

**Financial Risk Mitigation Senior Task Force:  
FTR Market Proposal  
July 2019**



## I. Executive Summary

This paper includes a PJM Interconnection proposal, which is intended to mitigate financial risk in the FTR market, in response to the independent investigation into the 2018 FTR default and through feedback from stakeholders through the Financial Risk Mitigation Senior Task Force (FRMSTF). Under the Locational Marginal Pricing (“LMP”) market, instituted by PJM in 1998, congestion occurs on the transmission system when re-dispatch is necessary, resulting in congestion charges to those using the transmission system. Financial Transmission Rights (FTRs) are essential to PJM energy markets as they provide a forward, point-to-point mechanism to price and hedge future congestion costs inherent in an LMP market.

Forward congestion price discovery, or the convergence of FTR and Day-ahead congestion prices over time, is essential for load serving entities (LSEs) because it reduces risk for underlying basis positions associated with future load obligations. Speculators, or those financial FTR market participants with no physical load obligations, contribute to this congestion price discovery through added competition. This added competition leads to enhanced liquidity and price convergence.

PJM believes there are opportunities to mitigate financial risk in the FTR market through adjustments to the auction design. To enhance forward price information, PJM is proposing a more frequent, bi-monthly (5-round) execution of the long term auctions and a replacement of the Balance of Planning Period (BOPP) quarterly periods with individual months remaining in the planning period. In addition, PJM is investigating the relationship between the number of currently available biddable points and credit risk. PJM will provide the results of this analysis at a future FRMSTF meeting. If PJM determines that the number of biddable points currently available does not adversely impact credit risk, PJM will not include changes in this area to its proposal. To be clear, PJM is not proposing any changes to biddable points at this time.

## II. Enhanced Forward Price Information

It is evident from the recent default that a lack of transparency in future congestion prices can mask the deterioration of an FTR portfolio value over time. In 2019, PJM implemented a “mark-to-auction” credit requirement, which can increase collateral requirements of open FTR positions as a result of a market signaled portfolio determination. In order to maximize the utilization of this marking ability, the FTR auctions must be run more frequently. Increasing FTR auction frequency will provide an increased level of protection from a potential default by not allowing positions to grow or deteriorate over time without the posting of additional collateral.

- A. Increased auction frequency supports risk mitigation
- B. Preserving the annual ARR allocation and FTR auction is highly desirable by the PJM membership. Monthly execution of the Balance of Planning Period (BOPP) on a monthly granularity, as well as a bi-monthly execution of the three subsequent planning period long-term FTR products will enhance liquidity and promote auction prices to converge to their actual settlement values over time.

### *Countdown Balance of Planning Period Auction Concept*

The first design component of the PJM proposal replaces the Balance of Planning period (BOPP) auction structure with a pure monthly structure. The current BOPP auction structure provides for FTRs for any of the next individual three months and any fully remaining quarter in the planning period. The new structure will maximize pricing information and mitigate risk for the remainder of the planning period by utilizing more granular models of the future transmission system and by increasing the frequency of the ability to purchase or sell FTRs of a monthly effective period. The below table provides a proposed structure for this new BOPP auction concept for four consecutive auctions. In this table, the effective time period and biddable periods for each auction is always the remaining months in the planning period.

*Table 1: Proposed Monthly BOPP auction concept for auctions conducted from May 2020 thru August 2020*

| <b>Auction Performed Time</b> | <b>Auction Effective Time</b> | <b>Biddable Periods</b> |
|-------------------------------|-------------------------------|-------------------------|
| <b>May 2020</b>               | June 2020 – May 2021          | 12 individual months    |
| <b>June 2020</b>              | July 2020 - May 2021          | 11 individual months    |
| <b>July 2020</b>              | August 2020 - May 2021        | 10 individual months    |
| <b>August 2020</b>            | September 2020 – May 2021     | 9 individual months     |

Additional advantages of the monthly BOPP FTR auctions, besides price discovery, transparency, and risk mitigation are the performance impacts. For example, the average overlapping period case for the 18/19 planning period solved in approximately six hours whereas a simple, non-overlapping period solved in approximately two hours. The elimination of overlapping periods, as is proposed with the monthly BOPP FTR auctions, will allow more time for PJM resources to focus on the evaluation of results for the additional periods.

***Bi-monthly (5-round) Long-term Auction Frequency***

An additional feature of the first PJM design component is more frequent long-term auctions. Long-term FTRs will remain year-long products and will be available for any of the next three planning periods, identical to the existing process. However, these long-term auctions will be conducted every other month, from June through February, to provide meaningful price signals of future congestion costs on a nodal basis. In each round, 20% of the residual transmission system capability will be available for sale, as further described below. The below table illustrates the structure of the proposed long-term auction.

