

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

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Agenda

- Objectives of Order No. 2222
- Order No. 2222 activities
- Review Next Steps

Participation of Distributed Energy Resource Aggregations in Wholesale

- 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
- On 4/16/21, the ISO filed a [motion to extend the compliance filing deadline to February 2, 2022](#)
- These slides present the ISO's high-level design approach to comply with portions of Order No. 2222
 - The ISO is continuing to receive and reflect on feedback from stakeholders, which may result in design modifications and updates that will be shared with stakeholders

Order No. 2222 filing

- ISO's [filing with FERC](#) to request an extended time period for compliance with Order No. 2222
 - As stated in filing, reasons for extended time include the large scope of the coordination effort, on-going work related to metering, and work related to the integration of demand response resources (DRR) into DER aggregations
 - Impact on project activities and timeline (see next slide)

Compliance filing must address eleven key directives

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

Compliance filing must address eleven key directives – 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

Terminology

- A DER is proposed to be defined as “any resource located on the distribution system, or any subsystem thereof, or behind a customer meter.”
 - “These resources may include, but are not limited to, electric storage resources, distributed generation, demand response, energy efficiency, thermal storage, and electric vehicles and their supply equipment”
 - The definition of “distribution system” will be addressed at the Transmission Committee
- A Distributed Energy Resource Aggregation (DERA) may consist of one or more Distributed Energy Resources (DERs)
- A DER Aggregator is the market participant responsible for assembling a collection of DERs into a DERA
 - The DER Aggregator is the single point of contact with the ISO

Real-Time Operational Coordination

Description

- As necessary, DER Aggregators update aggregation level physical operating parameters or financial offers inclusive of restrictions due to distribution constraints as previously communicated by the DU to the DER Aggregator
- ISO clears the Real-Time Market and transmits aggregation level desired dispatch points (DDP) to the DERA
- The DERA Aggregator ensures the DERA follows ISO's DDPs
- In the event that the DU detects actual or anticipated reliability issues in the distribution system during real-time operation, the DU informs the DER Aggregator of any operating constraints at either the asset or aggregation level
- The DERA immediately complies by adjusting the dispatch of the DERA as necessary
 - The DER Aggregator declares (to the ISO) any change of physical parameters accordingly

SIZE AND LOCATIONAL REQUIREMENTS

- *100 kW minimum size for DERA*
- *Aggregation across a wide geographic footprint*

Size Requirements

For a DERA:

- Minimum size is 100 kW
- No maximum size limit

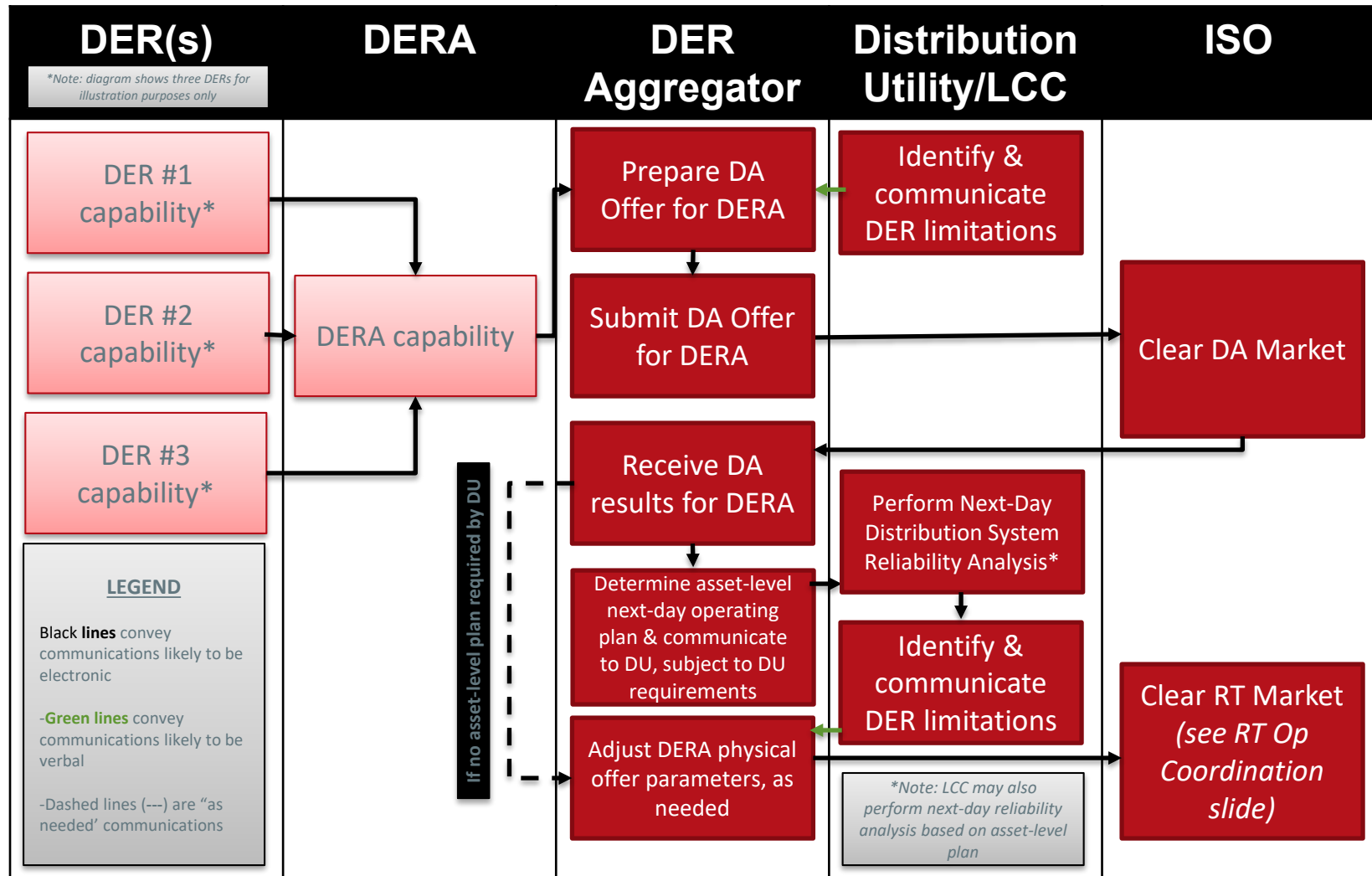
For a DER:

- No minimum size requirement
- No maximum size limit for a DER, provided an individual DER with generation capability greater than 5 MW will be its own DDERA
 - A DER > 5 MW cannot be SODERA
 - This rule is 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 DER, may be its own DERA

