Analyzing the Impact of Monthly FTR Auctions on Shortfalls and Hedging.

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Topics

- Empirical Questions
- Auction Impact on Shortfalls
- Risk and FTR Prices
- Observations
- Next Steps





Empirical Questions

- What is the maximum potential reduction in congestion rent shortfalls on seasonal FTRs from reducing the availability of FTRs in monthly auctions?
- Are the FTRs cleared by the MISO in monthly auctions sold at prices reflecting a risk premium consistent with their use by load serving entities to hedge risk or do their prices reflect a risk discount, indicating that at margin FTR buyers require a return to hold the FTRs.
- What would be the magnitude in the reduction in the availability of congestion hedges in the monthly auction relative to the reduction in congestion rent short falls?



Auction Impact on Shortfalls

Over the period June 2009 to January 2012, the MISO monthly auctions generated \$18.6 million in net auction revenues. The total day-ahead market payments to FTRs sold in these auctions were \$198.8 million. The day-ahead market pay out to FTRs sold in the monthly auctions therefore averaged \$6.2 million per month and averaged 10.7 times net auction revenues.

- These ratios do not accurately reflect the impact of eliminating monthly FTR auctions.
- They do not account for FTRs sold by market participants in monthly auctions.
- They do not account for counterflow cleared in monthly auctions to reduce the infeasibility of seasonal FTRs.





Auction Impact on Shortfalls

The \$18.6 million net auction revenue figure accounts for FTR auction sales revenues net of payments flowing to market participants for FTRs they sold in the auction.

 The \$198.8 million FTR payout figure only accounts for payments to FTRs purchased by market participants, it does not account for the \$72.1 million that would have been paid to FTRs sold by market participants.

	June 2009 – January 2012				
	FTRS	Auction Value	Prorated Day-ahead Market Payments		
[1]	Purchased	\$136,428,962	\$198,790,614		
[2]	Sold	\$117,786,173	\$72,171,151		
[3]	Net [1] - [2]	\$18,642,789	\$126,619,462		





Auction Impact on Shortfalls

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These auction revenue and day-ahead market payout data also do not reflect the impact of counterflow cleared in the monthly auctions to reduce the infeasibility of seasonal FTRs.

 The clearing of counterflow reduced net monthly auction revenues, but also reduced the day-ahead market payout to seasonal FTRs by a little more than \$40 million (Oct. 2009 – January 2012).

> October 2009 - January 2012 Auction Outcomes Without Counterflow

	Auction Value Pror	ated FTR Payments		
[1]FTRs Purchased	\$122,537,752	\$183,130,050		
[2]FTRs Sold	\$108,233,559	\$68,173,540		
[3]Net [1] – [2]	\$14,304,193	\$114,956,509		
[4]Counterflow	\$55,613,263	\$40,430,381		
[5]Adjusted Net [3] + [4]	\$69,917,456	\$155,386,891 📊 I	- т	



If financial transmission rights are held at the margin by load serving entities or generators using them to hedge congestion charges, we expect the FTR auction price to exceed by at least a little the expected payment to the FTR holder, taking account of any time value of money or other costs.

- Conversely, if financial transmission rights are held at the margin by financial market participants, they will be valued to provide a return to holding them, i.e. as risky financial instruments.
- If financial market participants are the marginal holder of negatively priced, counter flow FTRs, those FTRs must be priced such that the auction price, taking account of the time value of money and other costs, exceeds the expected day-ahead market congestion charges. This is a reasonable outcome and consistent with a risk shifting role of FTRs, as long as the entity holding the negatively priced FTRs is a financially strong entity.





- If, on the other hand, financial market participants are the marginal holder of positively priced FTRs, those FTRs must be priced such that the expected payment, taking account of time value of money and other costs, exceeds the auction price.
- Assessing whether positively priced FTRs are being valued in auctions as risky financial instruments rather than as hedges is not straight forward because we do not observe the expected payment to FTR holders, we observe the actual payment, which reflects the impact of uncertainty.
- In addition, depending on the payment terms, there may be time value of money and other factors to take into account in making such comparisons.





