

Order No. 2222: Participation of Distributed Energy Resource Aggregations in Wholesale Markets



Auditing and Installed Capacity Requirement

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- Order No. 2222, issued on September 17, 2020, requires that ISOs/RTOs allow 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
- FERC has granted the ISO the **February 2, 2022** compliance filing deadline
- Today's presentation will cover:
 - Order No. 2222 background
 - Auditing
 - Installed Capacity Requirements
 - Stakeholder process

ORDER NO. 2222 BACKGROUND

Key Compliance Directives of Order No. 2222

- Order No. 2222 has eleven key compliance directives:
 1. Allow distributed energy resource aggregations (DERAs) to participate directly in RTO/ISO markets and establish DER aggregators as a type of market participant
 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
- Most of these requirements are being addressed at the Markets Committee
 - Operational coordination and market participation agreements are being addressed at the Transmission Committee
 - This presentation includes the ISO's high-level design approach to comply with Order No. 2222 in the areas of Auditing and Installed Capacity Requirements

Four Capabilities of DERA

- To allow for heterogeneous aggregations, the ISO's approach focuses on capabilities, not on technologies
- With the inclusion of Demand Response Resources into a DERA, a DER may have one or more of the following capabilities:
 - Demand reduction capability
 - the ability to reduce demand as measured against a baseline
 - Energy injection capability
 - the ability to inject energy to the grid
 - Energy withdrawal capability
 - the ability to withdraw energy from the grid
 - Regulation capability
 - the ability to balance the grid every 4 seconds
- If a DER has multiple capabilities, a DER Aggregator can sign up any of its capabilities and participate in the wholesale markets via a DERA



Seven Participations Models for DERAs

No.	Participation Model	Description
1	Demand Response DERA (DRDERA)	A new model that enables demand response DERs to aggregate with other DERs
2	Settlement Only DERA (SODERA)	A new model to settle energy at LMP
3	Continuous Storage Facility (CSF)	Existing model expanded for aggregation (formerly DDERA model*)
4	Generator Asset (Gen Asset)	Existing model expanded for aggregation
5	Binary Storage Facility (BSF)	Existing model expanded for aggregation
6	Demand Response Resource (DRR)	Existing model with no changes
7	Alternative Technology Regulation Resource (ATRR)	Existing model with a reduced size and a modified locational requirement

*The term “DDERA” to refer to any of the DERA participation models, except for the SODERA model.

Capacity Market Participation

- A Distributed Energy Capacity Resource (DECR) is proposed to be defined as an aggregation of one or more DERAs for participation in the Forward Capacity Market (FCM)
 - A DECR may be composed of different DDERA types, but may not combine any DDERA with a SODERA

AUDITING



Existing Audit Rules Will Apply to DERAs

- A DERA that participates as a Gen Asset, CSF, BSF, and SODERA will be audited under the existing Generator Asset rules
 - Existing rules for intermittent, net-metered, or special qualifying facilities could apply to a DERA
- A DERA that participates as a DRDERA will be audited under the existing Demand Response Resource rules
 - This is the Seasonal DRDERA Value

Audit Duration for DERAs

- Due to the potential heterogeneous nature of DERAs, a new audit duration is needed
- The proposed audit duration for Establish Claimed Capability Audits, Seasonal Claimed Capability Audits, and ISO-Initiated Claimed Capability Audits is 2 hours

ISO-Initiated Parameter Auditing for DRDERAs

- Similar to Generator Assets and Demand Response Resources, the ISO may perform an audit on any DRDERA Offer parameter or other operating parameter that impacts the ability of the DRDERA to provide energy or reserves
 - ISO can conduct an audit based upon historical data
 - ISO can conduct an unannounced audit
- If audit results indicate values being provided by the DER Aggregator are not representative of the actual capability of the DRDERA, the provided values will be restricted by the values supported by the audit
- To restore a value, a restoration plan would need to be submitted by the DER Aggregator following existing rules described in III.1.5.2 (h) of the Tariff

Seasonal Audit Value of a DECR

- The Seasonal Audit Value of a DECR is the sum of the Seasonal Capabilities of DERAs comprising the DECR
 - For DRDERAs, the Seasonal Capability is the Seasonal DRDERA Value.
 - For DERAs that participate as a Gen Asset, CSF, BSF, and SODERA , the Seasonal Capability is that of a Generator Asset described in III.1.7.11.
- Summer Seasonal Audit Value will apply June 1 through September 30
- Winter Seasonal Audit Value will apply October 1 through May 31

INSTALLED CAPACITY REQUIREMENTS

Installed Capacity Requirements (ICR)

- Minor Tariff modifications will be required in Tariff Section III.12 so that DECRs are considered in modeling the ICR
- Tariff Section III.12.7.2. will be updated to include all Existing DECRs
 - Existing DECRs shall include and are limited to DECRs that have cleared in a previous FCA
 - The rating of DECRs to be used in the calculation of the ICR, Local Sourcing Requirements, Maximum Capacity Limits and Marginal Reliability Impact is still being evaluated and will be discussed at future RC meetings
- Tariff Section III.12.7.3. will be updated to reflect how DECR availability metrics will be captured in calculating the ICR and its related values
 - The Tariff currently requires a NERC Class Average be used when performance data is not available, but this is not possible for most DECRs which will likely be an aggregation of facilities with various performance availabilities
 - Further assessment is underway and additional detail on the proposed design will be discussed at future RC meetings
- Tariff Section III.12.9.2.4 will be updated to include Existing DECRs

STAKEHOLDER PROCESS



Stakeholder Schedule

Stakeholder Committee and Date	Scheduled Project Milestone
MC: December 8, 2020	Kick-off discussion on Order No. 2222 compliance
MC: January 12, 2021	Continue discussions on Order No. 2222 focusing on preliminary stakeholder questions
MC: February 9-10, 2021 TC: February 23, 2021	MC: Review high-level design for defined terms, participation models, metering and telemetry requirements, registration coordination, and proposed changes to the Market Participant Services Agreement TC: Review high-level design for operational coordination, interconnection, and proposed changes to the Market Participant Service Agreement

Stakeholder Schedule (cont.)

Stakeholder Committee and Date	Scheduled Project Milestone
<p>MC: March 9, 2021</p> <p>TC: March 23, 2021</p>	<p>MC: Discuss high-level design for incorporating DER participation in the FCM; Review refinements to the compliance proposal; Discuss referral to the Meter Reader Working Group (MRWG) on meter reading issues</p> <p>TC: Continue discussion of high-level design for operational coordination, interconnection, and proposed changes to the Market Participant Service Agreement</p>
<p>MC: April 6, 2021</p>	<p>Discuss MRWG report on the March referral; additional referral to the MRWG on meter reading issues</p>
<p>MC: May 11, 2021</p> <p>TC: May 27, 2021</p>	<p>MC: Review unchanged design elements of the ISO's proposal and high-level review of the areas where the ISO is considering design changes; Discuss MRWG report on the April MC referral</p> <p>TC: Review unchanged design elements of the ISO's proposal and high-level review of the areas where the ISO is considering design changes</p>

Stakeholder Schedule (cont.)

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	MC and TC: Respond to suggestions made at the June Technical Committee meetings and to present any changes to its proposal RC: Auditing and ICR related design is introduced
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

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

Q&A AND DISCUSSION

