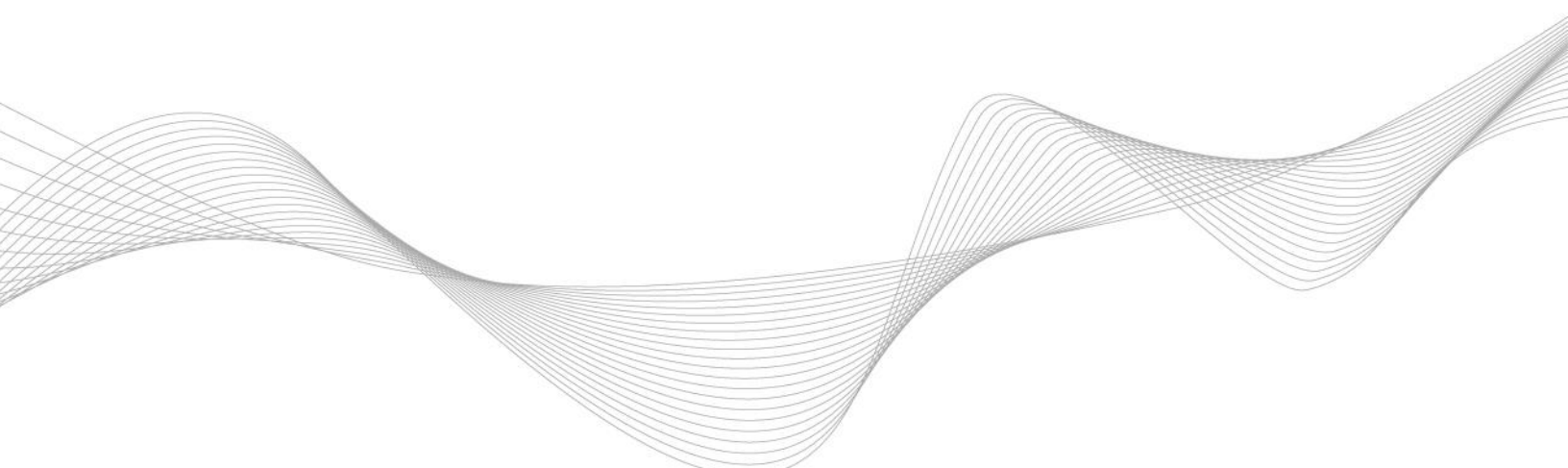




**Financial Market Reform Project
Position Paper
FTR Default Allocation and Central Counter-Party**

June 2019



1 Purpose

This paper examines the topic of who should be subject to allocation of defaulting participant shortfalls in the event of a default in the FTR market, and whether there should be a separate central counter-party (CCP) for FTR trading.

2 Summary

There are three broad options for the socialized allocation of default shortfalls, and central counter-party management of credit risk, related to the FTR market:

- Status quo – retain a single central counter-party for all trade (PJM Settlement); socialize default across all members.
- Common CCP – socialize FTR default only to FTR participants through administrative means, while maintaining a common central counter-party across all trading.
- Dedicated CCP for FTRs – establish a separate central counter-party for the FTR market, which manages its own credit rules; socialize FTR defaults only amongst members of that CCP.

This paper concludes that there are strong equity reasons for isolating FTR credit risk (and hence default allocation) to FTR participants. It further concludes that a structural solution – establishment of a dedicated central counter-party for FTR trading – offers risk management and governance advantages over trying to effect such a change administratively through changes to default allocation rules. The paper also proposes the special purpose role of Congestion Rent Holder (CRH) to codify and make clear the bridge between the day-ahead and FTR markets.

