

Competitive Planning Process

Revision: 01

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Prepared by

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Approval

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Mark SimsAaron Berner,

Manager, Transmission Planning



Current Revision

Revision <u>010</u> (<u>086</u>/23/201<u>8</u>7):

- Updated manual ownership from Mark Sims to Aaron Berner
- Section 8.2.1 Added clarifying language
 - o Proposals must address a PJM Identified congestion driver
- Added new section 8.2.1.1 Eligible Congestion Drivers
- Moved to new section 8.2.1.2 Congestion Mitigation
- Section 8.2.1.3 Clarified language regarding Benefit/Cost (B/C)
- Current Revision

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Introduction

Welcome to the *PJM Manual for the Competitive Planning Process*. In this Introduction, you will find the following information:

- What you can expect from the PJM Manuals in general (see "About PJM Manuals").
- What you can expect from this PJM Manual (see "About This Manual").
- How to use this manual (see "Using This Manual").

About PJM Manuals

The PJM Manuals are the instructions, rules, procedures and guidelines established by PJM for the operation, planning and accounting requirements of the PJM RTO and the PJM Energy Market. The manuals are grouped under the following categories:

- Transmission
- PJM Energy Market
- Generation and transmission interconnection
- Reserve
- Accounting and Billing
- PJM administrative services
- Accounting and billing
- PJM administrative services
- Miscellaneous

For a complete list of all PJM Manuals, go to the "Library" section at PJM.com.

About This Manual

The PJM Manual for the Competitive Planning Process is part of the PJM Manual 14 series that encompass the PJM transmission planning protocol. This manual focuses on the process to conduct competitive proposal windows consistent with Order No. 1000.

The Competitive Planning Process Manual consists of nine sections. The sections are listed in the table of contents beginning on page 2.

Note:

While the PJM manuals provide instructions and summaries of the various rules, procedures and guidelines for all phases of PJM's planning process, the PJM Operating Agreement and the PJM Open Access Transmission Tariff (OATT) contain the authoritative provisions.

Intended Audience

The intended audiences for this PJM Competitive Planning Process Manual include:

Generation and Transmission Interconnection Customers and their engineering staff



Transmission Owners (TOs) and their engineering staff.

Note:

The term "Transmission Interconnection Customer", as defined in the PJM Open Access Transmission Tariff, refers to those separate and independent entities proposing to install new or upgrade existing transmission facilities rather than an existing Transmission Owner on the PJM System that installs Regional Transmission Expansion Plan "baseline," "economic," "system performance" or "Supplemental projects".

- Transmission Developers
- Federal and State regulatory bodies
- PJM members
- PJM staff

References

There are other PJM documents that provide both background and detail on specific topics that may be related to topics in this manual. References with related information include:

- PJM Manual 1: Control Center and Data Exchange Requirements
- PJM Manual 2: Transmission Service Request
- PJM Manual 3: Transmission Operations
- PJM Manual 14A: Generation and Transmission Interconnection Process
- PJM Manual 14B: PJM Region Transmission Planning Process
- PJM Manual 14C: Generation and Transmission Interconnection Facility Construction
- PJM Manual 14D: Generator Operational Requirements
- PJM Manual 14E: Merchant Transmission Specific Requirements
- PJM Manual 21: Rules and Procedures for Determination of Generating Capability

Using This Manual

We believe that explaining concepts is just as important as presenting procedures. This philosophy is reflected in the way we organize the material in this manual. We start each section with an overview. Then we present details, procedures or references to procedures found in other PJM manuals. The following provides an orientation to the manuals' structure.

What You Will Find In This Manual

- A table of contents
- An approval page that lists the required approvals and a brief outline of the current revision
- This Introduction and sections containing the specific transmission planning process details including assumptions, criteria, procedures and stakeholder interactions



- · Attachments that include additional supporting documents, forms or tables
- A section at the end detailing all previous revisions of this PJM manual



Section 1: Proposal Window Overview

The Federal Energy Regulatory Commission (FERC) issued Order No. 1000 on July 21, 2011. Order No. 1000 requires that PJM (i) provide opportunity through a competitive solicitation process for both incumbent transmission owners and nonincumbent transmission developers to propose transmission proposals, (ii) consider transmission alternatives in its regional transmission planning process; (iii) produce a regional transmission expansion plan and implement a fair cost allocation methodology. FERC required that the process accomplish the following main objectives:

- Ensure that transmission planning processes at the regional level consider and evaluate, on a non-discriminatory basis, possible transmission alternatives and produce a transmission plan that can meet transmission needs more efficiently or cost-effectively;
- Ensure that the costs of transmission solutions chosen to meet regional transmission needs are allocated fairly to those who benefit from them.

This manual describes PJM's competitive planning process. PJM's competitive planning process encompases all aspects of analysis and evaulation pertaining to RTEP proposal windows.

1.1 Proposal Window Type and Duration

The expected type of system enhancement and required in-service date dictates the duration of the proposal window, as described in Schedule 6 of the PJM Operating Agreement.

- Long-Lead and Economic-based Projects: PJM will open a 120-day proposal window for
 projects with required in-service dates greater than five years out that address identified
 reliability criteria violations, economic constraints or Reliability Pricing Model (RPM)
 limits, operational performance and public policy requirements. PJM, as the Office of
 Interconnection, may shorten or extend the window as needed.
- Short-Term Projects: PJM will open a 60-day proposal window for projects to address reliability driven upgrades with required in-service dates between 3 and 5 years out. PJM, as the Office of Interconnection, may shorten or extend the window as needed.
- Immediate-Need Reliability Projects: If PJM determines that insufficient time remains
 for a proposal window to be implemented, PJM may post reliability violations that could
 be addressed by a project required to be in service within three years or less. If PJM
 determines that there is sufficient time for a proposal window for Immediate-need
 Reliability project proposals, PJM will open a shortened proposal window specified by
 PJM.
- Interregional Proposals: Transmission projects on an interface, that address issues in PJM, must be submitted to PJM through Schedule 6 of the PJM Operating Agreement. Such project proposals must also engage the adjacent region's respective planning process. Submitting project proposals in both regions will trigger joint evaluation to determine the more efficient, cost effective solution to address the identified issues.



During each proposal window, developers may submit project proposals to solve posted violations, constraints, system conditions and public policy requirements. If PJM requests additional reports or information to evaluate the submitted proposal or determines any information submitted in a proposal is deficient, the proposing entity must provide the requested information within 10 business days of receipt of the notification from PJM. PJM may also (i) shorten proposal windows should it be required to meet the needed in-service date of the proposed enhancements or expansions, or (ii) extend the proposal window as needed to accommodate updated information regarding system conditions as described in Schedule 6 of the PJM Operating Agreement.

Frequency of Proposal Windows

- PJM conducts proposal windows on both overlapping 18- and 24-month cycles, as shown in Exhibit 1. Windows included in the overlapping 18-month cycle address NERC and regional reliability criteria violations, as well as violations of Transmission Owner local planning criteria that occur over a 5 to 15 year forward-looking horizon. The scope of overlapping 18-month RTEP analyses will yield one 60-day window. However, PJM retains the right to open proposal windows on an as-needed basis.
- PJM also conducts 24 month long-term proposal windows that address Market Efficiency criteria and long-term reliability criteria violations. Each long-term proposal window opens in November of even-numbered years and closes after 120 days.



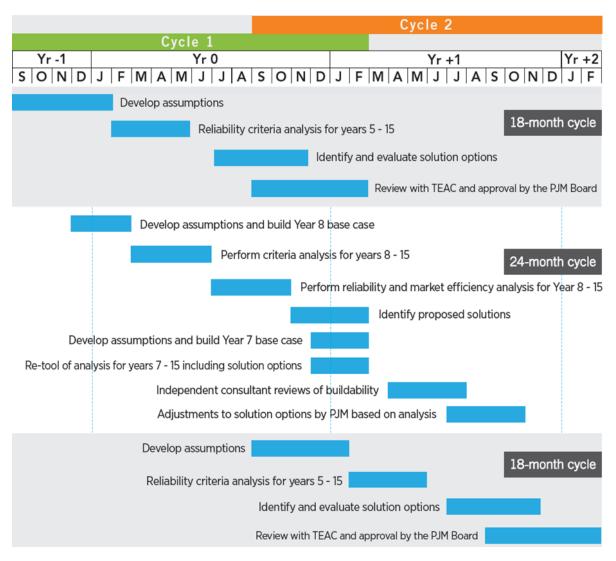


Exhibit 1: 24-Month Reliability Planning Cycle

Window Scope

PJM conducts RTEP analysis on an annual basis, including all reliability testing and market eficiency analysis as described in PJM Manual 14B.



Section 2: Pre-Qualification

2.1 Pre-Qualification Process

Entities that want to participate in the competitive planning process and become the Designated Entity for a transmission project that they propose, must be pre-qualified as required under Schedule 6 of the PJM Operating Agreement. An entity's eligibility is evaluated based on its technical and engineering qualifications, including its ability to develop, construct, operate and maintain transmission within the PJM region. If the entity does not have experience in a specific area, PJM requires that it provide a detailed plan for leveraging the experience of affiliates and/ or contractors. PJM reserves the right to request any additional information deemed necessary to determine the entity's pre-qualification application.

To be granted pre-qualification for Designated Entity status, a pre-qualification package must be submitted to PJM during the annual 30 day pre-qualification window that opens on September 1 of each year. An entity may submit a pre-qualification package outside of the annual pre-qualification window for good cause shown as determined by PJM. PJM will employ reasonable efforts in its evaluation and notify the entity as soon as practicable whether they qualify as eligible to be a Designated Entity.

