--- RPPTF White Paper ---

"Enhancing PJM's RTEP Protocol"

Introduction – The Need to Expand PJM's RTEP Protocol

Today, as part of its ongoing RTO responsibilities, PJM's Regional Transmission Expansion Plan (RTEP) protocol comprises a process that considers the aggregate effects of many system trends: long-term growth in electricity use, generating plant retirements, broader generation development patterns - including the evolution of renewable resources – as well as demand response (DR) and energy efficiency (EE) programs.

This process culminates in one recommended plan – one RTEP – for the entire PJM footprint that is submitted to PJM's independent Board of Managers (PJM Board) for consideration and approval. Under contractual agreement, the PJM Board's approval then obligates transmission-owning utilities in PJM to build the facilities specified in the RTEP. This includes construction of new transmission lines and other facilities as well as upgrades to existing transmission assets.

PJM operates and plans the transmission system region-wide, as a whole, ignoring corporate and state boundaries when taking operational action or making planning decisions. By planning for future reliability needs on a region-wide rather than a utility-by-utility or state-by-state basis, PJM's RTEP process helps focus on transmission upgrades that meet reliability criteria and increase economic efficiency more effectively.

PJM's existing RTEP Protocol – codified in Schedule 6 of PJM's Operating Agreement and described in detail in the PJM Manuals – has been applied by PJM so as to evaluate reliability and market efficiency driving transmission expansion plans today using bright-line triggers.

Since its inception in 1997 and until recently, PJM generally found that the magnitude of uncertainty regarding future system conditions was limited and that bright line tests used in the RTEP process could reasonably define the expected date of future reliability violations allowing PJM to plan new transmission facilities with minimal risk of fluctuating dates marking the expected onset of those violations.

That has changed in many respects.

PJM Board Direction to Consider New Decision-making Approaches

As PJM's Board action placing the PATH and MAPP projects in abeyance strongly suggests, dramatic swings in economic forecasts, demand response, generation retirements and evolving public policies are adding greater uncertainty to PJM planning studies. PATH and MAPP abeyance action are but two more prominent, public examples. Others exist as well: removal of the Indian River – Salem segment from the MAPP project (earlier in its respective proceeding), removal of the Branchburg – Roseland – Hudson 500 kV line from RTEP and various reactive upgrade deferrals also provide witness to greater fluctuation in the onset and severity of identified reliability criteria violations.

Uncertainty about "at-risk" generation particularly in response to potential changes in environmental regulations, and growth in demand side resources are a source of new and greater uncertainty, complicating the analysis of future transmission needs.

The PJM Board has identified the Regional Planning Process Task Force's ("RPPTF") planning protocol review and enhancement efforts to be one of PJM's most important stakeholder initiatives. The Board has asked PJM members to bring forth recommendations by Fall 2011 so that PJM might make appropriate filings and enact improvements in the planning process beginning in early 2012.

Order No. 1000 Compliance

Fundamentally, FERC's July 21, 2011 Order No. 1000 addresses the need to establish a regional transmission planning process that incorporates a number of elements. In particular – and germane to the subject of this white paper – is a mandate (Order No. 1000 at ¶2) to include "*procedures that provide for the consideration of transmission needs driven by public policy requirements established by state or federal laws or regulations*" that include "*enacted statutes (i.e., passed by the legislature and signed by the executive) and regulations promulgated by a relevant jurisdiction, whether within a state or at the federal level."*

Order 1000 goes on to state the following as well:

- "*...we clarify that by considering transmission needs driven by Public Policy Requirements, we mean: (1) the identification of transmission needs driven by Public Policy Requirements; and (2) the evaluation of potential solutions to meet those needs." And,*
- "*...procedures must allow stakeholders an opportunity to provide input, and offer proposals regarding the transmission needs they believe are driven by Public Policy Requirements.* "

In Order No. 1000 (at ¶223), the Commission stated that based on comments, the Commission acknowledges that "there is merit in allowing for flexible planning criteria to mitigate the possibility that bright line metrics may exclude certain transmission projects from long-term transmission planning. Therefore, Order No. 1000 (at ¶224) permits transmission providers to include in their compliance filing "revisions that they believe are necessary to implement flexible transmission planning criteria, including changes to existing bright line criteria."

RPPTF efforts regarding RTEP protocol changes have paralleled the expected need to address such *Order* 1000 mandates by enhancing PJM's existing RTEP Protocol. In fact, PJM anticipates making the bulk of the necessary FERC filings and manual changes to implement the RTEP Protocol changes proposed in this white paper well before an Order No. 1000 compliance filing in October 2012.

Brattle RPM Report

Likewise, the August 26, 2011 Brattle Group Report includes recommendations regarding additional transparency and sensitivity study information for the market, particularly regarding CETO and CETL values[1],

[1] As part of load deliverability analysis, PJM first establishes a Capacity Emergency Transfer Objective ("CETO") for each load deliverability area ("LDA"). CETO is the amount of energy that the transmission system must be capable of delivering to the LDA being tested in order to avoid shedding load due solely to the risk of its inability to import needed

load forecasting and other input parameters. Transparency comprises the exchange of information and mutual dialog and continues to be the foundation for PJM's RTEP Protocol. And, as this white paper discusses, transparency will be given even greater emphasis as the range of sensitivity and scenario analysis expands, regardless of any decision-making framework that may or may not culminate in triggering transmission expansion.

Taking the next step…

Clearly, the landscape in which PJM conducts planning has changed. This white paper sets forth two proposed expansions to PJM's existing RTEP protocol:

1. Expanded scenario planning and communications elements of the existing RTEP protocol, comprising what will be known here forward as the "FYI Process" and,

2. Expanded RTEP decision-making framework elements that rely on the foundation of analysis and stakeholder interaction that flow from the FYI Process.

This expanded decision-making framework provides three new approaches or avenues through which new transmission can be incorporated into PJM's RTEP. These new approaches offer opportunities to justify transmission expansion need beyond that which already exists today in terms of reliability and market efficiency.

PJM is enhancing its RTEP decision-making framework, driven by a confluence of growing trends. While reliability and market efficiency requirements will continue to be a fundamental part of the RTEP protocol, decision-making must be expanded to address these trends: both new and emerging factors as well as additional variability in factors that have 'traditionally' driven need for system expansion, to date.

PJM must move to a more organic approach in the decision-making process that allows triggering RTEP upgrades in light of public policy drivers, such as RPS requirements, EPA regulations, load impacts of DR and EE, at-risk generation, and others. Importantly, reliability may remain at the core of most projects, but changing assumptions will cause other benefits to be lost if planning process tests look only at reliability triggers. Also, by the time assumptions potentially swing back, sufficient lead-time may not exist to implement a robust transmission solution in a timely fashion.

This White Paper describes challenges the RTEP protocol faces today and proposes decision-making framework solutions:

- **Section I**, "*Existing RTEP Protocol Decision Making Framework*" describes today's bright line reliability and market efficiency driven decision-making process, providing the backdrop against which proposed RTEP protocol changes are to be made.

- **Section II**, "*Providing Information to Constituencies and Stakeholders*" discusses the "FYI" process as an expansion of today's study, communications and stakeholder elements of the existing PJM RTEP protocol, per Schedule 6 of the PJM Operating Agreement.

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capacity assistance during a capacity emergency. The Capacity Emergency Transfer Limit ("CETL) is determined from the actual Load Deliverability power flow analysis and expresses the maximum MW that an LDA can import under specified peak load test conditions.

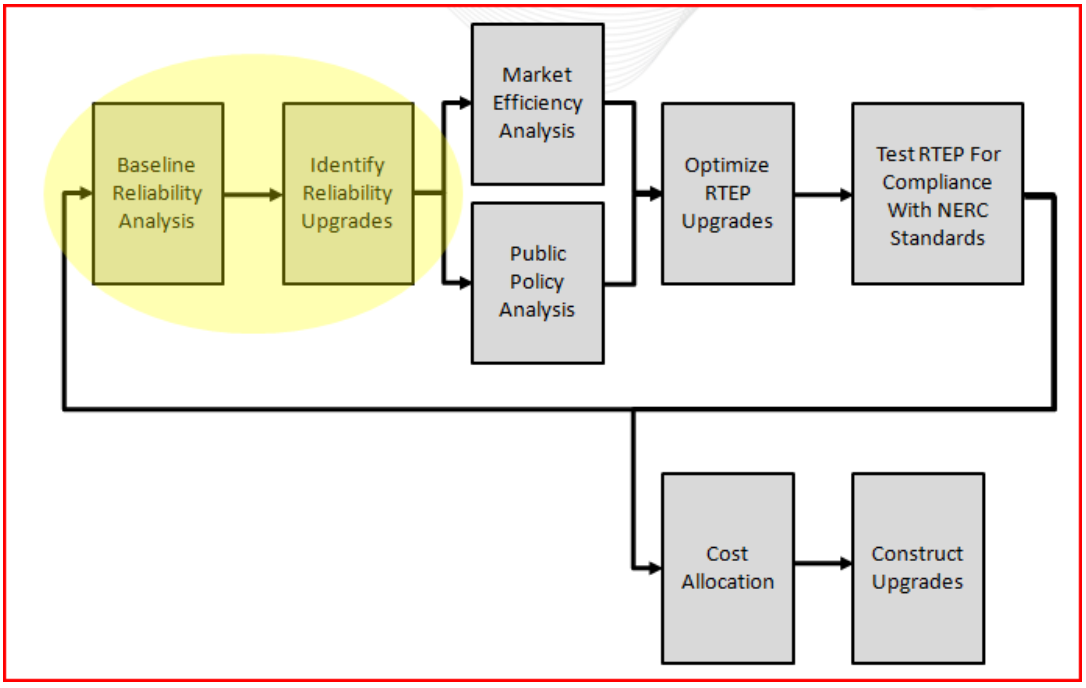
- **Section III**, "*Implementing New Decision-making Approaches*" describes how three new decision making frameworks would work:
    - State Agreement Approach
    - Critical Mass Approach
    - Proactive Approach
- **Section IV**, "*Next Steps*" addresses PJM Operating Agreement and Manual changes needed to implement the expanded RTEP protocol concepts proposals herein.