3 Party and Counter-Party

3.1 Forward Contracts in General

A forward contract, at its most basic, is an arrangement for provision of a nominated product (or service) at a specified future time, at an agreed price. In many commodity markets, such as electricity, where reliable cash markets exist for delivery and pricing of the physical product, forward contracts have evolved into a swap of cashflows, for the difference between the agreed (fixed) price, and the underlying reference (floating) price in the cash market.¹

Such contracts are commonly transacted bilaterally, between a single buyer and single seller, though may also be transacted on a multilateral basis, between one or more buyers, and one or more sellers – as is the most electricity market auctions². In either case, total quantity bought equals total quantity sold³, and for every party there must be at least one counter-party.

3.2 The Unique Nature of FTRs

A financial transmission right (FTR) is a forward contract for the price differential (or more precisely, the congestion component of the price) between two defined locations. In that sense, it is a classic 'basis

¹ This paper assumes some knowledge of both cash and forward markets in electricity, and does not attempt to explain the basics of how derivatives markets work. There are many reference sources available for this.

² Electricity market auctions – for cash markets and forward markets such as FTRs – are a sophisticated form of 'call auction'.

³ This applies even in the case of electric losses, which are purchased by the market as a whole.

swap', where the 'fixed' price is the purchase price in the auction, and the 'floating' reference price is the price differential in day-ahead market (DAM) between the two specified locations. The complication arises when considering that the vast majority of 'participants' in the FTR auctions are buyers⁴. But in every market, 'long' (net buyer) and 'short' (net seller) positions must balance.

Who then is the seller? The answer comes from considering how the instrument eventually 'delivers'. Final settlement is against the reference price established in the DAM, and paid out from DAM settlement funds, utilizing the economic 'rents' resulting from congestion in the DAM. The FTR 'seller', therefore, is the 'holder' of the pool of congestion rents in the DAM. This is a function presently performed by PJM Settlement, but for the sake of differentiating roles in this paper, we will refer to this conceptual role as the Congestion Rent Holder (CRH). Similarly, should a participant sell an FTR position into a 'reconfiguration' auction, the CRH is the nominal buyer. The only time the CRH is not part of the transaction is for strict bilateral transfers of an existing FTR with no change to the specified source/sink pair.

4 Central Counter-Party

In addition to the transaction principals, many markets – forward markets in particular – have evolved the use of Central Counter-Parties (CCP). These entities, often referred to as 'clearing houses', act as the buyer to all sellers and seller to all buyers. The CCP structure provides both for contractual mutuality – allowing financial offset between buy and sell transactions – and mutual credit assurance amongst those transacting in the market – ideally protected by a robust system of processes and controls⁵. The multilateral nature of many of PJM's markets, including FTRs – where it is not possible to associate a single buyer with a single seller and establish a bilateral credit relationship – makes them particularly well suited to the use of a CCP.

Presently, PJM Settlement acts as the CCP for all PJM-operated markets. Under this structure, any default amounts not covered by collateral are socialized across all remaining participants. As a result, the participants in each market provide mutual assurance to the participants in all other markets. There is, however, a distinct difference in risk profile between PJM's cash and FTR markets, as well as an appreciable difference in participation (136 accounts with DAM and FTR participation, 142 FTR-only and 1,665 DAM-only).

4.1 FTRs as a Separate Risk Pool

The FTR market has been the principal source of significant default in PJM's markets⁶. This has raised questions as to whether the current default arrangements are equitable to those with little or no involvement in the FTR market, and in turn, whether PJM should limit default allocation associated with the FTR market to only the participants in that market.

The clear benefit of limiting FTR default risk to only FTR participants is that non-participants in the FTR markets can be totally isolated from this risk. Similarly, those who are only minor players in the FTR markets – even if they are major cash market players – would only have minor exposure to socialized default (presuming that socialization is based on some measure of FTR market activity). Separation of the

⁴ This is the case even for 'counterflow' FTRs, which are simply FTRs bought at a negative price.

⁵ For further discussion of CCP benefits, see: Market Reform, [PJM Credit and Clearing Analysis Project: Findings and Recommendations](#), June 2008, Section 3.