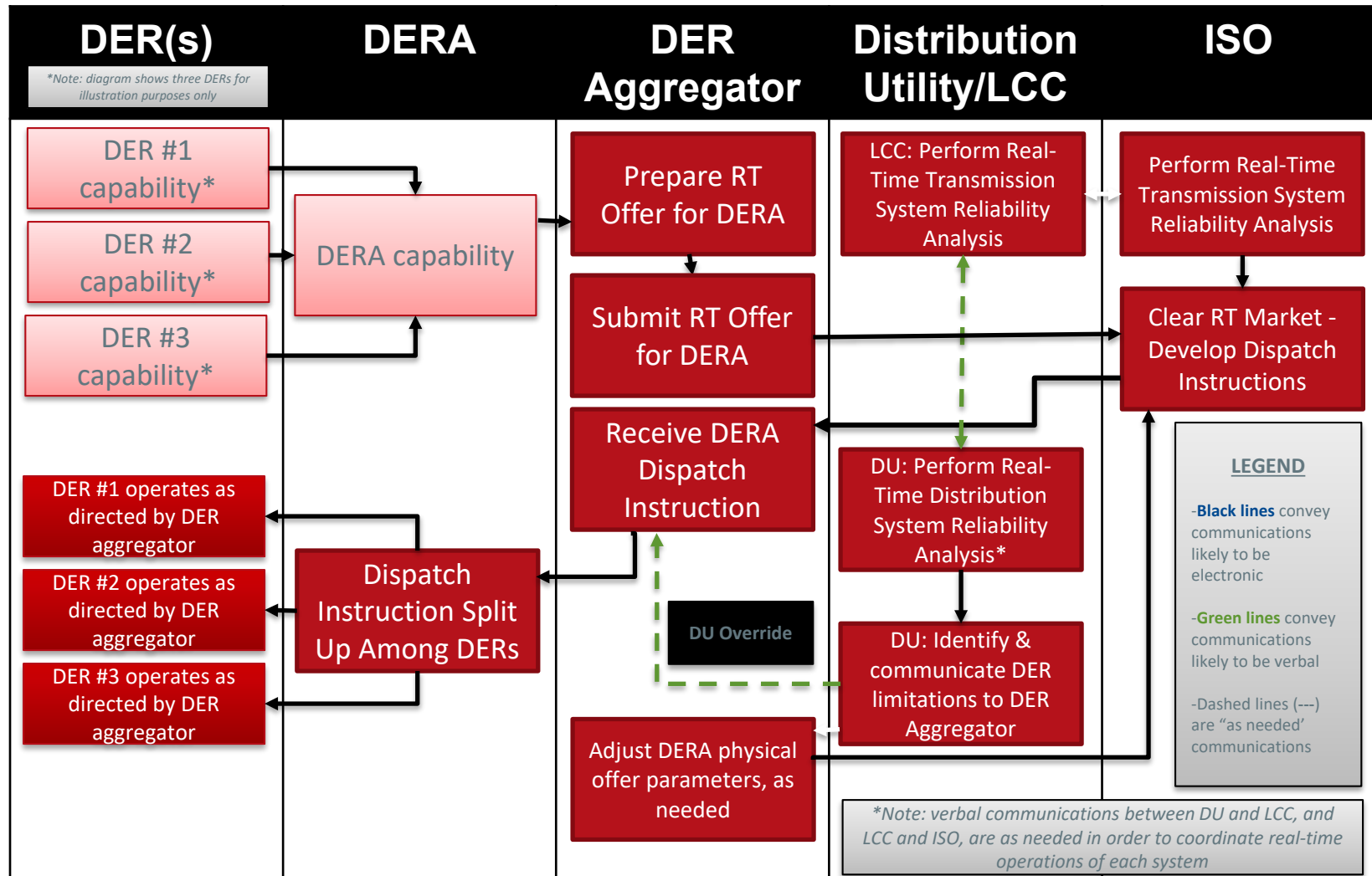
Locational Requirements

- For a DDERA or a SODERA, all constituent DERs are required to be located within the same metering domain
 - Metering domain generally follows a distribution utility's service territory within a single Load Zone
- For a DDERA, all constituent DERs must also be located within the same DRR Aggregation Zone
 - Currently there are 20 DRR Aggregation Zones (map on next slide)
- In ISO's market software, a DERA will be mapped to a single pricing node (Pnode) from the following:
 - DRR Aggregation Zone Pnode, Load Zone Pnode, substation Pnode
- Since a DERA is a single-node aggregation, DER Aggregators are not required to provide distribution factors per the Order

Day-Ahead Operational Coordination



Real-Time Operational Coordination



Revised high-level process schedule

- **Dec 2020:** Kick-off discussion on Order No. 2222 compliance
- **Dec 2020-Feb 2021:** ISO discussions with affected entities (e.g. potential DER aggregators, TOs, EDCs, retail regulators, etc.) under the Order
- **Jan 2021:** Continue discussions on Order No. 2222 focusing on preliminary stakeholder questions
- **Feb 2021:** High-level design approach reviewed with the NEPOOL Technical Committees as appropriate
- **Mar 2021:** More detailed presentation to NEPOOL Technical Committees; referral to the Meter Reader Working Group (MRWG) on meter reading issues
- **Apr 2021:** Continued discussion with NEPOOL; MRWG report on the March referral; additional referral to the MRWG on meter reading issues
- **May 2021:** Review of the unchanged design elements of the ISO's proposal and high-level review of the areas where the ISO is considering design changes; potential MRWG report on the status of the April MC referral
- **Jun 2021:** Stakeholders to present any suggested changes to the ISO's proposal
- **Jul 2021:** ISO to respond to suggestions made at the June Technical Committee meetings and to present any changes to its proposal

Revised high-level process schedule, cont.

- **Aug 2021:** Continued discussion focusing on what is new from the prior meetings
- **Sep 2021:** ISO to present the final draft of its proposal and initial Tariff redlines; members wishing to pursue alternative approaches should indicate their intentions to present in October
- **Oct 2021:** ISO to present any design refinements to its proposal and to review Tariff redlines focusing on revisions since the prior meeting; discussion of any potential amendments to the ISO proposal
- **Nov 2021:** ISO to discuss any remaining design refinements to its proposal and continued review of the Tariff redlines focusing on what is new; continued discussion of any potential amendments to the ISO proposal
- **Dec 2021:** Technical Committee votes on Tariff changes including any proposed amendments
- **Jan 2022:** Participants Committee vote on Tariff changes including any proposed amendments
- **February 2, 2022:** Filing with FERC