Firstly, this white paper provides a discussion of where PJM is today: the *Existing RTEP Protocol Decision Making Framework*.

I. Existing RTEP Protocol Decision Making Framework

PJM is required to apply NERC Reliability Standards in its planning process. The NERC Reliability Standards specify a wide range of reliability tests that must be applied over both near-term (years one to five) and long-term (years six to ten) planning horizons. Violations of these standards in either the near-term or long-term planning horizons can form the basis for PJM-directed baseline transmission solutions. All reliability criteria testing procedures employed in the development of the RTEP include detailed assumptions regarding load levels, transfer levels and generation patterns. The tests are referred to as "bright line" because, based on these documented procedures and assumptions, violations are identified when limits are exceeded even by one MW.

Exhibit 1: RTEP Protocol Process Flow Diagram



Baseline Reliability Upgrades

PJM's baseline reliability assessments identify areas where the electric power system, as forecasted over a specific time, would not be in compliance with NERC Reliability Standards[2]. These baseline assessments lead

[2] NERC reliability standards in the context of PJM' s planning process are discussed in PJM Manual 14B, accessible from PJM's web site via the following URL link: http://pjm.com/~/media/documents/manuals/m14b.ashx

to recommendations for enhancement plans, referred to as baseline transmission network upgrades, to ensure compliance with those standards, as highlighted in the Exhibit 1 process flow diagram, above. In essence, the construction of baseline transmission network upgrades is required to ensure that the PJM system remains in compliance with NERC Reliability Standards. The baseline transmission network, including these upgrades, then serves as the basis for the analysis of subsequent requests for transmission service and interconnection.

In order to complete these studies, PJM models expected future system conditions. Power flow case development requires PJM to employ a number of forecasts and assumptions about the future state of the system. For example, PJM must apply initial assumptions regarding load forecasts, development or deactivation of generation, transmission topology, demand response resources and power transfer levels between areas of the grid. Pursuant to the PJM Operating Agreement, PJM documents all assumptions, which are thoroughly vetted through the PJM stakeholder process.

PJM applies a number of tests including those for load deliverability and generator deliverability to determine compliance with NERC Reliability Standards. If PJM identifies violations of NERC Reliability Standards, then it is required to develop and implement solutions to mitigate those violations. These solutions must include a schedule for implementation, including expected in-service dates, considering the lead times involved for the identified solutions. Subsequent annual assessments review the continuing need for the identified system facilities.

This will not change under the proposals put forth in this white paper, remaining a key part of the foundational "FYI Process" described in Section II, below.

PJM's FERC-Defined Transmission Expansion Planning Role

As an RTO, PJM has a defined role in the electric industry, with specific obligations relating to the transmission system, wholesale electric markets, and the end-use of electricity. PJM's primary transmission-related responsibility is to ensure the reliability of the bulk power transmission system. Although PJM has a number of important tools at its disposal – including the ability to direct transmission owners to construct transmission projects – its powers are not plenary. Because FERC has determined that the wholesale energy markets should be competitive and based on economic conditions, rather than regulatory mandates, PJM is not able to direct or otherwise control the siting, capacity, or timing of new generation on the grid. Similarly, because energy end-use is a matter of state regulation, PJM is not able to compel or otherwise control the design and implementation of DSM/EE efforts that might, if properly placed and of sufficient dimension, delay or defer the need for transmission reinforcements. In short, based on the authorization it has received from FERC, PJM can only direct the reinforcement of transmission facilities to address reliability violations, either through the modification of existing transmission facilities (which PJM quite frequently directs) or the construction of new transmission facilities.

Because the consequences of reliability criteria violations can be severe in terms of their impacts on customers and the economy, PJM's first and foremost mandate is to maintain system reliability. That being said, however, PJM's planning process is expressly designed to be responsive to solutions developed through the generation and end-use marketplaces, in large part through RPM auction activity. This will not change either and, in fact, a number of the changes discussed in Section II, below, are designed to enhance the information flow underlying the RTEP and improve opportunities for market-driven solutions to grid issues.

Market Efficiency Driven Upgrades

PJM's Regional Transmission Expansion Plan (RTEP) Process includes market efficiency analysis, the goal of which is to accomplish the following objectives:

1. Determine which reliability upgrades, if any, have an economic benefit if accelerated.
2. Identify new transmission upgrades that may result in economic benefits.
3. Identify economic benefits associated with modification to reliability-based enhancements already included in RTEP that when modified would relieve one or more economic constraints.

Such upgrades resolve reliability issues but are intentionally designed in a more robust manner to provide economic benefits in addition to resolving those reliability issues. For example, PJM's 2010 market efficiency analysis evaluated several upgrades for inclusion in the PJM RTEP based on the economic benefits they are projected to provide. These economic upgrades have the potential to relieve congestion at a number of locations throughout the PJM footprint.

Essentially, economic benefits of transmission upgrades – from the perspective of mitigating congestion - are determined by comparing results of production cost simulations with and without defined transmission upgrades. These simulations considers a number of key economic parameters including fuel costs, emissions costs, future generation scenarios, load forecasts and Demand Resource projections.

These studies, and the decision process which drives their specific inclusion in the RTEP, are not currently projected to change.

Stakeholder Proposed Upgrades

As an extension of the market efficiency component of the RTEP protocol, any Transmission Expansion Advisory Committee (TEAC) member or other entity (consistent with PJM Operating Agreement Schedule 6 provisions), may formally submit alternative proposals for evaluation under the market efficiency analysis at any time.

Indeed, this very concept – the ability for a market participant to propose projects - plays a key role in the FYI Process going forward, and in fact would be the means by which state-backed transmission proposals would be considered.

<u>Today's Decision Process Limitations</u>

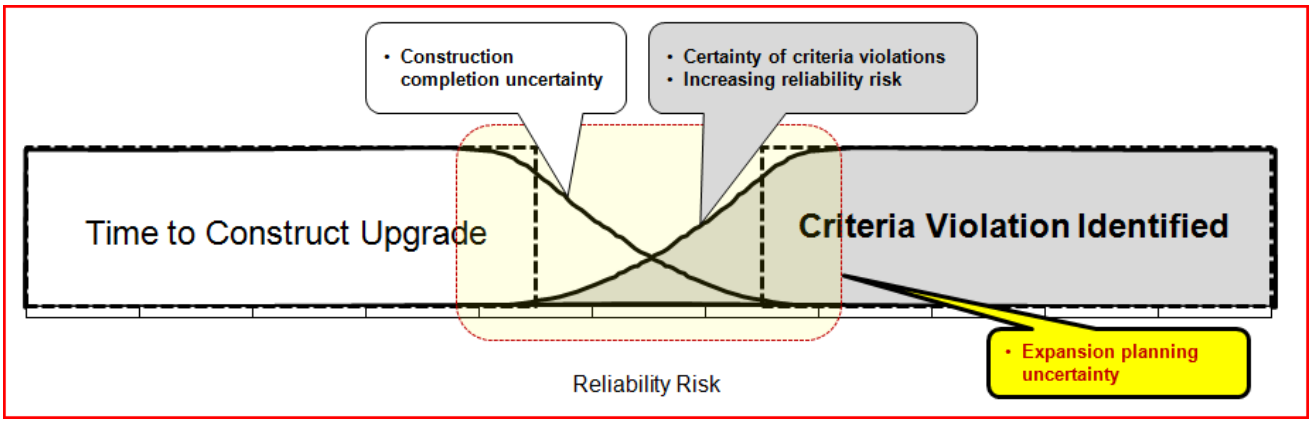
PJM's existing RTEP protocol – codified in Schedule 6 of the PJM Operating Agreement and described in detail in the PJM Manuals – defines the specific baseline reliability and market efficiency bright line tests governing transmission expansion. Over the past several years, however, those highly prescriptive provisions have encountered a reality far different from the one in which they were developed. Today, uncertainty around time-to-construct and the onset of criteria violations are not characterized by definitive 'step functions' in the context of the reliability risk they may introduce. Rather, as **Exhibit 2** depicts, this uncertainty is more aptly represented by curves, the area under the overlapping area of which represents risk to customers.

