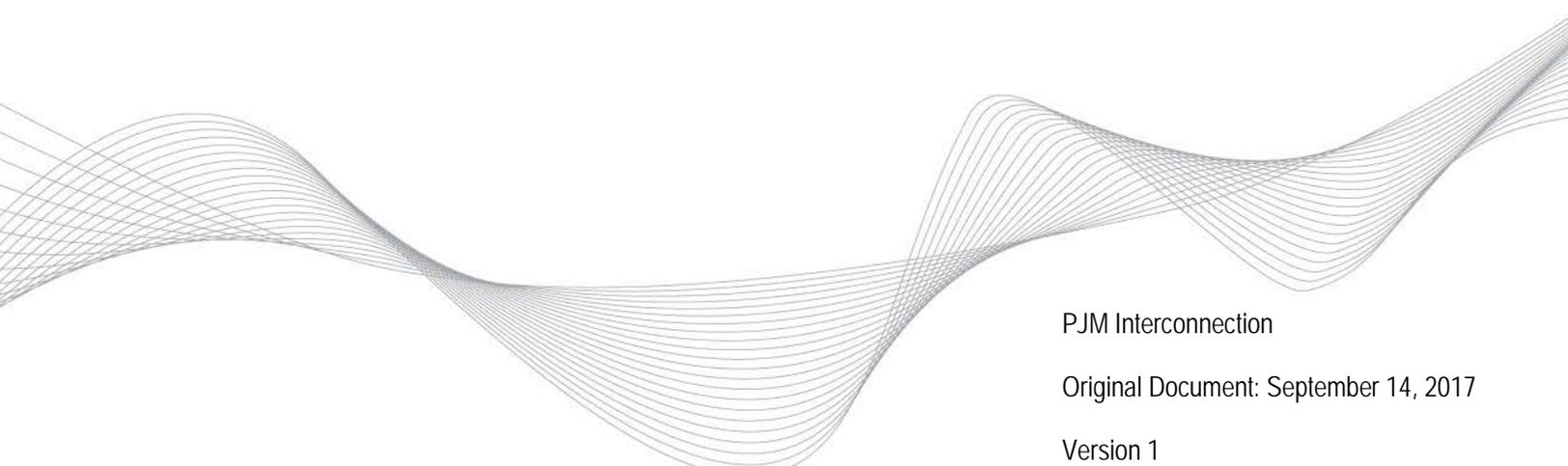




**PJM Regional Transmission Expansion Plan
2016/17 RTEP Long Term Proposal Window 1
Addendum A
Problem Statement & Requirements Document
Scope: Market Efficiency Congestion**

A decorative graphic consisting of multiple thin, overlapping lines that form a complex, wavy pattern across the lower half of the page. The lines are light gray and create a sense of depth and movement.

PJM Interconnection

Original Document: September 14, 2017

Version 1

Direct questions to:

ProposalWindow-Admin@pjm.com or RTEP@pjm.com

Include a reference to

"2016/17 RTEP Long Term Proposal Window 1A"

2016/17 RTEP Long Term Proposal Window 1A

Purpose of Proposal Window

PJM seeks technical solution alternatives (hereinafter referred to as "Proposals") to resolve a potential Reliability Pricing Model (RPM) limiting constraint for the DEOK LDA that could occur beginning with the 2021/2022 Delivery Year.

Analysis Procedure

This problem statement requires participants to perform a load deliverability analysis and identify a solution to a potential RPM constraint identified using RTEP load deliverability procedures detailed in [Manual 14B](#). PJM Planning follows a documented procedure for all RTEP analysis as set forth in [PJM Manual 14B](#). All proposed solutions must meet the performance requirements referenced in PJM Manual 14 B.

PJM maintains the right to select the most appropriate project to address the constraint.

Scope of Work

Through this proposal window PJM is seeking solutions to identify a single Reliability Pricing Model (RPM) limiting constraint.

This abbreviated Market Efficiency Proposal Window is limited to addressing the Tanners Creek - Dearborn 345 kV thermal constraint, which is a potential Reliability Pricing Model (RPM) constraint beginning with the 2021/22 Delivery Year. This facility is the next limiting element in the 2020/2021 RPM Base Residual Auction CETL study for the DEOK LDA after RTEP baseline upgrade b2831 (Upgrade the Tanner Creek - Miami Fort 345 kV circuit) is constructed.

Objectives

1. Develop solutions to identified potential RPM constraint;
2. If solutions cause any additional violations, i.e., thermal, voltage, short circuit or stability,
 - a. Address the additional violations as part of the proposal package; and
 - b. Adhere to all applicable criteria, including all PJM, NERC, SERC, RFC and Local Transmission Owner Criteria.

