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FERC Order No. 2222 Overview and Compliance Update

New Hampshire Investigation into Compensation of Energy Storage Projects – Technical Session

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ISO NEW ENGLAND

Participation of Distributed Energy Resource Aggregations in Wholesale Markets | WMPP ID: 155

- Order No. 2222, issued on September 17, 2020, requires that ISOs/RTOs create a market participation model that allows distributed energy resources (DERs) to provide all wholesale services that they are technically capable of providing through an aggregation of resources
- To comply, ISO/RTOs either need to:
  - Revise their tariffs consistent with specific requirements from the Order, or
  - Demonstrate how current tariff provisions satisfy the intent and objectives of the Order
- The ISO filed a motion to extend the compliance filing deadline to **February 2, 2022**
- The focus of today's presentation is on Order No. 2222:
  - Compliance directives
  - Elements of the ISO's initial compliance proposal
  - Elements for further consideration
  - Process going forward

Note: The Wholesale Market Project Plan (WMPP) is published biannually, in summer and winter, and describes the current status of market initiatives.

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Compliance Directives

Terminology

- A ***DER*** is "any resource located on the distribution system, any subsystem thereof or behind a customer meter… [that] may include, but are not limited to … electric storage resources, intermittent generation, distributed generation, demand response, energy efficiency, thermal storage, and electric vehicles and their supply equipment…." (Order No. 2222 at P 114)
- A DER aggregation or ***DERA*** is one or more DERs participating together in the wholesale markets, "which acts as a single resource" (*Id.* at P 180)
- A ***DER aggregator*** is "the entity that aggregates one or more distributed energy resources for purposes of participation in the capacity, energy and/or ancillary service markets of the regional transmission organizations and/or independent system operators." (*Id.* at P 118)

Key Compliance Directives of Order No. 2222

- Order No. 2222 has eleven key compliance directives:
  1. Allow DERAs to participate directly in RTO/ISO markets and establish DER aggregators as a type of market participant; DERAs may include more than one technology type, i.e. heterogeneous aggregations
  2. Allow DER aggregators to register DERAs under one or more participation models that accommodate the physical and operational characteristics of the DERA
  3. Address size requirements for DERAs and individual DERs
  4. Address locational requirements for DERAs
  5. Address distribution factors and bidding parameters for DERAs
  6. Address information and data requirements for DERAs

Key Compliance Directives of Order No. 2222 (cont.)

7. Address metering and telemetry requirements for DERAs
8. Establish market rules on coordination between the RTO/ISO, DER aggregator, distribution utility, and *Relevant Electric Retail Regulatory Authorities (RERRAs)*
9. Address modifications to the list of DERs in a DERA
10. Address market participation agreements for DER aggregators
11. Implement opt-in provision for distribution companies with ≤ 4 million MWh of annual sales

- In the following slides, we present the ISO's high-level design approach to comply with Order No. 2222, previously presented to NEPOOL stakeholders

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Elements of the ISO's Initial Compliance Proposal

DERs would be able to participate under existing models or the proposed new models

- DERs can currently participate in ISO markets using any of the ISO's existing participation models for which they qualify
  - Five ISO-administered markets:
    - Forward Capacity Market
    - Forward Reserve Market
    - Day-Ahead Energy Market
    - Real-Time Energy Market
    - Regulation Market
  - Eleven ISO-administered market participation models including:
    - Desired Dispatch Point Dispatchable Generator
    - Do-Not-Exceed (DNE) Dispatchable Generator
    - Settlement Only Resource/Generator (SOG)
    - Continuous Storage Facility (CSF)
    - Dispatchable Asset Related Demand (DARD)
    - Demand Response Resource (DRR)
    - Several others
- ISO does not plan to change the existing participation market models with the Order No. 2222 compliance proposal
  - DERs that are currently participating under the existing models will be unaffected by the proposal
- ISO expects to propose two new models to facilitate heterogeneous aggregations to participate in the markets

General DERA characteristics under the ISO's initial proposal

- A DERA would:
  - Be an aggregation of one or more DERs, depending on the size and location of the DERs
  - Include one technology type or multiple technology types
  - Be generation only, or load only, or generation and load
  - Be settlement-only or dispatchable
  - Could simultaneously participate in wholesale markets and retail programs
- It is the DERA, not the constituent DERs, that would be offered into the markets, potentially dispatched, and settled by the ISO

