

## SECTION 8 – FINANCIAL TRANSMISSION AND AUCTION REVENUE RIGHTS

Financial Transmission Rights (FTRs) and Auction Revenue Rights (ARRs) give transmission service customers and PJM members an offset against congestion costs in the Day-Ahead Energy Market. An FTR provides the holder with revenues, or charges, equal to the difference in congestion prices in the Day-Ahead Energy Market across the specific FTR transmission path. An ARR is a related product that provides the holder with revenues, or charges, based on the price differences across the specific ARR transmission path that result from the Annual FTR Auction. FTRs and ARRs provide a hedge against congestion costs, but neither FTRs nor ARRs provide a guarantee that transmission service customers will not pay congestion charges. ARR and FTR holders do not need to physically deliver energy to receive ARR or FTR credits and neither instrument represents a right to the physical delivery of energy.

In PJM, FTRs have been available to network service and long-term, firm, point-to-point transmission service customers as a hedge against congestion costs since the inception of locational marginal pricing (LMP) on April 1, 1998. Effective June 1, 2003, PJM replaced the allocation of FTRs with an allocation of ARRs and an associated Annual FTR Auction.<sup>1</sup> Since the introduction of this auction, FTRs have been available to all transmission service customers and PJM members. Network service and firm point-to-point transmission service customers can take allocated ARRs or the underlying FTRs through a self scheduling process. On June 1, 2007, PJM implemented marginal losses in the calculation of LMP. Since then, FTRs have been valued based on the difference in congestion prices rather than the difference in LMPs.

Firm transmission service customers have access to ARRs/FTRs because they pay the costs of the transmission system that enables firm energy delivery. Firm transmission service customers receive requested ARRs/FTRs to the extent that they are consistent both with the physical capability of the transmission system and with ARR/FTR requests of other eligible customers.

The *2009 Quarterly State of the Market Report for PJM: January through September* focuses on the annual ARR allocations, the Annual FTR Auctions and the Monthly Balance of Planning Period FTR Auctions during two FTR/ARR planning periods: the 2008 to 2009 planning period which covers June

1, 2008, through May 31, 2009, and the 2009 to 2010 planning period which covers June 1, 2009, through May 31, 2010.

### Overview

#### Financial Transmission Rights

#### Market Structure

- Supply.** PJM operates an Annual FTR Auction for all control zones in the PJM footprint. PJM conducts Monthly Balance of Planning Period FTR Auctions for the remaining months of the planning period, to allow participants to buy and sell any residual transmission capability. PJM also runs a Long Term FTR Auction for the three consecutive planning years immediately following the planning year during which the Long Term FTR Auction is conducted. The first Long Term FTR Auction was conducted during the 2008 to 2009 planning period and covers three consecutive planning periods between 2009 and 2012. The second Long Term FTR Auction is being conducted during the 2009 to 2010 planning period and covers three consecutive planning periods between 2010 and 2013. The 2010 to 2013 Long Term FTR Auction results are not presented in this report because the second round results were not posted until after the end of the third quarter. In addition, PJM administers a secondary bilateral market to allow participants to buy and sell existing FTRs. FTR products include FTR obligations and FTR options. FTR options are not available in the Long Term FTR Auction. For each time period, there are three FTR products: 24-hour, on peak and off peak. FTRs have terms varying from one month to three years. FTR supply is limited by the capability of the transmission system to accommodate simultaneously the set of requested FTRs and the numerous combinations of FTRs. The principal binding constraints limiting the supply of FTRs in the Annual FTR Auction for the 2009 to 2010 planning period include the AP South Interface and the Mahans Lane – Tidd line.<sup>2</sup> Market participants can also sell FTRs. In the Annual FTR Auction for the 2009 to 2010 planning period, total FTR sell offers

<sup>1</sup> 87 FERC ¶ 61,054 (1999).

