



**Problem / Opportunity Statement**

The current FTR product lacks transparency. The lack of transparency in the FTR product is due to disconnects between the determinants of FTR target allocations, the determinants of congestion rents collected on FTR paths, the revenues allocated to FTRs and cross subsidies among FTR holders.

**Disconnect between FTR Target Allocations and Congestion Incurred**

The disconnect between the FTR target allocation calculation and total congestion incurred on a specific and aggregate basis reduces the transparency of the FTR product. FTR revenue inadequacy occurs when the total amount of congestion charges and excess FTR auction revenue is not sufficient to cover the value of FTR Target Allocations. Causes of FTR revenue inadequacy include the following: i. when there is less transmission system capability available in actual operations than was assumed to be available in the FTR allocation and auction processes, and ii. when the day-ahead modeling on which FTRs are based does not match the performance of the real-time market. Evidence indicates that UTC arbitrage activity taking advantage of modeling differences between day ahead and real time transmission models exacerbates the effect of modeling differences on FTR funding levels relative to FTRs target allocations.

**Cross subsidies and the disconnect between FTR payouts and Congestion Incurred**

The disconnect between congestion incurred on specific FTR paths and specific FTR payouts of congestion is due, in part, to the cross subsidies among FTR holders.

**Contributing issues**

Generally, where more FTRs are made available than system flow capability, the resulting FTR target allocations will be greater than congestion dollars collected. This result is exacerbated when the day-ahead transmission system model, and resulting modeled flows and modeled constraints, do not match the real time transmission system, and resulting actual flows and actual constraints.

There are several drivers that result in ~~this reduced system~~ reduced system capability relative to what is modeled in the ARR/FTR allocation model. First is the difference between the outages assumed in the FTR model and actual outages on any particular day. Second, is the ongoing volume of scheduled maintenance and construction-related transmission outages, many of which are overlapping, which has diminished the transmission capacity margins relative to what is modeled in the FTR model. Third, ~~external loop flows take up transmission system capability that would otherwise be utilized by internal market participant activity. To the extent that these loop flows are greater than what was expected and modeled in the annual processes, they will contribute to FTR underfunding, target allocations exceeding congestion collected. PJM continues to expect the transmission system performance to improve as construction projects finish, but the volume of ongoing new transmission projects indicates this improvement is still three to four years into the future. Other contributors include modelling differences between the day ahead market and real time market.~~ external loop flows take up transmission system capability that would otherwise be utilized by internal market participant activity. To the extent that these loop flows are greater than what was expected and modeled in the annual processes, they will contribute to FTR underfunding, target allocations exceeding congestion collected. PJM continues to expect the transmission system performance to improve as construction projects finish, but the volume of ongoing new transmission projects indicates this improvement is still three to four years into the future. Other contributors include modelling differences between the day ahead market and real time market.

Another related driver is that the PJM Tariff requires that PJM allocate transmission rights that are known to be infeasible in the annual process in the first stage of the allocation referred to as "Stage 1A". PJM is also required to ensure that transmission upgrades are planned in order to ensure that Stage 1A rights are made and remain feasible for ten years into the future. These Tariff provisions stem from the PJM implementation of a FERC requirement, which in turn flows from the requirements of the Energy Policy Act of 2005, to ensure sufficient availability of long term transmission rights to Load Serving Entities facilitate the planning and expansion of transmission facilities to meet the reasonable needs of load-serving entities to satisfy the service obligations of the load-serving entities, and enables load-serving entities to secure firm transmission rights (or equivalent tradable or financial rights) on a long-term basis for long-term power supply arrangements made, or planned, to meet such needs.

Table 1 – FTR Revenue Shortfall for 2012/2013 and 2013/2014 Planning Years



ARR/FTR Process Problem Statement

Planning Period	Congestion dollars (\$millions)	Total FTR Revenue Inadequacy (\$ millions)	FTR Revenue Adequacy %	FTR Revenue Inadequacy from Stage 1A Infeasible ARR's (\$ millions)	Stage 1A Infeasible ARR's % of FTR Revenue Inadequacy
2012/2013	\$622.6	\$288	68%	\$75	26%
2013/2014 (June thru March)	\$1,698	\$575	75%	\$420	73%

The third and more recently another significant major driver of FTR revenue inadequacy has involved the evolving operating procedures PJM has initiated in order to ensure resources appropriately set LMP when required to operate for reliability. These procedures require PJM to operate for transmission constraints when flows are significantly below the physical ratings in order to reflect the resources being dispatched in the calculated marginal prices. Such resources can be large generating units with restrictive operating parameters, or demand response deployed in anticipation of or during emergency conditions. When LMPs reflect these resources' operation and the flows on the constrained facilities are well below their ratings, significant FTR underfunding can result.

~~With FTR underfunding that has occurred over the last several years, FTRs no longer perform the function of an effective hedge against congestion in the Day Ahead market.~~

Given that FTR funding has remained very low and the drivers appear to be expanding due to the power system operational and supply transition, PJM believes a review of the purpose and function of FTRs (i.e., hedge against day-ahead congestion, mechanism for distribution of congestion revenues, etc.) and a comprehensive overhaul/modification of the FTR allocation and funding mechanism may be warranted.

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Issue Source

PJM initiated this problem statement based on the continuing trend of FTR underfunding and the increasing level to which the infeasibility of allocated Stage 1A ARR's has contributed the level of FTR underfunding.

Red Changes = IMM

Blue Changes = PJM