



PJM Options to Address FTR underfunding

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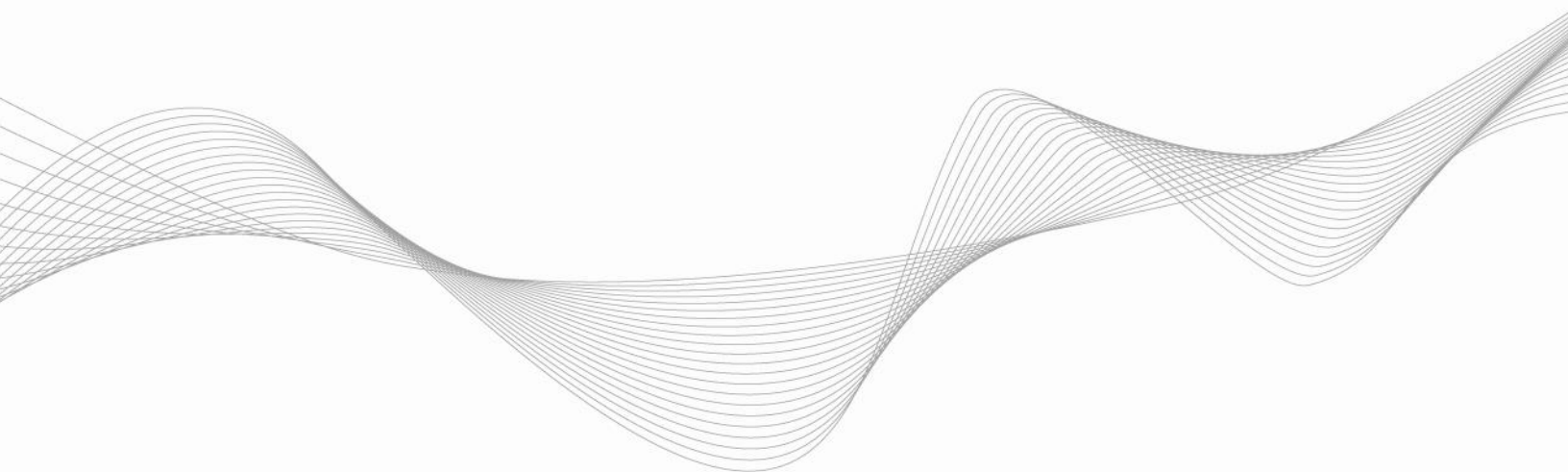


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1. Overview

In the FTR Revenue Stakeholder report, which was posted in a separate document, PJM has identified that the primary reason for the higher level of FTR revenue inadequacy over the past few years is related to congestion along the PJM borders in combination with a more fully utilized system from which any excess capability has evaporated due to outages and reduced facility ratings. Congestion along the PJM borders has increased the negative balancing real-time explicit congestion over the past few years. Balancing explicit congestion includes differences in congestion between the Day-ahead and Real-time Energy Markets from imports, exports and wheel-through PJM transactions that result in energy entering, leaving or being transmitted through the PJM balancing authority. The PJM system has recently been more fully utilized or has had reduced system capability primarily because of an increase in the number of transmission outages as well as facility rating reductions.

2. Current Efforts

PJM has already initiated and/or implemented several steps to address the recent increased FTR underfunding. Through the FTR Task force there were several process improvements and a single rule change implemented. The process improvements included enhanced notification of switching procedures, increased transparency and description of actual transmission outages associated with circuit breaker or disconnect switch status changes, and an increased awareness and opportunity to model shorter duration transmission outages in the monthly FTR auctions that could cause revenue inadequacy. With respect to operating/switching procedures, PJM Operations sometimes implements special operating guidelines or procedures that could involve switching, opening/closing transmission lines, and circuit breaker status changes. To the extent that PJM FTR staff in coordination with PJM Operations staff can identify any switching that could affect FTRs then PJM will model these events in the FTR simultaneous feasibility analysis, and these operating/switching procedures will be posted to the PJM OASIS for all members to view. PJM Transmission Owners are also now required to provide more descriptions in their outage submissions and to include the actual transmission facility that will be taken out of service as opposed to just the circuit breaker or disconnect switch status changes. This increased transparency in the PJM transmission outage tickets will allow for both the PJM FTR staff and PJM members to identify actual transmission outages much easier. Finally, the opportunity for PJM staff to model shorter duration outages in the monthly auction which could cause FTR revenue inadequacies should make the FTR models more conservative in areas with high risk of FTR revenue inadequacy. The FTR rule change

that was recently approved by the PJM members as well as the Commission is known as the zero cost FTR rule change. This rule change involved the elimination of zero cost FTR bids that provide no congestion hedge or market liquidity. This type of bid created a risk to FTR revenue adequacy as well as a risk of credit defaults. It has been estimated that 1% of FTR revenue inadequacy in the 2011/2012 Planning Period has been associated with this type of bid which are now eliminated from the PJM FTR market.