<sup>2</sup> During calendar years 2004 and 2005, PJM conducted the phased integration of five control zones. Four of these, American Electric Power (AEP), The Dayton Power & Light Company (DAY), Duquesne Light Company (DLCO) and Dominion, were eligible for direct allocation FTRs during the 2006 to 2007 planning period, but not the 2007 to 2008, the 2008 to 2009 or the 2009 to 2010 planning period. For additional information on the integrations, their timing and their impact on the footprint of the PJM service territory, see the *2008 State of the Market Report for PJM*, Volume II, Appendix A, "PJM Geography."

were 142,154 MW, up from 83,453 MW during the 2008 to 2009 planning period. In the Monthly Balance of Planning Period FTR Auctions for the first four months (June through September 2009) of the 2009 to 2010 planning period, there were 1,292,896 MW of FTR sell offers.

- **Demand.** There is no limit on FTR demand in any FTR auction. In the Annual FTR Auction for the 2009 to 2010 planning period, total FTR buy bids were 1,436,335 MW, down from 2,181,273 MW during the 2008 to 2009 planning period. Total FTR self scheduled bids were 68,589 MW for the 2009 to 2010 planning period, a decrease from 72,851 MW for the 2008 to 2009 planning period. In the Monthly Balance of Planning Period FTR Auctions for the first four months (June through September 2009) of the 2009 to 2010 planning period, total FTR buy bids were 3,124,431 MW.
- **FTR Credit Issues.** While no participants defaulted in the first nine months of 2009, one participant had losses on annual FTRs that extended into 2009. PJM made multiple filings in 2008 and 2009 to reform its credit policies, focusing particularly on ensuring an appropriate level of credit to cover positions acquired by market participants in counter flow FTRs. The defaults also raised potential market gaming issues, which were addressed, in part, in a PJM filing.<sup>3</sup> These continue to be investigated. On April 3, 2009, the FERC conditionally approved the second in a series of filings by PJM aimed at reform of its credit policies.<sup>4</sup> Effective June 1, 2009, PJM performs weekly rather than monthly billing and payment for the majority of invoice line items, reduced the Unsecured Credit Allowance by two-thirds, eliminated the Unsecured Credit Allowance in support of trading in FTRs, and implemented procedures that allow it to close out and liquidate forward FTR positions held by Market Participants who have defaulted on their obligations.
- **Patterns of Ownership.** The ownership concentration of cleared FTR buy bids resulting from the 2009 to 2010 Annual FTR Auction was low to moderate for FTR obligations and high for FTR options. The level of concentration is only descriptive and is not a measure of the competitiveness of FTR market structure as the ownership positions resulted from a competitive auction. In order to provide additional information about the ownership of prevailing flow and counter flow

FTRs, the Market Monitoring Unit (MMU) categorized all participants owning FTRs in PJM as either physical or financial. Physical entities include utilities and customers which primarily take physical positions in PJM markets. Financial entities include banks and hedge funds which primarily take financial positions in PJM markets. During the 2009 to 2010 planning period, physical entities own two thirds of prevailing flow Annual FTRs while financial entities own more than half of counter flow Annual FTRs. Overall, financial entities own about 38 percent of all Annual FTRs. Financial entities own about 71 percent of prevailing flow and 81 percent of counter flow Monthly Balance of Planning Period FTRs from January 2009 through September 2009. Overall, financial entities own about 75 percent of all Monthly Balance of Planning Period FTRs.