2.2 Pre-Qualification Application

Schedule 6 of the PJM Operating Agreement details the requirements for an application to prequalify as eligible to be a Designated Entity. The list below summarizes the required items:

- 1. Name and address of the entity, including a point of contact;
- Technical and engineering qualifications of the entity or its affiliate, partner or parent company;
- Demonstrated experience of the entity or its affiliate, partner or parent company to develop, construct, maintain and operate transmission facilities, including a list or other evidence of transmission facilities previously developed regarding construction, maintenance or operation of transmission facilities both inside and outside the PJM region;
- 4. Previous record of the entity or its affiliate, partner or parent company to adhere to construction, maintenance and operating standards;
- 5. Capability of the entity or its affiliate, partner or parent company to adhere to standardized construction, maintenance and operating practices;
- Financial statements of the entity or its affiliate, partner or parent company for the
 most recent fiscal quarter, as well as the most recent three fiscal years, or the period
 of the entity's existence, if shorter, or such other evidence demonstrating an entity's
 or its affiliates, partner's or parent company's current and expected financial capability
 acceptable to PJM;
- 7. Commitment by the entity to execute the Consolidated Transmission Owners Agreement, if the entity becomes a Designated Entity;



- 8. Evidence demonstrating the ability of the entity or its affiliate, partner or parent company to address and timely remedy failure of facilities;
- 9. Description of the experience of the entity or its affiliate, partner or parent company in acquiring rights of way; and
- 10. Any other supporting information the PJM requires to determine the entity's prequalification status.

Entitites must submit pre-qualification applications and any updated information to PJM at the following email address: ProposalWindow-Prequal@pim.com

2.3 Processing Pre-Qualification Application

Upon receiving a new pre-qualification application, PJM assigns a unique identifier to each application and acknowledges receipt to the submitting entity. PJM will evaluate the application or updated information and notify the entity no later than October 31 of its findings. If PJM finds that any information submitted is deficient to determine pre-qualification, PJM will inform the entity it is not pre-qualified and include in the notification the basis for its determination.

The submitting entity may then respond by supplying additional or updated information to PJM. If such information is submitted by November 30, PJM will re-evaluate the application and notify the entity no later than December 15 whether the entity is pre-qualified as eligible to be a Designated Entity. PJM will use reasonable efforts to re-evaluate any additional or updated information submitted after November 30 and notify the entity via email of its determination as soon as practicable.

If PJM determines that the entity is not now or no longer will continue to be, pre-qualified as eligible to be a Designated Entity, the entity may continue to supply additional or updated information. aPJM will use reasonable efforts in its re-evaluation and notify the entity of its determination as soon as practicable.

2.4 Changes to Pre-Qualification Information

Once an entity is pre-qualified as eligible to be a Designated Entity, it is required to submit any subsequent changes to the information on which its pre-qualification was based. If the change is with respect to the upcoming year, the entity should submit the updated information to PJM during the annual pre-qualification window. If the change is with respect to the current year, the entity must provide the updated information to PJM when the change occurs, and PJM will use reasonable efforts in its re-evaluation and notify the entity of PJM's determination as soon as practicable. Entities submitting updated information to PJM are required to provide their original pre-qualification identification number.

Parties should submit all pre-qualification applications to PJM at the following email address: ProposalWindow-Prequal@pjm.com



Section 3: Registration Requirements

3.1 General Registration

PJM's competitive planning process requires registration for short-term and long-term proposal windows. For short-term proposal windows, individuals are instructed to submit registration annually, including a CEII request, as described in section 4.2 of this manual. Registration for long-term proposal windows, also includes the additional requirements described in section 4.4 of this manual.

3.2 Critical Energy Infrastructure Information (CEII) Registration

Attachment A below describes PJM CEII registration process and how the CEII request and approval process is incorporated into PJM's competitive planning process. Receipt of PJM CEII is a two-step process that requires an entity to: (i) complete and submit a CEII Request Form for the specific CEII requested; and (ii) sign a CEII Non-Disclosure Agreement (NDA). A signed CEII NDA applies to all requests for CEII, as long as a signer's circumstances remain unchanged; however, a separate CEII Request Form must be submitted for each window. Market Efficiency window registration is discussed separately in section 3.4 of this manual.

<u>PJM Members</u> – Each member must sign and electronically submit the PJM CEII NDA or verify that it has a signed, valid CEII NDA on file with PJM. Information that enables PJM to verify the valid CEII NDA on file, must be provided by completing and submitting a CEII Request Form. This CEII Request Form must also include the following wording: **20XX RTEP Proposal Windows** (20XX is the year in which the applicable window <u>opens</u>).

- http://www.pjm.com/library/request-access.aspx; and
- http://www.pjm.com/library/request-access/form-ceii-nda.aspx
- Setup a My PJM login account at the following hyperlink, which will be used to identify and authorize users: http://www.pjm.com/Login.aspx
- NERC registered Planning Coordinator or Transmission Planner employees: PJM is a signatory to the Planning Coordinator and Transmission Planners Critical Energy Infrastructure Information Sharing and Non-Disclosure Agreement. This NDA (PCTP NDA) is an option available for all NERC registered Planning Coordinators and Transmission Planners to facilitate compliance with the FERC Order No. 1000 and the NERC MOD-32 requirements. A requestor who is an employee of a NERC registered Planning Coordinator or Transmission Planner who desires PJM CEII specifically for use in NERC MOD 32 or FERC Order No. 1000 activities (PJM's window process is an Order No. 1000 process) may gain access to PJM CEII by completing the requirements related to this PCTP NDA found at http://www.eipconline.com/home.html. In addition, PJM's Request Form discussed for PJM members is also required.

<u>PJM Non-Members</u> – Each non-member must also sign an appropriate PJM CEII NDA and CEII Request Form and be subject to additional verification by PJM as outlined in Manual 14B. For more information, including specific CEII categories, please see the following hyperlinks:

http://www.ferc.gov/legal/ceii-foia/ceii.asp; and



http://www.pjm.com/library/request-access/form-ceii-nda.aspx

3.3 Secure File Transfer

Each entity must submit its proposals and related files via PJM's Secure File Transfer Tool. To do so, PJM requires a one-time registration but limits accounts to one primary user and one alternate user per entity. To set up a new account, please email ProposalWindow-Admin@pjm.com with the subject "Secure File Transfer Registration". If you have an account, but cannot login, please email axwayadmin@pjm.com

3.4 Market Efficiency Requirements

In addition to the general registration proposal window requirements detailed above, market efficiency windows also require the following:

 PJM Window Access: Entities will also need to request 20XX/20YY Market Efficiency Access to obtain related window information and data. Additional information can be found at the following hyperlink:

http://www.pjm.com/planning/rtep-development/market-efficiency.aspx

Production Cost Software License: Some files that PJM provides for analytical
evaluation of Market Efficiency windows may contain production cost and nodal
simulation data subject to software license requirements. In this event, the requestor
must be listed by the appropriate software vendor as eligible to receive any data for
which a software license is required.



Section 4: PJM Problem Statement and Requirements

4.1 Public Information

4.1.1 Purpose of a Proposal Window

PJM uses RTEP windows to seek technical solution proposals to solve identified (i) reliability criteria violations in accordance with all applicable planning criteria mandated by PJM, NERC, SERC, RFC and Local Transmission Owners, (ii) economic constraints or RPM limits and (iii) Public Policy Requirements.

PJM reliability criteria tests include, but are not limited to:

- Baseline Thermal and Voltage N-1 Contingency Analysis
- Generator Deliverability and Common Mode Thermal Analysis
- Load Deliverability Thermal and Voltage Analysis
- N-1-1 Thermal and Voltage Analysis
- Transmission Owner Criteria
- Congestion Analysis
- RPM Analysis

4.1.2 Terminology

PJM will post on the planning page of the PJM website a spreadsheet of potential violations. The following column headings are representative of the data fields that will be used to identify the specific facility. (Not all column headings will appear in every sheet within the spreadsheet.) Additional information deemed necessary by PJM will be provided on a separate attachment together with a results file.

A typical thermal analysis spreadsheet could include the following content:

Column Headings	Title	Description
FG#	Flowgate Number	A sequential numbering of the identified potential violations
Fr Bus	From Bus Number	PSSE model Bus number corresponding to one end of line identified as a potential violation
Fr Name	From Bus Name	PSSE model Bus name corresponding to one end of line identified as a potential violation
To Bus	To Bus Number	PSSE model Bus number corresponding to other end of line identified as a potential violation
To Name	To Bus Name	PSSE model Bus name corresponding to other end of line identified as a potential violation
Monitored Facility	Monitored Facility	The circuit on which a potential violation is occurring



Column Headings	Title	Description
Base Rate (MVA)	Base Rate (MVA)	Normal Facility Rating (Rate A)
% Overload	Percentage Overload	Percentage above base rate
СКТ	Circuit	Circuit number of identified potential violation
KVs	Kilovolt level (A/B)	Kilovolt level of both sides of potential violation, if A does not equal B, potential violation is a transformer
Areas	Area Numbers (A/B)	Area numbers of both ends of potential violation (A=From Bus Area Number, B=To Bus Area Number) If A does not equal B, potential violation is a tie line
Rating	Line Rating	Applicable Thermal rating (MVA) of line
DC Ld(%)	Direct Current Loading percentage	Percentage above 'Line Rating' determined from DC testing
AC Ld(%)	Alternating Current Loading percentage	Percentage above 'Line Rating' determined from AC testing
Cont Type	Contingency Type	Contingency Categorization (potential options include: Single, Bus, Line_FB, Tower)
Cont Name	Contingency Name	Contingency Name as identified in associated contingency file or embedded in the spreadsheet
Contingency	Contingency	Contingency Description
Violation Date	Violation Date	Date on which violation is expected to occur
Analysis Case	Analysis Case	Case title to use in replicating analysis