Initially Proposed Settlement Only DERA Participation Model

- Settlement Only DERA (SODERA) model would be an extension of Directly Metered Load Asset and SOG models with aggregation
- A SODERA
  - Is not dispatchable by the ISO
  - Must meet proposed revenue quality metering requirements
  - May inject and/or withdraw energy to or from the grid
  - May participate in the Forward Capacity Market
  - May buy and/or sell energy in the Energy Market
  - Cannot provide reserves or regulation
    - It is not dispatchable and does not provide telemetry to the ISO

Initially Proposed Dispatchable DERA Participation Model

- Dispatchable DERA (DDERA) model would be an extension of Continuous Storage Facility (CSF) model
- A DDERA
  - Must be capable of receiving and responding to electronic Dispatch Instructions
  - Must meet proposed telemetry and revenue quality metering requirements
  - Must have Designated Entity to perform dispatch service, and submit and manage bids and/or offers
  - May inject, withdraw, and regulate
  - May participate in the Forward Capacity Market
  - May buy and sell energy in the Energy Market
  - May provide Reserves and Regulation

Proposed DERA Metering and Settlement Rules

- For both SODERAs and DDERAs, we proposed that meter readers would report to the ISO a single meter value for the DERA, which is the sum of the meter values of the DERs comprising the DERA
  - If the DERA meter value shows energy production, the production amount will be credited at the locational marginal price (LMP)
  - If the DERA meter value shows energy consumption, the consumption amount will be charged at the LMP
  - As noted later in this presentation, the ISO is considering approaches that allow Demand Response Resources (DRRs) to participate as part of a DDERA and be compensated under the existing DRR participation model consistent with Order No. 745
    - The load reduction performance of DRRs would be added to the DDERA meter values

Proposed Size Requirements

For a DERA:

- Minimum size is 100 kW
- No maximum size limit

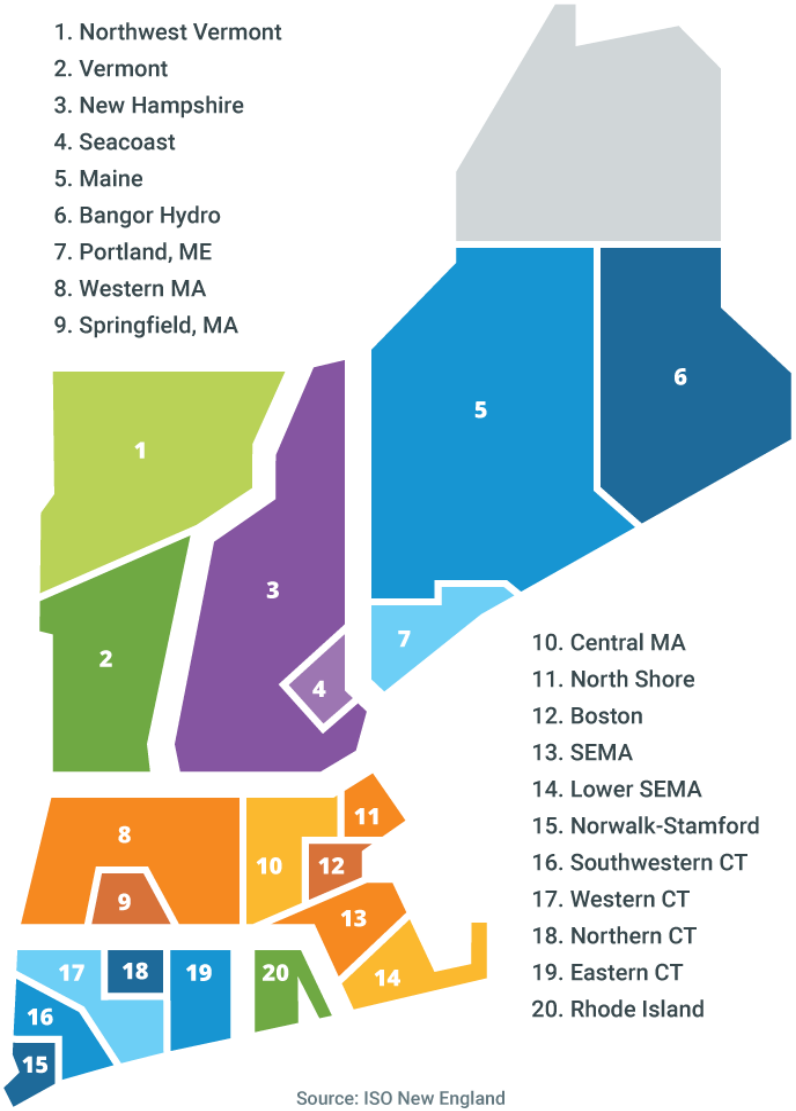
For a DER:

