M14B Updates

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Transmission Planning
Special Planning Committee
August 30th, 2017
• Two separate sets of updates to PJM Manual 14B – PJM Region Transmission Planning Process

1. Update Attachment B.3, C.3, C.5, G.11 per termination of ConEd Wheel Agreement and corresponding procedural updates for CETO/CETL analysis

2. Update Attachment G.7, H.1, J per changing PJM Planning Contact information (administrative update) – see appendix for detail
Updates for Termination of ConEd Wheel

- PJM Manual 14B included procedural language regarding modeling of PJM/NYISO par flows and the ConEd Wheel

- PJM has redlined M14B to include the updated procedures as reviewed at PJM Stakeholder discussions
Updates since first read

• Removed duplicate sentence in Attachment B.3

• Updated language (Blue text = original change, red text = new change) in Attachment G.11 to clarify that Capacity Import Limit test uses both firm and non-firm transactions for all zones included in testing
  – This is a language update and does not change the calculation methodology. The inclusion of non-firm service is intrinsic to the CIL calculation
Definition and Procedural changes to CETL

• Capacity Emergency Transfer Limit (CETL)
  – Validate deliverability of PJM capacity resources to PJM Load under stressed conditions
  – Only firm transmission service will be used in these calculations

• Procedural changes:
  – Modeling of PJM/NYISO PAR Flows due to ConEd wheel cancellation
  – Adjacent non-PJM areas not available to supply non-firm energy during this calculation
Procedural change CETL values

- With the exception of the NY interface, PJM has not relied on external support (due to external constraints) in recent RTEP cycles.
- Only NY interface related CETL values are impacted by the proposed change.
- Changes in CETL values (based on PJM sensitivity study) are due to both wheel replacement protocols and assumptions regarding non-firm imports.

<table>
<thead>
<tr>
<th></th>
<th>2020/21 BRA</th>
<th>Limiting Constraint</th>
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<tr>
<td></td>
<td>LDA</td>
<td>CETL - Status Quo</td>
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<td>8,800</td>
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<td>PS North</td>
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<td>4,264</td>
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C.5.3 General Procedures and Assumptions

C.5.3.1 Independent Study Area Generation Capacity Deficiency

For the purposes of analysis, each tested study area within the PJM control area is assumed to be experiencing a generation deficiency independently. Thus, the remainder of PJM and adjacent non-PJM areas are operating normally and are assumed to be able to supply the study area with emergency power up to the limit of their available reserves. Load in all other areas beyond the area under test will be modeled at 50/50 load level. The amount of reserves considered available from any adjacent non-PJM area may be changed to reflect historical data. Generally the procedure first tests the limit based on PJM reserves. The resource supply is opened to areas external to PJM as necessary, based on a reasonable expectation of such external support.
• ConEd Wheel Termination
• NYISO emergency condition assumptions
  – Weather, demand and reserves
  – Indian Point Nuclear Plant anticipated deactivation
  – NYISO Generation Fleet age
  – Location of Generation and Load in NY
• 0 non-firm flows NY->PJM is a conservative study approach
  – Consistent with NYISO planning
Definition and Procedural changes to CIL

• Capacity Import Limit (CIL) Calculation
  – Procedure to establish the amount of power that can be reliably transferred to PJM from defined regions external to PJM.
  – This test is designed to identify physical transmission limitations and should not anticipate a resource limit

• Procedural change:
  – Modeling on PJM/NYISO PAR Flows

• Language Update (Clarification, no procedural change)
  – Imports into PJM will include a combination of firm transmission service reservations and non-firm energy purchases from the external supply region
    • This allows the test to identify physical system limits, firm transmission service reservations alone may not include enough MW to hit a physical limit in testing
<table>
<thead>
<tr>
<th>Test</th>
<th>Use</th>
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<tbody>
<tr>
<td>RPM</td>
<td>CIL Not used in RPM</td>
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<tr>
<td>Transmission Service Requests</td>
<td>Constraints identified in CIL study compared to constraints identified in Transmission Service Request</td>
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<tr>
<td>CBM Calculation</td>
<td>CIL test used to verify CBM</td>
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Schedule

• PC First Read – 7/13/2017
• MRC First Read – 7/27/2017
• Request for PC Endorsement – 8/10/2017
• Special PC – 8/30/2017
• Request for MRC Endorsement – 9/28/2017
Please email all questions or comments to RTEP@pjm.com
Zones utilized in CIL study

- Northern Zone: NYISO & ISO NE
- Western Tier 1 Zone: MISO East, MISO West & OVEC
- Western Tier 2 Zone: MISO Central & MISO South
- Southern Tier 1 Zone: TVA & LGEE
- Southern Tier 2 Zone: VACAR (non-PJM)
Updates for Planning Contacts

• PJM Manual 14B Attachments G, H and J include language and contact information for specific departments within PJMs Planning Division.

• The System Planning Modeling group now has responsibilities for certain functions that were previously assigned to Transmission Planning.

• These Manual updates reflect the current responsibilities and contact information within the Planning Division.