In addition to the above mentioned processes and rule change developed through the FTR Task force, PJM has also initiated other items that are anticipated to improve modeling discrepancies and reduce negative balancing congestion. First, PJM and the Midwest ISO now have coordinated daily meetings to discuss expectations for next day events in an effort to improve day-ahead modeling and reduce day-ahead versus real-time discrepancies. This coordination includes sharing of data related to expected congestion, wind output profiles, and transmission outage information for facilities located along the borders of the two RTOs. Second, PJM has developed more advanced internal tools in an effort to monitor and reduce the modeling discrepancies between the FTR, Day-ahead, and Real-time Energy Markets. These tools include timely identification of flow components on congestion facilities as well as major interfaces for FTR, Day-ahead, and Real-time Energy Markets. Flow components include market flow from actual PJM commitment and dispatch along with flow contributions from external areas. Actual balancing congestion will be negative when market flow in the Day-ahead Energy Market is higher than market flow in the Real-time Energy Market and this tool will be utilized to identify where balancing congestion is most negative. In addition, if the market flow in the Day-ahead Energy Market is lower than what was cleared in the FTR market for a particular constraint then a revenue inadequacy will be created between the FTR and Day-ahead Energy Markets. Furthermore, the timely identification of the external area flow contributions on PJM facilities will help PJM to account for unexpected flows. PJM has also reviewed its internal processes and procedures to ensure continuous improvement in the coordination between the FTR, Day-ahead, Real-time, and Operations departments.

3. Removal of Balancing Congestion from FTR Funding Mechanism

Other potential changes that could be made to help reduce FTR revenue inadequacy are items that would require PJM Tariff and/or Operating Agreement revisions.

The first option would be to remove the balancing congestion component from the actual FTR funding mechanism. FTR values are determined solely based on congestion price differences in the Day-ahead Energy Market yet the dollars used to fund these FTRs include congestion dollars from both the day-ahead and balancing markets. Removing the balancing real-time congestion impacts from the calculation used to fund FTRs will conform the FTR funding methodology to the pricing of FTRs which is a function of energy prices in the Day-ahead Energy Market.

PJM believes that changing the funding mechanism for FTRs and assigning the balancing congestion costs to the Real-time Energy Market is an appropriate method to decrease or eliminate the FTR Revenue adequacy. PJM believes that balancing congestion has increased to the point where it is injecting significant uncertainty into the FTR product based on how the current Operating Agreement provisions address FTR revenue shortfalls. Furthermore, because the negative balancing congestion has been caused predominately by an increase in the amount of congestion along the PJM borders and unexpected transmission outages, PJM believes that FTR holders themselves are not the root cause of the current FTR underfunding. Accordingly, PJM believes that removal of balancing or real-time congestion achieves a more fair and balanced approach to allocating the costs to all Market Participants in the Real-time Energy Market, and, consequently preserves the integrity of the FTR product.

PJM is concerned that by continuing to allow the negative balancing congestion to erode the FTR product, PJM will be unable to fulfill in a holistic manner its obligation to ensure the development and operation of market mechanisms to manage congestion. PJM is also concerned that a lack of confidence in the FTR funding levels will result in PJM Members discounting their FTR bids in the FTR Auctions. This discounting of FTR bids will give a false signal of expected congestion and result in lower ARR revenues which are used by Load Serving Entities to offset congestion costs. This was apparent in the 2012/2013 Annual FTR Auction where revenue streams to ARRs were lower than historical values. The total revenue in the 2012/2013 Annual FTR auction was about \$600 million whereas the total revenue in the 2011/2012 Annual FTR auction was over \$1 billion. The reduced revenue in the 2012/2013 Annual Auction is a result of expected lower congestion levels and expected FTR payout percentages. While the entire approximate \$400 million reduction in Annual Auction revenues in 2012/2013 planning period from the 2011/2012 planning period cannot be fully attributable to discounted FTR bids, it would be unreasonable to think that expected FTR payout percentages did not account for part of the lower revenues. PJM ARR holders would benefit with the removal of the balancing or real-time congestion in that FTR holders would have more confidence in FTR payout percentages and ultimately would not discount their FTR Auction bids resulting in higher ARR revenues.

PJM's current rules for allocating the balancing market congestion surplus/shortfall to FTR holders is not the general practice among other RTOs/ISOs. Only ISO New England (ISO-NE) and PJM include balancing congestion in their FTR funding calculations, and this is largely because ISO-NE based its FTR funding mechanisms on PJM's pre-existing FTR funding mechanism language. Moreover, ISO-NE operates a much smaller transmission system that has fewer and more highly controlled borders with external systems. ISO-NE therefore is not impacted by the real-time uncertainties associated with modeling external systems to the same extent as PJM. Further to this point, in the past and when PJM's FTR funding rules were first formulated, PJM operated a much smaller system with less complex borders. Thus, PJM's evolution over the last decade warrants adjustment to these rules that would bring PJM in line with the rules established in other, similar systems, and to meet its current system constraints and the current regulatory environment.

