



Enel's Response to Clean Peak Energy Standard Stakeholder Questions

The Enel Group appreciates the opportunity to submit responses to the Department of Energy Resource's ("DOER") Clean Peak Standard ("CPS") Draft Stakeholder Questions

Enel Group Overview:

Enel, a global energy titan serving approximately 72 million customers in more than 30 countries, is powering the smart energy evolution in North America through an innovative, diversified approach to energy production and management. With around 1,200 employees in North America, Enel is the industry leader in both renewable energy and energy service solutions; it was the fastest growing renewable energy company in the U.S. and Canada in 2017 and is the leader in demand response through its acquisition of EnerNOC in 2017. Enel operates in the U.S. and Canada through two distinct business lines, Enel Green Power and Enel X, which provide services to different segments of the energy market. Through these two divisions, Enel integrates power, technology and services to design customized energy solutions for organizations of all sizes. Its energy solutions create an opportunity for companies to meet their business goals, from energy cost-savings to enhanced sustainability practices and operations that are more resilient.

Enel Green Power is a leading owner and operator of renewable energy plants in North America with projects operating and under development in 24 U.S. states and two Canadian provinces. Enel Green Power in North America operates more than 100 plants in wind, solar, hydropower and geothermal, with a managed capacity around 5 GW, enough to power the equivalent of every household in the City of Boston for four years. Enel has partnered with some of the world's most notable companies, including Google, Facebook, Adobe, Anheuser-Busch InBev, Bloomberg, General Motors and Kohler, to drive sustainable energy in North America.

Enel X, which encompasses the technology and services from global leaders like EnerNOC, Demand Energy, and eMotorWerks, is leading the transformation of the energy sector.

Enel X in North America has approximately 3,400 business customers, spanning more than 10,400 sites, representing more than 4.6 GW of demand response capacity and over 20 behind-the-meter storage projects, including their award winning Marcus Garvey Apartments micro grid, which incorporates solar PV, fuel cells, energy storage, and complex algorithms to provide both savings and resilience to the customer and while also benefiting the utility.

Sincerely,

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Responses to Draft Stakeholder Questions:

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 both the distribution system and the transmission system should be eligible as a Clean Peak Resource. The legislative intent is clear that that both distribution and transmission connected resources should be able to participate in the Clean Peak Standard (“CPS”). A “clean peak certificate” is defined as a credit of each MWh of energy or energy reserves. Reserves are an ISO-NE market based product only that is used to balance supply and demand on the transmission system. This definitional language makes clear that the legislature intended for transmission level connected resources to participate in this program. In addition, the CPS complements the Renewable Portfolio Standard (“RPS”) and the legislative language mimics the RPS language contained in G.L. c. 25A, which does not limit participation to only distribution connected resources.

The intent of the Clean Peak Standard is to cost effectively reduce emissions. To cost effectively reduce emissions, transmission level connected clean projects are needed to replace peaker plants.

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?

See response to Q1.

If a resource can demonstrate that its MWhs are being delivered into the ISO-NE control area during the seasonal peak periods then it should qualify for the Clean Peak Standard.

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?

Enel recommends that DOER take a technologically agnostic approach regarding the type of resources that should be included in the definition. There are several technologies that can serve as the means for enabling demand response. Such technologies include but are not limited to behind-the-meter energy storage that can reduce a customer’s consumption from the electric grid, smart EV charging schemes that can reduce or shift EV charging from periods of high demand to low demand, or technologies that enable load curtailments from HVAC, lighting, production lines, etc. As long as a technology can facilitate a reduction in a customer’s electric usage during the clean peak window, and contributes to a cleaner peak, it should qualify. Although distributed generation powered by fossil fuel is a form of demand response, we do not believe that it should qualify in the context of a clean peak program.

4. Should electric vehicles (EVs) qualify?

Yes. More broadly, vehicle-grid integration services sourced from EVs and Electric Vehicle Supply Equipment (EVSE) should qualify, as both can contribute to a cleaner peak. For instance, Enel X’s subsidiary eMotorWerks provides smart EV charging services to utilities, and also operates a 30 MW/70MWh virtual battery consisting solely of smart EV chargers in the California ISO market, using its JuiceNet cloud-based energy services platform. Through JuiceNet, eMotorWerks can take in drivers’ mobility and charging requirements, predict when loads will be high, and shift charging times to lower peak hours. Given the quantity of EVSE that is expected to be deployed in MA in upcoming years, it is critical that appropriate price signals be sent to encourage charging during off-peak periods. Making EVs and EVSE eligible for the Clean Peak will enable that outcome.