Time to Construct

As **Exhibit 2** depicts, time-to-construct and criteria violation onset are more aptly represented by curves the extent of which, represented by the highlighted area, comprises a reliability risk to PJM and the customers PJM serves.

From a timeline perspective, if construction of an upgrade cannot be completed by the time RTEP-identified criteria violations are expected to occur, then a situation may arise in which Reliability Must Run ("RMR) generation and operational solutions such as out-of-merit generation dispatch may be required to control growing congestion costs and reliability risk. And, while project management options may exist to reduce construction times – additional crews, overtime, etc. – RMR and operational steps may yet still be required if a transmission facility is not completed in time. Those actions, however, impose costs associated with out-of-merit generation redispatch and include the potential threat of operator action up to and including customer service disruption.

Exhibit 2: Transmission Expansion Uncertainty and Risk



Recent experience with the Susquehanna – Roseland 500 kV project provides a case-in-point in which construction activities cannot begin until all necessary federal and state regulatory approvals are in place. Such regulatory delays themselves are pushing construction completion beyond the required in-service date for the facility to avoid identified reliability criteria violations.

On the other hand, transmission owners may be unable to secure regulatory approvals if need for a project is to too far into the future compared to expected construction completion.

Onset of Criteria Violations

Again, uncertainty around the onset of reliability criteria violations is not characterized by a definitive 'step function.' As **Exhibit 2** shows, violations may occur earlier or later than expected. This arises from the

volatility of input parameters that shift violations in time. And, now, myriad other factors - including at-risk generation, RPS generation, increasing reliance on DR and EE and other state public policy initiatives have begun to introduce additional reliability risk "under the uncertainty curve." Existing baseline reliability and market efficiency triggers simply are not sufficiently flexible to consider all these emerging factors.

Emergence of "Whip-saw" Effect on RTEP Decision-making

Planning is a dynamic process and system conditions change over time. Changing circumstances may result in the need to adjust the assumptions used in planning studies and to re-evaluate decisions made as a result of previous planning analyses.

Most recently, in the case of the PATH project, the 2011 Load Forecast projected slower rates of load growth for the near term than had been seen in earlier forecasts. Changing load forecasts are not the only levers that affect when violations of NERC Reliability Standards appear. Changes in generation additions and retirements, particularly if the plants are electrically proximate to constrained facilities, have the potential to affect the appearance of reliability violations in dramatic ways, as does increasing reliance on demand response and energy efficiency programs. These changes also can be very unpredictable and arise very quickly.

Backbone transmission projects, especially those as complex as the PATH and MAPP projects cannot be effectively planned, funded, approved, and constructed if they are continually taken on and off the table – the "whip-saw" effect - based on updated data. Once a project is shelved, it cannot simply be put back on track when changing system conditions, revised load forecasts (for example) and other factors, which may have supported project delays a few months earlier, suddenly turn in the other direction.

The complexity does not end there. Regional expansion planning drivers can cut both ways. Any one individual factor may contribute to the need for one transmission expansion upgrade and simultaneously mitigate the need for another. This is particularly true with the impacts of clustered generation additions. Location is everything. New generation at one interconnection point may increase cross-system power transfers while another may back them off thereby helping to mitigate congestion.

Taking the next step

So, how do we put in place a planning process decision-making structure that considers all this, and more?

Over the past year PJM staff and stakeholders have undertaken a comprehensive review of various ways to improve the Regional Transmission Expansion Planning (RTEP) process and related generator interconnection process. This effort is driven by many factors, but perhaps the most important driver is the changing planning landscape given impacts of the economy, new environmental regulations and the need to address events that could affect the timing of reliability projects. By expanding the criteria for projects and allowing for a broader range of assumptions within scenario planning, the PJM system will be better prepared to manage a range of uncertainties.

Through the Regional Planning Process Task Force (RPPTF), PJM and stakeholders have discussed how the planning process can consider at-risk generation, incorporate public policies enacted by state and federal entities, enhance the integration of renewable resources and account better for the growth of demand response and energy efficiency programs. The RPPTF also has reviewed how PJM can consider and designate

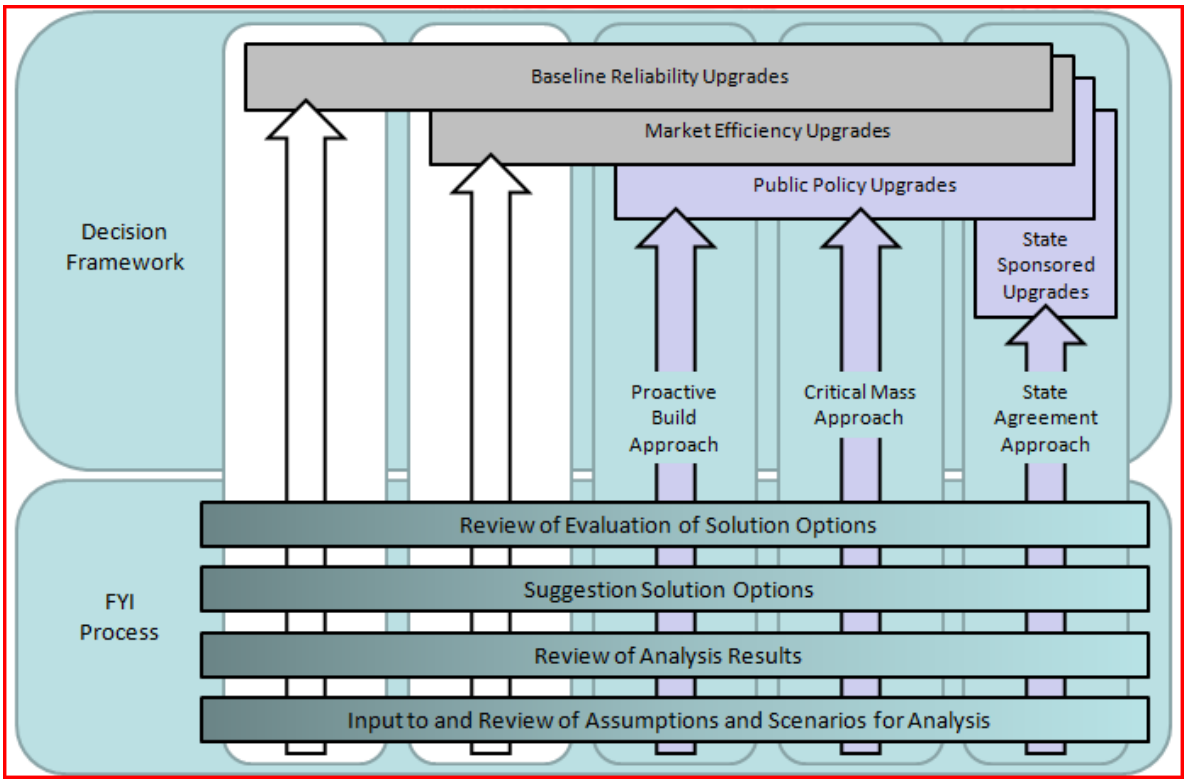
alternative transmission proposals to an entity other than a local incumbent transmission owner. All of these goals point toward a more robust planning process.

The first step, discussed below, is to expand the communications and stakeholder interaction elements of the existing PJM RTEP protocol, per Schedule 6 of the PJM Operating Agreement, to provide information to stakeholders – both market participants and states alike - within the PJM footprint.

II. Providing Information to Constituencies and Stakeholders

The concept of Providing Information to Constituencies and Stakeholders continues to evolve as the "For-Your-Information Process" or "FYI Process" - shown in **Exhibit 3**, below. The FYI Process is not a new decision making approach. Rather, "FYI" puts a name to the analytical and communications pieces of the RTEP protocol in place today, per Operating Agreement Schedule 6, and expands them.

Exhibit 3 – FYI Process and Expansion Plan Decision-Making Framework



The FYI process provides the foundation for the expanded decision-making framework, expanding the RTEP protocol analyses beyond the existing reliability and market efficiency triggers driving transmission expansion upgrades. Each would remain, though, as a test which could drive new transmission expansion, and/or provide a piece of the support for new transmission, as **Exhibit 3** shows.