A. Allocation of Balancing Congestion

PJM also believes the allocation of the balancing real-time congestion costs, positive or negative, would be appropriate to be assigned to transmission customers on a pro-rata basis. PJM further believes that to the extent FTRs in general are funded in excess of 100% it would be appropriate to allocate these excess funds to the balancing Real-time Energy Market and to transmission customers on a pro-rata basis. The negative balancing congestion is expected to become less negative as more transmission systems enhancements are implemented and when system capability increases. This could take several years, but eventually PJM expects the downward negative balancing congestion trend to reverse. Should this occur, the allocation of balancing congestion and excess FTR funding to transmission customers will ensure that the benefit of these transmission upgrades accrues to the transmission customers to which the costs of those upgrades are assigned.

PJM also offers an additional and altogether different approach to reallocating balancing real-time congestion charges in which charges, whether negative or positive, could alternatively be rolled into the marginal loss surplus. As the Commission has previously opined, no Market Participant has an entitlement or right to receive any particular amount of the marginal loss revenue surplus.¹ The Commission has also

¹ *Black Oak Energy, L.L.C. et al. v. PJM Interconnection, L.L.C.*, 122 FERC ¶ 61,028, at P 46 (2008), citing *Atlantic City Elec. Co. v. PJM Interconnection, L.L.C.*, 115 FERC ¶ 61,132, at P 24 (2006) (PJM market participants are not "entitled to receive any particular amounts through disbursement of the over-collections, since the price they are paying (based on marginal line losses) is the correct marginal cost for the energy they are purchasing. . . . the method for disbursing the amounts of any over-collections should not directly reimburse customers for their marginal line loss payments, as such a disbursement would interfere with the goal of basing prices on marginal losses [r]efunding excess loss revenues to the participants who incurred the losses would undermine the

specifically indicated that the amount of the surplus received should not be tied to the amount of marginal line losses paid.² Thus, the Commission has accepted any number of different methodologies for disbursing surplus marginal loss revenue so long as the methodology meets the Commission's established principle that the reimbursement methodology not undermine the purpose of implementing marginal loss pricing, in other words, so long as it does not allocate the surplus to customers in proportion to the amount of each customer's payment of marginal losses.³ For these reasons, PJM's current allocation of the marginal loss revenue surplus is intentionally arbitrary and therefore a windfall to those who receive it. Accordingly, PJM believes that combining the marginal loss surplus with balancing real-time congestion costs would apply funds resulting from the over collection of marginal losses more logically and efficiently than the relatively arbitrary present dispersion of marginal loss surpluses.

4. Elimination of Stage 1A Full Allocation

Another option that will help to reduce FTR revenue inadequacy would be to allocate less ARRs/FTRs in the annual process by eliminating the requirement that all ARRs must be fully allocated in Stage 1A of the annual ARR allocation. The current PJM Tariff and Operating Agreement require PJM to increase the capability limits on binding constraints that would have rendered the ARRs infeasible in Stage 1A of the Annual ARR allocation in order to allocate all requested ARRs to the full requested value. These increased limits are then used for all subsequent rounds of the allocation and future FTR auctions for the effective planning period.

Recently there have been several facilities in Stage 1A that were infeasible and these facilities were either located along the PJM borders, which are directly attributable to negative balancing congestion, or the facilities were located near a long term

usefulness of including marginal losses in the LMP calculations." Refunding the excess LMP revenues to those who paid would result in those purchasers no longer paying the marginal cost for energy—the basic foundation of LMP.").

² *Black Oak Energy, L.L.C. et al. v. PJM Interconnection, L.L.C.*, 125 FERC ¶ 61,042, at PP 37, 44 (2008) ("the only fundamental principle to be applied is that the distribution should in no circumstance be based on the amount paid for transmission line losses, because that would distort the appropriate price signals which the use of marginal line loss pricing is designed to facilitate" and "in order to create appropriate price signals, the credit must not be based on the amount of marginal line losses paid.").

³ *Atlantic City Elec. Co. v. PJM Interconnection, L.L.C.*, 117 FERC ¶ 61,169, at P 27 (2006); see also *EPIC Merchant Energy NJ/PA, L.P., et al. v. PJM Interconnection, L.L.C.*, 136 FERC ¶ 61,041, at P 5 (2011) ("any crediting mechanism that does not distort the pricing signals may be acceptable").

transmission outage modeled in the allocation. The inability to prorate awarded ARRs to a value than that which was requested creates an automatic over allocation and FTR revenue inadequacy because the FTR market flows on these infeasible facilities will be higher than the market flows in day-ahead and real-time operations. In essence, the market is revenue inadequate from the start of the Planning Period.

