Order No. 2222 Conforming Changes

Proposed conforming changes to implement the Order No. 2222 market design

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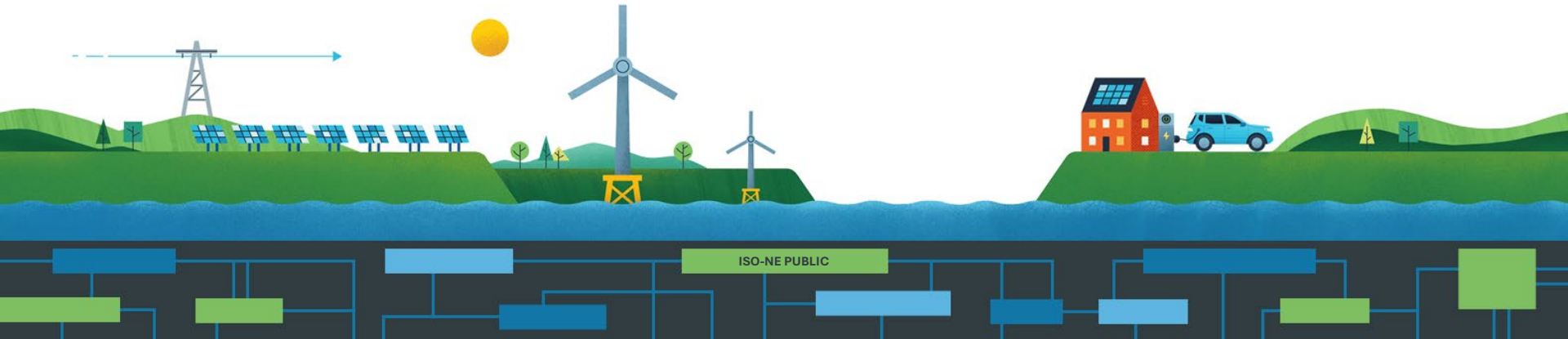

Order No. 2222 Conforming Changes: Summary

WMPP ID: 186

Proposed Effective Date: November 1, 2026

- Conforming changes are required to implement the Order No. 2222 market design
  - The Order No. 2222 market design integrates Distributed Energy Resources (DERs) into wholesale markets on November 1, 2026
  - For more information, see the Order No. 2222 key project webpage
- Today's discussion introduces the proposed conforming changes
  - Re-name energy offers from Demand Response Distributed Energy Resource Aggregations (DRDERAs)
  - Include DRDERAs in the Day-Ahead Ancillary Services (DA A/S) Market
  - Include DRDERAs in Net Commitment Period Compensation (NCPC)
  - Reduce the minimum size for Generators to participate in the Regulation Market

RE-NAME ENERGY OFFERS FROM DRDERAS

In this section, we will discuss why DRDERAs will submit Demand Reduction Offers, rather than Baseline Deviation Offers

Background

A DRDERA is an aggregation of DERs that can reduce demand and inject energy

- A DRDERA is an aggregation of DERs with demand reduction and energy injection capability
  - DRDERAs may include energy withdrawal capability
  - Recall ISO's Order No. 2222 presentation to the MC from July 2021
- A DRDERA is comparable to a Demand Response Resource (DRR), with a few differences:
  - Aggregate with a broader selection of DERs
  - Receive compensation for energy injections that occur outside of dispatch instructions
  - Submit Baseline Deviation Offers into the energy market (next slide)

Background (cont.)

A Baseline Deviation Offer functions the same as a Demand Reduction Offer

- Baseline Deviation Offers and Demand Reduction Offers both represent a resource's ability to withdraw less energy and/or inject more energy compared to a baseline
- The only difference between the offer types is their terminology:

Demand Reduction Offer	Baseline Deviation Offer
Min/Max Reduction Limits	Min/Max Deviation Limits
Interruption Cost	Deviation Cost
Min Reduction Time	Min Deviation Time
Min Time Between Reductions	Min Time Between Deviations
Maximum Interruptible Capacity	Maximum Deviation Capability
DRR Notification Time	DRDERA Notification Time
DRR Ramp Rate	DRDERA Ramp Rate
DRR Start-Up Cost	DRDERA Start-Up Cost

Background (cont.)