### Market Performance

- **Volume.** For the 2009 to 2010 planning period, the Annual FTR Auction cleared 155,612 MW (10.8 percent) of FTR buy bids, down from 204,349 MW (9.4 percent of demand) for the 2008 to 2009 planning period. The Annual FTR Auction also cleared 7,399 MW (5.2 percent) of FTR sell offers for the 2009 to 2010 planning period, up from 4,534 MW (5.4 percent) for the 2008 to 2009 planning period. For the first four months of the 2009 to 2010 planning period, the Monthly Balance of Planning Period FTR Auctions cleared 305,678 MW (9.8 percent) of FTR buy bids and 112,608 MW (8.7 percent) of FTR sell offers.
- **Price.** For the 2009 to 2010 planning period, 83.2 percent of the Annual FTRs were purchased for less than \$1 per MWh and 90.6 percent for less than \$2 per MWh. For the 2009 to 2010 planning period, the weighted-average prices paid for annual buy-bid FTR obligations were \$0.66 per MWh for 24-hour FTRs, \$0.57 per MWh for on peak FTRs and \$0.40 per MWh for off peak FTRs. Comparable, weighted-average prices paid for annual buy-bid FTR obligations for the 2008 to 2009 planning period were \$1.96 per MWh for 24-hour FTRs and \$0.55 per MWh for on peak FTRs and \$0.26 per MWh for off peak FTRs. The weighted-average prices paid for 2009 to 2010 planning period annual buy-bid FTR obligations and options were \$0.53 per MWh and \$0.35 per MWh, respectively, compared to \$0.69 per MWh and \$0.24 per MWh, respectively, in the 2008 to 2009 planning period.<sup>5</sup> The weighted-average price paid for buy-bid FTRs in the Monthly Balance of Planning

<sup>3</sup> PJM Interconnection, L.L.C. made a filing under section 205 of the Federal Power Act to amend section 15.2 of the PJM Operating Agreement concerning defaults on short FTR portfolios in Docket No. ER08-455-000, (January 18, 2008).

<sup>4</sup> 127 FERC ¶61,017. The FERC has approved PJM's proposed revisions to its credit policy in Docket No. ER08-376-000. 122 FERC ¶61,279 (2008). PJM has notified the Commission of its intent to file in 2009 an additional proposal that will provide "clarification and definition of the commercial and legal relationship of PJM to its market participants in context of both pool and non-pool transactions. 127 FERC ¶61,017 at P.3.

<sup>5</sup> Weighted-average prices for FTRs in the Long Term FTR Auction, Annual FTR Auction and Monthly Balance of Planning Period FTR Auctions are the average prices weighted by the MW and hours in a time period (planning period or month) for each FTR class type: 24-hour, on peak and off peak. For example, FTRs in the 2009 to 2010 Annual FTR Auction would be weighted by their MW and the hours in that time period for each FTR class type: 24-hour (8,760 hours), on peak (4,096 hours) and off peak (4,664 hours).

Period FTR Auctions for the first four months of the 2009 to 2010 planning period was \$0.24 per MWh, compared with \$0.30 per MWh in the Monthly Balance of Planning Period FTR Auctions for the full 12-month 2008 to 2009 planning period.

- **Revenue.** The Annual FTR Auction generated \$1,329.8 million of net revenue for all FTRs during the 2009 to 2010 planning period, down from \$2,422.6 million for the 2008 to 2009 planning period. The Monthly Balance of Planning Period FTR Auctions generated \$8.8 million in net revenue for all FTRs during the first four months of the 2009 to 2010 planning period.
- **Revenue Adequacy.** FTRs were 100 percent revenue adequate for the 2008 to 2009 planning period. FTRs were paid at 96 percent of the target allocation level for the first four months of the 2009 to 2010 planning period. Congestion revenues are allocated to FTR holders based on FTR target allocations. PJM collected \$199.7 million of FTR revenues during the first four months of the 2009 to 2010 planning period and \$1,748.3 million during the 2008 to 2009 planning period. For the first four months of the 2009 to 2010 planning period, the top sink and top source with the highest positive FTR target allocations were the AEP west of Mon Power aggregate and the Mount Storm buses, respectively. Similarly, the top sink and top source with the largest negative FTR target allocations were Midwest ISO and the Western Hub, respectively.

## Auction Revenue Rights

### Market Structure

- **Supply.** ARR supply is limited by the capability of the transmission system to simultaneously accommodate the set of requested ARRs and the numerous combinations of feasible ARRs. The principal binding constraints that limited supply in the annual ARR allocation for the 2009 to 2010 planning period were the AP South Interface and the Electric Junction — Frontenac line. Long Term ARRs are in effect for 10 consecutive planning periods and are available in Stage 1A of the annual ARR allocation. Residual ARRs are available to holders with prorated Stage 1A or 1B ARRs if additional transmission capability is added during the planning period.