A typical voltage analysis spreadsheet could include the following content:

Column Headings	Title	Description
FG#	Flowgate Number	A sequential numbering of the identified potential violations
Bus#	Bus Number	PSSE model Bus number corresponding to bus identified as a potential violation
Name	Bus Name	PSSE model Bus name corresponding to bus identified as a potential violation
KV	Kilovolt level	Kilovolt level of bus identified as potential violation



Column Headings	Title	Description
Area	Area Number	Area number of bus identified as potential violation
ContVolt	Contingency Voltage (P.U.)	Per Unit Voltage at identified bus after contingency is applied
BaseVolt	Basecase Voltage (P.U.)	Per Unit Voltage at identified bus before contingency is applied
Low Limit	Low Voltage Limit(P.U.)	Threshold of Per Unit Low voltage, if ContVolt is under this limit, a potential violation is identified
Upper Limit	High Voltage Limit(P.U.)	Threshold of Per Unit High voltage, if ContVolt is over this limit, a potential violation is identified
Cont Type	Contingency Type	Contingency Categorization (potential options include: Single, Bus, Line_FB, Tower)
Vdrop(%)	Voltage drop	The Percentage that the voltage has dropped as a result of the contingency
Contingency	Contingency Name	Contingency Name as identified in associated contingency file
Contingency 1	First Contingency	N-1 (First) Contingency identified
Contingency 2	Second Contingency	N-1-1 (Second) contingency identified in N-1-1 analysis
Violation Date	Violation Date	Date on which violation is expected to occur
Analysis Case	Analysis Case	Case title to use in replicating analysis

A typical market efficiency spreadsheet file could include the following content:

Column Headings	Title	Description
Facility Name	Facility Name	The circuit on which market congestion is occurring
Area	Area	The Transmission zone in which the congestion occurs
Туре	Туре	The Type of Facility (i.e. Interface, Line)
Frequency	Frequency	The number of hours the Facility was constrained for the year.
Market Congestion	Market Congestion	The total Market Congestion for the facility for the year.



Column Headings	Title	Description
Notes	Notes	Information, if applicable, about the facility and congestion. (i.e. potential RTEP upgrades, Reason for congestion)

4.1.3 Proposal Development by Submitting Entities.

Proposal submittals must include the analyses completed by the proposing entity to identify its proposed solution(s), consistent with the RTEP procedures PJM uses, as detailed in Manual 14B:

http://pjm.com/~/media/documents/manuals/m14b.ashx

Additionally, all proposed solutions must meet the performance requirements outlined in the applicable PJM Transmission Owner criteria:

http://www.pjm.com/planning/planning-criteria/to-planning-criteria.aspx

4.1.4 Data and Information Provided by PJM

PJM provides the following data and related information. Please note these files are Critical Energy Infrastructure Information (CEII) and should be handled in accordance with the steps described in section 3.2:

- 1. Base Power Flow Case: The data in the spreadsheet notes which case(s) correspond to each identified reliability criteria violation;
- 2. Contingency List: All contingency types, including for example: Single, Bus, Tower, Line w/ stuck breaker);
- 3. Subsystem File: Identifies all subsystem zones to be considered in the analysis;
- 4. Monitor File: Identifies specific ranges of facilities by area and kV level to be considered in the analysis;
- 5. Applicable Ratings (if different from than the ratings in the power flow cases);
- Spreadsheet containing detailed power flow results and any additional technical comments; and
- 7. Market Efficiency production cost supporting files.

4.2 Secure Information

PJM posts an on-line a public version of the "Problem Statement and Requirements" documentation and associated analytical files, some of which require CEII authorization as discussed in Attachment A of this manual. These files include:

- Flowgates identified in RTEP analyses;
- Detailed flowgate tabs for generator deliverability results;
- Power flow cases;
- Associated contingency, subsystem and monitor files;



- Production cost cases; and
- Associated production cost event, outage library and load forecast files.



Section 5: Violations Included in a Proposal Window

5.1 Criteria Driver Classification

Criteria driver classification type is based on the nature of the project driver. Baseline criteria drivers include Reliability, Market Efficiency and Public Policy. The project evaluation process focuses on project submisions that result from the competitive planning process for either Reliability Criteria and/or Market Efficiency Criteria. Transmission projects required to meet public policy goals are coordinated through the competitive planning process. Projects are initially evaluated according to the window type for which they were originally received.

Supplemental projects, while not included as a criteria driver, are considered in the development and evaluation of baseline upgrades, including competitive proposals. Supplemental projects identified in previous RTEP cycles are included as an input assumption in RTEP cases, and as a base assumption are included in analysis performed in the evaluation of proposals.

PJM will consider Multi-Driver projects, as described in Schedule 6 of the PJM Operating Agreement, as submitted via an RTEP Proposal Window.

5.2 Quality Control Check and Posting of Violations

In coordination with PJM transmission owners, generation owners, neighboring regions and any other affected parties, PJM will perform a quality control check of the identified potential violations and needs. The quality control check may reveal that identified potential violations can be removed from the potential violation list if they are found to be not valid. The quality control check may also reveal that other potential violations not on the original violation list may be added as deemed necessary by PJM.

PJM will post the preliminary findings of the analysis in advance of opening the proposal window, in order to give all stakeholders an opportunity to review the identified potential violations and needs.

5.3 Proposal Window Violation Inclusion Review Process

5.3.1 Identify Violations and Needs

After PJM identifies potential violations and needs based on the analyses performed under the criteria tests described in PJM Manual 14B, PJM initiates a review process to determine if each flowgate is appropriate for inclusion in a RTEP proposal window. PJM will apply best efforts to allow a reasonable amount of time between the posting of its results and the opening of a proposal window. By default, all identified PJM market monitored reliability criteria violations are assumed to be included in an RTEP Proposal window unless they fall into one of the following exemption categories, as described in more detail below:

- Immediate-need Reliability Projects;
- Transmission Owner filed FERC Form 715 Local Planning Criteria;
- Lower Voltage (<200 kV) Facilities; and
- Transmission Substation Equipment.



The above stated exemptions will be posted to give stakeholders a reasonable opportunity to review and provide comments for consideration on the violations expected to be included or excluded from the competitive planning process via the TEAC, as described in Schedule 6 of the PJM Operating Agreement. Stakeholders must provide written comments to PJM regarding PJM's determination to exempt a potential violation from a proposal window no later than the opening of the window. All written comments will be publicly available on the PJM website.

5.3.2 Immediate Need Reliability Projects

Immediate-need Reliability Projects are those that are required to be in service in 3 years or less. As defined in Schedule 6 of the Operating Agreement, if PJM determines that insufficient time remains for PJM to conduct a short-term project proposal window for a potential reliability violation needed in three years or less, PJM may exclude the immediate-need reliability violation(s) from the proposal window process. If, however, PJM determines that sufficient time exists to include an immediate-need reliability violation in an RTEP Proposal Window, PJM will open a proposal window, as described in Schedule 6, of the PJM Operating agreement.

5.3.3 Transmission Owner FERC Form 715 Local Planning Criteria

Potential violations that are driven solely by transmission owner Form 715 planning criteria will be cost allocated 100% to the zone of the transmission owner who submitted the Form 715 local planning criteria. Additionally, based on Schedule 6, of the PJM Operating Agreement, any project that is cost allocated to a single zone, and is geographically located within that zone, shall be reserved for the incumbent Transmission Owner to construct and, therefore, is not eligible for inclusion in the Competitive Planning Process*.

*Pending FERC acceptance, potential reliability violations identified to address Form 715 planning criteria will not be included in a proposal window unless a project proposal includes both a posted violation or system condition other than a Form 715 Planning Criteria violation and a transmission need driven by Form 715 planning criteria.

5.3.4 Lower Voltage Facilities

Potential reliability violations on facilities below 200 kV are excluded from the competitive planning process unless the identified violation(s) satisfies one of the following two exceptions to the lower voltage facility exemption:

- The reliability violations are thermal overload violations identified on multiple facilities
 rated below 200 kV that are impacted by a common contingent element such that the
 multiple reliability violations could be addresses by one or more solutions, including but
 not limited to a higher voltage solution; or
- 2. The reliability violation are thermal overload violations on multiple facilities rated below 200 kV that given the location and electrical features of the violations, one or more solutions could potentially addresses or reduce the flow on multiple lower voltage facilities, thereby eliminating the multiple reliability violations.

If the identified reliability violation does not satisfy either of the two exceptions, PJM will develop a solution to address the violation that will not be included in a proposal window. PJM will post the proposed solution on the PJM website for review and comment by the TEAC and other stakeholders.



5.3.5 Transmission Substation Equipment

Transmission substation equipment issues that can be solved by an upgrade to an existing transmission facility in a substation (with the exception of power transformers) shall be excluded from the Competitive Planning Process.*

*Pending PJM Stakeholder and FERC approval



Section 6: Proposal Requirements

6.1 Proposal Requirements

The following must be provided no later than the date on which the window closes. Proposing entities must use the PJM-provided templates posted on the PJM website to describe the planning level proposal details including the specific violations/constraints the proposal addresses. Proposing entities must also provide separate documentation for every project proposal that includes, but is not limited to, upgrade/greenfield templates, as well as redacted and un-redacted versions of each proposal.

