

FEDERAL ENERGY REGULATORY COMMISSION
WASHINGTON, DC 20426

OFFICE OF ENERGY MARKET REGULATION

In Reply Refer To:
ISO New England Inc., et al.
Docket No. ER19-470-000

Issued: April 1, 2019

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Reference: Compliance Filing for Order No. 841

Dear Ms. Wolfson, Mr. Lombardi, and Ms. Grover:

On December 3, 2018, ISO New England Inc. (ISO-NE), joined by the New England Power Pool (NEPOOL) Participants Committee, filed tariff revisions¹ to comply

¹ ISO-NE submitted revisions to its Open Access Transmission Tariff (OATT) and Market Rule 1, which are sections II and III of its Transmission, Markets, and Services Tariff (Tariff). The Participating Transmission Owners Administrative Committee also joins certain parts of the filing.

with the Commission's Order No. 841.² Please be advised that additional information is necessary to process the filing. Please provide complete responses to the following:³

1) Creation of a Participation Model for Electric Storage Resources

A. Participation Model for Electric Storage Resources

Order No. 841 requires that resources using the participation model for electric storage resources be “compensated for the wholesale services they provide in the same manner as other resources that provide these services.”⁴

- a. Please explain whether ISO-NE expects that some Continuous Storage Facilities (existing or prospective technologies) may in fact have start-up or no-load costs (e.g., costs associated with cooling an electric storage facility that is online but not dispatched). If so, could such costs be accounted for through non-zero values in the start-up or no-load cost parameters, similar to other resources that participate in ISO-NE markets? Alternatively, please explain how a Continuous Storage Facility could be reasonably compensated for these costs while participating in ISO-NE's market.

B. Qualification Criteria for the Participation Model for Electric Storage Resources

To ensure that the electric storage resource participation model will accommodate both existing and future technologies, and to implement the new requirement in section 35.28(g)(9)(i) of the Commission's regulations, Order No. 841 required each RTO/ISO to define in its tariff the criteria that a resource must meet to use the participation model (i.e., qualification criteria).⁵

- a. Please clarify whether the minimum technical requirements included in the Continuous Storage Facility and Binary Storage Facility criteria will encompass all types of electric storage resources that meet the definition of

² *Electric Storage Participation in Markets Operated by Regional Transmission Organizations and Independent System Operators*, Order No. 841, 162 FERC ¶ 61,127 (2018). ISO-NE cites to the non-errata version in its transmittal. The citations in this data request are to the errata version.

³ ISO-NE may file revised tariff records where appropriate.

⁴ Order No. 841, 162 FERC ¶ 61,127 at P 52.

⁵ Order No. 841, 162 FERC ¶ 61,127 at P 61.

electric storage resource and are eligible to participate in ISO-NE's Electric Storage Facility participation model.

2) **Eligibility of Electric Storage Resources to Participate in the RTO/ISO Markets**

A. Eligibility to Provide all Capacity, Energy, and Ancillary Services

Order No. 841 added section 35.28(g)(9)(i)(A) to the Commission's regulations to require each RTO/ISO to have tariff provisions providing that a resource using the participation model for electric storage resources is eligible to provide all capacity, energy and ancillary services that it is technically capable of providing...."⁶

- a. Please provide additional support for the claim that Dispatchable Asset Related Demand (DARD) assets are not technically or operationally capable of providing capacity in the FCM (e.g., by refraining from charging).

B. Mechanism to Prevent Conflicting Dispatch Signals

To implement the new requirement in section 35.28(g)(9)(i)(B) of the Commission's regulations, Order No. 841 required each RTO/ISO to either (1) demonstrate that its market design will not allow for conflicting supply offers and demand bids from the same resource for the same market interval or (2) modify its market rules to prevent conflicting supply offers and demand bids from the same resource for the same market interval."⁷

- a. Please provide specific citations to the relevant existing and/or proposed Tariff sections that demonstrate that Binary Storage Facilities and Continuous Storage Facilities will not receive conflicting dispatch signals to charge and discharge simultaneously.

C. Make-Whole Payments

Order No. 841 required that each RTO/ISO have tariff provisions to ensure that resources available for manual dispatch as a wholesale buyer and wholesale seller under

⁶ *Id.* PP 76, 80.