The purpose of the term "Baseline Deviation Offer" was to avoid confusion, not to denote different capabilities

- Originally, the ISO proposed for a Baseline Deviation Offer to function like a Demand Reduction Offer, but used different terms to avoid confusion
  - For example: if a DRDERA responds to dispatch instructions by injecting more energy, then it could be confusing to refer to its energy offer as a "Demand Reduction Offer" because no "demand reduction" took place
- However, this occurs for DRRs today
  - DRRs submit Demand Reduction Offers, but they can respond to dispatch instructions by providing incremental net supply
  - For example: from 2022-2024, roughly 50% of real-time energy supply from DRRs was from incremental net supply, rather than demand reduction

Rationale for Change

In hindsight, the complexities of implementing a new offer-type outweigh the benefits

- We believe any confusion in terminology is minimal and immaterial
- A DRDERA can use a Demand Reduction Offer without any change in functionality
- Using an existing offer-type simplifies implementation

Proposal

DRDERAs submit Demand Reduction Offers, instead of Baseline Deviation Offers

- We propose conforming changes to replace Baseline Deviation Offer terms with applicable Demand Reduction Offer terms in the Tariff
- DRDERA functionality is unchanged. They will continue to:
  - Be allowed to aggregate the same types of DERs
  - Receive compensation for energy injection outside of dispatch instructions
  - Offer the same capabilities, costs, and parameters
  - Respond to dispatch instructions with demand reduction and/or energy withdrawal

INCLUDE DRDERAS IN THE DA A/S MARKET

In this section, we will discuss why DRDERAs will be eligible to provide DA A/S

Background

The DA A/S Market was proposed in 2023 and went live earlier this year

- The DA A/S Market procures and prices A/S capability in the co-optimized Day-Ahead Market
- To provide DA A/S, a resource must:
  - Be physically located in the ISO New England Control Area
  - Offer into the Day-Ahead Energy Market
  - Meet the additional requirements of at least one DA A/S
- For more information, see the DASI Key Project Webpage

Rationale for Change

DRDERAs should be eligible to provide DA A/S

- DRDERAs meet the eligibility requirements to provide DA A/S
- Due to the timing of FERC filings, DRDERAs are not listed in the Tariff as an eligible resource to provide DA A/S

Proposal

Include DRDERAs in the DA A/S Market

- We propose conforming changes to enable a DRDERA to be eligible to provide DA A/S:
  - Day-Ahead Ten-Minute Spinning Reserve
  - Day-Ahead Ten-Minute Non-Spinning Reserve
  - Day-Ahead Thirty-Minute Operating Reserve
  - Energy Imbalance Reserve
- In addition, we propose for DRDERA day-ahead cleared physical energy supply to receive the Forecast Energy Requirement Price, in addition to DA LMP
  - This aligns with the treatment of DRRs

INCLUDE DRDERAS IN NCPC

In this section, we will discuss why DRDERAs will be eligible for NCPC

Background

NCPC ensures resources are "no worse off than best alternative"

- Resources submit offers into the energy market, which the ISO uses to develop dispatch instructions
- A resource's dispatch instruction (Desired Dispatch Point, or DDP) typically aligns with the resource's economically optimal output level (Economic Dispatch Point, or EDP)
- Occasionally, a resource's DDP is above or below its EDP, which can create economic incentives for a resource to not offer true costs and/or to deviate from dispatch instructions
- NCPC improves incentives to offer true costs and follow dispatch instructions by compensating resources for the difference between actual net revenue (from operating based on its DDP) and the net revenue from its best alternative (if it operated based on its EDP)

Rationale for Change

Like a DRR, a DRDERA is a demand resource that can have a "best alternative"

- A DRDERA is a new, dispatchable resource that can receive a DDP that is different than its EDP
- Currently, DRDERAs are not included in the NCPC design
  - Typically, for major projects, the NCPC design is proposed in conforming changes, rather than the main filing
- As a result, a DRDERA could have economic incentives to not offer true costs or follow dispatch instructions

