Wholesale DER Interconnections

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Distributed Energy Resources Subcommittee
Jurisdiction
Pre-Applications: Formal and Informal
DER Capacity vs Transmission Interconnection Capacity
  Behind the Meter
    vs Non-Retail Behind the Meter
    vs Front of the Meter
    vs Net Energy Metering
Which Interconnection Process?
Valid Interconnection Requests
Proposed Improvements
DER Wholesale Participation: Whose Process Controls Interconnection?

Federal Government

Federal process governs:
- Transmission
- Distribution when
  - Prior wholesale sales
  - Qualifying Facility (QF)* at time of submittal

State / Local Government

Local process governs:
- Net energy metering
- All other interconnections

* For storage to be classified as QF, owner must certify that 75% of charge energy will come from a QF resource.
DER Wholesale Participation

FERC jurisdictional distribution connections:

- Interconnection process
- Rates
- Capability requirements
- Application of capability
- Price signals
- Distribution system control
**Local jurisdictional distribution connections:**

<table>
<thead>
<tr>
<th>Process</th>
<th>States / Local Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interconnection process</td>
<td></td>
</tr>
<tr>
<td>Rates</td>
<td></td>
</tr>
<tr>
<td>Capability requirements</td>
<td></td>
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<tr>
<td>Operations</td>
<td></td>
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<tr>
<td>Application of capability</td>
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<tr>
<td>Price signals</td>
<td></td>
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<tr>
<td>Distribution system control</td>
<td></td>
</tr>
</tbody>
</table>
Provide prospective distribution customers access to interconnection circuit information on FERC-jurisdictional distribution circuits.

<table>
<thead>
<tr>
<th>Informal</th>
<th>Formal</th>
</tr>
</thead>
<tbody>
<tr>
<td>• No determination of jurisdiction made</td>
<td>• Only applicable on FERC-jurisdictional facilities</td>
</tr>
<tr>
<td>• PJM existing interconnection information near proposed location</td>
<td>• $300 fee: Refunded when non-jurisdictional</td>
</tr>
<tr>
<td></td>
<td>• Local facility owner provides readily available information</td>
</tr>
</tbody>
</table>
Unlike an interconnection request, QF status is irrelevant for pre-application jurisdiction.

Customer provides Tariff §109.3 information.

Per Tariff §109.4, PJM returns $300 check when non-jurisdictional (but this is useful information!)

Jurisdiction may change.

PJM relies solely on local facility owner to answer Tariff §109.6 questions.
Informal Pre-Application

Note:

This data represents information current at the time of the posting and corresponds to the system configuration represented in the most recent model update.

PJM reserves the right to modify the data, as required, to ensure system reliability and/or commercial integrity.

Posted at 07-15-2018 13:00:35

-------------- Company: AE --------------

<table>
<thead>
<tr>
<th>Substn: ABSECON</th>
<th>KV: 69 KV</th>
<th>Dev: SERIES1 End: END B</th>
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<tbody>
<tr>
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<td>SERIES1</td>
<td>SER DEV</td>
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<td>Night</td>
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<td>Degf Norm Long</td>
<td>Shrt Dump</td>
<td>Degf Norm Long Shrt Dump</td>
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<td>94 108</td>
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<tr>
<td>32 99 117</td>
<td>117 135</td>
<td>99 117 117 135</td>
</tr>
</tbody>
</table>
EDC equipment is radial and an impact on EDC facilities affects eFORd.
Which Interconnection Process?

Attachment Y

Attachment N

Attachment BB

Local Process
Valid Interconnection Requests

- Request is not deficiency reviewable by PJM until submittal is valid
- Screens processes: Attachment Y (§112A) and Attachment BB (§112B)
  - New facilities, energy-only (no Capacity)
  - Attachment Y acceptable inverter MW limit: system voltage and mainline proximity
  - Site control
  - Energy only
  - Data
  - Deposits for Y: $2k/$3k/$5k (10% non-refundable)
  - Deposits for BB: $500 (non-refundable)
  - Equipment must be **CERTIFIED** per Tariff Attachments Z and AA
    - Otherwise must come in with Attachment N
    - Still may qualify for expedited treatment under §111
    - Deposit: $10k/$12k/$15k (10% non-refundable)
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 on FERC jurisdictional facilities or be made by a FERC Qualifying Facility (QF).

- state jurisdictional process ends with Wholesale Market Participation Agreement
- FERC jurisdictional process ends with Interconnection Service Agreement

Forms of 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 Costs</th>
<th>Tariff Duration from queue window close to ISA</th>
<th>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>
<td></td>
</tr>
<tr>
<td>Y</td>
<td>112A</td>
<td>&gt;10 kW &amp; ≤ 5 MW inverter-based</td>
<td>$2k/3k/5k</td>
<td>1-3 months</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>110 (Capacity) or 111 (energy)</td>
<td>&gt; 5 MW &amp; ≤ 20 MW inverter-based – any Capacity Request</td>
<td>$10k/12k/15k</td>
<td>4-12 months*</td>
<td></td>
</tr>
</tbody>
</table>

* PJM will seek to expedite study process
1. Eliminate customers need to complete specific Tariff Attachments to enter the queue (one form vs N/Y/BB)
2. Fixed price based on MW size or TO zone (vs variable by agreement type)
3. PJM determines jurisdiction in conjunction with TO after submittal
   • PJM Tariff applies to FERC-jurisdictional
   • PJM completes study and provides WMPA for non-jurisdictional
4. Does not eliminate need to enter local queue for non-FERC jurisdictional projects, but PJM requirements won’t vary.