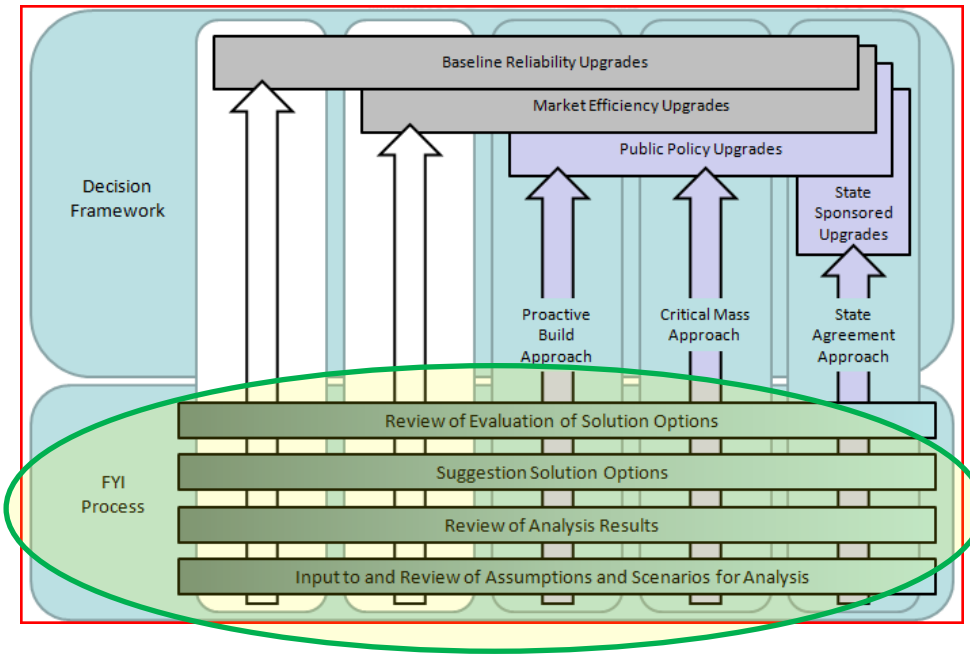
FYI Process Philosophy

In many respects, PJM has already begun the transition to the FYI Process. In 2010, PJM complemented its traditional bright-line tests with sensitivity analyses that incorporate a number of factors not typically taken into account under those tests, including the potential impact of state renewable portfolio standards, demand response and energy efficiency efforts, and "at-risk" generation.

The FYI process would provide stakeholders – market participants and states, alike – even greater up-front opportunity to provide input on modeling assumptions and analytical scenarios, and post-analysis opportunity to review and discuss study results. The analysis component of the RTEP protocol will thus also comprise additional extensive scenario studies, per stakeholder input.

Overall, the FYI process will afford PJM the opportunity to publish and communicate a wide range of results, the goal of which is to send signals to stakeholders. Doing so will allow market participants and states to make their own respective informed decisions on what solution opportunities to pursue. However, while the results PJM produces could include performance of various solution options, no RTEP action would be taken by PJM with respect to such solutions within the context of the FYI process. The goal of the FYI process is to provide information that informs both stakeholders and the RTEP decision-making elements that comprise the "Decision Framework" aspect of **Exhibit 3.** **Exhibit 3-B**, below, highlights the four main components of the "FYI Process"

Exhibit 3-B – FYI Process



How the FYI Process would work…

Here again, "FYI" puts a name to the analytical and communications dimensions of the RTEP protocol in place today, per Operating Agreement Schedule 6, and expands on them within the context of a 24-month timeline for backbone transmission (primarily 345 kV and above) and two consecutive 12 month timelines for transmission analysis below 345 kV:

- A 24-month time line would focus on backbone transmission analysis at 345 kV and above, as well as some 230 kV facilities serving a more regional function. Analysis would examine all needs and drivers related to the backbone transmission system and serve as an input to the decision framework elements described later in this document. Two consecutive 12 month time lines which would would focus on transmission analysis of facilities below 345 kV, as well as some 345 KV facilities serving

more localized needs. As with the backbone system, analysis would examine all needs and drivers and serve as an input to the decision framework elements described later in this document, but with an expectation that solutions would likely be able to be implemented with shorter lead times than required for the backbone system.

Exhibit 4-A and **Exhibit 4-B** both show the same proposed 24-month planning process cycle, integrating reliability and market efficiency analysis with information transparency, stakeholder input and review and PJM Board of Manager approvals. Note that activities shown on these diagrams and their timing are for illustrative purposes. The actual timeline may vary to some degree to be responsive to the RTEP and stakeholder needs.

Exhibit 4-A and **Exhibit 4-B** are differentiated in that each shows how the two consecutive 12-month under-345 kV planning cycles would each overlay with the 24 month backbone cycle. Note that while the 24-month cycle refers to 345 kV facilities and above, the focus is on facilities that serve a primarily regional function, including some 230 kV and 345 kV facilities. Similarly, the 12-month cycle focuses on facilities that serve a primarily local function, including some 230 kV and 345 kV facilities. **Exhibit 4-A** shows the integration of the "Year 0" 12-month cycle within the 24 month backbone cycle. **Exhibit 4-B** shows the integration of the "Year 1" 12-month cycle within the same 24-month backbone cycle

Exhibit 4-1: FYI Process 24-month Planning Cycle overlay with "Year 0" 12-month cycle

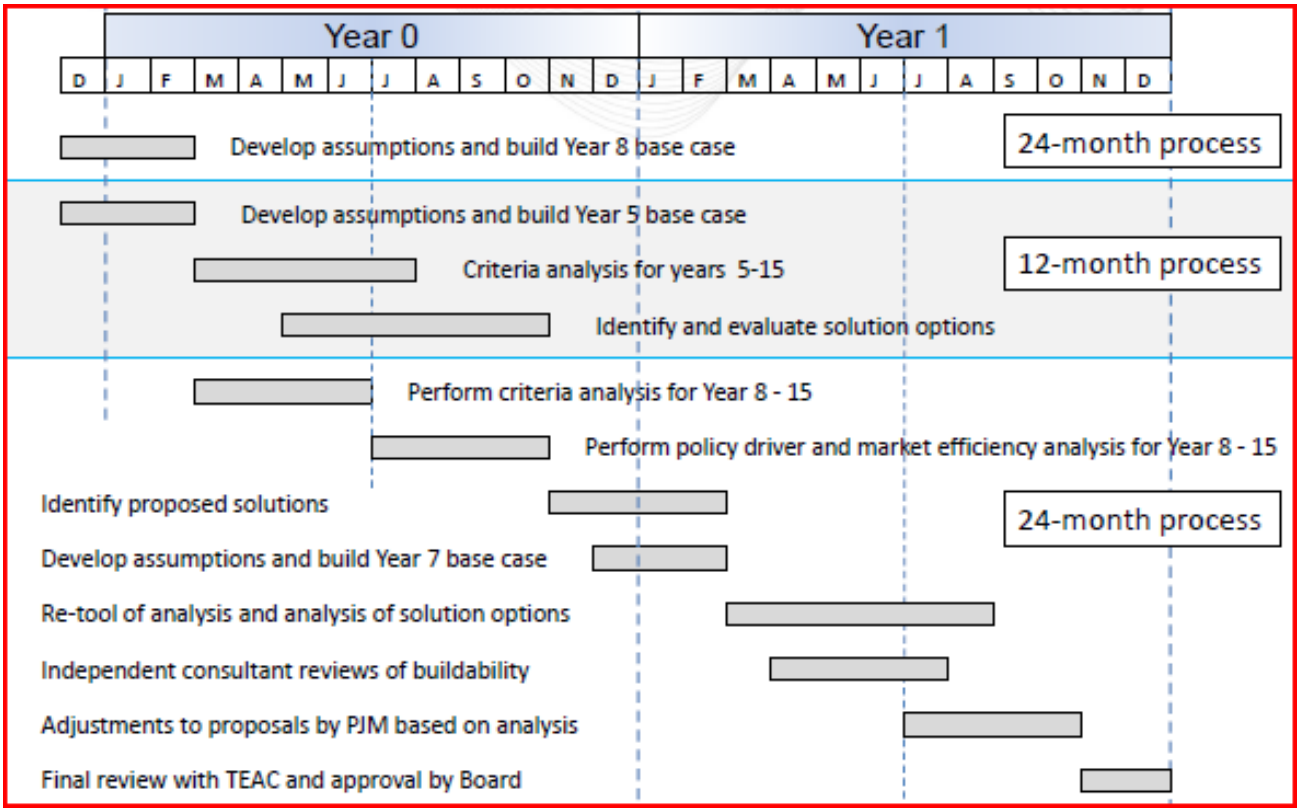
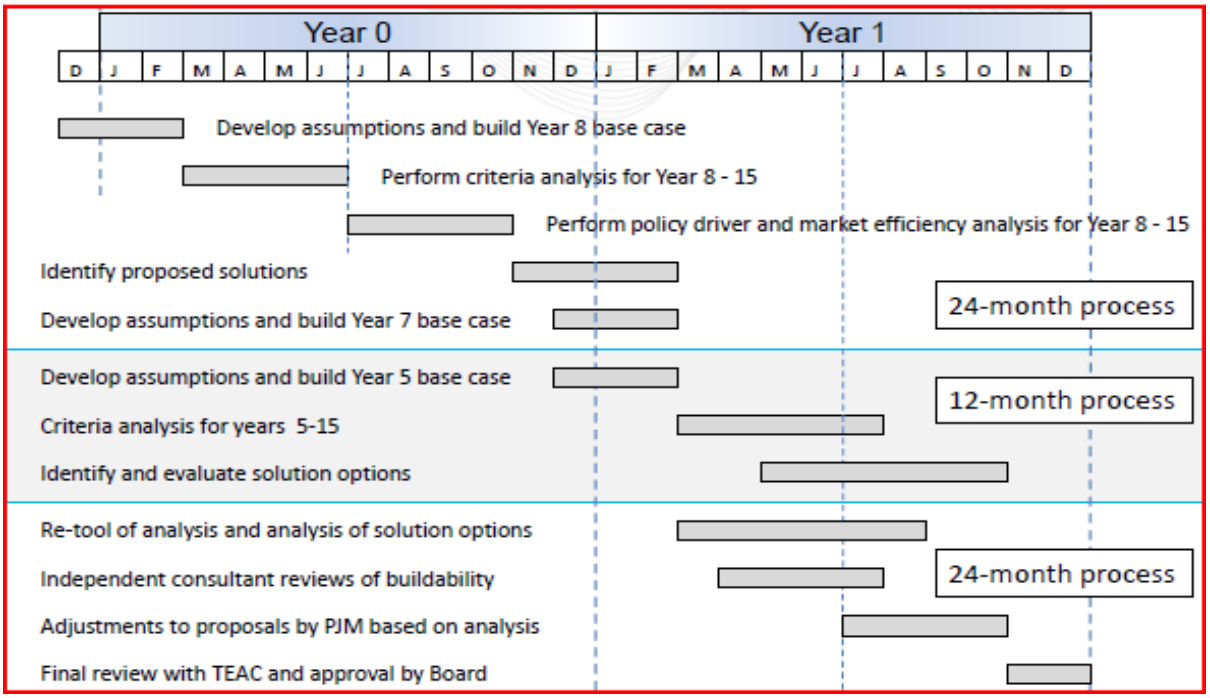