Proposal

We propose two conforming changes to include DRDERAs in NCPC

- First, enable DRDERAs to be eligible for the same NCPC credits as DRRs
  - DRRs and DRDERAs offer the same technical parameters and respond to dispatch instructions by reducing demand and/or injecting more energy compared to a baseline
- Second, use a DRDERA's performance, rather than its Metered Quantity for Settlement, in real-time NCPC calculations
  - DRDERA Metered Quantity for Settlement is calculated differently than DRR's, but both resource's performance is calculated the same way
  - See the appendix for an example
- We expect DRDERA NCPC costs to align with DRR NCPC costs
  - DRR NCPC is roughly $700/MW-year from 2022-2024

REDUCE THE MINIMUM SIZE FOR GENERATORS TO PARTICIPATE IN THE REGULATION MARKET

In this section, we will discuss why the minimum size for a Generator to participate in the Regulation Market will be 100 kW

Background

100 kW ATRRs can participate in the Regulation Market

- The Order No. 2222 market design enables DER Aggregations (DERAs) to participate as ATRRs and reduces the minimum size for ATRRs to provide Regulation from 1 MW to 100 kW

DERA participation model	How the resource provides regulation
Generator and BSF	Generator asset can regulate
CSF and ATRR	ATRR asset can regulate
DRR and DRDERA	Register an ATRR mapped to the same DERs*

** For more information, see ISO New England's August 2021 presentation to the Market Committee (slide 27)*

Rationale for Change

100 kW DERA Generators and BSFs should also be allowed to participate in the Regulation Market

- Currently, a Generator must be 5 MW to participate in the Regulation Market
- The Order No. 2222 compliance proposal did not revise the minimum size for Generators to participate in the Regulation Market
- As a result, 100 kW DERAs participating in the Generator or BSF model cannot provide regulation

Proposal

Reduce the minimum size for Generators to provide Regulation from 5 MW to 100 kW to align with the approved Order No. 2222 design

- We propose conforming changes to reduce the minimum size for Generators to participate in the Regulation Market from 5 MW to 100 kW
  - This aligns with the minimum size requirements for ATRRs
  - This will enable 100 kW Generators and BSFs to provide Regulation

Conclusion

- Conforming changes are required to implement the Order No. 2222 market design
  - Re-name DRDERA energy market offers
  - Include DRDERAs in the DA A/S Market
  - Include DRDERAs in NCPC
  - Reduce the minimum size for Generators to provide regulation
- The conforming changes will help enable DERs to participate in wholesale markets on November 1, 2026

Stakeholder Schedule

Stakeholder Committee and Date	Scheduled Project Milestone
Markets Committee April 8-9, 2025	- Introduce Order No. 2222 Conforming Changes
Markets Committee May 6-7, 2025	- Continued discussion on Order No. 2222 Conforming Changes - Introduce Tariff redlines for Order No. 2222 Conforming Changes
Markets Committee June 10-11, 2025	- Vote on Order No. 2222 Conforming Changes
Participants Committee August 7, 2025	- Vote on Order No. 2222 Conforming Changes

Questions

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Acronyms Used in this Presentation

- ATRR = Alternative Technology Regulation Resource
- BSF = Binary Storage Facility
- CSF = Continuous Storage Facility
- DA A/S = Day-Ahead Ancillary Services
- DDP = Desired Dispatch Point
- DER = Distributed Energy Resource
- DERA = Distributed Energy Resource Aggregation
- DRDERA = Demand Response Distributed Energy Resource Aggregation

Acronyms Used in this Presentation (cont.)

