

PJM Order 2222 Design Discussion

DIRS

May 17, 2021

IMM



Monitoring Analytics

Guiding Principles

- **Preserve integrity of the nodal market**
- **Complete and thorough review of all design aspects**
 - **Plan for significant amounts of DER participation**
 - **Rules are harder to change once entrenched**
- **Similar standards across resource types**
 - **Operational requirements should be the same**
 - **There should be no option to choose DER aggregation in order to avoid existing rules.**
- **No double counting should be allowed.**
- **Demand Response DERs should be subject to the same rules as all other DERs.**



Nodal DERs

- **PJM is a nodal market.**
- **Aggregation of resources across transmission nodes would undermine the market and reliability.**
 - **Inaccurate pricing**
 - **Lack of constraint control**
 - **Future locations of constraints cannot be predicted.**
 - **Potential DA/RT modeling differences**
- **There is no good reason for aggregation across nodes.**
 - **Billing can be aggregated without aggregating resources.**
 - **The nodal location of energy sources cannot be a dynamic input provided by market participants.**



Registration Process Is Not Enough

- **Participation of DERs is increasing and will continue to increase.**
- **State or local approval does not substitute for studies of the impact on the PJM transmission system.**
- **There need to be impact studies of DERAs on the distribution system and on the PJM transmission system.**
- **Comparable treatment to other resources required.**
 - **Determination of deliverability to the transmission system for capacity resources**
 - **Responsibility for building necessary transmission**



Market Power Mitigation

- **DERs cannot be exempt from market power mitigation and cost-based offers.**
- **Small resources can and do have market power.**

Month	On or Off Peak	Total Hours	Hours with TPS Test Failures	
			Units Less than 20 MW	Economic DR
Jan-21	Off Peak	424	346	13
Jan-21	On Peak	320	300	19
Feb-21	Off Peak	352	266	0
Feb-21	On Peak	320	284	27
Mar-21	Off Peak	375	302	0
Mar-21	On Peak	368	350	20

Energy Market Cost Based Offers for DERs

- **All nonzero cost-based offers must be submitted daily or hourly based on OA Schedule 2.**
 - **Requires a fuel cost policy**
 - **Underlying data to support the daily calculation**
 - **Penalties for incorrectly submitted cost-based offers**
 - **All offers greater than \$1,000 per MWh are cost-based.**
- **Cost-based incremental offers should use the efficient dispatch order of the resources.**
- **Availability and capability of the components of the DERA need to be updated in real time for accurate cost-based offers and accurate offer parameters.**



Participation Model

- **Capacity market**
 - **All capacity resources carry the same responsibilities.**
 - **There should be must offer requirements.**
- **Energy market**
 - **All energy resources carry the same responsibilities.**
 - **DERAs should be required to submit cost-based offers.**
 - **DERAs should have enforceable day-ahead and real-time must offer requirements.**



Participation Model

- **Ancillary Services markets**
 - **All capacity resources carry the same obligations**
 - **Pending reserve market changes include an enhanced synchronized reserve must offer requirement.**
 - **DERAs should be required to make reserve offers of their full capability, based on underlying resource capabilities.**



Minimum/Maximum Size Requirements

- **Maximum size requirement for an individual DER should be as small as possible**
 - **Of new units added in the PJM queue between 2018 and 2020, 17 percent were smaller than 5 MW.**
- **There should be a maximum size for DERAs.**



DRs in DERA

- **PJM proposes separate settlements according to Order 745 and net benefits test.**
 - **The IMM disagrees.**
- **Demand Response DERs should be subject to the same rules as all other DERs (e.g. metering/telemetry requirement).**
- **DR that wants to participate under the existing rules should not be part of a DERA with other resource types.**
- **PJM cannot accurately determine which part of a DERA is DR without proper metering requirements.**



Double Counting

- **No resources should be paid more than once for the same service**
 - **We need a narrow definition of distinct services.**
- **Net Energy Metering**
 - **Should not be allowed to participate in energy, capacity, or ancillary markets**
 - **All or nothing**



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