Exhibit 4-B: FYI Process 24-month Planning Cycle overlay with "Year 1" 12-month cycle



Basic Conceptual Process Description

1. The first step in the FYI process is to develop the set of assumptions that will be used for the subsequent analyses. These assumptions are vetted with stakeholders at TEAC, Subregional RTEP and State RTEP Committee meetings. These meetings also provide stakeholders the opportunity to propose scenario analyses for the coming 24-month study cycle, for example:

    a. Resource Scenarios -- e.g., At-Risk, New Generation, RPS, Marcellus Shale

    b. Load Scenarios -- e.g. High or low economic growth, scope of possible DR and EE solutions

    c. Other scenarios proposed by stakeholders

2. A series of power-flow base cases are then developed based on the assumptions. The yearly series of cases will include the latest information and assumptions available regarding load, resources and transmission topology. A new 5-year base case is developed for near-term analysis. Base cases for retool analyses of years closer than 5-years will be developed as necessary.

3. In addition to near-term base cases additional power-flow base cases will be developed for long- term planning. These long-term cases are used to evaluate the need for more significant projects requiring longer development lead-times. The long-term base case developed at the start of each 24-month planning cycle is based on the system conditions that are expected to exist in Year 8, as shown in Exhibits 4-A and 4-B. This 8-year-out base case will also be updated and retooled at the start of the second year

("Year 1") of the 24-month planning cycle (in other words, at that point, a 7-year-out base case). The analysis associated with that case will include additional analysis to validate findings from "Year 0."

4. The scope of the near-term analysis completed as part of each 12-month planning cycle will include an exhaustive review of applicable reliability planning criteria on all Bulk Electric System (BES) facilities (i.e., at 100 kV or higher). PJM performs this near-term analysis on a 5-year-out base case. Retool analyses of previous near-term assessments are also completed, as required. Any identified criteria violations are reviewed with stakeholders throughout the FYI process.

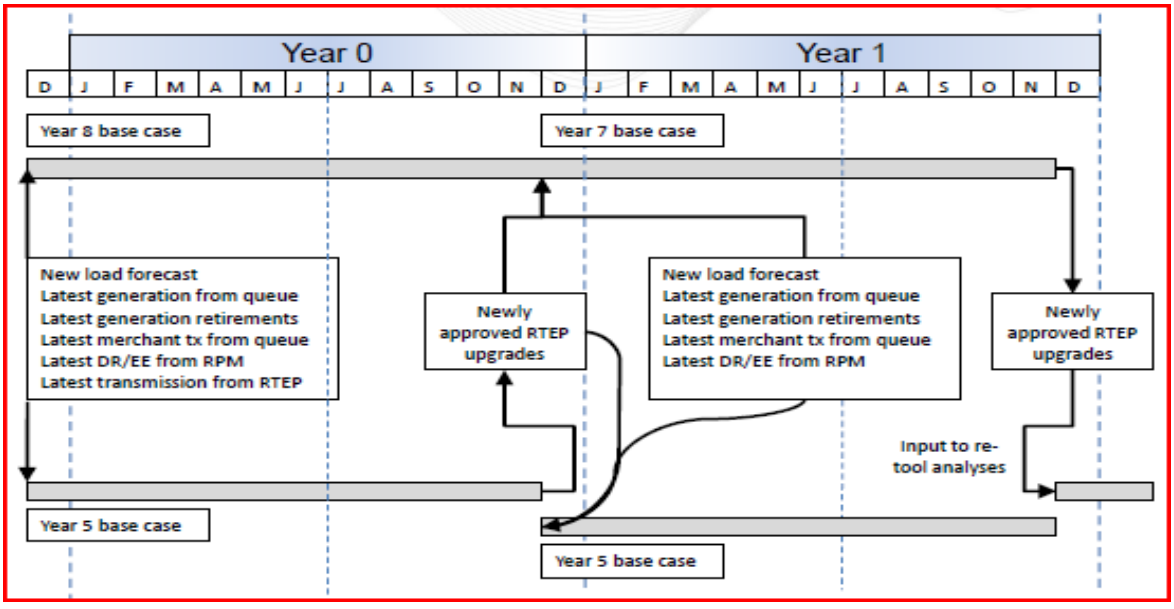
5. Ultimately, solutions to address the criteria violations are developed, reviewed with the TEAC, Sub-regional RTEP and State RTEP Committee and, as applicable, and submitted to the PJM Board of Managers for approval. From an interconnection request perspective, through the FYI process, a 5-year near-term baseline system model without any criteria violations is developed for subsequent queue studies.

6. Longer-term planning is also completed as part of the development of the RTEP to identify solutions to planning criteria violations that require longer lead times to implement. As part of the FYI process 24-month planning cycle, PJM will initially develop an 8-year-out base case to evaluate planning criteria for the longer- term planning horizon. Long term criteria analysis is completed on this base case during the first year of the 24-month cycle.

7. A combination of full AC power flow simulation and linear analysis will be used to determine the loading on facilities in years 8 through 15. All reliability criteria violations and proposed solutions will be developed by stakeholders and PJM during the first year of the 24-month planning cycle.

8. As shown in **Exhibit 5**, during the second year of the 24-month planning cycle, the base case used for the long- term analysis during "Year 0" (i.e., the year 7 case) will be updated to reflect the latest assumptions about load, generation, DR, EE, and transmission topology.

Exhibit 5: FYI Process 24-month Base Case Development Process



9. Long term analysis is completed on this base case during the "Year 1" of the 24-month cycle. A combination of full AC power flow simulation coupled with linear analysis is again used again to determine the loading on facilities for years 7 through 15. Potential violations identified during "Year 0" are validated and the proposed solutions to address those violations are refined during the "Year 1" of the 24–month planning cycle.

10. An independent consultant may be used to develop an independent cost estimate and evaluate the feasibility of actually building proposed solutions. Results from these long-term analyses, including potential violations and their solutions, are reviewed with the TEAC, Subregional RTEP Committees and State RTEP Committee throughout the 24-month planning cycle of the FYI process.

11. Ultimately, any required long- lead time solutions identified through this process are presented to the PJM Board of Managers for approval. Subsequently, PJM will post Board presentation materials (redacted for any confidential content for Board consideration only).

Considering Public Policy and other Factors

FYI scenario studies will provide information regarding the impact that changing assumptions have to threaten reliability if previously unexamined factors are not evaluated. RTEPP changes are needed to facilitate PJM's ability to manage more effectively the recent "whip-sawing" of project in-service dates and address broader public policy and other factors that change modeling assumptions.