- **Demand.** Total demand in the annual ARR allocation was 140,037 MW for the 2009 to 2010 planning period with 64,987 MW bid in Stage 1A, 26,517 MW bid in Stage 1B and 48,533 MW bid in Stage 2. This is down from 140,668 MW for the 2008 to 2009 planning period with 64,546 MW bid in Stage 1A, 27,291 MW bid in Stage 1B and 48,831 MW bid in Stage 2. ARR demand is limited by the total amount of network service and firm point-to-point transmission service.
- **ARR Reassignment for Retail Load Switching.** When retail load switches among load-serving entities (LSEs), a proportional share of the ARRs and their associated revenue are reassigned from the LSE losing load to the LSE gaining load. ARR reassignment occurs only if the LSE losing load has ARRs with a net positive economic value. An LSE gaining load in the same control zone is allocated a proportional share of positively valued ARRs within the control zone based on the shifted load. There were 6,100 MW of ARRs associated with approximately \$115,500 per MW-day of revenue that were reassigned in the first four months of the 2009 to 2010 planning period. There were 15,326 MW of ARRs associated with approximately \$533,900 per MW-day of revenue that were reassigned for the full 2008 to 2009 planning period.

### Market Performance

- **Volume.** Of 140,037 MW in ARR requests for the 2009 to 2010 planning period, 109,413 MW (78.1 percent) were allocated. There were 64,913 MW allocated in Stage 1A, 26,514 MW allocated in Stage 1B and 17,986 MW allocated in Stage 2. Eligible market participants self scheduled 68,589 MW (62.7 percent) of these allocated ARRs as Annual FTRs. Of 140,668 MW in ARR requests for the 2008 to 2009 planning period, 112,011 MW (79.6 percent) were allocated. There were 64,520 MW allocated in Stage 1A, 26,685 MW allocated in Stage 1B and 20,806 MW allocated in Stage 2. Eligible market participants self scheduled 72,851 MW (65.0 percent) of these allocated ARRs as Annual FTRs.
- **Revenue.** As ARRs are allocated to qualifying customers rather than sold, there is no ARR revenue comparable to the revenue that results from the FTR auctions.
- **Revenue Adequacy.** During the 2009 to 2010 planning period, ARR holders will receive \$1,273.5 million in ARR credits, with an average hourly ARR credit of \$1.33 per MWh. During the 2009 to 2010 planning period, the ARR target allocations were \$1,273.5 million while PJM

collected \$1,338.6 million from the combined Annual and Monthly Balance of Planning Period FTR Auctions through September 2009, making ARR revenue adequate. During the 2008 to 2009 planning period, ARR holders received \$2,361.3 million in ARR credits, with an average hourly ARR credit of \$2.41 per MWh. For the 2008 to 2009 planning period, the ARR target allocations were \$2,361.3 million while PJM collected \$2,489.6 million from the combined Annual and Monthly Balance of Planning Period FTR Auctions, making ARR revenue adequate.

- **ARR Proration.** When ARRs were allocated for the 2009 to 2010 planning period, some of the requested ARRs were prorated in Stage 2 as a result of binding transmission constraints. No ARRs were prorated in Stage 1A and Stage 1B since there were no constraints affecting the ARR allocation in these two stages. For the 2008 to 2009 planning period, no ARRs were prorated in Stage 1A of the annual ARR allocation. In Stage 1B, the only constraint affecting the ARR allocation was the Cedar Grove — Clifton line. There were 605.4 MW of Stage 1B ARRs denied to participants whose requested ARRs affected that binding transmission constraint.
- **ARRs and FTRs as a Hedge against Congestion.** The effectiveness of ARRs and FTRs as a hedge against actual congestion can be measured several ways. The first is to compare the revenue received by ARR holders to the congestion costs experienced by these ARR holders. The second is to compare the revenue received by FTR holders to the total congestion costs within PJM. The final and comprehensive method is to compare the revenue received by all ARR and FTR holders to total actual congestion costs in the Day-Ahead Energy Market and the balancing energy market within PJM. For the 2008 to 2009 planning period, all ARRs and FTRs hedged more than 100 percent of the congestion costs within PJM. During the first four months of the 2009 to 2010 planning period, total ARR and FTR revenues hedged 92.1 percent of the congestion costs within PJM.
- **ARRs and FTRs as a Hedge against Total Energy Costs.** The hedge provided by ARRs can also be measured by comparing the value of the ARR and self-scheduled FTRs that sink in a zone to the cost of real time energy in the zone. This is a measure of the value of the hedge against real time energy costs provided by ARRs received by loads during this period. The total value of ARRs was 3.5 percent of the total real time energy charges for the first three quarters of 2009.

