



## **PJM Financial Transmission Right (FTR) Risk Management Workshop**

In the 20 years that PJM has administered competitive wholesale markets, there have been two material member defaults that were not fully collateralized or recovered. Both of those defaults related to FTR market participants whose portfolios were not anticipated by the then applicable provisions of the FTR credit policy. PJM and its stakeholders have implemented enhancements to the FTR credit policy, and it is important to continue the review of potential additional improvements to FTR risk management, including engaging external expertise to provide input to these FTR risk management discussions.

On August 14, 2018, PJM hosted an FTR risk management workshop that was facilitated by Dave Anders, PJM Director of Stakeholder Affairs. The workshop participants included experts in energy markets and risk management in addition to representatives from PJM's independent market monitor and from PJM's markets, finance and legal groups.

### *FTI Consulting*

Scott Harvey, Consultant

### *Energy Advisory Services*

Brad Leach, Principal (formerly with NYMEX)

### *Market Reform*

Todd Bessemer, Director and Principal

### *Nodal Exchange*

Paul Cusenza, Chairman and CEO

Demetri Karousos, Chief Risk Officer and Managing Director

### *Monitoring Analytics*

Joe Bowring

Howard Haas

Seth Hayik

### *PJM Interconnection*

Stu Bresler

Brian Chmielewski

Bridgid Cummings

Suzanne Daugherty

Lisa Drauschak

Tim Horger

Jacqui Huges

Adam Keech

Hal Loomis

Keyur Patel

The objectives of this workshop were to:

1. Brainstorm factors contributing to FTR portfolio valuation volatility;
2. Identify differences between FTR markets and exchanges; and
3. Develop suggestions for potential FTR risk management enhancements for PJM and stakeholder consideration.

### **A. Factors Contributing to FTR Portfolio Valuation Volatility**

The FTR risk management workshop commenced with brainstorming factors contributing to FTR portfolio valuation volatility to establish a common foundation for discussing potential additional FTR risk management enhancements.

<b>Factors Contributing to FTR Portfolio Valuation Volatility</b>	
<p><i>Generation and Transmission Outages</i></p> <ul style="list-style-type: none"> <li>• Planned</li> <li>• Unplanned</li> <li>• Duration</li> <li>• Accuracy of outage schedule</li> </ul>	<p><i>Weather</i></p> <ul style="list-style-type: none"> <li>• Locational</li> <li>• Seasonal</li> <li>• Load changes</li> </ul>
<p><i>Duration of FTRs in Portfolio</i></p>	<p><i>Geographic Concentration of FTR paths</i></p>
<p><i>Fuel Prices</i></p> <ul style="list-style-type: none"> <li>• Fuel availability</li> <li>• Fuel deliverability</li> <li>• Changes to generation mix</li> </ul>	<p><i>System Topology Changes</i></p> <ul style="list-style-type: none"> <li>• Transmission upgrades</li> <li>• Generation additions and retirements</li> <li>• Change in PJM geography</li> </ul>
<p><i>Market Rule Changes</i></p> <ul style="list-style-type: none"> <li>• PJM market rules</li> <li>• Changes with neighboring systems (e.g. M2M, firm flow entitlements)</li> <li>• Regulatory-mandated market rule changes</li> </ul>	<p><i>Changes in model assumptions</i></p> <ul style="list-style-type: none"> <li>• Consistency between day ahead and FTR models</li> <li>• FTR bidding points</li> </ul>

### **B. Differences Between FTR Markets and Exchanges**

PJM's FTR markets differ from traditional commodity markets and exchanges in several key ways. These differences indicate that some risk management processes common in exchanges may not have the same applicability or effectiveness in FTR markets.

1. There are new reference prices only when each monthly, annual or long-term FTR auction is completed while exchanged-traded products have frequent market prices throughout every business day.
2. There is no ready secondary market for FTRs while there are active secondary markets for most exchanged-traded products.

3. Liquidity in FTR auctions is lower than for exchanged-traded products. This can affect both (a) the level of price formation when there are limited competitive bids on paths and (b) the ability to liquidate FTR positions.
4. There is no intermediary broker or futures commission merchant (FCM) in markets administered by ISOs/RTOs, including FTR markets. This eliminates a layer of participant screening, risk management requirements customized to each market participant, and default coverage that exist in exchanges.
5. ISO/RTO markets, including FTR markets, are subject regulatory paradigms that to date have favored low barriers to entry.
6. Exchanges have a default pyramid with several layers of collateral / capital available to cover defaults and associated liquidation costs prior to any socialized default charges.

**C. Suggestions for Potential FTR Risk Management Enhancements**

PJM shared with the workshop participants that its highest priority was to complete the FTR credit policy changes that will establish FTR credit requirements based on the highest monthly calculation of three components: (1) path-specific congestion incorporating the projected impacts of transmission system changes; (2) minimum volumetric; or (3) mark-to-auction determinations. The first of these three components was approved by FERC and implemented on April 1, 2018. The volumetric component was implemented effective September 3, 2018, subject to refund, and is awaiting a FERC order. And the third component, mark-to-auction, is currently in the package development stage in the Credit Subcommittee with senior stakeholder committee voting targeted for December 2018.

The workshop participants identified additional potential FTR risk management enhancements for consideration by PJM and its stakeholders. The topics in the two tables below reflect all considerations raised by any workshop participant though some items were not discussed in detail during the workshop.

<b>Potential FTR Risk Management Enhancements to be Considered by the Credit Subcommittee</b>
1. Consider increasing the FTR market minimum participation requirements
2. Allow PJM discretionary collateral call authority on a broader basis and for all market participant activity
3. Establish position / concentration limits
4. Incorporate liquidity margin into FTR credit requirements to reflect a portfolio's risk and costs of being liquidated in the event of a default
5. Examine prevailing and counterflow netting in credit requirements and potentially: <ul style="list-style-type: none"> <li>• Limit netting to prevailing and counterflow positions geographically close, such as within the same zone</li> <li>• Eliminate all netting of prevailing flow and counterflow positions</li> </ul>

6. Consider path specific counterflow adder instead of counterflow adder based on net portfolio
7. Consider whether an adder or margin should be included to the path-specific and mark-to-auction components of FTR credit requirements to address the potential for additional FTR portfolio valuation volatility
8. Review alternatives for risk management transfer to an external party

<b>Potential FTR Risk Management Enhancements to be Considered by the Market Implementation Committee</b>
1. Discuss whether the benefits of long-term FTRs support the potential risks of long-term FTRs
2. Consider revising the eligible FTR bidding points, such as these possible changes: <ul style="list-style-type: none"> <li>• Eliminate FTR option product</li> <li>• Eliminate load nodes</li> <li>• Remove at-risk generators from availability in the FTR model</li> <li>• Align with up-to-congestion biddable points</li> </ul>
3. Review the possibility of conducting more frequent FTR auctions

PJM will draft a problem statement and issue charge each for the Credit Subcommittee and the Market Implementation Committee to consider adopting. Each committee may also discuss potential prioritization of discussing the recommendations each committee may choose to approve in their respective problem statement and issue charge.