) 80% of power delivered during a peak period is CPS certified power, then DOER should seek legislative approval to broaden the peak period.

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? b. What data sources should DOER use to determine seasonal peak periods? c. What time period(s) should each of the 4 annual peak periods cover? d. Should seasonal peak

periods be different lengths depending on the season? 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? 17. Are there alternative methods of establishing seasonal peak periods the DOER should consider? 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). 18. Should DOER establish peak periods other than the seasonal peak periods during which clean peak resources are eligible to generate clean peak certificates? 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? b. Should DOER specifically target ISO system peaks? 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. 19. Should only resources that can provide value for the entire duration of a peak period be able to generate certificates? 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? 21. Should there be a penalty (i.e. negative credits) if a resource under-produces during the actual monthly peak? DOER should focus on reducing ratepayer payments by scheduling peak periods retrospectively (i.e., after the fact) to match ISO-NE capacity and transmission charges. CPS participants would then schedule their resources to make their best guesses when those time periods would occur. The DOER should set up a market to decide what the value of each hour is. For example DOER would work with ISO-NE and Massachusetts utilities to analyze what the Massachusetts peak is expected to be for each hour at the time of the ISO-NE expected peak times, set the amount of CPS certificates needed for each hour and have providers bid to deliver the CPS resource during such hour. Given our suggestion of a retroactive determination of when and how many CPS certificates were delivered, we recommend carrots not sticks. If DOER decides to schedule peak periods in advance, then penalties for failure to deliver are appropriate.

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

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? Not necessary since systems will have the incentive to be charged with lower cost power.

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

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? b. Do you support the establishment of a fee structure to support the ongoing services provided by the Independent Third-Party Meter Reader? c. How should this Third-Party verification take place?. Ratepayers should pay the cost of the CPS program but these costs will be offset to the extent that the CPS time periods reduce ISO-NE capacity and transmission charges. If penalties are included in the CPS program, then security should be posted similar to ISO-NE's approach. Ideally verification can be done with real-time metering and auditing.

26. 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. 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. For power producers, use utility grade meters with documented time for purchase or sale of power. For demand response, use ISO-NE methodology as further refined if there is a concern regarding gaming the system. Ideally the information would be transmitted to the independent third party in real time.

27. Should different standards apply to different sizes and types of facilities? If so, please describe your recommendations in as much detail as possible. No

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? 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. See above answers.

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. In the beginning, given the low requirement, we would expect a price just above the administration cost to participate plus the risk associated with any penalties. As demand for CPS certificates exceeds supply, and assuming long term contracts are established, then we expect no more than about \$50/MWh and possibly much less depending on other ISO, utility, tax, grant, etc. benefits.

30. How should DOER establish these values? 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.” DOER should create a market similar to the ISO-NE forward capacity market to provide each hour of resource for 16 hours per year (four hours per season) by utility. The term of the agreements should match the expected life of the technology, e.g., 7 years for batteries, 20 years for thermal storage and 40 years for pumped storage hydro.

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)? b. How frequently should solicitations take place? c. How large should the procurements be (e.g. percentage of total load or annual requirement)? d. How should the contract price be established? Pay as bid? Reverse auction mechanism with a single clearing price for all resources? Other? **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. DOER should do competitive solicitations. DOER should require new capacity, i.e., any potentially qualifying capacity will not qualify if before the finalization of program details a) was under construction or in commercial operation, b) had a signed contract for power or demand response service or c) was a winning bidder for the off-shore wind RFP. The renewable power that energy storage uses should also be new as well. CPS revenue streams should be in addition to revenues from other programs or benefits. Solicitations should be annual for the full amount forecast. If utilities achieve the forecast amount they are deemed to have complied. Other retail suppliers need to achieve the minimum standard requirement as a percentage of their sales. Consult with ISO-NE and other experts to determine if pay as bid or reverse auction results in the lowest cost.

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)? DOER should work in parallel with ISO-NE and

Massachusetts utilities to establish the amount of CPS certificates required for each of the 16 hours per year for at least three years in advance and publish the information annually.

33. How large should the minimum standard be? 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.” **34. How should DOER interpret this requirement?** **35. What methodology should DOER use to establish this carve-out of the larger Minimum Standard?** Demand response should have a 10% carve-out. The bulk of the CPS certificates should come from clean power generated at the time of the peak periods or through energy storage which would charge during non-peak periods and deliver during peak periods.