PJM will not accept a project proposal with multiple options. Each project proposal with a unique set of electrical characteristics and/or routing characteristics must be submitted separately. A proposing entity may include additional narrative in the proposal report to address other specific details. These may include, but are not limited to, the following items:

- 1. Description of the proposed solution and the corresponding violation(s) it solves, including whether the project should be considered only in its entirety or if one or more elements should be considered independently as well;
- 2. Detailed analysis report for a proposed solution, including:
 - a. Breaker single-line diagrams to illustrate system topology
 - b. Spreadsheets showing results of planning analyses
 - c. Planning level estimate of:
 - i Time to construct the proposed solutions and the overall expected in-service date
 - Planning Level estimates for the following: itemized costs for each major component (e.g. substation work, transformer cost, transmission line cost), base cost, risk and contingency cost and total cost, together with a description of assumptions (e.g. base cost, risk and contingency (R&C) costs, and total cost); and
 - iii Right-of-way availability
- 3. Non-incumbent transmission owner scope-of-work:
 - a. If a non-incumbent proposal assumes that a portion of the work will be completed by an incumbent transmission owner, the planning level scope and itemized cost for that work must also be included with the proposal;
- 4. Equipment parameters and assumptions:
 - a. Transmission line and transformer ratings, impedances and mileage (as appropriate), etc.;
 - b. Reactive device settings and expected output;
 - c. MW and MVAR output assumptions for synchronous machines;
- 5. Complete set of power flow and dynamic cases modeling the proposed solution. Each case must be solvable i.e., does not contain any convergence issues and must conform to industry standards. A single PSS/E IDEV file must be provided so that the



proposal may be modeled and easily applied in other analyses. Any new busses created must not be labeled with previously used bus numbers. Critical contingency files to reproduce results driving proposed solution must also be provided. All cases and data files for dynamic simulations must be in the current PSS/E version format;

- 6. Any other supporting documentation specified by PJM, and not otherwise explicitly stated in this document, that is required to perform verification review;
- 7. Submission of Deliverables:
 - a. Preferred <u>Via secure file transfer tool portal</u> See section 4.3 for transfer tool portal registration;
 - b. Alternative Via electronic mail to ProposalWindow-Admin@pim.com;
 - c. Alternative (e.g.: DVD or flash/thumb drive) Via FedEx to Manager, Transmission Planning, PJM Interconnection, L.L.C. 2750 Monroe Boulevard, Audubon, PA 19403.

Note:

All projects requiring the signing of a Designated Entity Agreement must meet or exceed the minimum design standards as developed by the Designated Entity Design Standards Task Force.

Upgrade Information

PJM requires all proposals -- both upgrades to existing facilities and new greenfield projects -- to complete the 20XX RTEP Proposal Window Template, included in the files available via the downloadable package of files provided to all registered participants. An example of how to fill out the template can be found online at 2016 RTEP Proposal Template - Example

Greenfield Information

If the proposal is a greenfield solution, then the '20XX Greenfield Project Proposal Template,' included within PJM's downloadable package of files provided to all registered participants must also be included in the project proposal package. The greenfield template can be found on-line at: Greenfield Project Proposal Template.

Interregional solution proposals must follow the documentation procedures discussed in section 7.1.

6.2 Proposal Timelines

6.2.1 Short Term Windows

Items due no later than the close of a short term window:

- RTEP Proposal Template (Spreadsheet) with initial planning level cost estimates. The
 initial cost estimate is preliminary and will be used by PJM to support the creation of an
 initial analytical work plan;
- All analytical files needed for technical analysis & simulation:
- All results from simulations conducted by the proposing entity, e.g. all PSS/E files, contingency files, one-line diagrams, etc.;



- Detailed substation (showing all breakers and transmission topology) and route diagrams;
- Pre-qualification documentation;
- Any cost cap or cost containment mechanisms should include enough detail for PJM to understand the implementation and impact of the cost mechanism under theoretical scenarios;
- Describe in detail every aspect of the proposed cost where the cost mechanism does or does not apply;
- If supplemental examples of how the cost mechanism would behave under varying scenarios would benefit understanding the cost mechanism, the proposing entity should include such examples as part of project documentation.
- The greenfield RTEP Proposal document can be found on the PJM website via the link at section 6.1.

Note:

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

6.2.2 Long Term Windows

Items due by close of the window:

- RTEP Proposal Template (Spreadsheet) updated to include both preliminary overall
 project cost and detailed cost of each component. This cost should be calculated for the
 in-service date of the project;
- As the cost is paramount for the selection of a Market Efficiency project, PJM will use
 this cost as submitted during the selection process in addition to any independent cost
 review as required by the Operating Agreement or as PJM deems appropriate for the
 project's scope;
- Any cost cap or cost containment mechanisms should include enough detail for PJM to understand the implementation and impact of the cost mechanism under various scenarios;
- Describe in detail every aspect of the proposed cost where the cost mechanism does or does not apply;
- If supplemental examples of how the cost mechanism would behave under varying scenarios would benefit understanding of the cost mechanism, include them with the project documentation.
- All analytical files needed for technical analysis and simulation:
- Include all results from power flow and production cost simulations including overloads, congestion savings, net load payments and adjusted production cost savings;
- All PSS/E files to model the project, contingency files, single-line diagrams, etc.;
- List of contingencies and list of monitored flowgates modeled to capture project impact;



- All production cost modeling files corresponding to the analytical files mentioned above (optional);
- Event files and XML modeling files

6.3 Redaction Requirements

Each proposal must include a redacted version for public posting. The purpose of submitting redacted and un-redacted versions is to enable PJM and transmission asset owners to protect Critical Electrical Infrastructure Information (CEII) and/or proprietary information from disclosure as defined in Attachment A.

The un-redacted version must highlight all sections that have been redacted from the public version. "Confidential" and "CEII" markings must be removed from the redacted version. Confidential and CEII materials may be submitted as an attachment to the un-redacted version of a proposal, in which case removing those attachments would create the public version. PJM reserves the right to review the proposing entity's proposed redactions to ensure the appropriate level of transparency while protecting CEII, confidential and proprietary information.

Items that should not be redacted:

- Description and scope of project including substation and line detail, and general breaker configuration, e.g. ring bus, breaker-and-a-half etc.
- Violations/issues solved by the proposal
- General route of project
- · High level cost and timeframe
- Technical specifications and parameters (ratings, impedances etc.)
- High level cost cap information
- General assumptions needed to evaluate projects
- General plans for operations and maintenance
- Environmental, land, and permitting information (except specific routes and landmarks)
- Construction responsibilities by other entities
- Items that can be redacted from proposals:
- Detailed breaker descriptions (i.e.: failure of this breaker will result of loss of)
- Single-line diagrams that include breakers
- Geographic maps that identify specific location of project
- Descriptions of specific landmarks in the area (names of rivers, trails, highways, etc.)
- Proprietary information (such as detailed estimates, commercially sensitive practices, agreements with vendors/suppliers and intellectual property)

The above are suggested guidelines for proposing entities to use as they submit their proposals. PJM may require additional redactions to protect CEII or require the disclosure of redacted information as necessary.



6.4 Using Proposal Submittal Tool

See Attachment B below for instructions and a link to a demonstration video on how to use PJM's secure online file transfer tool

6.5 Proposal Fee Structure

See Attachment C below for a detailed breakdown on PJM's proposal fee structure including fees, due dates and general wire transfer details.

6.6 Proposal Window Communications

RTEP proposal window announcements will be communicated through the Transmission Expansion Advisory Committee (TEAC) (http://pjm.com/committees-and-groups/committees/teac.aspx). Interested parties should register for the TEAC email list to receive the most up-to-date information.

PJM also employs user email lists for each calendar year to announce the posting of files and provide the password to access these files. See 'Window Registration Process' in section 3 for additional details.

Contacting PJM with Questions Regarding RTEP Proposal Windows

PJM Planning has three email addresses to respond to RTEP proposal window related questions:

ProposalWindow-Admin@pjm.com

Question regarding window access

Password Issues

Secure submittal tool registration

ProposalWindow-PreQual@pim.com

Prequalification submittals

Changes to existing prequalification documentation

ProposalWindow-Tech@pjm.com

Technical and analytical questions

6.7 Market Efficiency Proposal Requirements

In addition to the proposal requirements discussed in section 1, proposing entities are encouraged to submit any supporting data or material that may benefit PJM's evaluation of a specific market efficiency proposal. Such information may include, but is not limited to, the following:

1. Description of the congestion driver(s), regional or local, the proposal relieves



- Spreadsheets providing additional detail on congestion relief caused by the proposed solution, output of production cost analysis showing congestion savings, net load payments and adjusted production costs decreases
- Production cost cases to model the project topology including list of changes to base event files
- 4. Estimation of the benefit-to-cost (B/C) ratio for the proposed solution

6.8 Interregional Proposal Requirements

Interregional proposals must be entered into both the PJM RTEP window process -- in accordance with this manual -- as well as the process of the applicable planning region adjacent to PJM. Interregional agreements may also provide for relatively small, lower cost but highly beneficial projects that may be identified and approved through a single joint planning process and avoid the normally required separate process for both PJM and the adjacent region. Any availability of these new project types will be described in the applicable Tariff, Operating Agreement and joint agreement provisions referenced in this manual.



Section 7: Interregional Process

7.1 PJM's Interregional Planning Process

PJM conducts Interregional Planning activities with each adjacent planning region pursuant to PJM's Tariff, Operating Agreement and joint agreement provisions applicable to each interface. This section of Manual 14F provides an overview of the PJM Interregional Planning process. The provisions of the applicable Tariff or Agreements control in the event of any discrepancy with the material presented in this manual.