For Market Efficiency constraints also:

3. Identify enhancements or expansion that could relieve PJM transmission constraints stemming from the 2016 Market Efficiency Analysis for which no reliability based project has already been identified.

4. Perform and compare market simulations with and without proposed enhancements or expansions to evaluate if the Benefit/Cost Ratio is at least 1.25 using the criteria as defined in Schedule 6, Section 1.5.7 of the PJM Operating Agreement and PJM Manual 14B, Attachment E.
5. Perform high level reliability analysis of proposed Market Efficiency enhancements or expansions to ensure the proposed enhancement or expansion does not create any reliability issues.

What PJM Provides:

The following data and related information is required for this analysis and is expected to be available from PJM:

Modeling Data:

The following data is provided (Please note these files are Critical Energy Infrastructure Information (CEII) and should be handled accordingly):

1. **Base Power Flow Case(s).** This window addresses a single RPM constraint that is to be analyzed using the 2020/21 RPM DEOK CETL case with upgrade b2831 applied. In addition, a current RTEP case will be supplied to confirm that proposals to the RPM constraint do not cause additional reliability violations.
2. **Contingency List(s).** All contingency types (single, bus, tower, line w/ stuck breaker).
3. **Subsystem File(s).** Identifying all subsystem zones to be considered in analysis.
4. **Monitor File(s)** Identifying specific ranges of facilities by area and kV level to be considered in analysis.
5. **Applicable Ratings (if different from those included in the case)**
6. **Workbook** (xlsx format) containing the detailed power flow results and any additional technical comments.

Market Efficiency Modeling Data:

The following data and related information is provided for this proposal window. This data is provided through the PJM 2016 Market Efficiency web page, the PJM Transmission Expansion Advisory Committee, or TEAC, materials, or on the PJM RTEP Development web pages.

The following data is provided:

1. **2016 Market Efficiency Economic Models:** These models contain the base set of PROMOD data for the 2016 Market Efficiency Analysis. Access to these models requires CEII authorization along with an active license for ABB/Ventix PROMOD and Nodal Simulation Data. PROMOD Case and supporting files are available under the Modeling Information section [here](#).
2. **Market Efficiency Base Congestion results:** Proposed enhancements or expansions should provide congestion reduction for recommended facilities identified within the results posted [here](#). PJM recommends proposals for facilities that meet the below criteria with certain exceptions. Facilities below these thresholds are not anticipated to pass the Benefit/Cost threshold because of the expected cost of an upgrade. Congestion for 2027 study year is considered more speculative and therefore will be monitored in future analysis.

Market Efficiency Criteria:

- a. Annual simulated congestion frequency of at least 25 hours in both 2021 and 2024 study years.

- b. Lower voltage facilities: Minimum of \$1 million congestion in both 2021 and 2024 study years.
- c. Regional facilities: Minimum of \$10 million congestion in both 2021 and 2024 study years.
- d. Interregional facilities: There will be no minimum threshold criteria for congestion or for frequency, since congestion is impacted by both regions (example - although PJM unilaterally may not observe \$ 1 million or more congestion in both 2021 and 2024 study years, when both PJM and MISO congestion is combined, the \$ 1 million threshold maybe met).

Although above criteria are met, PJM may not recommend proposals for certain facilities due to following exceptions:

Market Efficiency Exceptions:

- a. Congestion is significantly influenced by a FSA generator or a unique set of FSAs
- b. Majority of the congestion was already addressed in previous window(s)
- c. Simulated congestion for future study years displays a declining trend

3. Other Supporting Market Efficiency Data:

Additional supporting Market Efficiency data is available [here](#).

- a. **2016 Market Efficiency Analysis Input Assumptions** contains the input assumptions used for each study year of the 2016 Market Efficiency Analysis.
- b. **Market Efficiency Modeling Practices Document** provides a description of the modeling methods and procedures used for PJM Market Efficiency Analysis.

4. Additional Supporting Information

- a. [Planning Parameters for 2020-2021-Base Residual Auction](#)

Deliverables (Response back to PJM)

Each proposal with a unique set of electrical characteristics and/or routing characteristics must be submitted as a separate proposal. Submit a separate proposal form (using the xlsx template) for every proposal. Proposals with multiple options will not be accepted.