- No minimum size requirement
- No maximum size limit for a DER, provided that an individual resource with generation injection capability greater than or equal to 5 MW:
  - Cannot be a SODERA
  - Can participate as its own DDERA if it meets the definition of Distributed Generation
  - Can participate as a Generator Asset (but not as a DDERA) if it does not meet the definition of Distributed Generation
  - Consistent with the existing maximum size limit for a Settlement Only Resource and a Demand Response Asset
- Any DER greater than or equal to 100 kW, that is otherwise qualified to be a part of a DERA, may participate as a single resource DERA

Proposed Locational Requirements

- For a DDERA or a SODERA, all constituent DERs would be required to be located within the same metering domain and DRR Aggregation Zone
  - Metering domains generally follows a distribution utility's service territory within a single Load Zone
  - Currently, there are 20 DRR Aggregation Zones (map on next slide), which reflect transmission constraints
- The ISO's proposal would result in DERAs being single-node aggregations in ISO's market software, a DRR Aggregation Zone is a single Pnode
  - DER Aggregators are not required to provide distribution factors per the Order

New England Aggregation Zones



Source: ISO New England

DERA Registration – General Features Required by Order No. 2222

- DER aggregators must provide the ISO and the distribution utilities with information necessary to evaluate:
  - Eligibility of the individual DERs to participate in ISO markets through a DERA
  - Impacts on safe and reliable operation of the distribution and transmission systems
  - Information describing the DERA and constituent DER facilities, including:
    - Geographic and electrical location
    - Performance capabilities
    - Technology types
- Process must provide a timely, transparent review and not create barriers to entry
  - Provides adequate and reasonable time for distribution utility review
  - Specific review criteria
  - Up to a maximum of 60 days allowed
- Appropriate coordination with state and local regulatory authorities
- Flexibility for DER aggregators to add or remove DERs from a DERA
  - Notification of changes provided to ISO and distribution utilities without re-registering the entire aggregation
- Dispute Resolution procedures

Operational Coordination Framework

- With respect to ongoing operational coordination, Order No. 2222 requires that RTOs/ISOs:
  - Address data flows and communication between RTO/ISO, DER Aggregators, and the distribution utilities
  - Require DER aggregators to report any changes to offered quantity and related distribution factors that result from distribution line faults or outages
  - Include coordination protocols and processes for the operating day that allow distribution utilities to override RTO/ISO dispatch of a DERA to maintain the reliable and safe operation of the distribution system

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Elements for further consideration

Design Elements Where Changes are Anticipated or are Planned

- **DERA Participation Models:** The ISO explained to the NEPOOL Markets Committee on February 9, 2021 (slides 14-18) that its approach may be modified to better accommodate Order No. 745 compliant demand response resources
  - Current proposal compensates demand response by pricing the amount of energy withdrawn or injected into the grid by the DERA at the LMP, which is facilitated by demand response in the DERA
  - By contrast, Order No. 745 requires pricing the change in load (reduction-only) produced by demand response – the difference between baseline load and actual load during dispatch – at the LMP
  - Order No. 2222-A issued on March 18, 2021, strongly suggests that Order No. 745 compliant demand response must be allowed to be part of a DERA – *see* Order No. 2222-A at PP 23, 25, 26, 28, and 54
  - Accordingly, the ISO is considering the inclusion of Order No. 745 compliant demand response resources into a DERA

Design Elements Where Changes Are Anticipated or Are Planned (cont.)

