DER Subcommittee Update & DER Energy Storage Interconnection Use Case

Scott Baker
Sr. Business Solutions Analyst

MIC Special Session: Energy Storage Resources
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DER Subcommittee: Update on work streams

- Non-wholesale DER observability
- Settlement of Wholesale Stored Energy, esp. when co-located with retail load
- Wholesale DER Market Rules
- DER Aggregation
- Interconnection Queue Process for WMPAs
- Front of Meter / “Utility Owned” Microgrids
Interconnection Status Quo for Energy Storage Resources Located Behind a Customer’s Load Meter
1. Submit appropriate PJM interconnection request application
   • Interconnection jurisdiction check (vast majority will be state)

2. Front of meter megawatts (injections) are wholesale;
   • Load (withdrawals) are retail

3. No 3rd party ownership of generation/storage that uses a load customer’s interconnection facilities to wheel power
1. PJM Tariff Interconnection Options

• To participate in front of the meter in the wholesale market, a PJM Interconnection Request is required.

• For PJM Tariff interconnection procedures to apply, request must be FERC jurisdictional
  – If state jurisdictional: final agreement - Wholesale Market Participation Agreement
  – If FERC jurisdictional: final agreement - Interconnection Service Agreement

• Forms of Tariff Interconnection Requests for inverter-based DER generation:

<table>
<thead>
<tr>
<th>PJM Tariff Attachment</th>
<th>Applicable PJM Tariff Section</th>
<th>Applicable to</th>
<th>Deposit Costs¹</th>
<th>Tariff Duration from queue window close² to ISA Assumes Qualifications Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>BB</td>
<td>112B</td>
<td>≤ 10 kW inverter-based</td>
<td>$500</td>
<td>23 days</td>
</tr>
<tr>
<td>Y</td>
<td>112A</td>
<td>&gt;10 kW &amp; up to 5 MW inverter-based</td>
<td>$2k/3k/5k</td>
<td>1-3 months</td>
</tr>
<tr>
<td>N</td>
<td>110 (Capacity) or 111 (energy-only)</td>
<td>5 MW &amp; ≤ 20 MW inverter-based</td>
<td>$10k/12k/15k or expected cost in Transmission Owner zone.</td>
<td>4-12 months*</td>
</tr>
</tbody>
</table>

¹ Customer responsible for actual costs: study, agreements, system upgrades, metering, and telemetry.
² Special PC Session: New Service Request Study Methods working to remove the need for queue window to close.
1. Jurisdiction Over Interconnection and Sales of Generation/Storage on Distribution Facilities

- Is this a generator interconnecting to a non-OATT distribution facility?
  - Yes
  - No

  1. On a distribution line with prior FERC jurisdictional sales or
  2. On a transmission line

Is this a Net Energy Metering (NEM) facility without excess generation at the end of the billing period?
- Yes
- No

  1. A NEM Facility with excess sales or
  2. Not a NEM Facility

Is this a Qualifying Facility (QF) selling under a PURPA rate to the interconnected EDC?
- Yes
- No

  1. QF not selling to interconnected EDC at PURPA rate or
  2. Not a QF

Is this a Qualifying Facility (QF) not selling to interconnected EDC at a PURPA rate?
- Yes
- No

Is this a Qualifying Facility (QF) not selling to interconnected EDC at a PURPA rate?
2. Wholesale Out, Retail In

Generation Metered Wholesale Sales

Electric Distribution Company

Power exports past this participate in PJM wholesale market

Homeowner Loads
3. Third Party Ownership Infeasible

**Customer Interconnection Facilities** are “owned and/or controlled, operated and maintained” by **Interconnecting Customer**.

- Failing that, power must be wheeled over third-party lines. This requires 3rd party to be a public utility. Hence: “Not Allowed”

**Education on this topic from MRC 8.24.2016**