⁶ Some earlier defaults, such as Utility.com and Utilimax, occurred in the cash markets. The two large-scale defaults at PJM, however, have both originated in the FTR markets.

FTR credit risk pool would also allow the FTR market to pursue different credit risk management options to the cash markets, such as a more sophisticated trade guarantee structure (the subject of a separate paper).

The principal risk associated with separating the risk pools is that the size of any one default, as a percentage of the trading in that market, would be larger, and thus more difficult to absorb, increasing the chance of a cascading default. Provided the FTR market has a reasonable number of participants, however, such risks can typically be managed through concentration limits.

What is a Cascading Default?

Cascading defaults are a common risk in uncleared bilateral trading. Assume A sells to B, who sells to C, who sells to D. If D defaults, and C fails to receive the money it was expecting, it may also default, and so on, in a daisy chain until everyone collapses, or it reaches a counterparty with deep enough pockets to absorb the default. One well-known instance occurred in the Midwest electricity markets in 1998.

In the case of a central counter-party, for a cascading default to occur it would require that if D defaulted, the socialized share of that default would need to be so large that it forced another participant to default, with that default also being socialized, and so on. While exceedingly more difficult to achieve than a bilateral cascade, it is a valid risk to contemplate. It is one of the reasons clearing houses maintain a range of intermediate protections before resorting to socialization.

Finally, separation of the risk pools would raise its own set of equity issues. If FTR participants exclusively bear the risk of default in the FTR markets, should non-FTR participants have any role in setting credit rules, or determining product set, for the FTR market? The same question could be asked in reverse. Should FTR participants have any role in determining product set or credit rules, or participate in default socialization, in the non-FTR markets?

Can't this all just be solved by better margining?

It has been argued that reforms to credit structure are unnecessary, and the whole problem can be solved by better evaluation of collateral requirements. While better margining models are definitely an important part of any solution, it must be remembered that no model is perfect, and even those that work as intended are not designed to cover 100% of events (99% and 99.7% being common standards). It is therefore prudent to contemplate what would happen in the event posted collateral is insufficient, and the participant is unable to meet a financial call when made. The manifold of protections provided by a CCP – including structural separation, additional layers of guarantee, default allocation, concentration/liquidity protections, etc. – are all part of this.

4.2 A Separate Central Counter-Party for FTRs

Establishing the FTR market as a separate risk pool can be achieved in one of two general ways:

- Administratively – by changing the default allocation rules, while remaining under a common central counter-party (PJM Settlement).
- Structurally – by establishing a separate central counter-party for FTR trading, which would administer the credit risk management practices deemed fit for that market.

Establishment of a separate CCP for FTRs – called FTRCCP for the purposes of this paper – has a number of potential benefits:

- Provides greater flexibility to adopt credit processes and structures specific to the FTR market, including different settlement timelines, trade guarantees specific to FTR trading, etc.
- Easier to have clearly separate governance of credit rules and the FTR product suite (per Recommendation B of the Independent Consultants' Report).
- Keeps default totally quarantined, even in the event of FTR market failure.
- Allows straight-forward transition to use of an external CCP, should this be desired at a later juncture.

On the other hand, there would be costs associated with the establishment and maintenance of such a structure.

Establishment of an FTR CCP would also require a number of ensuing policy questions to be resolved, including:

4.2.1 *How would the linkage between DAM congestion rents and the FTR market be effectuated?*

The DAM produces a set of congestion rents that form an essential part of the stream of funds required to support final settlement (i.e. at expiry) of FTRs. If trading in the DAM and FTR market takes place through different counter-parties, a structure is needed to effectuate the movement of these funds from the former to the latter.

One solution would be to have the FTR CCP receive these funds directly from the DAM CCP, however this would make the FTR CCP a de facto player in the DAM (albeit with a strictly defined purpose). But, as discussed above, there are good reasons to keep the structures entirely separate (e.g. to avoid the FTR CCP receiving a socialized share of a default in the cash markets).