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

Time-of-use rates, when designed properly, can serve as a tool to achieve demand response. Careful deliberation is necessary regarding how to measure and quantify demand response from TOU rates in the context of a clean peak.



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

Assuming that by “active” DOER means dispatchable, Enel does not believe this definition should be limited to active demand response. Demand management technologies that can permanently reduce load during certain time windows, but are not dispatchable, can contribute to a cleaner peak. Also, demand response from TOU rates is not dispatchable.

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?

Yes, as discussed in our answer to Question #3, Enel strongly recommends that standalone energy storage resources be eligible to qualify as demand response resources. This would be consistent with the ISO-NE market design, where customers can use standalone energy storage to facilitate their participation in the ISO-NE demand response program. The main requirement that behind-the meter- standalone storage should have is that any charging be done during designated off-peak periods (e.g. 12 AM – 6 AM), when emissions are lowest or when renewable energy production is high and may need to be curtailed due to low load levels.

While the curtailment of renewable energy production might not be a frequent issue now, by requiring charging during off-peak periods and creating load to be absorbed by renewable production, DOER can help drive renewable development in a cost-efficient manner and prevent curtailments from occurring in the future. Although not limited to just demand response enabled by energy storage, Navigant Consulting has also noted the ability of demand response to help integrate renewables in a clean manner, stating:

“There may be situations where renewables need to be curtailed such that sufficient fossil fuel generation is available to provide ancillary services. In these circumstances, DR can instead provide the ancillary services, thereby preventing the curtailment of renewable resources. The CO2 emission reductions in such a scenario could be 10 percent or more.”¹

The Baker Administration, and DOER, have consistently taken a long-term perspective and thought holistically about laying the foundation for a future powered by cleaner, more resilient and more affordable resources. The Administration can build on that track record by implementing sensible requirements for standalone storage as outlined above.

¹ Navigant Consulting. “Carbon Dioxide Reductions from Demand Response.” November 25, 2014. DOER should note that this study did not focus on ISO-NE, so it’s not clear whether the 10% number is applicable.



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

Please see response to Question #3 regarding a technologically neutral approach.

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”?

No comment

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

To achieve the objective that a Qualified Energy Storage System operates “primarily to store and discharge renewable energy” the resource may be co-located with a renewable energy resource but co-location should not be required. A Qualified Energy Storage System not co-located with a renewable energy may also comply by purchasing and retiring Massachusetts Class I Renewable Energy Certifications (RECs), or as outlined in our response to Q. 7, by charging during off-peak periods with lower emissions and higher penetration of renewable energy. By allowing charging during these periods, DOER can help create load that avoids curtailments of renewable energy. This furthers the intent of the Clean Peak Standard to cost-effectively reduce emissions.

When the Qualified Energy Storage System is not being used to comply with the Clean Peak Standard, the requirements of “primarily to store and discharge renewable energy” should not apply.

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?



See response to Q10

Requiring the owner of storage technologies to account for the source of their energy can impose an unreasonable burden. However, allowing multiple methods for demonstrating eligibility addresses this concern, such as co-location, purchasing RECs, or metering data that shows charging during low-emitting times. Allowing multiple eligibility methods would allow more grid services a solar plus storage system can provide to grid operators to help with resiliency.

One of the goals of the “Energy Storage Tax Incentive and Deployment Act” (S. 1868 & H.R. 4649), is to remove the 75% requirement that the IRS has created. The federal legislation is interested in extending the federal tax credit to stand-alone energy storage projects, as well as pairing with other types of renewables besides just solar. It would be unfortunate to eliminate the 75% requirement via new federal legislation, only to have it enshrined in Massachusetts state law.

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?

See response to Q10

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

Please see response to Q3 regarding a technologically neutral approach

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)?

DOER needs to design retrofit rules that incentivize different and meaningful behavior in the way the renewable resources are operated and prevent an existing RPS eligible resource from receiving credit for existing behavior.

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)?

An eligible resource should receive credit for any MWh delivered during the defined seasonal peak period. The focus should not be on MW.

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.)?

No comment

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 consider using three years of historical data based on each of the four seasons to determine the peak periods. Three years will give the most current market conditions and at the same time weed out any outlier scenarios.

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?

The formula should be driven by the CPS intent of cost-effectively reducing emissions. Therefore, the formula should be based off looking at the 1-4 hours where there is the largest increase in load, which typically correlates with price, and emissions. During certain seasons, such as winter, this increase may only spike for 1-2 hours, and remain flatter in other hours. Therefore a 1-2 hour peak window may be appropriate.