PJM's ties to its directly connected neighbors are grouped into three interfaces that can accommodate transmission proposals that address issues and provide benefits to PJM and adjacent regions. The interfaces are to the west (Midcontinent Independent System Operator ("MISO")), the northeast (New York Independent System Operator ("NYISO") and Independent System Operator - New England ("ISO-NE")) and the southeast (Southeastern Regional Transmission Planning ("SERTP")). Proposals for Interregional Transmission projects on all interfaces should address issues identified in both regions and be entered into PJM's regional proposal windows process as an Interregional Project Proposal. Such projects must also engage the adjacent region's process for transmission proposals. Entering proposals in both regions will trigger the process of joint evaluation of an Interregional Project Proposal, along with competitive PJM regional project proposals to determine the more efficient or cost effective solution to address identified issues. Stakeholders who are interested in providing interregional transmission project proposals should actively engage the adjacent region's transmission planning process, the PJM transmission regional planning process as well as available joint planning processes.

7.2 References for Interregional Process and Requirements

- Joint Operating Agreement Between the Midcontinent Independent System Operator, Inc. and PJM Interconnection, L.L.C.
- Northeastern ISO/RTO Planning Coordination Protocol
- Joint Operating Agreement Among and Between New York Independent System Operator, Inc. and PJM Interconnection, L.L.C
- Schedule 6-A of the Amended and Restated Operating Agreement of PJM Interconnection, L.L.C. Interregional Transmission Coordination Between the SERTP and PJM Regions
- Schedule 6-B of the Amended and Restated Operating Agreement of PJM
 Interconnection, L.L.C. Interregional Transmission Coordination Between PJM New York
 Independent System Operator, Inc. and ISO New England Inc.
- PJM Tariff, Schedule 12-B (SERTP cost allocation provisions)
- PJM regional process related to interregional activities can be followed at the Transmission Expansion Advisory Committee (TEAC)

The following sections provide more information about the typical processes followed on each PJM interface. The provisions of the various agreements governing the Order No. 1000



interregional processes implement, and in some cases go beyond, the minimum requirements to:

- Exchange regional transmission planning data, issues
- Review regional transmission plans and solutions
- Determine the need for coordinated analysis of potential interregional transmission that is more efficient or cost effective than regional plans
- Provide opportunities for stakeholder reviews and input
- Provide cost allocation provisions for dividing the costs of an interregional transmission project between directly connected regions

7.3 Midcontinent Independent System Operator (MISO)

Unique to the PJM-MISO interface, an interregional transmission project may be located in both regions or wholly located in one region. There are four types of interregional projects that may be proposed on the MISO interface, each governed by the provisions of the applicable documents cited above. Reliability projects (Cross-Border Reliability Projects and Interregional Reliability Projects), Public Policy projects, Market Efficiency projects, and Targeted Market Efficiency projects. PJM and MISO will split costs between regions according to the benefit split between regions determined according to agreement and tariff provisions.

Interregional Reliability project or Public Policy project costs are split between regions based on each region's proportion of avoided alternative regional project costs. In the case that a reliability project beneficial to both regions does not qualify as an Interregional Reliability project, it may qualify for shared costs under the Distribution Factor method for Cross Border Baseline Reliability projects. Market Efficiency project costs are split between regions based on the PJM and MISO studies indicating the proportion of the economic benefit to each region. Targeted Market Efficiency project costs are split between regions based on each region's avoidance of future Reciprocal Coordinated Flowgate congestion as calculated by PJM and MISO.

Stakeholders can follow the timeline of analyses on the MISO interface through participation in the PJM-MISO Interregional Planning Stakeholder Advisory Committee (IPSAC). Information on the PJM-MISO IPSAC can be found on the PJM Planning Interregional pages of the PJM website (http://www.pjm.com/committees-and-groups/stakeholder-meetings/ipsac-midwest.aspx).

Interregional planning with MISO proceeds on annual and biennial cycles. In the 4th quarter of each year, PJM and MISO review regional issues and solutions with stakeholders at an IPSAC meeting. At this meeting, the anticipated plan for any targeted studies and opportunities for stakeholder input on targeted upgrades will be outlined.

The biennial cycle process typically follows 2 consecutive calendar years. The biennial study cycle plan will be discussed in the 4th quarter IPSAC meeting prior to commencement of a biennial cycle, typically at the end of odd-numbered years. This meeting will provide the anticipated plan for consideration of the more complex interregional issues including, identification of regional and interregional issues, regional model review, regional and interregional proposal opportunities, any needed interregional model reviews, and regional and interregional proposal evaluations. The biennial cycle may address reliability, market efficiency



and public policy as applicable in a given cycle. Project proposals can be entered in PJM's long-term window, November of the first year of the cycle through February of the second year of the cycle (In section 1.1, the provisions regarding the RTEP process, the biennial cycle years are sometimes referred to as year zero and year one).

Updates and summaries of PJM's regional transmission planning related to interregional activities with MISO are available in meeting materials of the TEAC at the link shown in section 6.2.

Regional as well as Interregional Public Policy planning in PJM originates with the PJM Independent State Agencies Committee (ISAC) and can also be followed through participation in PJM TEAC meetings. When PJM public policy issues are identified, the TEAC process will provide any necessary information regarding stakeholder participation and input.

7.4 Northeast Protocol

Coordinated planning among PJM, NYISO and ISO-NE regions (parties) is conducted pursuant to the Northeast Protocol agreement ("Protocol"). Interregional transmission projects may be proposed on this interface that meet the requirements of this Protocol. In generalan interregional transmission proposal must be located in the region of two or more of the parties to the Protocol and displace regional transmission plans of two or more of the parties. Any combination of reliability, economic or public policy project potentially may be displaced.

Fulfillment of the minimum Order No. 1000 requirements is achieved under the Northeast Protocol. The exchange of transmission data and plans and review of the plans occurs annually under the provisions of the Protocol. This process, including the opportunity for stakeholder review and input, can be followed through the Interregional Planning Stakeholder Advisory Committee for the Northeast Protocol at http://www.pjm.com/committees-and-groups/stakeholder-meetings/ipsac-ny-ne.aspx. ,Updates and summaries of these planning activities are also included in the meeting materials of the TEAC, provided in section 6.2.

In addition, periodically, the parties develop a Northeast Coordinated System Plan document. This document describes the ongoing coordination efforts and includes any Interregional Transmission Projects or other transmission coordination accomplished by the parties.

7.5 Southeastern Regional Transmission Planning (SERTP)

The SERTP consists of the entities in the planning region connected to PJM's southern border. SERTP includes entities subject to FERC's Order No. 1000 requirements and additional sponsoring entities who voluntarily participate in the SERTP's regional planning efforts. The FERC-jurisdictional entities are Duke Energy, Southern Company, Louisville Gas & Electric and Kentucky Utilities and Ohio Valley Electric Corporation (including Indiana-Kentucky Electric Corporation). In addition, participating entities include the Associated Electric Cooperative, Dalton Utilities, Georgia Transmission Corporation, Municipal Energy Authority of Georgia, PowerSouth and The Tennessee Valley Authority.

As with the MISO, NYISO and ISO-NE interfaces, the minimum Order No. 1000 requirements are fulfilled with SERTP. Coordination of planning with SERTP includes the annual data and plans exchange process as well as a more in depth biennial review and assessment of the transmission plans and potential for interregional transmission.



This interregional process is embodied in the Open Access Transmission Tariff provisions of each of the jurisdictional entities. Stakeholders interested in participating in coordinated planning among PJM and the SERTP entities are encouraged to follow the regional transmission planning processes of each region, where updates and analyses will be discussed. PJM's process is addressed in the meeting materials that can be found at the TEAC link provided in section 6.2. The SERTP process can be followed at: http://southeasternrtp.com/home.cshtml.



Section 8: Project Evaluation

8.1 Reliability Criteria Project Evaluation

8.1.1 Initial Review and Screening

Following submittal of project proposals through an open proposal solicitation process, PJM performs a preliminary analytical quality assessment of the project proposals received.

The following factors will be used to perform the initial review and screening of reliability project submissions. The initial review will utilize data and information that is provided by the project sponsors as part of their project proposal:

- Initial Performance Review PJM will evaluate whether or not the project proposal solves the required reliability criteria drivers that were posted as part of the open solicitation process. Competing projects may be organized into logical groups that share comparable scope and cost. Generally, project proposals will pass the initial reliability performance review if they demonstrate acceptable system performance and do not exhibit or trigger any additional problems for the initial power flow, short circuit or dynamic stability tests, as applicable. If a proposal does not pass the initial performance review, it will not be recommended based on the current submission.
- Initial Planning Level Cost Review PJM will review the submitted project cost by
 the project sponsor as well as any cost cap or cost containment mechanisms that are
 relevant to the project proposal. For the purpose of evaluation, competing projects may
 be organized into logical groups that address similar criteria violations. Project cost
 estimates and scope will be evaluated for reasonableness based on projects of similar
 scope and magnitude.
- Initial Feasibility Review PJM will review the overall proposed implementation plan and determine if the project, as proposed, can feasibly be constructed. The initial feasibility review may consider physical aspects, permitting, required approvals and overall timing.

Using the information obtained through the initial review, PJM will select project proposals to perform a detailed review.

PJM will regularly retool its analysis based on updated system information to ensure that solutions address the identified violations, do not cause any new violations (such as thermal, reactive, short circuit or stability) and are still needed to address reliability criteria and/or market efficiency criteria. PJM retains the right to select the more efficient or cost effective project to address the violation/constraint/issue.