Public Policy Drivers

Over the past several years, an increasing focus by federal and state governments on climate change, energy independence and other policy areas continues to make clear the critical role of the transmission system. And, while the existence of violations of NERC Reliability Standards is the basis for PJM's determination of need, construction of major transmission infrastructure will likely be necessary to support the achievement of public policy goals.

These policies range from promoting renewable generating resources (such as wind and solar), DR and EE, to requiring environmental compliance that will affect PJM's fossil generating fleet (tagged by PJM as "at-risk" generation).

Integrating wind resources, often distant from the population centers that will use the electricity they produce presents a unique set of challenges to planning new transmission. Moreover, PJM's RTEP process continues to address the need to strengthen the nation's electrical grid to accommodate the retirement of generating resources not able to meet environmental regulations, including those regarding NO_X, SO_X, CO_2 emissions and water quality. Whether taken individually, or addressing their collective impact all such policy decisions necessarily impact transmission planning decisions and may require action in some instances to ensure reliability.

RPS Standards

An increasing focus by federal and state governments on climate change and energy independence continues to make clear the critical role of the transmission system. An important element of these policies is greater use of renewable resources, primarily wind. In PJM's footprint, a number of state jurisdictions have adopted renewable portfolio standards (RPS), requiring electricity suppliers to purchase specified amounts of renewable energy as part of their supply portfolio. RPS goals – in state jurisdictions where they are mandated - range from 10 percent to 25 percent. Integrating wind resources is raising significant transmission public policy issues which ask the following questions:

- What are the impacts on reliability and economic efficiency across multiple regions?
- How much transmission should be built?
- Where that transmission should be built?
- Who should pay for that new transmission capability?

Through its involvement in the system interconnection process and its operation of the transmission system, PJM tracks closely the existing and proposed generation projects in the PJM footprint. PJM experience in the RTEP process has shown that the inclusion or exclusion of significant generation resources, particularly those in electrical proximity to constrained transmission facilities, can have a marked impact on the occurrence and timing of projected violations of NERC Reliability Standards.

"At-risk" Generation

Likewise, existing generating facilities frequently must weigh the costs of increased investment to address environmental compliance issues and construct other needed improvements against anticipated revenues in PJM's energy, capacity, and ancillary services markets and under existing power purchase agreements; decisions on an existing facility's economic viability can influence whether it will continue to operate.

At-risk generators face the real possibility of deactivation given the economic impacts of such factors as increasing operating costs associated with unit age (some more than 40 years old) and changing environmental public policy, particularly with regard to carbon emissions, NO_X, SO_X and water quality.

The need to comply with evolving federal and state environmental restrictions affects a fossil generator's ability to recover sufficient revenue to remain economically viable. A main source of revenue is from the capacity market. Whether or not a unit has cleared an RPM auction maybe an indicator of the plant's future viability, particularly if compared to its competitors more efficient plants.

Costs related to a range of factors drive the ability of a plant to reap consistent revenue streams from PJM's energy, capacity and ancillary service markets. In addition to the risk from public policy and aging units, a potential at-risk indicator is a plant's inability to clear an RPM capacity auction given its costs compared to other resources offered into the auction:

- other more efficient plants
- demand resources and

- energy efficiency programs, for example.

From a generator's own market participation perspective, a generator must weigh the additional revenue stream that an RPM auction-cleared generating resource could provide against the risk that the same generator may not clear an auction given the potential higher auction bid required to factor in higher capital costs or operating and maintenance costs due to tighter environmental regulations.

Communications and Information Exchange throughout the FYI Process

Activities of the TEAC, Sub-regional RTEP Committees and new State RTEP Committee will provide the primary forums for the ongoing exchange of ideas including discussion of input assumptions, suggested scenarios studies review of PJM study results. Under an expanded FYI process, study results would inform the market participants and states alike so each can choose whether to make respective resource investment decisions based on the information provided.

The activities of these committees are at the core of PJM-stakeholder FYI process interactions regarding the following:

- Power flow case modeling parameter assumptions
- Suggestions for scenario analyses
- Periodic review of PJM study results including the identification of reliability criteria violations and market efficiency results;
- Ongoing discussions of proposed solutions and results of requested sensitivity studies regarding them

The broad range of stakeholders which these committees comprise is expected to foster a wide range of opinions, comments and advice on RTEP development, recommendations for additional analysis and, ultimately, advice on proposals for PJM Board approval.

However, this is not to say that these committees will necessarily require extensive discussion of each and every solution driven by PJM study results. Simple, rational practicality suggests otherwise. In fact, given recent history, many solutions proposed by PJM as part of the FYI process are not expected to require protracted discussion. For example, if a simple wave trap is sufficient to solve a 500 kV reliability criteria violation, it is not expected that significant debate of alternative solutions will be necessary.

PJM anticipates that most debate and ongoing discussion will focus on reliability criteria violations and scenario analysis results that suggest larger-scale backbone based solutions.

State RTEP Committee

Decision making under the State Agreement Approach necessarily depends upon effective two-way information flow and dialog within the context of the FYI process. This includes providing up-front input on assumptions and scenario analysis as well as coordinated analysis and review of FYI process study and scenario results and would provide high level consideration of multiple drivers and solution alternatives

PJM anticipates that a State RTEP Committee would be formed and integrated into the FYI Process. In the course of the discussion and evaluation of FYI Process Scenario analyses, a state (or states) may decide that it would be beneficial to evaluate a specific transmission solution and may request PJM to conduct both reliability studies and cost-benefit analysis of same. The activities of the State RTEP Committee will occur in parallel with FYI Process TEAC activities and broader FYI Process study activities. The purpose of the committee is to facilitate dialog between PJM and the states to enhance understanding of impacts of various transmission need drivers. The committee does not make decisions about what transmission should be in the RTEP; it is purely is an information transparency vehicle.

The interaction between the states and PJM in this committee may also include targeted discussion of study results and specific solution alternatives in addition to ones that PJM itself may put forward via TEAC in order to address one or more possible transmission expansion drivers.

The information flow via committee activities may allow states to determine whether they may wish to support a project to accomplish their policy objectives. This information flow may also provide states input that they can use as they shape their policy objectives. Should a state or group of states wish to pursue a transmission project to meet individual state or mutual public policy goals, those states may utilize the State Agreement Approach to do so.

The hallmark of the State RTEP Committee will be its voluntary nature. As a PJM forum focused on state interest in regional transmission expansion, it will provide a vehicle for a state, or group of states, to participate more actively in the RTEP FYI Process than current RTEP protocol vehicles support today. But doing so does not commit them to any specific transmission project or otherwise imply an endorsement or support for any specific transmission projects. Only if the state or group of states pursues a project through the State Agreement Approach, would they need to demonstrate a commitment and indicate support for a specific transmission project. Any formal participation in RTEP transmission expansion will only be initiated by states themselves through the State Agreement Approach. The State RTEP Committee would be open to the agencies of the states deemed appropriate by the states, themselves.

Communication Vehicles

Analyses done as part of the FYI process form the basis of information that RTEP decision-making under the State Agreement Framework, Critical Mass Framework and Proactive Build Framework, as discussed further in Section III. This builds on recent RPPTF discussions recommending additional reporting to increase information exchange transparency. Additional details on the following topics may provide valuable information to market participants and states in assessing various transmission expansion drivers[3]:

- CETO development

[3] As part of load deliverability analysis, PJM first establishes a Capacity Emergency Transfer Objective ("CETO") for each load deliverability area ("LDA"). CETO is the amount of energy that the transmission system must be capable of delivering to the LDA being tested in order to avoid shedding load due solely to the risk of its inability to import needed capacity assistance during a capacity emergency. The Capacity Emergency Transfer Limit ("CETL) is determined from the actual Load Deliverability power flow analysis and expresses the maximum MW that an LDA can import under specified peak load test conditions.

- CETLs, NERC reliability criteria violations
- Identify "next limit(s) out " – i.e., next violation and CETL deliverability margin

PJM will develop expanded and enhanced reporting vehicles in order to publish more information and do so more frequently than today. New formats will move beyond today's TEAC meeting material presentation formats. They will evolve, particularly during early phases of FYI process implementation, as stakeholder interactions with PJM yield new ideas to facilitate the exchange of information.

III. Implementing New Decision-making Approaches

An expanded decision-making framework will provide new approaches through which new transmission can be incorporated into PJM's RTEP.