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

ISO New England Gross and Net Load Hourly Data

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

At a minimum there should be three annual peak periods – summer, winter, shoulder (spring/fall). This should be flexible with some system conditions. DOER should account for daylight savings shift when setting the two shoulder annual peak periods.

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

See response to Q16a. The hours do not need to be continuous, if there are spikes in morning and afternoon, but should not exceed four hours per day. (See winter peak)

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?

Seasonal peak periods should be examined annually. DOER should consider allowing long-term contracted resources to be eligible for grandfathering to the extent shifting peak periods make financing challenging.

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?

The seasonal peak periods should be set to capture the most likely peak windows for a season. It may not capture every single peak hour, but to avoid complexity, we believe that it is unnecessary at this time for DOER to establish other peak periods.

b. Should DOER specifically target ISO system peaks?

Yes.

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. Eligible resources should receive credit for any MWh delivered during the defined seasonal peak period.

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?

To avoid making the program overly complex, each Clean Peak Certificate produced during the seasonal peak period should receive the same value. If a resource can produce for more hours it will receive the higher value associated with increased duration. As a tradeable commodity, the market will set the price of the CCC similar to the REC market. However, if the retail electric supplier enters into a long-term contract for CCC's, then the value may be negotiated between the parties.

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



No, unless there is a contractual agreement that allows for the imposition of a penalty. The program is not structured to target the monthly peak (neither the utility non-coincident nor the system coincident peak).

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

Enel recommends that any resource that signed a bundled long-term contract through Section 83 not be eligible for the Clean Peak. Those contracts were executed without the expectation of the Clean Peak Standard, and therefore Clean Peak revenues will not impact whether the project gets built. Resources participating in SMART should be eligible to the extent that the resources are not just getting credit for the 52 cycles already required of batteries in SMART, and are in fact delivering an incremental benefit during the peak period. Moreover, SMART is not meant to compensate solar + storage projects for the full cost of the project, and developers are expected to seek other revenue streams. The Clean Peak could complement SMART well, and stimulate additional solar + storage development.

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. For simplicity sake, resources should be compensated for performance during the established peak period. However, as outlined in response to Question #7, we believe storage that is not co-located with renewable energy should be eligible to participate as long as it charges during periods of low load and emissions.

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.



Given that demand response is an eligible technology, the verification system needs to be able to handle the measurement and verification of demand response or demand management. Enel is unaware of whether NEPOOL GIS is suited for this capability.

No comment

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?

No comment

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

No comment

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.

No comment

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.

For Clean Peak services sourced from vehicle-grid integration functionality, DOER should create a pathway for providers to use the embedded submeters on EVSE to record and transmit interval EV charging consumption data for settlement and verification purposes.

Metering for ISO-NE programs typically has +/-2% accuracy requirements.

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 comment



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?

No comment

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?

No comment

30. How should DOER establish these values?

No comment

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)?

Only new facilities or existing facilities that are significantly retrofitted to add incremental benefit during the seasonal peak period should be able to participate in utility solicitations. Historically, long-term contracts are designed to make projects financeable and existing projects have already made capital investments.

b. How frequently should solicitations take place?

Annual solicitations



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

An annual requirement may be a more reliable metric because percentage of load can vary. Annual requirement may help stabilize market based pricing ensuring the demand is always increasing. This will help insulate market based pricing from any volatility in annual load.

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

After DOER determines the percentage of Clean Peak Resources that will be procured each year, then the contract price should be established using a competitive process.

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)?

DOER should establish a clean peak resource target that it would like to achieve by 2030 which will assist in the Commonwealth achieving the requirements of the Global Warming Solutions Act. DOER should then set the requirement for each year after 2019. DOER should retain the flexibility to adjust the percentage in order to achieve the target but will not go below the statutorily required 0.25% in any year.

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.”

The statute provides DOER with the authority to require an annual increase greater than 0.25%. The annual targets should be determined following an initial analysis that demonstrates what overall CPS levels are needed to be achieved by 2030 to support the Commonwealth’s requirements under the Global Warming Solutions Act.



Separate from the total Minimum Standard requirement, DOER is also 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?

Enel supports a demand response carve out to ensure that the end-use customers that are ultimately paying for the Clean Peak program have an opportunity to directly participate. We would recommend initially that 10%-20% be carved out for demand response/demand management, and DOER could have flexibility as necessary to adjust this year to year.

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

No comment

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

Enel strongly recommends that DOER actively engage in the development of ISO-NE market rules that address participation and interconnection barriers for hybrid energy storage and renewable resources, which is not covered in Order 841.