8.1.2 Detailed Proposal Review

As part of the detailed proposal review, PJM will perform a review of primary considerations focusing on violation mitigation. These primary considerations will include:

- Conformance to Reliability Standards NERC, RFC, SERC thermal, voltage and stability
- PJM Reliability Requirements, from the PJM Reliability and Adequacy Agreements

 Load Deliverability, Generator Deliverability, Light Load Reliability Criteria, 15 Year
 Analysis, Short Circuit analysis, Transmission Owner Criteria



Industry practices and generally acceptable methods

In performing this review, PJM will utilize both the system models that the project sponsors provided and PJM models developed independently. If PJM analysis determines that a proposal does not meet the primary considerations, the proposal will not be recommended based on the current submission.

- Detailed Performance Review PJM will examine the selected proposals for performance with respect to all performance criteria that proposals are anticipated to impact. PJM will potentially evaluate any applicable criteria that may impact the performance measurement of the project even if it was not explicitly stated as part of the original problem statement. This is in contrast to the initial screening review that only examined the analysis that was performed by the project sponsors.
- Detailed Planning Level Cost Review PJM will perform a review of the total project
 cost, including review of cost estimates submitted by the project sponsor and review of
 cost estimates that may be provided for upgrade work related to the proposed project
 which would be performed by the affected incumbent Transmission Owner(s). For this
 review, PJM may validate the total project costs through the use of an independent
 consultant, internal resources or combination of both as necessary. PJM will also
 evaluate the benefit of any cost caps or cost containment mechanisms and may engage
 an independent consultant to assess the potential benefit of any cost caps or cost
 containment/commitment.
- Detailed Feasibility Review PJM may perform an in-depth review of the constructability
 of the project. This review will typically include an evaluation of project scope, complexity
 and constructability factors that impact the project cost and/or schedule including but not
 limited to right-of-way acquisition, land acquisition, siting and permitting requirements,
 project complexity, project coordination complexity, outage coordination and project
 schedule.

8.1.3 Decisional Process

When multiple proposals pass the primary considerations PJM will determine the relevancy of a set of additional considerations that inform the decision to identify the more efficient or cost effective project to address the issue. After determining which considerations are relevant to a given evaluation, PJM will identify the differentiating factors among the proposals under evaluation.

Considerations that inform decisions:

- Cost, Cost Cap or Cost Containment Mechanism
- Cost Estimate Review
- Grid Resilience/Performance
 - o Transfer Capability to what degree are the transfer capabilities to/from and within PJM increased or decreased?
 - o Coordination with other entities does the proposal enhance or diminish reliability in another neighboring system?
 - o Operational Performance are there other impacts or benefits to operations performance?



- o Grid Resilience does the proposal enhance grid resilience through increased redundancy or operational flexibility?
- o Industry practices and generally acceptable methods
- o Route Diversity does the proposal include an additional diverse route that provides enhanced flexibility?
- Reliability Margin
 - o Consideration of the margin the proposal allows before the facility will hit the next limit
 - o Project Longevity How many years into the future is a solution alternative expected to be effective?
 - o What are the future risk factors? Additional load, generation deactivation, additional transmission, future NERC standards, generation or merchant interconnection, impacts to the existing projects?
- Project Execution Risk/Schedule/Timing
 - o Environmental impact risks
 - o Project Complexity
 - o Impact to existing facilities
 - o Technology Considerations Is technology proven?
 - o Schedule Time to construct and feasibility of the schedule
 - o Siting and Permitting Risks
 - o Right-of-Way (ROW) and land acquisition- Is new ROW/land required?
 - o Physical constraints
 - o Outage Impacts What outages are needed, how long, and what are impacts to system?
- · Sensitivity Analysis

8.1.4 Company Evaluation

- In parallel to the analytical evaluation, PJM will perform a planning level company evaluation to ensure that the proposing entity possesses the ability to design, construct, own, operate and maintain the proposed solution. Considerations reviewed in this evaluation include, but is not limited to:
 - o Project Specific Scope
 - o Company Experience and Capability
 - o Project Execution Plan
 - o Project Operations and Maintenance Plan



8.1.5 Project Recommendation

PJM will present to the TEAC the findings from the technical analysis performed and any other constructability or independent evaluations of the proposed alternatives and the recommended solutions. As part of the project recommendation process, PJM will present a preliminary recommendation at a TEAC meeting and then a final recommendation at a subsequent TEAC meeting. Stakeholders will be provided the opportunity to comment and ask questions about all aspects of the proposal review process and recommended projects. Subsequently, PJM will formalize the recommendation of the projects presented to the PJM Board of Managers for ultimate approval.

After PJM Board of Managers approval, there are many follow-up steps to the PJM process. These include, but are not limited to, completing the Designated Entity Agreement and acceptance of construction responsibility. Cost containment language shall be included in the Designated Entity Agreement as a non-standard term and filed with FERC.

8.2 Market Efficiency Project Evaluation

Schedule 6; of the PJM Operating Agreement discusses Market Efficiency criteria used in considering the inclusion of Market Efficiency projects in the recommended plan. This document provides primary <u>criteria</u> and secondary <u>factors for</u> consideration <u>criteria</u> that may be utilized as guidelines in order to facilitate the <u>Market Efficiency Project</u> recommendation process.

8.2.1 Primary Considerations

All submitted proposals will be reviewed to determine which of the posted PJM identified congestion facilities drivers are addressed by the proposal. The initial review will also determine if there are any major deficiencies in the proposal. Requirements that are provided in the Problem Statement will be assessed for compliance. If minor deficiencies are discoveredidentified, then the proposer will be contacted and provided an opportunity to submit responses in sufficient detail to correct those deficiencies to ensure the project proposal is complete and responsive to the identified system conditions. If the proposal does not substantially address a PJM identified congestion driver, or is otherwise substantially deficient or is seriously flawed, it will be rejected and the proposer will be notified.

8.2.1.1 Congestion Mitigation Eligible Congestion Drivers

Coincident with the opening of each market efficiency proposal window PJM will identify eligible congestion drivers for which market efficiency projects are being solicited. Only proposals which address one or more of these PJM identified congestion drivers will be evaluated. Eligible congestion drivers will be selected to focus proposals on significant issues.

In determining eligible congestion drivers PJM will consider all binding flowgates internal to the PJM footprint (including tie lines), current active Market-to-Market flowgates listed in the NERC book of flowgates, and potential future Market-to-Market flowgates between PJM and MISO. Potential future (prospective) Market-to-Market flowgates will be identified using the principles of studies 2 & 4 of the flowgate qualification tests as outlined in the MISO-PJM JOA, Attachment 2, Section 3.2.1. Specifically, the following steps will be followed:

1. <u>Using the same topology used to identify congestion the Market Efficiency process, PJM</u> will define its control areas to align with the CMP processes as described in section 3.2



- 2. Monitored facilities included in MISOs Market Efficiency process will be combined with the full set of contingencies used in both PJM's and MISO's Market Efficiency processes to establish the domain of flowgates that will be tested for eligibility.
- 3. Each of these flowgates will be studied in a sensitivity analysis that will establish the flowgates as congestion drivers should they meet either study criteria:
 - a. GLDF Threshold Study

Under the historical control area representation, if any two PJM generating stations at electrically unique locations have a Generation-to-Load Distribution Factor (GLDF) that is 5% or greater, this flowgate will be eligible to be an identified congestion driver in the Market Efficiency process.

b. TDF Threshold Study

Under the historic control area representation, if any historical control area to historical control area transaction (Generation-to-Generation transfer) has a 5% or greater Transfer Distribution Factor (TDF), this flowgate will be eligible to be an identified congestion driver in the Market Efficiency process

8.2.1.2 Congestion Mitigation

Consistent with Schedule 6 of the PJM Operating Agreement, of the PJM Operating Agreement, a Market Efficiency proposal will must substantially relieve congestion on one or more PJM identified congestion drivers. Substantial relief will be determined as either: at least 50% of the modeled congestion on the identified flowgate, or an annual average congestion reduction of \$1 million on the identified flowgate.economic constraint(s). If a proposal is submitted to mitigate one congestion driver, then in order to meet this criteria the proposal must relieve projected congestion on the driver by at least \$1. Similarly, if a proposal is submitted to address multiple congestion drivers, then in the order to meet this criteria the proposal shall relieve projected congestion on all the drivers by at least \$1. (Economic constraints PJM identified congestion drivers may be either energy or capacity market congestion. Energy market uplift charges typically born due to local reactive support issues are addressed in the Operational Performance category.)

8.2.1.32 Benefit/Cost (B/C)

Consistent with Schedule 6of the PJM Operating Agreement, a Market Efficiency proposal addressing one or more target identified congestion driver (s) must meet a B/C ratio threshold of at least 1.25:1, calculated over the first 15 years of the life of the proposal. The B/C ratio is calculated using the procedure described in Manual 14B, section 2.6.5. The Market Efficiency Discount Rate and Fixed Carrying Charge Rate are subject to change for any given 24-month Market Efficiency cycle. Therefore, during every cycle, these values are published along with other Market Efficiency input assumptions. Rates published during the 2016/17 cycle are documented in the Appendix.

A proposal that does not meet the minimum B/C ratio test will not proceed further in the analysis as a stand-alone proposal to address the specific congestion constraint(s) for which it was submitted. However, the proposal will not necessarily be rejected because, the proposal, or a portion of the proposal, could be combined with other proposal(s) or a portion of other proposal(s) to address specific congestion issue(s) or other congestion issues as part of an overall plan to address system-wide congestion issues. Any project that is composed of



previously submitted, but not accepted proposals will undergo the same consideration criteria listed above.

