Wholesale DER, Metering Roles, and Energy Market Accounting

Distributed Energy Resources Subcommittee
March 2, 2018
## Roles for Status Quo generation behind a customer meter

<table>
<thead>
<tr>
<th>What?</th>
<th>Who?</th>
<th>How?</th>
</tr>
</thead>
<tbody>
<tr>
<td>POI Meter Owner</td>
<td>EDC or Gen Owner</td>
<td>Interconnection process</td>
</tr>
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<td>Wholesale MWh injections:</td>
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<td>POI meter values → PowerMeter</td>
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<td>data submitter</td>
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↑ Wholesale Energy
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Note: POI metering system may be single meter (wholesale & retail) or separate wholesale and retail meters depending on retail requirements.
Unidirectional metering depiction

- Red area = Unidirectional measure of injected energy
- Black area = Unidirectional measure of withdrawn energy
W-DER Proposal: The Submeter

**What’s the submeter used for?**

1. Calculating gross load for PJM Planning.
2. Optional telemetry point for PJM ancillary services.
3. Possible use in Capacity market accounting [pending upcoming discussion].
4. Calculating “actual load curtailments” vs. “DER load offsets” for PJM compensation of curtailments vs. CBL.
5. Counting wholesale stored MWh in case of a multi-use battery [pending stakeholder process for Storage Rule]

**What’s the submeter NOT used for?**

- Calculating quantities in the energy market per se (Note: curtailment compensation is per MWh, but is not accounted through the energy market).
## Roles for Proposed W-DER behind a customer meter

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<td>Submeter [SM] Owner</td>
<td>Gen Owner</td>
<td>W-DER registration process</td>
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<td>Submeter data submitter</td>
<td>W-DER Marketer</td>
<td>[Possibly PowerMeter or DER Hub or other]</td>
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Note: POI metering system may be single meter (wholesale & retail) or separate wholesale and retail meters depending on retail requirements. Retail metering must be unidirectional for PJM energy market compensation.
“The Energy Market”: reporting data flow

Customer Submissions

- Revenue Quality Generation MWh
- EDC Boundary Tie MWh
- LSE controlled Metered Load MWh
- EDC determined and or Metered Load MWh

PJM eSuite

- PowerMeter
- EDC’s Territory Load MWh
- Sum of InSchd for given EDC may not exceed PowerMeter Load
- InSchedule

Energy Market Settlements

- Generator Owner’s Settlements based on RT MWh reporting via PowerMeter
- Load Serving Entity’s Settlement based on RT MWh report via InSchedule
Anticipated Impact on Unaccounted for Energy

- Unaccounted For Energy is a largely retail-jurisdictional term. There is no explicit UFE line on a PJM bill.
- Shows up in Attachment M of Tariff which deals with LSE billing and which TOs administer.
- PJM has limited UFE expertise.
- To the extent UFE is a function of PJM Energy Market billing (and not billing for items like transmission charges, ancillary services charges, demand response charges, etc), then UFE can only be impacted to the extent Energy Market accounting is changed.
- The W-DER proposal would use the status quo accounting and roles for POI meter values in the Energy Market.
- **Question:** to what extent is the submeter used for Energy Market accounting?
To what extent is the submeter used for Energy Market accounting?

What’s the submeter used for?

1. Calculating gross load for PJM Planning.
2. Optional telemetry point for PJM ancillary services.
3. Possible use in Capacity market accounting [pending upcoming discussion].
4. Calculating “actual load curtailments” vs. “DER load offsets” for PJM compensation of curtailments vs. CBL.
   - This compensation would follow the status quo for MWh compensation from demand response, which is not processed through the Energy Market per se. Should not impact UFE.
5. Counting wholesale stored MWh in case of a multi-use battery [pending stakeholder process for Storage Rule]
   - Stored MWh would be accounted for using the status quo method for Pumped Hydro pumping.
   - Follow up education on this will be scheduled through stakeholder process for Storage Rule.