Market Efficiency Update

Transmission Expansion Advisory Committee
September 13, 2018
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<th>Year 0</th>
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<td><strong>Develop Assumptions (Y1, Y5)</strong></td>
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<td><strong>Market Efficiency Analysis (Y1, Y5) (Accelerations and Modifications)</strong></td>
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<td>Identify and evaluate Solution Options (Accelerations and Modifications)</td>
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<td>Final Review with TEAC and approval by Board</td>
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<td>Identify proposed solutions</td>
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<td>Update significant assumptions (Y0, Y4, Y7, Y10, Y14)</td>
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<td>Independent Consultant reviews of buildability</td>
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<td>Adjustments to solution options by PJM on analysis</td>
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12-month cycle

24-month cycle
2018/19 RTEP Long Term Window
Upcoming Market Efficiency Training

• Market Efficiency Training scheduled for October 16th 2018.
• Half-day training course designed to educate participants on the Market Efficiency aspects of PJM's RTEP process.
• Combo session (simultaneous in-person and virtual sessions).
• Cost: There is no charge to PJM Members. Non-Members are charged a nominal fee.
• Offers PDH and CEU
Market Efficiency Stakeholders Feedback

• 2018/19 Market Efficiency assumptions and model review
  – Market Efficiency assumptions to be used for the 2018/19 RTEP Window were presented and reviewed at May’18 through Aug’18 TEAC meetings.
  – Preliminary Market Efficiency model was posted at the beginning of August.

• PJM requested feedback and comments from stakeholders
  – Feedback received by August 31st was included in the updated Market Efficiency base case (posted on 09/13/2018).

• Following review and comments by TEAC, Market Efficiency final assumptions will be presented at the October TEAC and shared with PJM Board for consideration.
Market Efficiency Base Case

- Posted updated 2023 Base Case (XML format)
  - Includes stakeholders feedback received by August 31st
  - Also posted the version without FSA units

- Posted Files
  - XML files compatible with PROMOD 11.1.13
  - Updated event file
  - 15-years Monte Carlo outage library
  - 2023 Simulated Congestion

- Final Base Case to be posted before the start of Long-Term Window
Updates to the Base Case

- Included feedback from stakeholders received by August 31st
- Updated ARR definitions
  - To match aggregate definitions as used in the 2018 ARR Allocation
- Updated generators’ Must Run status
  - Based on ABB’s feedback and historical 2016-2018 evaluation
- Updated Gas Forecast
  - Based on latest update from ABB
- Updated Reactive Limits
  - Based on historical analysis 2017/2018
- Updated Interregional Model
  - To align better with historical operations
Assumptions Update

• Uniform generation expansion consistent with the machine list included in the Planning 2023 SP Powerflow
  – Posted Market Efficiency base case includes all ISA, FSA and Suspended ISA units
  – Posted a second case, “NoFSA”, that only includes ISA units (FSA and Suspended ISA units removed from this scenario).
  – Generator construction status updated as of end of May 2018.
  – Updated retirements to current.
  – Applied MEPETF Manual 14B change effective August 23rd

• Financial parameters, Discount Rate and Carrying Charge, NSPL based on the Transmission Cost Information Center spreadsheet
• Generation expansion updated with approved retirements since previous assumption presentation
Assumptions Update - Gas Price Forecast

- Gas Price Forecast from ABB, August 2018 update
- Coal, Oil-H, and OIL-L Price Forecasts from ABB Spring Case, May 2018 update
<table>
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<tr>
<th>Step</th>
<th>Timeline</th>
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<tr>
<td>Identify Congestion Drivers</td>
<td>September - October 2018</td>
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<tr>
<td>Post Final Base Case, Target Congestion Drivers and Sensitivities</td>
<td>October 2018</td>
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<td>Long Term Proposal Window</td>
<td>November 2018 - February 2019</td>
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<td>2018 Reevaluation Analysis</td>
<td>August – October 2018</td>
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<td>2018 Acceleration Analysis</td>
<td>November – December 2018</td>
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<tr>
<td>Analysis of Proposed Solutions</td>
<td>March - November 2019</td>
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<tr>
<td>Final TEAC Review and Board Approval</td>
<td>November - December 2019</td>
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Market Efficiency RTEP Window Registration

• Register for the 2018/19 RTEP Market Efficiency Window at

• In the CEII Request form write “Access to the 2018-19 Long Term RTEP Window” as the description of the information requested.

• Everyone must register to access the data regardless of prior participation in the PJM Competitive Process.

• Long-Term Market Efficiency Window opens November 1st 2018
RTEP Window Registration Screenshot
Market Efficiency RTEP Window Data Posting

• Market Efficiency Web Page located at

• Data will be posted before November 1st 2018
  – Market Efficiency Base Case files for all study years (XML format)
    • Access requires CEII confirmation (PJM and MISO)
    • Access requires PROMOD vendor (ABB) confirmation
  – PROMOD input files: .lib, .eve
  – Benchmark test case and results

• Auxiliary Files
  – Input Assumptions Summary
  – Updated Modeling Document which will provide details of setup and modeling methods
  – Benefit/Cost Evaluation Tool
  – ARR Data
2018 Reevaluation
Approved Market Efficiency Projects
Reevaluation Process - Overview

• In accordance with the PJM Operating Agreement, Schedule 6, section 1.5.7(f), PJM annually reviews the costs and benefits of constructing new, previously approved market efficiency projects included in the RTEP.

• Reevaluation process applies to market efficiency projects approved during the 2014/15 and 2016/17 RTEP Windows.

• Specifically, in its reevaluation, PJM reviews:
  – changes in construction cost estimates for approved market efficiency projects.
  – anticipated resource development, including merchant transmission, generation and demand response.
  – changes in system conditions, including but not limited to, changes in the load forecast.

• To remain an approved market efficiency project, upon reevaluation, each project must meet or exceed a benefit-to-cost ratio of 1.25.
Reevaluation Process Status

• Using the current Market Efficiency base case (posted on 09/13/2018)

• Analysis to be performed individually, one project at a time
  – New PROMOD base case created by removing/reversing the topology changes related to the approved market efficiency project
  – Quantify the benefits of adding back the project to the base case
  – Compare B/C ratio to 1.25 threshold

• PJM completed reevaluation of project 2014/15_1-9A, AP-South, (b2743.1-8, b2752.1-7)
  – See details in 9A Reevaluation presentation posted at September 2018 TEAC meeting
Reevaluation Process Next Steps

• Currently reviewing with project owners the construction status and the cost updates.

• Currently prioritizing the reevaluation work with the opening of the RTEP Window.

• Projects already in-service or with a near in-service date will not be reevaluated.

• As projects complete reevaluation, results will be presented at the next TEAC meetings.

• PJM anticipates completing the reevaluation process by the November 2018 TEAC meeting.
• Revision History
  – V1 – 9/12/2018 – Original Version Posted to PJM.com