Similarly, a proposal that meets the minimum B/C ratio test will not proceed further in the analysis to address the specific congestion constraint(s) for which it was submitted if the proposal does not relieve the specific constraint(s) congestion. However, the proposal will not necessarily be rejected because the proposal could relieve system level congestion and as a result, it could relieve congestion on some other congestion constraint(s) in the system.

8.2.1.3 Cost Estimate Review

Consistent with Schedule 6of the PJM Operating Agreement, for a Market Efficiency proposal with costs in excess of \$50 million, an independent review of such costs will be performed. Additional constructability review may be performed, as deemed appropriate, to evaluate competing proposals.

8.2.2 'Other' Secondary Considerations

When primary considerations do not identify an obvious cost effective solution, differentiate between proposals, or if PJM decides that further analysis is required to address potential constructability and reliability consequences, then some or all of the following secondary factors will be considered in the Market Efficiency projects selection process. (For example, a project proposal with a high 10:1 B/C ratio is clearly cost effective, but a proposal with a lower or marginal B/C ratio closer to 1.25:1 may require other considerations to be addressed)

8.2.3 Zonal/Total Savings

Consistent with Schedule 6of the PJM Operating Agreement, a Market Efficiency proposal with zonal/total benefits such as production cost savings, load payments (net and gross) reductions, Auction Revenue Rights (ARR) credits, total system congestion savings, capacity market savings (capacity market cost savings and load capacity payments savings) shall be considered during the final selection process.

8.2.4 Risk Evaluation

Cost escalation risks, schedule delay risks, and project development risks, such as siting and permitting, shall be considered during the final selection process. PJM will assess the applicable risks, consider their impacts on the execution of each project, and consider the results of such analysis in the selection decision.

Cost escalation risks may be addressed by including a cost containment provision in the project proposal. When applicible applicable, PJM will evaluate the risk mitigation of the cost containment provisions by a subjective analysis of the potential for cost escalation and the ability of the cost containment proposal to address the risk for those aspects of the proposal for which the cost containment provisions apply. To the degree that the analysis confirms risk mitigation benefits, the proposal with cost containment may be given preference in the overall selection process.

8.2.5 Sensitivity Evaluation

Consistent with Schedule 6 of the PJM Operating Agreement, sensitivities of future conditions shall be considered within the Market Efficiency project selection process in order to mitigate the potential for inappropriately including or excluding Market Efficiency projects. Some of these future sensitivities may include but are not limited to load forecast uncertainty, transfer



level variations, fuel cost variations, generator retirements, and uncertainties as a result of constructability evaluation. The degree to which each sensitivity is applied in the selection decision varies with each proposal, but the magnitude of the potential economic impact of each sensitivity is the main driver. PJM typically will study future sensitivity impacts on load forecast variations and fuel cost variations for eligible proposals. While the sensitivities may vary based on expected volatility, a reasonable range for load and gas sensitivities is documented in the Appendix. Given the scenario where multiple projects are proposed to address the same congestion driver, all other factors being equal, PJM may select the proposal that exceeds 1.25:1 B/C for all the sensitivities considered in its selection process compared to other proposals that did not consistently meet the 1.25:1 B/C for all the sensitivities considered in the selection process.

8.2.6 Reliability Impact

Prior to recommending a Market Efficiency project for PJM Board approval, PJM will perform a reliability impact study to ensure the proposed project will not create any reliability violations requiring additional reliability upgrades or expansions in addition to the proposed solution. Any reliability violations and resulting upgrade and expansion costs to mitigate those violations will be considered added costs to the initially proposed solution and will trigger a holistic review including primary and other considerations, including recalculation of the B/C ratio. Such additional evaluation may impact the overall performance evaluation of the project.

8.2.7 Outage Impact

The duration of the outages and the transmission congestion associated with the outages required to install the project will be assessed. The outage congestion will not be included in the B/C ratio calculation for the project, but rather, as an ancillary cost sensitivity associated with the project.

8.2.8 Recommending RTEP Market Efficiency Proposals

Consistent with Schedule 6 of the PJM Operating Agreement, based on aforementioned primary and other considering factors, PJM ultimately will recommend proposals (for PJM Board approval) that relieve transmission constraints and which are economically justified. Cost containment language shall be included in the Designated Entity Agreement as a non-standard term and filed with FERC.

8.3 Public Policy Project Evaluation

PJM will consider all public policy driven proposals and evaluate them to ensure they do not trigger reliability criteria violations. PJM will evaluate a Public Policy proposal as described in Schedule 6 of the PJM Operating Agreement.



Section 9: Designation Process

This section describes the designation process for greenfield projects selected through the PJM proposal window process. The designation process is for projects selected under Schedule 6 of the PJM Operating Agreement as described in section 4.2.2 of the Consolidated Transmission Owners Agreement.

9.1 Proposal Window Agreements

9.1.1 Designated Entity Agreement (DEA)

Greenfield transmission projects that originate through an RTEP proposal window will utilize the Designated Entity Agreement (DEA) to assign construction responsibility to the Designated Entity for the RTEP project. The DEAis a two-party agreement between the Designated Entity and PJM. The terms and conditions of the DEA govern the construction period of the transmission project and define specific rights and obligations of the parties. The form DEA can be found in the PJM Tariff at Attachment KK.

9.1.1.1 Security

The Designated Entity is required to submit a security deposit for the project that is calculated as 3% of the PJM estimated costs for the portion of the transmission project being designated to the Designated Entity. A Letter of Credit, which meets PJM criteria, or cash are acceptable forms of security. Security is required to be maintained throughout the term of the DEA.

Information further detailing the DEA can be found in PJM Manual 14C.

9.1.2 Interconnection Coordination Agreement (ICA)

The Interconnection Coordination Agreement (ICA) provides for the coordination required between the Designated Entity and Interconnected Transmission Owner(s) for a greenfield transmission project selected through an RTEP proposal window. The ICA is required in those circumstances where the Designated Entity is not a signatory to the Consolidated Transmission Owners Agreement (CTOA). The ICA formalizes the coordination responsibilities between the Transmission Owner and Designated Entity during the construction phase of the project. An ICA is required for each Transmission Owner to whom the greenfield project is interconnecting who is required to coordinate work with the Designated Entity to facilitate the connection of the identified transmission project to the system. The form for the ICA can be found in the PJM Tariff, Attachment LL.

9.2 Designation Process and Timeline

When PJM staff completes the evaluation phase, a project may be recommended to the PJM Board of Managers for their consideration. If the Board elects to approve the project, the designation process, as detailed in the PJM Operating Agreement is initiated.

Within 10 business days of the PJM Board of Manager's approval of the project, PJM staff is required to notify the proposing entity of their designation. The notification is to include the required in-service date of the project and a date by which all necessary state approvals should be obtained.



Within 30 days of receiving notification of designation, the proposing entity shall notify PJM of their acceptance of designation. The acceptance is also required to contain a development schedule with a minimum breakdown aligning with the standard DEA milestones. PJM may request additional milestones as deemed appropriate. PJM may, for good cause, extend the date by which the development schedule is due.

PJM will review the development schedule and within 15 days or other reasonable time, will respond with any questions or issues that need to be addressed and tender an executable DEA to the Designated Entity. Within 60 days of receiving notification of designation, or other time mutually agreeable to both entities, the Designated Entity is required to submit the security as described in the DEA and an executed copy of the DEA.

Exhibit 2 provides an outline of the process.

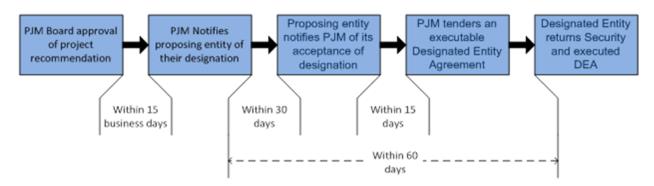


Exhibit 2: Designation Process Timeline

9.2.1 Designation of Interregional Projects

Interregional Transmission Projects must be proposed in PJM's proposal window process and be selected for cost allocation in PJM's RTEP. The cost of an Interregional Transmission Project applicable to PJM's RTEP evaluation is the cost allocated to PJM according to the applicable interregional process outlined in section 6 of this manual. Interregional Transmission Projects, or the portion thereof, located in the PJM region will selected and designated according rules applicable to the project type as outlined in this manual.

9.2.2 Project Assignment

A project may be assigned in full to another entity subject to the assignment provisions of the Designated Entity Agreement.



Attachment A: Critical Energy Infrastructure Information (CEII)

A.1 CEII Definition

PJM adopts the Federal Energy Regulatory Commission's ("FERC" or "Commission") definitions of Critical Energy Infrastructure Information ("CEII") and Critical Infrastructure at 18 CFR §388.113 (c) as follows:

- 1. Critical Energy Infrastructure Information means specific engineering, vulnerability, or detailed design information about proposed or existing critical infrastructure that:
 - a. Relates details about the production, generation, transportation, transmission, or distribution of energy;
 - b. Could be useful to a person in planning an attack on critical infrastructure;
 - c. Is exempt from mandatory disclosure under the Freedom of Information Act, 5 U.S.C. 552; and
 - d. Does not simply give the general location of the critical infrastructure.
- 2. Critical Infrastructure means existing and proposed systems and assets, whether physical or virtual, the incapacity or destruction of which would negatively affect security, economic security, public health or safety, or any combination of those matters.