Table 2: Proposed 21/24 Long-term auction frequency for auctions conducted from June 2020 through February 2021

| Auction Performed Time | Auction Effective Time | Biddable Periods              |
|------------------------|------------------------|-------------------------------|
| <b>June 2020</b>       | June 2021 – June 2024  | 3 individual planning periods |
| <b>August 2020</b>     | June 2021 – June 2024  | 3 individual planning periods |
| <b>October 2020</b>    | June 2021 – June 2024  | 3 individual planning periods |
| <b>December 2020</b>   | June 2021 – June 2024  | 3 individual planning periods |
| <b>February 2021</b>   | June 2021 – June 2024  | 3 individual planning periods |

### Capability in FTR Auctions

Available capability for the further out periods, namely the subsequent three planning periods, will continue to be reduced to (1) ensure ARR capability is not consumed for future periods where ARRs have not yet been allocated and (2) mitigate the risk exposure. Therefore, PJM is proposing to maintain the current structure for available capability in FTR auctions. For periods where ARRs have already been allocated, 100% of the capability will be available. Future periods where ARRs have not yet been allocated will have capability available after assuming 100% of ARRs are self-scheduled, including those ARRs that are made available in which transmission facilities which were modeled out of service in the annual ARR allocations return to service. Additionally, ARRs that become available through incremental capability created by future transmission upgrades will also be preserved in future periods where ARRs have not yet been allocated.

### Investigation of the Relationship Between Biddable Points and Credit Risk

PJM is currently investigating the relationship between biddable points for FTRs and credit risk but is not proposing any changes to the biddable points in FTR auctions at this time. If PJM determines that the number of biddable points currently available does not adversely impact

credit risk, PJM will not include changes in this area to its proposal. To be clear, PJM is not proposing any changes to biddable points at this time.

For context, Table 3 illustrates the number of available FTR combinations across all RTO/ISOs.

*Table 3: RTO/ISO Comparison of potential FTR paths*

|   | PJM <sup>1</sup> | ERCOT   | SPP | CAISO   | ISO-NE | MISO |
|---|------------------|---------|-----|---------|--------|------|
| <b>Approximate Number of Potential FTR Combinations<sup>2</sup></b> | 3.5M             | 320,000 | 1M  | 100,000 | 1.3M   | 4.8M |

### III. FTR Options

PJM offers two types of FTR products: an FTR option and an FTR obligation. The key difference between an FTR obligation and option is that the owner of an option FTR is exempted from the potential liability incurred when the FTR is opposite the congestion direction. In other words, an Option FTR can never become a liability in the day-ahead market. Another difference between obligations and options is the bid administration fee is five times higher for an option. This increased administration fee is due to the fact that the inclusion of the option product requires the auction market system applications (power flow and contingency analysis) be equipped with the capability of modeling impacts of option-FTR incurred power flows on the security analysis. Only a subset of pre-defined FTR paths is eligible for option FTR bids in the annual and monthly BOPP auctions.

<sup>1</sup> Available combinations in the Annual FTR Auction

<sup>2</sup> Based on information provided by RTOs/ISOs to the PJM FTR group

As shown in Table 4 below, PJM has not seen dramatic increases in FTR market system application performance time, mainly due to the relatively low level of activity for options. Additionally, future financial risk is mitigated through the fact that options cannot become a liability. For these two reasons, PJM is not proposing any changes to the option product at this time. However, PJM will continue to track option activity and propose necessary changes in the future, if required, to preserve adequate market system application performance.

*Table 4: Study: 18/19 Annual Auction including and excluding FTR options*

| CASENAME                                | BID COUNT | SOLVE TIME | QUOTEDMW | CLEARED MW | PARTICIPANTS |
|---|-----------|------------|----------|------------|--------------|
| 18/19 Annual Auction<br>RD 1 Baseline   | 184,917   | 02:54:42   | 914,655  | 121,722    | 189          |
| 18/19 Annual Auction<br>RD 1 No Options | 178,010   | 01:32:46   | 865,786  | 117,216    | 184          |
| 18/19 Annual Auction<br>RD 2 Baseline   | 190,265   | 03:42:39   | 956,665  | 164,833    | 191          |
| 18/19 Annual Auction<br>RD 2 No Options | 182,742   | 02:34:56   | 851,764  | 153,492    | 185          |
| 18/19 Annual Auction<br>RD 3 Baseline   | 169,857   | 3:59:07    | 715,768  | 185,675    | 191          |
| 18/19 Annual Auction<br>RD 3 No Options | 161,420   | 2:27:33    | 608,024  | 170,995    | 187          |
| 18/19 Annual Auction<br>RD 4 Baseline   | 168,355   | 2:58:25    | 668,079  | 179,492    | 183          |
| 18/19 Annual Auction<br>RD 4 No Options | 162,039   | 2:35:21    | 564,910  | 165,796    | 178          |