- **Metering and Telemetry Requirements**
  - The current proposal requires DERs to be metered at the point of interconnection or retail delivery point of the facility with the grid
  - Permits DERs to be directly-metered at the device provided that the consumption or production of directly-metered DERs is separately reported and does not also increase or decrease the facility's load reported at the point of interconnection/retail delivery point - see slides 11-12 and 24-28 of the February 9, 2021 presentation
- This portion of the design may need to be modified based on the Meter Reader Working Group report and subsequent discussion at the Markets Committee
- And as previously discussed, the ISO is considering the integration of Order No. 745 compliant demand response into a DERA
  - The metering and telemetry requirements for DERAs consisting of Order No. 745 compliant demand response resources and other DERs needs further consideration

Design Elements Where Changes are Anticipated or are Planned (cont.)

- **Forward Capacity Market (FCM) changes**
  - The design presented to NEPOOL stakeholders on March 9, 2021 (slides 9 and 11-14) will need modification to accommodate Order No. 745 compliant demand response resources
  - The design described on March 9, 2021, slide 8 that applies the existing rules for overlapping interconnection impacts to DECRs, is being reviewed and may be revised

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Process Going Forward

Stakeholder Schedule

Stakeholder Committee and Date	Scheduled Project Milestone
MC: June 8-9, 2021 **TC: June 10, 2021**	Stakeholders to present any suggested changes to the ISO's proposal and propose suggestions for areas where design is under consideration– please notify the relevant committee Secretary by **May 28** if you want agenda time
MC: July 7-8, 2021 **RC: July 13, 2021** **TC: July 14, 2021**	Respond to suggestions made at the June Technical Committee meetings and to present any changes to its proposal
MC: August 10-11, 2021 **RC: August 17, 2021** **TC: August 24, 2021**	Continued discussion of the ISO's proposal focusing on what is new from the prior meetings
MC: September 13-14, 2021 **RC: September 21, 2021** **TC: September 28, 2021**	Present the final draft of the ISO's proposal and initial Tariff redlines; Members wishing to pursue alternative approaches should indicate their intentions to present at the October Technical Committee meetings

MC=Markets Committee, RC=Reliability Committee, TC=Transmission Committee, PC=Participants Committee

Stakeholder Schedule (cont.)

Stakeholder Committee and Date	Scheduled Project Milestone
MC: October 13-14, 2021 **RC: October 19, 2021** **TC: October 26, 2021**	Present any design refinements to the ISO's proposal and review Tariff redlines focusing on revisions since the prior meeting; Discussion of any potential amendments to the ISO proposal*
MC: November 9-10, 2021 **RC: November 16, 2021** **TC: November 19, 2021**	Discuss any remaining design refinements to the ISO's proposal and continue review of Tariff redlines focusing on what is new; Continued discussion of any potential amendments*
MC: December 7-8, 2021 **RC: December 14, 2021** **TC: December 13, 2021**	Vote on Order No. 2222 compliance proposal including any proposed amendments
PC: January, 2022	Vote on Order No. 2222 compliance proposal including any proposed amendments

* Members should provide their materials in advance so that they can be distributed by the posting date of the relevant Technical Committee meeting and should work with NEPOOL Counsel in the drafting of any desired Tariff changes or amendments to the ISO proposal

Regulatory Process

- The ISO intends to make its compliance filing on 2/2/2022 (assuming FERC approval of the ISO's compliance deadline extension request)
- The FERC requires each RTO/ISO to propose a reasonable implementation date with adequate support explaining how the proposal is appropriately tailored for its region and implements this final rule in a timely manner
  - Both the ISO and distribution utilities must consider the time it will take to implement the proposal
- The timing of FERC's review of the ISO's compliance proposal, and ultimate acceptance is uncertain
  - Timing could be influenced by stakeholder support or opposition, alternative perspectives from other RTO/ISO proposals, legal challenges and court proceedings

Additional Information

- The ISO recently launched a key project page for Order 2222. The page houses information including committee materials, regulatory filings and Orders, and other related materials
- The ISO posts regular updates on Order 2222 and other initiatives on the ISO Newswire

For More Information…

- Subscribe to the ***ISO Newswire***
  - *ISO Newswire* is your source for regular news about ISO New England and the wholesale electricity industry within the six-state region
- Log on to **ISO Express**
  - *ISO Express* provides real-time data on New England's wholesale electricity markets and power system operations
- Follow the ISO on **Twitter**
  - *@isonewengland*
- Download the **ISO to Go App**
  - *ISO to Go* is a free mobile application that puts real-time wholesale electricity pricing and power grid information in the palm of your hand

Q&A AND DISCUSSION