A better solution lies in the Congestion Rent Holder, defined as a conceptual role in Section 3.2. If given structural form, the CRH would serve both as the entity receiving the congestion rents in the DAM, and settling its (short) side of positions in the FTR market (plus paying out ARR, as discussed in 4.2.2). This allows the counter-parties to be confined strictly to their defined roles.

4.2.2 *What is the impact on ARRs?*

In a structure where the roles of the Cash Market CCP, FTR CCP and Congestion Rent Holder (CRH) are clearly delineated, a key question that needs to be answered is – who is the counter-party to, and would have legal responsibility for paying out – ARRs? This is logically the CRH, who has access to both the required revenue streams – the floating revenues from the DAM, and the fixed-for-floating swap from the FTR market – needed to pay out the fixed revenue stream to ARR holders.

Utilization of a separate FTR CCP would not have any impact on the way in which Auction Revenue Rights (ARRs) are allocated. While it is understood that the methodology for this is the topic of some discussion, it is not a credit risk management issue and thus outside the scope of this paper.

4.2.3 *How would FTR under-funding be dealt with?*

A fundamental precept of derivatives markets is that they operate on a 'zero sum game' basis. As the price of a contract fluctuates, gains made by those with long positions must be covered by those with short positions, and vice versa. This applies equally upon final settlement of the contract against the underlying index – this being price differentials in the DAM, in the case of FTRs.

A design aim of the FTR market is that the floating congestion rents collected (by the CRH) in the DAM plus the payout from final settlement of the FTR (be it positive or negative) should exceed the fixed payments owed to ARR holders (as proceeds of the FTR auctions). In some cases, though, they do not – usually due to differences in the system configuration used in the FTR auctions versus that in the DAM – a situation referred to as ‘under-funding’. Under the proposed structure it would be the CRH that is ‘short’ and seeks to socialize any under-funding shortfall. This does not require any changes to the methodology for socialization, nor does it preclude changes to it.

5 The Proposed Model

Figure 1 summarizes this model in diagrammatic form. FTR CCP is the central counter-party for the FTR market – a new PJM entity. Cash CCP is the CCP for all other markets, including the DAM – the existing PJM Settlement. CRH, providing the linkage between the structures, would also be a new PJM entity – giving legal structure to a role effectively bundled today with PJM Settlement. Some participants trade in both the FTR and DAM markets, while others participate in only one or the other. Most participants in the FTR market are buyers, but the model also accommodates FTR sellers (P3). ARR represents the holders of auction revenue rights.

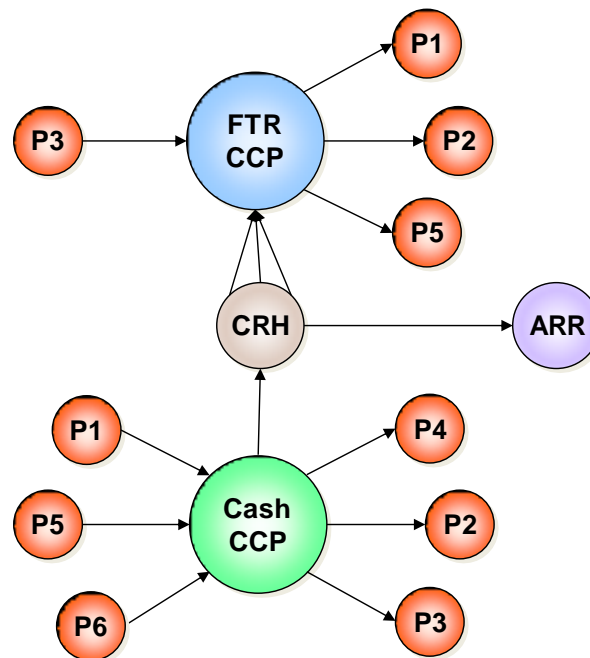


Figure 1 – Proposed FTR Central Counter-Party Model