Complete proposals are due to PJM prior to the close of the proposal window. Use the PJM-provided templates to provide a high level overview of your proposal. Include additional detail in the narrative Proposal Report (docx/pdf document). Address the specifics of your proposal including, but not limited to:

1. Description of the proposed solution and corresponding violation(s) it resolves.
 - a. Describe whether the project should be considered only as a whole or if portions of the project should be considered as well.
2. Detailed analysis report of proposed solutions, including:
 - a. Breaker one-line diagrams to illustrate system topology
 - b. Spreadsheets, e.g. output of analysis showing solution to identified issue
 - c. High level estimate of:
 - i. Time to construct the proposed solutions and the overall expected in-service date
 - ii. Cost

- Include an itemized list of costs for each major component, e.g. substation work, transformer installation, transmission line construction.
 - Identify all assumptions, e.g. base cost, risk and contingency (R&C) costs, and total cost
- iii. Availability of right of ways
3. Incumbent vs. non-incumbent scope of work
 - a. If a non-incumbent proposal assumes that a portion of the work will be completed by an incumbent Transmission Owner, provide a high level scope and itemized cost for that work.
 4. Equipment parameters and assumptions
 - a. All parameters, e.g. ratings, impedances, mileage, etc.
 - b. For reactive devices, settings and outputs
 - c. For synchronous machines, MW and MVAR output assumptions
 5. Complete set of power flow cases containing proposed solutions (all cases should be solvable, without non-convergence issues, and in line with industry standards). Provide a PSS/E version 33 IDEV file so that the modeling of the proposal may be easily applied to other models. Assign unique identifiers to new busses, i.e., do not use bus numbers assigned elsewhere in the system. Contact PJM for a unique bus identifier if unsure.
 6. Provide any other necessary data including contingency files critical to reproduce the proposed solutions. Provide contingency files one (1) document (docx-format) for each contingency type (single, bus, tower, line fault stuck breaker) with the following sections
 - Modified Contingencies
 - New Contingencies
 - Deleted ContingenciesProvide all case and data files in PSS/E version 33 format
 7. Any other supporting documentation required by PJM to verify the solution, whether explicitly requested or not.
 8. Submission of Deliverables
 - a. Preferred – VIA Axway Secure File Transfer portal <https://sftp.pjm.com/>
 - b. Alternate - VIA electronic mail to ProposalWindow-Admin@pjm.com
 - c. Alternate (e.g.: DVD or flash/thumb drive) - VIA FedEx to Nancy Muhl, PJM Interconnection, 2750 Monroe Boulevard, Audubon, PA 19403

PJM requires all proposed solutions, for both Transmission Owner Upgrades to existing facilities as well as Greenfield projects, to complete the 2016 RTEP Proposal Window Template, included within the downloadable package of files. An example of how to fill out the template can be found [here](#).

For Greenfield proposals, provide the information requested in the '2016 Greenfield Project Proposal Template'. The template is included in the downloadable RTEP package of files and can also be found [here](#).

Provide a public and non-public version of the project proposal. The public version of the proposal will be posted on the PJM website after the close of the window. Redact from the public version of the proposal all CEII information, business proprietary and confidential information. PJM reserves the right to challenge the proposing entity's proposed redactions to ensure the appropriate level of transparency while protecting confidential and proprietary information and CEII. Redaction guidelines can be found [here](#).

Proposal Fees

All proposals, both upgrade and greenfield, submitted to 2016/17 RTEP Long Term Proposal Window are subject to a proposal fee based on the following fee structure:

- No fee (\$0) for any proposed projects (upgrade and greenfield) below \$20M
- \$5,000 fee for any proposed projects (upgrade and greenfield) greater than \$20M and less than \$100M
- \$30,000 fee for any proposed projects (upgrade and greenfield) greater than \$100M

The fee is based on the total cost estimate provided by the proposing entity in the detailed proposal. Total cost estimate shall include all scope elements required in proposal, including the cost estimate of upgrade work to be completed by other entities and cost estimate of work required to alleviate any new violations caused by the proposal.

Timeline

9/14/2017, Opening of 2016/17 RTEP Long Term Proposal Window 1A

9/28/2017, Close of 2016/17 RTEP Long Term Proposal Window 1A

All deliverables and fees are due prior to the close of this 14-day window:

NOTE: PJM WILL NOT MAKE ANY PROPOSAL DETAILS PUBLIC UNTIL ALL ITEMS ARE SUBMITTED.

Action	Target Date
PJM distributes Problem Statement to RTEP proposal window participants	9/14/2017
Recipients submit questions to PJM	9/14/2017 – 9/28/2017
PJM distributes answers to questions to all recipients	9/14/2017 – 9/28/2017
Recipients submit proposal template to PJM**	On or before 9/28/2017

***Any proposals received after close of the proposal window will not be accepted.*

Document Revision History

9/14/2017 – V1 - Original File Posted