CONFIDENTIAL – POLICY DELIBERATIVE

Clean Peak Standard (CPS) Draft 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?
   Resources connected to transmission should be eligible. The environmental benefit of off-loading generation is still achieved. The potential to help stabilize the system at the transmission level can help offset duck ramps, voltage excursions, and frequency shifts that impact the entire distribution area as well as the useful life of the substation transformers.
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?
   It should mean any distribution and/or transmission level resources in the commonwealth.

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."

3. What types of resources should be included in this definition? **This should include all devices that can consume energy and all devices specifically designed to dispatch energy.**
4. Should electric vehicles (EVs) qualify? **No. Including electric vehicles produces a Demand Response Resource that will change unpredictably over time as people try to fit it in with their life style. Demand Response Resources should be limited to things that are less dependent on the moment-to-moment perceived needs of the owner.**
5. How should DOER interpret the inclusion of different types of rate designs in this definition? **Each category should have its own rate schedule and that rate schedule can be base on location. For example, much like the way utilities use rolling blackouts when demand exceeds supply. Electric vehicles could have charge rate limitations based on the hour of the day in different locations in order to control the peak charging demand at any given time.**
   Additionally, for a given resource owner, the more a particular resource participates in demand response, the lower their overall rate to purchase energy.
6. Should this definition only be limited to active demand response? **No. Passive demand response is just as valuable.**
7. Should standalone energy storage resources (i.e. not directly connected to another resource type) be eligible to qualify as demand response resources? **Yes.** What requirements, if any should standalone energy storage resources face in order to qualify as demand response resources? **They must demonstrate that they can participate in grid stabilization and agree to do so. (Frequency control, volt/var, voltage stabilization, control duck ramp slope, peak shave)**
8. Should the DOER view thermal storage facilities as a Demand Response Resource? **Yes.** What requirements, if any, should thermal storage facilities face in order to qualify as demand response

resources? **They must demonstrate that they can reduce peak loads on the infrastructure, and implement a plan to do so in order to remain eligible.**

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."

9. How should DOER define what constitutes "incremental new capacity at an existing energy storage system"? **All new capacity that puts the energy storage capacity at that location higher than its initial "day one" capacity. (this should not include changes to restore the original capacity of systems that failed to operate or have degraded their operation)**

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

This should include systems that normally only store energy from a renewable source for the purpose of ameliorating negative impacts on the grid, such as intermittent generation, and controlling the "down" ramp when its prime mover goes away (e.g. calming of wind, end of day or cloud cover for solar, natural gas demand) as well as peak shaving during known peak load times. This includes all forms of 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? **Yes, absolutely. This gives the owner the ability to charge from the grid when necessary for battery health while maintaining the benefit of the energy storage.**

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? **1). By operating to store energy based on an irradiance measurement. 2). By direct communication with a wind project on the same feeder. 3). by a dispatch signal based on renewable generation on the same substation.** Purchase and retirement of RECs? Some other means? **We should be targeting a physical measurable benefit instead of a paper one. Perhaps selling clean air credits would be useful for providing a known revenue stream for financing options.**

11. How should DOER view thermal storage facilities with respect to eligibility as a qualified energy storage system? **Where thermal storage systems off load the peak demand for thermal energy by storing it during low demand hours (e.g. natural gas by burning it and storing the heat energy).**

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."

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)? **The 25% minimum and incentive curve in the current SMART energy storage adder was very well thought out. This is appropriate for most of the real energy storage benefits. Additionally, the requirement should be to have enough energy storage to be able to control the down ramp of energy production at a rate within classical generation and current system operator capabilities to handle the morning and afternoon ramps. This should be slow enough that no additional spinning generation reserves need to be added to the system to meet the ramp.**
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)? **This requires more thought. The incentive should be for the benefit received. The calculation above doesn't seem to capture a good correlation between benefit and cost.**
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.)? **Eligibility should continue until we reach a reasonable target. EDC's should be incentivized to drive toward renewable sources.**

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?
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?

This would be best if it were a rolling 5-year average. The peak period must use the total energy consumed by all customers and not what bulk generation has had to supply. Other wise you are literally chasing your own tail.

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). **This issue needs to be controlled by demand response and not part of a fixed peak period calculation.**

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? **No. However, resources that can deliver for the entire duration should receive a higher value, and resources that cannot should receive a lower value.**

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? **Yes. There should be a weight given to peak requirements. Once the peak requirements of a certain time are met the incentives move. (i.e. the greater the peak you are participating in resolving, the greater the value). In other words, we reduce the incentive as we near the target.**

21. Should there be a penalty (i.e. negative credits) if a resource under-produces during the actual monthly peak? **Consistently under producing yes. Infrequent occurrences no. circumstances that prevent the resource from performing that are outside their control (EDC operations or operating requirements imposed upon the resource) should also not incur a penalty.**

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

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? **No. If a resource needs to charge from a non-renewable source it should be automatically required to charge during non-peak hours and not during capacity alerts.**

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.

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

Yes. We are already familiar with this process.

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? **Any fee structure needs to be definitively determinable in advance otherwise financing will be difficult and costly.**
    c. How should this Third-Party verification take place?

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.

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

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?
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."

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)? **EDC affiliated systems should not be eligible**
    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.

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)?
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?

Other

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