The hedge provided by FTRs can also be measured by comparing the value of the FTRs that sink in a zone to the cost of real time energy in the zone. The total net value of FTRs was minus 1.0 percent of the total real time energy charges for the first three quarters of 2009 because the purchase cost exceeded the value of the credits. When combined, the sum is a measure of the total value of ARRs plus FTRs. The total value of ARRs plus FTRs was 2.5 percent of the total real time energy charges for the first three quarters of 2009.

## Conclusion

The annual ARR allocation and the FTR auctions provide market participants with hedging instruments. These instruments can be used for hedging positions or for speculation. The Long Term FTR Auction, the Annual FTR Auction and the Monthly Balance of Planning Period FTR Auctions provide a market valuation of FTRs. The FTR auction results for the 2009 to 2010 planning period were competitive and succeeded in providing all qualified market participants with equal access to FTRs. The MMU recommends that the rules for ARR reassignment when load shifts should address the fact that in the case of ARRs self scheduled as FTRs, the underlying FTRs do not follow the load while the ARRs do.

ARRs were 100 percent revenue adequate for both the 2008 to 2009 and the 2009 to 2010 planning periods. FTRs were paid at 100 percent of the target allocation level for the 12-month period of the 2008 to 2009 planning period, and at 96 percent of the target allocation level for the first four months of the 2009 to 2010 planning period. Revenue adequacy for a planning period is not final until the end of the period.

Revenue adequacy must be distinguished from the adequacy of FTRs as a hedge against congestion. Revenue adequacy is a narrower concept that compares the revenues available to cover congestion across specific paths for which FTRs were available and purchased. The adequacy of FTRs as a hedge against congestion compares FTR revenues to total congestion on the system as a measure of the extent to which FTRs hedged market participants against actual, total congestion across all paths, regardless of the availability or purchase of FTRs.

The total of ARR and FTR revenues hedged more than 100 percent of the congestion costs in the Day-Ahead Energy Market and the balancing energy market within PJM for the 2008 to 2009 planning period and 92.1

percent of the congestion costs in PJM for the first four months of the 2009 to 2010 planning period. The ARR and FTR revenue adequacy results are aggregate results and all those paying congestion charges were not necessarily hedged at that level. Aggregate numbers do not reveal the underlying distribution of FTR holders, their revenues or those paying congestion.

## Financial Transmission Rights

### Patterns of Ownership

*Table 8-1 Monthly Balance of Planning Period FTR Auction patterns of ownership by FTR direction: January through September 2009 (See 2008 SOM Table 8-5)*

Organization Type	FTR Direction		
	Prevailing Flow	Counter Flow	All
Physical	28.8%	19.2%	24.8%
Financial	71.2%	80.8%	75.2%
Total	100.0%	100.0%	100.0%

## Market Performance

## Volume

Table 8-2 Monthly Balance of Planning Period FTR Auction market volume: January through September 2009 (See 2008 SOM Table 8-9)