⁷ *Id.* P 162.

the participation model for electric storage resources are held harmless for manual dispatch by being eligible for make-whole payments.⁸

- a. Please explain and provide citations to the relevant proposed tariff language that demonstrate the following. To the extent ISO-NE intends to comply with Order No. 841 by relying on existing tariff provisions generally applicable to many types of resources, please explain and provide tariff citations to demonstrate that such provisions will apply to electric storage resources as required by Order No. 841.
 - i. Please explain how Continuous Storage Facilities will be eligible (and, if applicable, compensated) for lost opportunity cost Net Commitment Period Compensation (NCPC) credits in a manner similar to other resource types in its market. For example, if a Continuous Storage Facility is dispatched for reserves rather than energy and experiences lost opportunity costs as a result, will that resource be compensated for its lost opportunity costs? If so, how? If not, why not?
 - ii. When ISO-NE automatically reduces the Economic Maximum Limits for generator assets of Continuous Storage Facilities prior to a dispatch run to require reserves to be sustainable for at least one hour,⁹ are the Continuous Storage Facilities made economically indifferent to foregone energy sales (i.e., through make-whole payments or the ability to set the real-time price of reserves)? If so, how, and if not, why not?
 - iii. Please explain in detail ISO-NE's modified mechanism to permit electric storage resources with one hour or less of energy to provide only energy and not reserves (i.e., an alternative approach permitting only Limited Energy Resources to opt-out of providing reserves in certain circumstances). In addition, please explain how ISO-NE will implement such mechanism prior to December 3, 2019, the effective date of ISO-NE's compliance filing.

⁸ *Id.* P 174.

⁹ ISO-NE Compliance Filing, Transmittal at 13.

3) Physical and Operational Characteristics of Electric Storage Resources

Order No. 841 added section 35.28(g)(9)(i)(C) to the Commission's regulations to require that each RTO/ISO have tariff provisions providing a participation model for electric storage resources that accounts for the physical and operational characteristics of electric storage resources through bidding parameters or other means.¹⁰

- a. Please explain how telemetered values of Available Energy and Available Storage can be used to account for an electric storage resource's State of Charge at the start of a future market interval and how they could ensure that an electric storage resource is not subject to infeasible schedules in the day-ahead and real-time markets, given that the values for Available Energy and Available Storage would be collected in real-time.
- b. Please describe any specific concerns about the performance implications of accounting for a State of Charge parameter to allow Electric Storage Resources to clear multiple charging cycles in the day-ahead market, including timelines to develop and implement necessary software changes.
- c. ISO-NE states that it accounts for the physical and operational characteristics of State of Charge, Maximum State of Charge, Minimum State of Charge, Maximum Charge Time and Maximum Discharge Time through the two telemetered values of Available Energy and Available Storage.¹¹ Maximum Discharge Time is not a characteristic defined by the Commission or defined by ISO-NE. Please define the term Maximum Discharge Time, or alternatively, please confirm that ISO-NE intended this to be written as Maximum Run Time, as defined by Order No. 841.¹²

4) Minimum Size Requirement

Order No. 841 added section 35.28(g)(9)(i)(D) to the Commission's regulations to require that each RTO/ISO have tariff provisions providing a participation model for electric storage resources that establishes a minimum size requirement for participation in the RTO/ISO markets that does not exceed 100 kW.¹³

¹⁰ *Id.* P 191.

¹¹ ISO-NE Compliance Filing, Transmittal at 19.

¹² Order No. 841, 162 FERC ¶ 61,127 at PP 224, 236.

¹³ *Id.* P 270.

- a. Please explain and provide citations to the relevant proposed tariff language that clarify whether electric storage resources smaller than 100 kW may be aggregated to meet ISO-NE's 100 kW participation threshold for Electric Storage Facilities. To the extent that ISO-NE intends to rely on existing tariff provisions generally applicable to many types of resources, please explain and provide tariff citations to demonstrate that such provisions will apply to electric storage resources.

5) Energy Used to Charge Electric Storage Resources

A. Price for Charging Energy

Order No. 841 added section 35.28(g)(9)(ii) to the Commission's regulations to require that the sale of electric energy from the RTO/ISO markets to an electric storage resource that the resource then resells back to those markets be at the wholesale locational marginal price (LMP).¹⁴

- a. Please provide specific citations to the relevant existing and/or proposed Tariff sections that demonstrate that ISO-NE's Tariff enables all sales of electric energy from ISO-NE to a resource in its control area and purchases made by such resources to be at the wholesale nodal LMP.
- b. Please provide specific citations to the relevant existing and/or proposed Tariff sections that demonstrate that the charging energy of electric storage resources lost to conversion inefficiencies is settled at the wholesale LMP, as long as those efficiency losses are an unavoidable component of the conversion, storage, and discharge process that is used to resell energy back to ISO-NE and not a component of what ISO-NE considers onsite load.

