PJM Load Management Test proposed changes

DRS
7/23/19
Load Management Test Issues

- CP requires DR to be available on annual basis for up to 15 hours per day
  - Limited DR only required for 10 days for 6 hours per day
- Test performance (123%) does not reflect prior event performance (97%)
- Mandatory Load Management has not been dispatched in over 5 years (but accounts for > 5% of overall capacity)
- DR load reduction capability under a variety of conditions is not clear
Stakeholder interests

- Testing reflective of LM product availability requirements
- Testing results consistent with expected performance during LM events under various conditions (time of day, time of year, etc.)
- Both resource capability and PJM/CSP communications are tested
- Streamline process for resource energy compensation for reductions provided when performing tests (Currently done through economic DR)
- Test notification process aligns with actual event process (i.e.: Emergency messages prior to LM event day)
- Load not paying for CP DR winter testing through an uplift mechanism
- LM will be compensated for test events
- Avoid unnecessary testing
- Align rules for PRD (note: PJM waiting for FERC Order on PRD)
PJM Proposal 1a – PJM schedules test, CSP schedules retest(s) or PJM schedules retest based on test performance

• PJM managed test will better simulate event conditions and therefore actual DR load reduction capability
  – Avoid CSP “open book” test
  – Align with other ISOs/RTOs/utilities practices
• Conduct test throughout the Delivery Year since DR is required to perform throughout the Delivery Year
• Leverage communication/notification mechanism used for real events.
• Keep DR and PRD test requirements aligned

High Impact / Low Frequency event – requires training/practice/testing to be ready. DR only dispatched when we are in emergency conditions (expected to be short on reserves)
Modified proposal to address key CSP concerns: Minimize unnecessary testing and mitigate costs

- Testing only required when there is no event in the Delivery Year
- Only 1 test per year required when there is no event
  - ½ the zones tested in the summer and ½ tested in the winter
- Only test for 2 hours whereas typical events are ~ 5 hours
  - load reduction averaged over 2 hours, provides more flexibility in case load reduction starts late.
Minimize unnecessary testing and mitigate costs (cont’)

- Allow CSP to get prepared and schedule necessary maintenance activities
  - PJM will provide month ahead and day ahead notification of zones that will be tested
    - PJM will provide normal lead time advanced notification on the test day.
    - Note: PA Act129 only receives day ahead notification.
  - PJM will test when notified unless there is a reliability issue
    - CSP knows there will be a test and can get ready. For events, the CSP needs to get ready (more cost) but in most cases the event does not occur
  - Testing only done from HE12-18 which is in line with summer peak, winter second peak and normal workday
    - Avoid winter early morning test which would require personnel to be ready before typical work hours.
    - Narrow window allows CSP to better prepare for test
  - Testing only done on non-NERC holiday weekdays

- Compensate for load reductions in the energy market as a price taker to help offset cost.
Ability to retest ("do-over") and/or improve score if CSP has unforeseen problem

- Performance aggregated to zone
  - customer over-performance can offset another customer’s underperformance
- Allow CSP to self direct zonal retest(s) if performance >75%.
  - More chances to test if performance was decent but had a few issues
  - Leverage status quo CSP directed retest provisions
    - minimize rule changes
    - provide retest flexibility (multiple retests, only registrations that had performance issue are retested)
- Allow CSP to have one time PJM directed retest if performance <=75%
  - CSP notifies PJM with list of registration to retest and PJM will retest with day ahead notification.
    - CSP not required to retest all registration together, only registrations that had performance issue are retested.
### PJM Proposal 1a – Use Cases

<table>
<thead>
<tr>
<th>Zone</th>
<th>Test Month</th>
<th>Season</th>
<th>MW</th>
<th>Event</th>
<th>Test Status</th>
<th>Test Result</th>
<th>Retest Scheduler*</th>
<th>Retest 1 with test result</th>
<th>Retest 2 with test result</th>
<th>Retest 3 with test result</th>
<th>Final test Performance</th>
<th>Penalty Volume (%)</th>
<th>Penalty Volume (MW)</th>
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<tbody>
<tr>
<td>Meted</td>
<td>7</td>
<td>summer</td>
<td>35</td>
<td>8/20/2019</td>
<td>Tested but subsequent event</td>
<td>no test needed</td>
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<tr>
<td>Peco</td>
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<td>25</td>
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<td>35</td>
<td></td>
<td></td>
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<td>JCPL</td>
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<tr>
<td>DPL</td>
<td>12</td>
<td>winter</td>
<td>40</td>
<td>8/20/2019</td>
<td>No test, prior event</td>
<td>no test needed</td>
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*If Test Result is <= 75% there is only 1 retest scheduled by PJM upon request by CSP*

Zonal test results are based on aggregate performance for all customers in the zone.
Transition Plan –
give CSPs plenty of time to adjust to new requirements

- PJM proposes to wait to implement new rules until 23/24 Delivery Year
  - New test requirements apply to new Capacity commitments (May 2020, BRA)
  - Allows CSPs to incorporate into contracts
  - Provides CSPs 3 years to get ready to implement the new test requirements
- PJM can run mock test dispatch in interim years where CSP schedule test under status quo but uses PJM test dispatch to practice.
CSP 1 and CSP 2 proposal does not address the following identified interests:

- “Testing reflective of LM product availability requirements”
  - Too many months removed from test cycle
- “Testing results consistent with expected performance during LM events under various conditions (time of day, time of year, etc.)”
  - Too many opportunities for “do over” – there are no “do overs” during an event
- “Test notification process aligns with actual event process (i.e.: Emergency messages prior to LM event day)”
  - Too much notification and CSP scheduling which enables test to be choreographed (eliminates the element of surprise)
  - CSP does not schedule actual events

IMM proposal and identified interest:
- “Avoid unnecessary testing”
  - Amount of testing compared to potential gain in accuracy.
Draft list of Governing Document Changes

- Test Event Compliance
  - RAA
    - Schedule 6 PROCEDURES FOR DEMAND RESOURCES AND ENERGY EFFICIENCY, Sections H and K
    - Schedule 6.1 PRICE RESPONSIVE DEMAND
  - OATT Attachment DD.11A, DEMAND RESOURCES TEST FAILURE CHARGE
  - PJM Manual 18, PJM Capacity Market, Section 8.8 Load Management Test Compliance
- Test Event Energy Settlements
  - PJM Manual 28: Operating Agreement Accounting, Section 11: PJM Load Response Programs Accounting