The 2012/2013 Annual ARR allocation cleared infeasible stage 1A ARRs with an approximate value of \$92 million, based on cleared 2012/2013 Annual FTR Auction results. This \$92 million is a potential FTR shortfall amount for the 2012/2013 Planning Period. PJM can more appropriately model the risk of the congestion along the PJM borders as well as the reduced system capability if the initial allocated Stage 1A rights can be made feasible. This risk is of less concern if the balancing real-time congestion is not part of the FTR funding mechanism.

PJM does have a process called the ARR 10-year analysis that will check all existing stage 1A ARRs for the next ten years and apply a load growth factor as determined in the PJM load forecast report. This process will identify any facilities that will need to be upgraded to ensure that future stage 1A ARRs are feasible and the PJM planning group will add any such upgrades to the PJM Regional Transmission Plan. Current infeasible facilities that have been identified did not present an issue in past years because these facilities were either market to market flowgates that were new to PJM in the last year or the facility had less flow in previous years either from actual ARR requests or external PJM flow impacts.

Upgrades will be designed for current infeasible Stage 1A facilities and possible future facilities identified in the ARR 10-year analysis but these facilities will often take several years to be constructed. Furthermore, while PJM has no current actual knowledge of such, based on historical patterns, it is anticipated that even more market to market flowgates will be added in the future and these additional flowgates are likely to cause additional Stage 1A ARR infeasibilities.

5. Transmission Enhancements

The reduced capability associated with congestion along the PJM borders could be improved with the addition of transmission enhancements on the PJM and Midwest ISO systems. There are several avenues in which transmission enhancements are currently being evaluated.

The first avenue is through the PJM Regional Transmission Plan (RTEP). The two major components of the annual PJM RTEP process are Reliability and Market Efficiency planning. The Reliability planning is a series of detailed analyses that ensure reliability under the most stringent of the applicable NERC, PJM or local criteria. This

planning includes analysis simulating both peak load and light load conditions. The peak load analysis ensures deliverability of resources to serve demand under summer peak conditions. The light load reliability analysis ensures that the transmission system is capable of delivering the system generating capacity during off peak times of minimum system loads. The 50% of 50/50 summer peak demand level was chosen as being representative of an average light load condition. The system generating capability modeling assumption for this analysis is that the generation modeled reflects generation by fuel class that historically operates during the light load demand level.

This light load analysis is new to PJM within the last few years. It is of particular interest in the context of the recent PJM FTR revenue inadequacy because most of the PJM recent congestion has been along the PJM borders in the western part of the system during off peak hours where fuel such as wind is most available. The new analysis and has already generated transmission upgrades on the western part of the PJM system. These upgrades are internal PJM facilities and are expected to provide some reduction to congestion when fully integrated. However, upgrades will only be designed for the light load criteria if needed for reliability purposes and therefore recent and future congestion along the PJM borders may or may not be alleviated through light load analysis.

The Market Efficiency analysis will determine if there are transmission upgrades that could be designed that could reduce congestion on the system through a reduction in production costs and load payments. These Market Efficiency upgrades would need to pass the 1.25 benefit/cost threshold required to be included into the PJM RTEP. The Market Efficiency process could also identify already approved reliability upgrades that could be accelerated because of the economic benefits.

Both the reliability and market efficiency aspect of the PJM RTEP are also applied to the interregional coordination with the Midwest ISO through the Market to Market Joint Operating Agreement. This Joint Operating Agreement describes a process to create upgrades that could benefit both the PJM and Midwest ISO markets.

Next, the facilities that were identified in the ARR Stage 1A 10 year analysis and which were infeasible in the Stage 1A allocation for the 2012/2013 planning period will trigger upgrades designed to ensure future feasibility and these upgrades will be included into the PJM RTEP. These facilities include both PJM and Market to Market Flowgates controlled through the Interregional coordination process. The recommended in-service dates for these facilities will be dependent on the ARR 10 year analysis required date.

Another avenue for upgrades is through the Incremental ARR process in which members can be allocated ARRs for funding transmission upgrades that increase ARR

capability on the system. Upgrades associated with incremental ARR will not directly fix already infeasible ARR because the party funding the upgrades will receive those incremental ARR for the additional capability. However, these upgrades will help in reducing congestion on the system.

Finally, several of the facilities along the PJM/Midwest ISO border and a few which were identified in the ARR 10 year analysis are market to market flowgates and have already been identified as future facilities to be upgraded in the Midwest ISO. These facilities along with in-service dates will be evaluated by PJM as potential solutions to the ARR infeasibility.