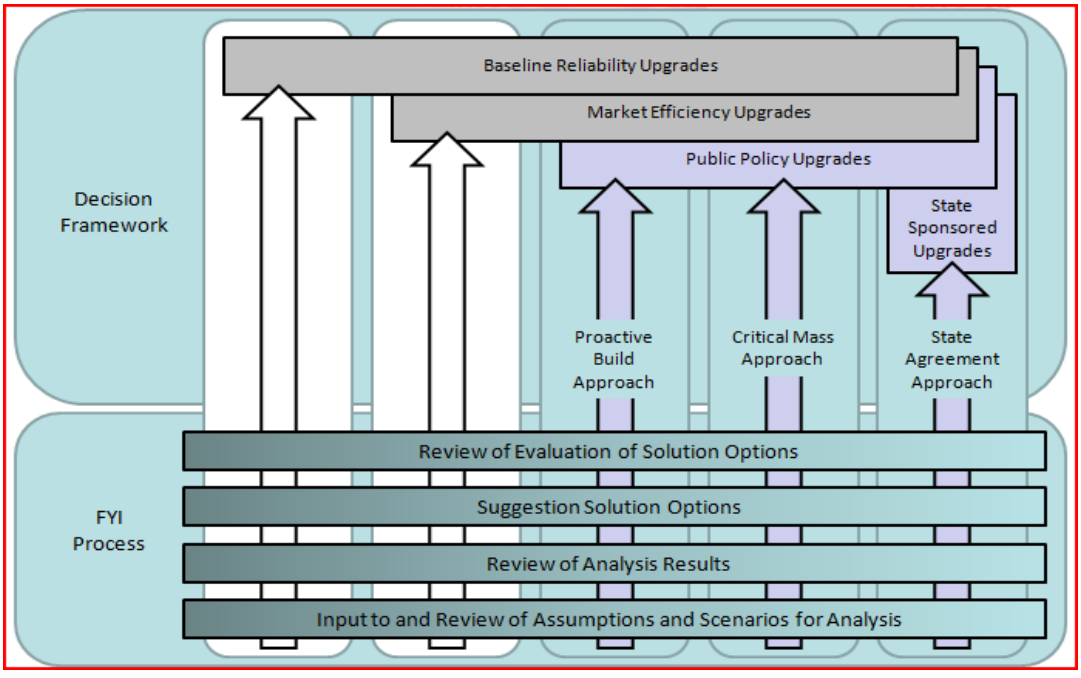
Section III describes three new transmission expansion decision making approaches with an emphasis on how each integrates with the "FYI Process."

1. State Agreement Approach
2. Critical Mass Approach
3. Proactive Build Approach

These new approaches will provide for a broader perspective on transmission expansion need, beyond that currently defined in the planning process with respect to reliability and market efficiency. Taken together, all of these approaches will build on the foundation of information exchange established through the FYI process. It may be that the vast majority of RTEP projects continue to be justified based on reliability criteria. But even in those cases, the FYI process will inform reliability-based decisions by defining the range of assumptions and scenarios against which reliability criteria tests will be performed. Similarly, the assumptions and scenarios driving market efficiency decisions will flow out of the stakeholder interactions that comprise the FYI process.

Exhibit 6, below, shows the interaction of each approach with the FYI Process and how each would interact the others.

Exhibit 6: FYI Process and Decision Framework



The subsections which follow describe each decision-making approach in more detail.

1. State Agreement Approach

Decision making under the State Agreement Approach will be facilitated by effective two-way information flow and dialog between PJM and the states within the context of the FYI Process. This includes providing up-front input on assumptions and scenario analysis as well as coordinated analysis and review of FYI Process study and scenario results, ultimately facilitating high level consideration of multiple drivers and solution alternatives.

Voluntary Participation and Safe Harbor

The State RTEP Committee envisioned in this approach directly parallels the function of the TEAC and the Sub-regional RTEP Committees. The committees would be open to the agencies of the states deemed appropriate by the states, themselves.

As Section II indicates, the hallmark of the State Agreement Approach is its voluntary nature. As a PJM forum focused on state interest in regional transmission expansion, it will provide a vehicle for a state, or group of states, to participate more actively in the RTEP FYI Process than current RTEP protocol vehicles support today, but will not impose obligations on the states as a result of their participation.

Participation in State Agreement based projects will also provide for a "safe harbor" from commitment to cost sharing with respect to specific RTEP projects driven by public policy goals of other states.

Additionally, future RTEP expansion plans will protect any transmission capability already associated with state commitment portions of RTEP projects so as to ensure that such capability may be used to satisfy the intended goal of the state(s). For example, transmission capability implemented through the State Agreement Approach to support a group of wind-powered generation projects driven by a state public policy goal could not be subsequently considered as capability available to support, for example, a separate fossil fuel plant's interconnection request need for network upgrades which that RTEP project might be otherwise available to provide.

The "Off-ramp" Concept

The overall expanded participation that the State Agreement decision-making approach offers will permit states to decide for themselves the degree to which they remain engaged with broader FYI Process study and communication process activities - including ongoing State RTEP Committee activities - that inform PJM's broader expansion plan decision-making. Or, having considered the direction such decision-making activities may take, states may decide to pursue their own "off-ramp" transmission expansion opportunities. It should be made clear that the development of such "off-ramp" projects will continue to run in parallel with other PJM RTEP activities. By pursuing such a project, states will not separate or exclude themselves from the ongoing efforts of the planning process. Rather, their potential projects will be evaluated along with all drivers and other solution options to provide the states ultimate flexibility to pursue, adjust or abandon their projects as they see fit.

What does "off-ramp" consideration provide?

At its most fundamental, an off-ramp from the FYI Process would permit states - either individually or in collaboration with one another – the opportunity to choose to act by themselves to pursue specific transmission expansion plans to meet public policy objectives within the context of PJM's RTEP protocol. Regardless, consideration of off-ramp opportunities will proceed between states and PJM in parallel with the ongoing FYI Process.

Myriad public policy factors – taken together or individually – could affect states decision-making on specific transmission expansion projects, including the following:

- Resource decisions regarding "buy (import), build (generation) and save (demand response and energy efficiency)"
- Enacted RPS standards
- Project costs
- State economic considerations in terms of jobs, tax revenue, etc.

However, state off-ramp approaches will not negate the need for state-based transmission solutions to be integrated into the rest of the PJM RTEP. PJM has a FERC-specified obligation to conduct studies that would assess the integration of such projects in the RTEP to ensure that all reliability criteria continue to be met.

Evaluating Off-ramp Projects

Pursuing an off-ramp transmission enhancement opportunity will necessarily proceed in collaboration with PJM. This collaboration will provide states the opportunity to participate in assessing, analyzing and studying initial project need. States may work with PJM to pursue more detailed consideration of specific conceptual projects to be evaluated by PJM, within practical limits. Importantly, a group of interested states supporting the initial evaluation of a project could indeed be different from the group of states that may support ultimate project development.

PJM could include, if the interested states so desire, a project development phase in its RTEP protocol to facilitate collection of costs through PJM billing. The state / PJM evaluation process could be structured to recognize the life cycle of a conceptual project: (1) The process could be staged; (2) the process would be flexible and provide increasingly detailed analysis in stages; and, (3) each stage would require increasingly detailed information about the conceptual projects being studied.

Project Development and Optimization with Existing RTEP

Consideration of state off-ramp projects will likely require some level of project design to facilitate RTEP integration analysis. PJM would perform the analysis to assist in the identification of benefits in order to provide states information they will need to make decision regarding whether or not to pursue public policy projects. This would likely to include the following steps:

- More detailed engineering to be supplied to PJM

- Identification of associated network requirements
- Identification of and coordination with other drivers
- Identification of relative benefits

PJM's overall role will be to work with states on transmission expansion plans that they voluntarily decide merit consideration in order to achieve respective public policy goals. Reliable integration of all power system elements - transmission, generation, etc. – consistent with established NERC reliability criteria will remain PJM's primary job.

PJM integration studies will help states understand potential costs of upgrades needed to ensure reliability under their proposals. Interested states would determine cost sharing among themselves for project development costs (including engineering design work necessary for PJM to be able to perform integration analysis)

Here then is where the State Agreement Approach could also interact with Critical Mass decision making. Excess capability of a state off-ramp project could address need revealed by PJM studies assessing other expansion planning drivers. Adjustments or enhancement to a state off-ramp project could be considered if studies indicate that such would be more effective at meeting a wider range of needs. In such a case, the relative benefits associated with different drivers would serve as basis for the allocation of costs between state policy drivers and other RTEP drivers. Allocation of costs unrelated to state drivers would not be allocated to states, but would otherwise proceed according to PJM allocation rules then in effect.

State Commitment to an Off-ramp Project

PJM would not require state commitment to develop a project until a point in the decision process after PJM evaluates the project from an RTEP integration perspective. At that point, however, PJM will need some reasonable form of state commitment to an upgrade projects to provide assurance to PJM that those projects are likely to remain within the RTEP once approved by the PJM Board (absent other potential mitigating factors). Once included in the RTEP, subsequent analyses will reflect the impact of the project. Determinations as to future reliability requirements or the interconnection requirements of generation projects will necessarily produce different results with and without the state project included. While no absolute certainty can exist that any project will ultimately be placed in service, some level of commitment is required to ensure the on-going integrity of the RTEP.

Post-Commitment

PJM must ensure, moving forward, that the transmission capability of a given state project, included in the PJM RTEP, for a given purpose (e.g. renewable energy deliverability) be protected for that intended purpose. At a minimum, future FYI Process PJM RTEP analysis will have to preserve such rights, similar to the manner in which generator Capacity Interconnection Rights are preserved today.