B. Transmission Charges

With respect to transmission charges, Order No. 841 found that electric storage resources should not be charged transmission charges when they are dispatched by an RTO/ISO to provide a service (such as frequency regulation or a downward ramping service).¹⁵

- a. ISO-NE states that the compliance filing includes revisions to Section II.21, Schedule 9 (Regional Network Service), and Schedule 21 (Local Service)

¹⁴ *Id.* P 294.

¹⁵ *Id.* P 298.

of the Tariff to exempt Electric Storage Facilities from transmission charges for Regional Network Service and Local Service when they are dispatched to charge. Please explain if there are any instances in which Electric Storage Facilities could charge without being dispatched?

- b. When electric storage resources are dispatched to charge by ISO-NE to provide a service, could they be subject to other types of transmission charges (i.e., other than Local Service and Regional Network Service)? For example, could Electric Storage Resources be subject to charges for Through or Out Service (T/Out) or the other types of transmission service? If so, please provide specific citations to the relevant existing and/or proposed Tariff that demonstrate that Electric Storage Resources are exempt from those transmission charges when they are dispatched by ISO-NE to provide a service. If not, please explain why those types of transmission service are not applicable.
- c. Do load resources in ISO-NE located at a single node pay different transmission charges than load resources located across multiple nodes? If so, please provide specific citations to the relevant existing and/or proposed Tariff sections that demonstrate that those transmission charges for single-node resources are applied to electric storage resources that are located at a single pricing node, so long as those electric storage resources are not being dispatched to provide an ancillary service.

C. Metering and Accounting Practices for Charging Energy

Order No. 841 required each RTO/ISO to implement metering and accounting practices as needed to address the complexities of implementing the requirement that the sale of electric energy from the RTO/ISO markets to an electric storage resource that the resource then resells back to those markets be at the wholesale LMP.¹⁶

- a. Please provide specific citations to the relevant existing and/or proposed Tariff sections that demonstrate that ISO-NE requires Generator Assets, and therefore Electric Storage Facilities, to be directly metered.
- b. Please explain further how ISO-NE will ascertain from meter readings which energy should be accounted for at the wholesale LMP as opposed to the retail rate. Please provide specific citations to the relevant existing and/or proposed Tariff sections that codify those accounting practices and demonstrate that ISO-NE has an accounting mechanism in place to prevent

¹⁶ *Id.* P 322.

resources using the participation model for electric storage resources from paying twice for the same charging energy.

- c. Under the compliance filing, would an Electric Storage Facility (i.e., Binary Storage Facility or Continuous Storage Facility) be required to register as an ISO-NE wholesale customer or Load Asset in order to be charged the wholesale LMP?
- d. Please explain whether ISO-NE is coordinating its accounting requirements in cooperation with transmission/distribution utilities and, if so, what role the transmission/distribution utilities have in developing these practices. How will these accounting practices for Electric Storage Resources required by Order No. 841 distinguish the intervals during which an Electric Storage Facility is charging for later injection back to the grid (i.e., intervals settled at the wholesale LMP) versus charging to later serve retail load (i.e., intervals settled at the retail rate), especially when the wholesale LMP may be different during those intervals? Please explain how these accounting practices differ for Binary Storage Facilities and Continuous Storage Facilities.

This letter is issued pursuant to 18 C.F.R. § 375.307(b)(3)(ii) (2018) and is interlocutory. This letter is not subject to rehearing pursuant to 18 C.F.R. § 385.713 (2018). A response to this letter must be filed with the Secretary of the Commission within 30 days of the date of this letter. For your response, please use Type of Filing Code 80, Compliance Filing. In addition, submit an electronic version of your response to Matthew McWhorter at matthew.mcwhorter@ferc.gov. Failure to respond to this letter order within the time period specified may result in a further order rejecting your filing.

Issued by: Kurt Longo, Director, Division of Electric Power Regulation – East

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