Distributed Energy Resources (DER)
Stakeholder Process Update

Scott Baker
Chair, Special MIC – DER

MC Webinar
June 19, 2017
1. Education:
   - PJM rules for generation
   - PJM rules for demand response
   - Other RTO rules benchmarking
   - State/federal jurisdictional rules

2. “Consider modifications to **PJM interconnection queue rules** for distributed resources.”

3. “Consider modifications to **market participation rules** for distributed resources to more efficiently incorporate these resources into the energy, ancillary services and capacity markets.”

http://www.pjm.com/~media/committees-groups/committees/mrc/20160418-special/20160418-item-02a-distributed-battery-storage-issue-charge-revised-1.-d.,28,-d.,16-clean.ashx
• **Task 1: Education**—COMPLETE AND CLOSED (2016)

• **Task 2: Interconnection modifications**—IN PROGRESS (Seeking Endorsement at June MRC)
  – Scope includes education and new rules on:
    • Alternate Queue Process
    • Allocation of upgrade costs <$5 million
    • Phasing in the queue process.

• **Task 3: Market modifications**—IN PROGRESS (MIC Special Sessions)
  – Goal: Evaluate current options for resources to participate in markets when both reducing load and injecting power past the load meter. Propose enhancements as necessary.
  – Approach: Initially focus on ancillary services, then energy and capacity.
• **Primary Focus:** Some generators and batteries behind a load meter have the ability to inject power:
  – What is their path to participate in wholesale markets?
• **PJM Demand Response or Generation** framework, but…
  – DR rules prohibit injection of power past load meter; and
  – Generation rules pose challenges for units that are wired with load.
• **Stakeholder Process Goal:**
  – Clear market rules for DER wired with and without load that wish to participate in wholesale markets.
Significant Areas of Discussion

**Interconnection**
- Similar queue process to existing WMPA (staff preferred approach)
- DER<>EDC only, DER must certify to PJM that it has a state interconnection (alternative solution)

**Aggregation**
- Minimum and Maximum Size Thresholds
- Locational considerations
  - Determined by PJM
  - Determined by EDC
- Aggregation for market compliance purposes…
  - May differ from locational considerations

**Method to Measure Wholesale vs. Retail Energy**
- Physical separation
- Virtual separation
- Use existing DR measurement rules extended to include injections
3 Main DER Wiring Configurations Under Discussion
“Buy-All/Sell-All” DER With Grid Outage Capability

Utility Grid

GEN Meter M2

EDC LOAD Meter M1

Resiliency Meter M4

Auto Transfer Switch

DER Submeter M3

Wholesale DER

Main Electrical Panel

Auto Transfer Switch

Loads

Sub Electrical Panel

Loads
“WIRED W/ LOAD” WHOLESALE DER

Utility Grid

EDC LOAD Meter

M1

Main Electrical Panel

Auto Island Switch

Sub Electrical Panel

Wholesale DER

DER Submeter

M3

Loads
Q: How to properly settle energy?

EDC LOAD Meter

Utility Grid

Main Electrical Panel

Auto Island Switch

Sub Electrical Panel

SREC Meter

DER Submeter

Wholesale DER

Loads

Retail DER

PJM STATUS: NO PROCESS FOR MIXED WHOLESALE AND RETAIL INJECTIONS