- DRR = Demand Response Resource
- EDP = Economic Dispatch Point
- FERC = Federal Energy Regulatory Commission
- LMP = Locational Marginal Price
- kW = Kilowatt
- MC = Markets Committee
- MW = Megawatt
- MWh= Megawatt-hour
- NCPC = Net Commitment Period Compensation

APPENDIX: EXAMPLE OF NCPC FOR DRDERAS

DRDERAs are compensated for energy injection that occurs outside of dispatch instructions

- A DRDERA's Metered Quantity for Settlement [Market Rule 1 Section III.3.2.1.1(e)] does not always align with DRDERA performance [Market Rule 1 Section III.6.5(d)], because DRDERAs are compensated for energy injection that occurs outside of dispatch instructions
- In contrast, a DRR's Metered Quantity for Settlement [Market Rule 1 Section III.3.2.1.1(d)] always aligns with DRR performance (Market Rule 1 Section III.8.4)
- For example:

Resource	DDP (MWh)	Adjusted Baseline (MWh)	Meter (MWh)	Performance (MWh)	Metered Quantity for Settlement (MWh)
DRR	1	1	2	1	1
DRDERA	1	1	2	1	2

A DRDERA can be scheduled out-of-merit

- Building on the example from last slide, say the DRDERA offers $1/MWh and LMP is $0/MWh
- The DRDERA incurs $1 in costs to provide 1 MWh above its baseline, but earns $0 in revenue, which means its net revenue from responding to dispatch instructions is -$1
- Alternatively, it could have remained offline for net revenue of $0
- An NCPC credit of $1 ensures the resource is no worse off for following dispatch instructions

Using a DRDERA's Metered Quantity for Settlement (MQS) in NCPC can violate the "no worse off than best alternative" principle

- If we use MQS in NCPC credit calculations, it can result in over- or under-compensation, because DRDERA MQS includes energy injections that occur outside of dispatch instructions
- For example:

$$
\begin{aligned}
\text{NCPC Credit} &= \text{Net Revenue}_{EDP} - \text{Net Revenue}_{MQS} \\
&= (\text{Revenue}_{EDP} - \text{Costs}_{EDP}) - (\text{Revenue}_{MQS} - \text{Costs}_{MQS}) \\
&= [(\text{LMP} \times \text{EDP}) - (\text{Offer} \times \text{EDP})] - [(\text{LMP} \times \text{MQS}) - (\text{Offer} \times \text{MQS})] \\
&= [(\$0 \times 1\ \text{MWh}) - (\$1 \times 0\ \text{MWh})] - [(\$0 \times 2\ \text{MWh}) - (\$1 \times 2\ \text{MWh})] \\
&= [\$0/\text{MWh} - \$0/\text{MWh}] - [\$0\ \text{MWh} - \$2\ \text{MWh}] \\
&= [\$0\ \text{MWh}] - [-\$2/\text{MWh}] \\
&= \$2/\text{MWh}
\end{aligned}
$$

- The DRDERA's net settlement (energy + NCPC) is $1 (-$1 + $2), which is greater than its best alternative ($0), and violates the "no worse off than best alternative" principle

Using a DRDERA's performance aligns with the "no worse off than best alternative" principle

- If we use DRDERA performance in the credit calculation, it results in an accurate payment
- For example:

$$
\begin{aligned}
\text{NCPC Credit} &= \text{Net Revenue}_{EDP} - \text{Net Revenue}_{performance} \\
&= (\text{Revenue}_{EDP} - \text{Costs}_{EDP}) - (\text{Revenue}_{performance} - \text{Costs}_{performance}) \\
&= [(\text{LMP} \times \text{EDP}) - (\text{Offer} \times \text{EDP})] - [(\text{LMP} \times \text{performance}) - (\text{Offer} \times \text{performance})] \\
&= [(\$0 \times 1\ \text{MWh}) - (\$1 \times 0\ \text{MWh})] - [(\$0 \times 1\ \text{MWh}) - (\$1 \times 1\ \text{MWh}) \\
&= [\$0/\text{MWh} - \$0/\text{MWh}] - [\$0\ \text{MWh} - \$1\ \text{MWh}] \\
&= [\$0\ \text{MWh}] - [-\$1/\text{MWh}] \\
&= \$1/\text{MWh}
\end{aligned}
$$

- The DRDERA's net settlement (energy + NCPC) is $0 (-$1 + $1), which aligns with its best alternative ($0)