The historical data shows a mixed picture with some categories of FTRs selling at discount to day-ahead market payments and other categories selling at a premium.

	ETDe	Auction Value	Prorated Payout	Auction Ratio
	FIRS	[A]	[B]	[C]
1	All Negatives	-\$119,550,365	-\$74,321,104	1.61
2	All Positives	\$242,088,117	\$257,451,153	0.94
3	0 to 100	\$19,195,117	\$29,283,646	0.66
4	100 to 1000	\$140,113,510	\$151,957,263	0.92
5	> 1000	\$82,779,490	\$76,210,245	1.09
6	Total Bought	\$122,537,752	\$183,130,050	0.67
7	Total Sold	\$108,233,559	\$68,173,540	1.59
8	Total Net Auction Impact [6] - [7]	\$14,304,193	\$114,956,509	0.12
9	Total Negative and Sold [1] - [7]	-\$227,783,924	-\$142,494,644	1.60
10	Counterflows	\$55,613,263	\$40,430,381	1.38
11	Adjusted Total Net [8] + [10]	\$69,917,456	\$155,386,891	0.45
12	Adjusted Negative and Sold [9] + [10]	-\$172,170,661	-\$102,064,263	1.69

Monthly FTR Auction Values and Payments October 2009 to January 2012



It is noteworthy that negatively priced FTRs and FTRs sold by market participants, sold at a substantial premium to dayahead market payments, while high priced FTRs purchased by market participants sold at a much lower premium.

- FTRs are negatively priced because they provide counter flow over a binding constraint
- The price of the positively and negatively priced FTRs are both determined by the shadow price of that constraint in the auction and the FTR payments to both FTRs are determined by the shadow price of constraint in the day-ahead market.





Observations

A factor that needs to be kept in mind in assessing the relationship between the hedging activity of market participants and the marginal valuation of FTRs is that an increase in FTR payout in an auction can have two sources:

- A market participant could acquire an FTR that will receive a net payment in the day-ahead market creating additional flows on a constraint that was not binding;
- A market participant could sell an FTR that would have required a net payment by the market participant in the day-ahead market, reducing counterflows on a constraint that was not binding

In some cases, a material portion of the overall difference between FTR auction value and FTR payments is due to negatively valued FTRs being sold, i.e. counterflow bought back, at a discount to the day-ahead market payments.



Responses to Empirical Questions

- What is the maximum potential reduction in congestion rent shortfalls on seasonal FTRs from reducing the availability of FTRs in monthly auctions?
 - Eliminating monthly auctions would have reduced FTR payouts by a little more than \$2.7 million per month over the period October 2009 through January 2012 (\$115 million avoided net payout less \$40 million increased payout to infeasible seasonal FTRs).



Responses to Empirical Questions

- Are the FTRs cleared by the MISO in monthly auctions sold at prices reflecting a risk premium consistent with their use by load serving entities to hedge risk or do their prices reflect a risk discount, indicating that at margin FTR buyers require a return to hold the FTRs.
 - A substantial volume of the FTRs sold in monthly auctions are sold at prices consistent with their being valued as hedges (e.g. \$82.8 million of FTRs sold at prices in excess of \$1000 over the period October 2009 January 2012).
 - Low priced FTRs (FTRs sold at prices less than \$100) are in aggregate sold in monthly auctions at prices that are consistent with these FTRs being priced as risky financial instruments rather than as hedges.



Responses to Empirical Questions

- What would be the magnitude in the reduction in the availability of congestion hedges in the monthly auction relative to the reduction in congestion rent short falls?
 - More than \$82 million of FTRs priced as hedges would not have been available to market participants in the monthly auction, but total payouts would have been reduced by around \$75 million.
 - A not yet quantified portion of the reduction in MISO payouts, however, would have been increased pay ins by load serving entities assigned counterflow FTRs that they would not have been able to close out in monthly auctions.





Take-Aways and Next Steps

- FTI and MISO will continue to analyze the outcomes in FTR auction markets to identify ways to improve their performance.
- MISO will operationalize insights from the workto-date and any further analyses to enhance market efficiency.





