



Order 2222 Review

January 7, 2021

DIRS

- Review initial PJM staff thoughts around compliance directives for FERC Order 2222
 - Topics to be covered in today's meeting: Interconnection, maximum sizing of resources & aggregations, locational requirements, and opt-in process for small utilities.
- After reviewing each topic, open discussion for stakeholder feedback on specific questions.
 - In meeting WebEx polling (non-binding) will be used for quick stakeholder feedback in certain areas.

- All initial thoughts in this presentation are being provided to help facilitate discussion around certain topics and do not represent a formal PJM position at this time.
- Discussion and feedback from stakeholders on these topics will be used to help inform the straw proposal PJM will be releasing in February, which will include PJM's initial positions on Order 2222 compliance.



Interconnection

- FERC declines to exercise jurisdiction over the physical interconnection of DER exclusively participating in DERA.
 - Interconnection process at the state and EDC level
- Opportunity to perform studies for transmission impacts for DERA
- DERs participating in a DERA can participate in capacity

- PJM needs to study injections on the transmission system to ensure reliability and deliverability.
 - Many DER on distribution will not inject onto transmission system, even if injecting past the retail load meter
 - Initial thought: Work with EDC/TO to determine resources (in aggregation on a distribution facility) that do inject on transmission; those resources would be required to go through the PJM queue; all other DERs would be eligible to participate in the PJM market through a DERA, subject to jurisdictional EDC/TO requirements
- Initial thought: Nominated capacity value for the DERs within the aggregation will be established as part of the registration process.
 - New process needed for periodically validating capacity accreditation and to ensure resources (in aggregation) are not injecting onto transmission as determined by the EDC/TO.

Question: Do stakeholders want an option where a DER can interconnect through state process only and participate in the wholesale market as a resource within a DERA without coming through the PJM interconnection queue (assuming certain criteria PJM is defining under Order 2222 compliance is met)?

- PJM staff initial thinking is to have an option like this

Question: What process should be in place for the aggregator to demonstrate that all the DERs within the aggregation meet the criteria (interconnected through state process and that meets new criteria to be developed)?

Question: What should the interconnection study process for DER look like under Order 2222?

- A. Individual DER should be studied and interconnected by the local utility – only process available.
- B. Individual DER interconnect under local utility process; Transmission impacts of DERA studied under PJM queue process; DERA has a queue position.
- C. Individual DER must come through the PJM queue (status quo).

Sizing Requirements

- For individual DER within a DERA, FERC is requiring RTOs to propose a maximum capacity requirement.
 - To ensure that larger resources are required to participate individually and allow RTOs to independently model and verify the metering of these larger resources.
- FERC is not requiring a maximum size requirement for the aggregation.

- **Capability Maximum Size**
 - Individual metering and telemetry will be important for Operations as resource size increases.
 - Larger resources will likely have larger potential system impact and will also be important for PJM to study.
 - Initial thought: DER >5MW would participate in the market individually and not as part of a DERA.
- **Aggregation Maximum Size**
 - Initial thought: There will need to be some limit on aggregation size; likely tied to locational requirements; MW value TBD.

Question: What should the maximum capacity (MW value) limit be for an individual DER participating in the PJM markets through a DER aggregation?

- Resources above this threshold value will need to participate as a stand-alone resource, outside of the DER aggregation model.

Question: For individual DER within a DER aggregation, FERC is requiring RTOs to propose a maximum size requirement. What do you think is an appropriate max size?

- A. ≤ 1 MW**
- B. ≤ 5 MW**
- C. ≤ 10 MW**
- D. ≤ 20 MW**
- E. Other**

Should the max capacity limits be applicable to all DERs, or only injection DERs?

- Example: Generation-backed demand response would not be subject to size limit if it doesn't inject
- Should a distinction be made between front of meter injection vs. transmission facility injection?

Question: Should the max capacity requirements be applicable to all DERs, or only injection DERs?

- A. All resources subject to capacity requirement**
- B. Only injection resources subject to capacity requirements**
- C. Only transmission injection resources subject to capacity requirements**

Question: Do you support PJM implementing a max capacity requirement on the total size of an aggregation? Why or why not?

Question: Do you support PJM implementing a limit on the total size of the aggregation?

- A. No aggregation max size requirement**
- B. Yes, 10MW**
- C. Yes, 20MW**
- D. Only one resource 100kW or greater in aggregation (demand response model)**



Locational Requirements

- Need to establish locational requirements for DER aggregations that are as geographically broad as technically feasible
 - Single-node or multi-node aggregations
- Multi-node aggregations: improved market entry and competition, lower chance of underperformance, and improved services that aggregations can provide.
- Single-node aggregations: reduce the cost of participation for smaller resources by telemetering the aggregation rather than each individual resource and allow RTOs to better manage intrazonal price congestion

- What are the drivers for aggregations?
 - Main driver is market entry- aggregating up to 100kW
- Important that aggregations can be appropriately dispatched for constraint control
 - Keep aggregation geographically small or allow geographically larger aggregation with increased data requirements or decreased size requirements.

Question: Do you see more value in aggregations being larger MWs and smaller footprints, or smaller MWs and larger footprints? Why?

- Thinking about the balance between sizing and locational requirements

Question: What would you prefer in terms of geographic scope of aggregation in combination with max size requirements?

- A. Larger max size limit, but smaller geographic scope**
- B. Smaller max size limit, but larger geographic scope**

Question: What are the driver(s) for aggregations in wholesale markets?



Small Utility Opt-In

- Accept bids from a DER aggregator if its aggregation includes DERs that are customers of utilities that distributed more than 4 million MWh in the previous fiscal year, and do not accept bids from DER aggregators if its aggregation includes DERs that are customers of utilities that distributed 4 million MWh or less in the previous fiscal year, unless the RERRA permits.
- The opt-out and opt-in requirements of Order Nos. 719 and 719-A still apply for Demand Response resources.

Initial thought:

- DR Opt-in/Opt-out process would apply to the following resources:
 - Demand Response (load curtailment) resources
 - Resources that are behind the meter but have injection capability
 - Many resources do this today for just the BTM portion of the resource.
- Order 2222 Opt-in process would apply to the following resources:
 - FTM generator, energy storage, and energy efficiency resources

Question: Do you feel a different breakout of resources should be subject to the Opt in/out provisions of Order 719?

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Order 2222 Compliance Directives



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