A.2 Introduction

A.2.1 General Intent

PJM's intent is to provide a process for eligible recipients to access CEII consistent with the Commission's standards for handling CEII material. PJM information that contains CEII can only be obtained by complying with PJM's CEII authorization process.

A.2.2 Examples of CEII

The Commission considers certain information to be CEII including the information filed in transmission owners' respective FERC Order 715, Part 2, Part 3, and Part 6 (http://www.ferc.gov/legal/ceii-foia/ceii.asp) submittals. This information includes electrical models, detailed single-line diagrams and analysis of the filer's actual transmission system. PJM treats as CEII all power flow model, system analysis and contingency and monitored element files. Power flow models specifically configured for short circuit analysis that do not contain load and generation dispatch are not considered CEII. Other information may also qualify as CEII under FERC definitions.

A.2.3 Rules When CEII Includes Confidential Member Information

CEII information may include confidential data from PJM Transmission Owners, Generation Owners and other parties. PJM requires the entity seeking such confidential information to demonstrate that the affected members have given their consent to its release in compliance with the Tariff and Operating Agreement. Confidential information is governed by the PJM Operating Agreement.

While power flow cases are considered CEII, they may, but generally do not, contain confidential information. Some PJM power flows are special cases that contain both confidential information



and CEII. For example, cases originating from system operations and used for near term operational studies often contain confidential information in addition to CEII. To that extent, members' confidential information may be redacted prior to release if the party requesting the data is unable to demonstrate to PJM that the affected members have given their consent to its release.

A.2.4 Reservation of Rights to Amend CEII Rules

PJM reserves the right to revise its process from time-to-time, to limit access to CEII as may be appropriate in any specific instance in accordance with PJM's manual revision procedures posted on PJM's website at PJM.com.

A.3 PJM CEII Rules

A.3.1 Categories of PJM CEII Requestors Procedures

A.3.1.1 Authorized Entities Procedures

The process to request CEII from PJM is as follows for an employee or authorized agent/ consultant of: (i) a PJM member; (ii) a PJM Transmission Owner; (iii) a PJM Generation Owner or operator of generating units in the PJM Region; (iv) a NERC registered Transmission Owner/ Operator; (v) a PJM Interconnection Customer; (vi) another RTO or similar independent system operator recognized by the Federal Energy Regulatory Commission; (vii) a NERC Planning Coordinator or Transmission Planner; (viii) a nonincumbent transmission developer pre-qualified to eligible to be a Designated Entity pursuant to Schedule 6 of the PJM Operating Agreement; or (viii) a natural gas local distribution company and/or a natural gas pipeline operator serving customers within the PJM Region (individually "Authorized Entity" and together "Authorized Entities"). The process outlined below allows for individual employees or individual authorized consultants of Authorized Entities to obtain CEII. PJM's procedures set forth below allow an organization to submit requests on behalf of multiple individuals within Authorized Entities.

Except in the case of organizational CEII requests described below, each individual requester of CEII from employees or authorized agents/consultants of Authorized Entities must complete a PJM CEII Request Form and must execute the appropriate PJM CEII Nondisclosure Agreement ("NDA"). Employee or authorized agent/consultant or Authorized Entity must submit a PJM CEII Authorization Form (in addition to the requester's completed PJM CEII Request Form and appropriate PJM CEII NDA) that identifies each individual agent/consultant who may make individual requests for PJM CEII on behalf of such entity. The PJM CEII Authorization Form and CEII NDA are located on PJM's website at: http://www.pjm.com/library/request-access/form-ceii-request.aspx.

Once the CEII requester has been verified by PJM as a legitimate CEII requester such CEII requester may obtain the CEII consistent with its request.

Organizational CEII Requests: Authorized Entities may execute an organizational agreement with PJM which will allow the receiving organization to share CEII information under the terms of an applicable PJM CEII NDA an example of which is located on the PJM website at: http://www.pjm.com/library/request-access.aspx. However, PJM may use other forms of organizational CEII NDAs as appropriate. An organizational NDA will require individual recipients of CEII material to be listed and sign an attachment to the NDA which will require each individual to acknowledge his or her understanding of the restrictions on the use of CEII



or further disclosures except as allowed under the terms of the organizational NDA. Each organization is required to keep the list of authorized individual recipients up-to-date and notify in PJM in writing of any changes to the status of the authorized individual recipients in accordance with the applicable NDA.

A.3.1.2 Procedures for Federal Agencies and NERC

If the requester of CEII material is a representative of FERC, the Department of Energy, the Department of Homeland Security, NERC or a NERC Regional Entity (e.g. RF, SERC, etc.), PJM will release the information if PJM confirms that the requestor (requestors) is an employee of these agencies. Upon release, the CEII material becomes subject to the agencies rules of procedures applicable to CEII.

A.3.1.3 PJM Authorized State Commission

The process for an employee of a PJM Authorized State Commission to request CEII from PJM is as follows: Each individual requester of CEII must complete a PJM CEII Request Form and must execute a PJM CEII Government NDA located on the PJM website at: http://www.pjm.com/ library/request-access.aspx.

 After such CEII requester has been verified by PJM as a legitimate CEII requester (i.e., a legitimate employee of one of the governmental organizations listed above), such CEII requester may obtain the requested CEII.

A.3.1.4 Procedures Applicable to Other CEII Requests

The process for all other requestors to request CEII from PJM is as follows:

- Each individual requester of CEII must complete a PJM CEII Request Form and must execute an appropriate PJM CEII NDA. Where the individual requester of CEII is an authorized agent/consultant for another entity, then an authorized employee of such entity must submit a PJM CEII Authorization Form (in addition to the requester's completed PJM CEII Request Form and the appropriate PJM CEII NDA) that identifies each individual agent(s)/consultant(s) who may make individual requests for PJM CEII on behalf of such entity. The PJM CEII Authorization Form is located on the PJM website at: http://www.pjm.com/library/request-access.aspx.
- Upon receiving all completed required CEII forms, PJM will determine if the requested information is CEII, and, if it is, whether to release the CEII to the requester. PJM will use the information provided by the requester in the PJM CEII Request Form to (1) establish whether a requester has presented a legitimate need for the CEII; and (2) weigh the need for the CEII against the potential harmful effects of its release. In reviewing the request from such individual, PJM will confirm the authenticity of the CEII requester and whether the request is consistent with the requestor's business or educational interest as determined from a review of publicly available data such as the requestor's website. If PJM is unable to determine from publicly available information that the request is consistent with the requestor's business or educational interest in such data, the request will be denied. A requester shall provide additional information (beyond the PJM CEII Request Form) to PJM upon PJM's request.



Attachment B: Using Secure File Transfer Tool to Submit Proposals

PJM's Secure File Transfer Tool is the preferred method for submitting proposals and all associated files to PJM. PJM requires a one-time registration for this tool. PJM limits these accounts to one primary and one alternate user per submitting entity. To setup a new account, please email PJM at ProposalWindow-Admin@pjm.com with the subject "Secure File Transfer Tool Registration". If an entity has an account, but cannot login, please email PJM at axwayadmin@pjm.com

Detailed instructions on using PJM's Secure File Transfer Tool can be found at:

http://pjm.com/planning/rtep-development/expansion-plan-process/ferc-order-1000/~/media/planning/rtep-dev/expan-plan-process/ferc-order-1000/rtep-proposal-windows/axway-user-instructions.ashx

A demonstration video walking through the steps of the Secure File Transfer Tool can be found at:

http://pjm.com/planning/rtep-development/expansion-plan-process/ferc-order-1000/~/media/planning/rtep-dev/expan-plan-process/ferc-order-1000/rtep-proposal-windows/20150217-webex-recording.ashx

Entities must submit a single compressed (i.e. ".zip") file per proposal per window/due date..

All files must be received no later than 11:59:59 PM EST on the day of the close of the window.



Attachment C: Proposal Fee Structure

All proposals, upgrade and greenfield solutions, submitted for consideration in any RTEP Proposal Window are subject to a Proposal Fee based on the following fee structure:

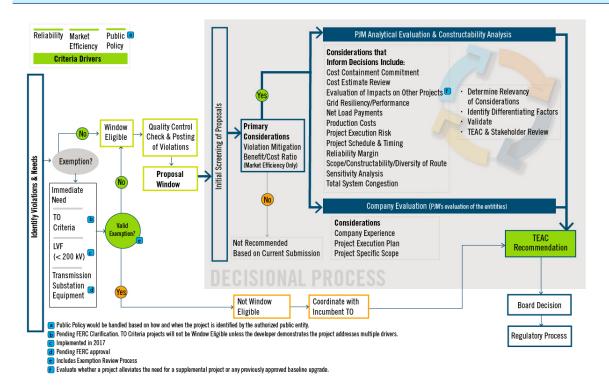
- No fee (\$0) for any proposed projects (upgrade and greenfield) below \$20M;
- \$5,000 fee for any proposed projects (upgrade and greenfield) greater than \$20M and less than \$100M; or
- \$30,000 fee for any proposed projects (upgrade and greenfield) greater than \$100M.

The fee is based on the total cost estimate (in-service year dollars) provided by the proposing entity in the detailed proposal (must be submitted along with final proposal submissions), by the close of the proposal window. The total cost estimate must include all scope elements required in the 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.

Wire transfer details will be provided along with the "Problem Statement and Requirements Document" for each proposal window. Proposing entity must ensure that all payments to PJM for Order No. 1000 proposals include "Order 1000" in the subject/notes/addenda field.



Attachment D: Decisional Process





Revision History

Revision 0 (06/23/2017)

 This document is the initial release of the PJM Manual for Competitive Planning Process (M-14F).

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