In that same vein, from a generation interconnection perspective, rules for access to transmission project capability would depend on how a state structures it. For example, if a project was driven by RPS requirements, states could hold a solicitation for that capability in the context of PJM's generation interconnection queue process. The generation interconnection would still have to be evaluated by PJM, but would rely on capability reservations per state direction.

More broadly, regulatory provisions governing suspension or cancellation of state participation in a transmission project will have to be developed to address how such a situation would be resolved, given the interaction of the original drivers justifying the project. These provisions will need to be specified post-commitment both prior-to and after construction begins.

Once constructed, a transmission enhancement project by states would be operated by PJM as part of the region-wide transmission system.

Additional Framework Design Elements for Further Consideration

While the potential benefits to states under this approach are significant, a number of additional framework design elements must be considered before states and PJM implement formal RTEP protocol changes, for example:

- What form will state project commitment comprise in order for PJM to include state-proffered transmission expansions in the PJM RTEP?
- What cost sharing methodology should be adopted when a transmission project is based on multiple system expansion drivers, including State Agreement based drivers and non-state drivers? (See discussion of Critical Mass Approach.)
    - States themselves will decide how state driver related project-specific costs will be shared among them.
    - PJM cost-benefit analysis will inform the decision-making among a group of states how to share the costs of a specific transmission expansion upgrade
- Safe harbor from costs associated with transmission projects based on similar drivers in other states.

Nonetheless, PJM will continue to work with states to enhance their ability to participate in transmission expansion planning within PJM.

2. Critical Mass Decision Making Approach

The Critical Mass decision-making approach will focus on reaching commitment to a project justified on the basis of considering multiple drivers, as in the following cases:

- Commitment to a project justified to address one bright line driver (for example, baseline reliability) but with capability larger than required to address that driver alone, based on the expectation that sufficient additional drivers (for example, public policy) exist to justify the additional transmission capability.
- Commitment to a larger scale project which cannot be justified on the basis of any one driver individually. Yet, if several drivers are just below their individual system expansion triggers, perhaps, they may be sufficiently additive to justify collective consideration as a trigger to a particular transmission expansion project. Or,

- Commitment to one larger-scale comprehensive project in place of several smaller, incremental upgrades which would otherwise be required to justify, for example, multiple, queued generation interconnection requests that have reached the ISA stage.

In essence, Critical Mass projects could be used to consolidate need based on some combination of baseline reliability, market efficiency, interconnection request and public policy drivers.

Thus, the Critical Mass approach would permit consideration of reliability drivers coupled with pending interconnection projects as well as the consideration of at-risk generation drivers coupled with pending interconnection projects. This would also permit further consideration of such justification with State Agreement project drivers or market efficiency project drivers. The Critical Mass approach would also be sufficiently flexible to provide a mechanism by which to integrate transmission expansion based on interregional drivers.

Interaction with the FYI Process

The FYI process would provide stakeholders – market participants and states, alike – greater up-front opportunity to provide input on modeling assumptions and analytical scenarios, and post-analysis opportunity to review and discuss study results. The analysis component of the FYI Process will, thus, also comprise additional, extensive scenario studies per stakeholder input.

Analyses performed as part of the FYI process will form the basis for consideration of potential transmission expansion alternatives under the Critical Mass decision-making approach. In such instances, PJM's FYI results will provide information on the relative benefits of alternative upgrade solutions that may address multiple drivers, benefits which may also provide important input to cost allocation.

Overall, the FYI process will afford PJM the opportunity to publish and communicate a wide range of results the goal of which is to "send signals" to stakeholders and inform Critical Mass discussions. Doing so will allow market participants and states to make their own respective informed decisions on what transmission opportunities to pursue.

Interaction with State Agreement Decision-making Approach

The Critical Mass approach will be based on FYI Process identification of the most effective solution and benefits associated with multiple drivers, including drivers that may be the basis of projects under consideration by the states through the State Agreement approach. The Critical Mass Decision-making approach provides a mechanism for PJM and stakeholders to consider triggering expansion plans to the extent that multiple drivers suggest the merit of doing so, plans which may or may not be justified based on the strength of the need that one or more individual drivers may demonstrate. If states so choose – individually or in collaboration with one another – they may elect to pursue projects that best meet their needs through the State Agreement approach but also serve other needs based on decision making under the Critical Mass Approach .

States would need only to determine cost allocation among themselves, to the extent such would be required, for the portion of the capability of a Critical Mass project that is specifically dedicated to state needs as a State Agreement project. Costs related to other drivers will be allocated according to the relative benefit provided by those drivers, per analyses conducted by PJM.

Generation Interconnection Request Perspective

The Critical Mass approach could identify transmission projects even if 100% of the capability is associated with interconnection requests that have reached the System Impact Study Phase. Consideration will be given to whether or not incremental upgrades are less expensive than an allocated share of large-scale upgrade cost. Yet, even though incremental upgrades may be faster to build, incremental upgrades are often rendered obsolete as subsequent Impact Studies are completed and larger-scale projects are justified.

Additional Framework Design Elements for Further Consideration

As with the State Agreement approach, while the potential benefits to stakeholders under the Critical Mass approach are significant, a number of additional framework design elements must be considered before states and PJM implement formal RTEP protocol changes, for example:

- What cost sharing methodology should be adopted when multiple system expansion drivers are involved? Is the allocation among drivers in any way different if some drivers are the result of a State Agreement decision-making process?
    - PJM cost-benefit analysis will inform the decision-making among drivers and between state-related drivers and non-state drivers
    - Cost allocation for capability associated with non-state drivers will be based on the blend of needs driving a project
- How should capability be accounted-for when comparing reliability, market efficiency, and other drivers?
- How many other potential drivers must exist related to excess capability above reliability drivers to provide reasonable certainty that a Critical Mass project will be needed?
- How will interconnection analysis be integrated with RTEP analysis for a Critical Mass project?
- How will cost responsibility be established for generators related to a Critical Mass project?

Nonetheless, PJM will continue to work with stakeholders to consider resolve these issues and implement the Critical Mass approach.

3. Proactive Decision Making Approach

Integration of a Proactive decision-making approach with the FYI Process will provide a third avenue through which new transmission can be incorporated into PJM's RTEP. Doing so will offer yet another opportunity to justify transmission expansion need beyond that which already exists in terms of bright line reliability and market efficiency triggers, or which may emerge from State Agreement and Critical Mass considerations.

Proactive Approach Description

Under the Proactive decision-making approach, PJM may identify strong justification for transmission expansion needed to solve overwhelming reliability criteria violations identified in FYI Process public policy scenario analyses. Such violations would comprise those that go beyond those that FYI Process baseline reliability bright line analysis would identify. For example, an FYI at-risk generation scenario analysis could potentially reveal reliability criteria violations of such severity and geographic reach as to justify consideration of transmission enhancements not otherwise identified as part of baseline reliability analysis.

Given the nature of PJM's proposed decision-making under this approach, justifying such transmission expansion proactively will necessarily require the implementation of triggers set sufficiently high enough to minimize the potential for whip-sawing of potentially volatile factors driving expansion need. Indeed, triggers may have to be tailored to each public policy factor individually. Then, depending on nature of the trigger, cost allocation could follow current rules or be project specific.

Additional Framework Design Elements for Further Consideration

As with the Critical Mass and State Agreement approaches, the potential future reliability benefits to stakeholders of the Proactive approach are significant. Yet, several additional framework design elements must be considered before states and PJM implement formal RTEP protocol changes, for example:

- How much latitude and authority would PJM have to determine how much transmission is needed, where and timing?
- More philosophically, what should be the scope of PJM's role to make such decisions and impose cost burdens on members?

PJM will continue to work with stakeholders to consider resolve these issues and implement the Critical Mass approach.

IV. Next Steps

PJM and the Regional Planning Process Working Group (RPPTF) have made significant strides over the past year exploring ways to improve the RTEP Protocol in order to address a number of emerging factors, not least of which is the emergence of state-based public policy initiatives. This white paper has attempted to capture PJM's and the RPPTF's current thinking and proposed process and decision-making approaches to expand the flexibility of RTEP Protocol to address a changing planning landscape.

Clearly, though, additional thought and discussion are required to determine specific PJM Operating Agreement Schedule 6 and PJM Manual 14-B modifications required to implement the concepts which this white paper describes, even more so as PJM and stakeholders continue to address FERC's Order 1000 compliance.

A key part of that thought and discussion, prior to any formal Operating Agreement FERC filings and Manual 14-B modifications, will be for PJM and stakeholders to prioritize and sequence required agreement and manual modifications given that some RTEP protocol concept changes discussed in this white paper are indeed more fully defined at this point than others. Thus, more than one set of Operating Agreement filing and Manual 14-B modifications may actually be needed over the course of the next year or so.