Monthly Auction Requested	Hedge Type	Trade Type	Bid and Requested Count	Bid and Requested Volume (MW)	Cleared Volume (MW)	Cleared Volume	Uncleared Volume (MW)	Uncleared Volume
Jan-09	Obligations	Buy bids	166,943	648,482	59,472	9.2%	589,011	90.8%
		Sell offers	36,552	172,413	17,489	10.1%	154,924	89.9%
	Options	Buy bids	473	25,043	3,628	14.5%	21,415	85.5%
		Sell offers	475	13,010	1,871	14.4%	11,139	85.6%
Feb-09	Obligations	Buy bids	167,297	613,252	54,064	8.8%	559,188	91.2%
		Sell offers	33,278	135,132	13,663	10.1%	121,469	89.9%
	Options	Buy bids	1,000	26,021	1,408	5.4%	24,613	94.6%
		Sell offers	399	11,925	1,370	11.5%	10,555	88.5%
Mar-09	Obligations	Buy bids	153,613	542,094	54,409	10.0%	487,685	90.0%
		Sell offers	43,579	176,838	14,931	8.4%	161,907	91.6%
	Options	Buy bids	738	38,982	4,626	11.9%	34,356	88.1%
		Sell offers	472	12,300	1,382	11.2%	10,918	88.8%
Apr-09	Obligations	Buy bids	121,034	417,636	49,603	11.9%	368,034	88.1%
		Sell offers	31,574	131,945	12,924	9.8%	119,021	90.2%
	Options	Buy bids	204	22,992	614	2.7%	22,379	97.3%
		Sell offers	353	8,776	1,607	18.3%	7,168	81.7%
May-09	Obligations	Buy bids	79,272	285,448	31,020	10.9%	254,428	89.1%
		Sell offers	19,030	70,521	8,843	12.5%	61,678	87.5%
	Options	Buy bids	131	9,750	183	1.9%	9,567	98.1%
		Sell offers	195	2,585	1,345	52.0%	1,240	48.0%
Jun-09	Obligations	Buy bids	202,097	807,023	72,951	9.0%	734,073	91.0%
		Sell offers	79,699	276,795	24,514	8.9%	252,281	91.1%
	Options	Buy bids	734	40,968	2,552	6.2%	38,416	93.8%
		Sell offers	5,377	69,781	11,567	16.6%	58,214	83.4%
Jul-09	Obligations	Buy bids	196,831	802,217	67,977	8.5%	734,240	91.5%
		Sell offers	79,359	300,588	22,533	7.5%	278,055	92.5%
	Options	Buy bids	547	47,525	2,954	6.2%	44,570	93.8%
		Sell offers	4,264	60,406	7,011	11.6%	53,396	88.4%
Aug-09	Obligations	Buy bids	202,379	702,162	76,065	10.8%	626,096	89.2%
		Sell offers	70,434	245,516	17,981	7.3%	227,535	92.7%
	Options	Buy bids	101	6,290	1,287	20.5%	5,003	79.5%
		Sell offers	3,264	48,784	4,111	8.4%	44,673	91.6%
Sep-09	Obligations	Buy bids	173,626	681,422	79,711	11.7%	601,711	88.3%
		Sell offers	67,180	237,135	18,347	7.7%	218,788	92.3%
	Options	Buy bids	474	36,824	2,180	5.9%	34,644	94.1%
		Sell offers	3,565	53,891	6,546	12.1%	47,345	87.9%
2008/2009*	Obligations	Buy bids	2,143,034	9,449,644	782,007	8.3%	8,667,637	91.7%
		Sell offers	504,152	1,991,496	226,544	11.4%	1,764,952	88.6%
	Options	Buy bids	11,754	773,793	22,209	2.9%	751,584	97.1%
		Sell offers	6,550	180,904	32,203	17.8%	148,701	82.2%
2009/2010*	Obligations	Buy bids	774,933	2,992,824	296,704	9.9%	2,696,120	90.1%
		Sell offers	296,672	1,060,034	83,374	7.9%	976,660	92.1%
	Options	Buy bids	1,856	131,606	8,974	6.8%	122,633	93.2%
		Sell offers	16,470	232,862	29,234	12.6%	203,628	87.4%

\* Shows twelve months for 2008/2009 and four months ended 30-Sep-2009 for 2009/2010

**Table 8-3 Monthly Balance of Planning Period FTR Auction buy-bid bid and cleared volume (MW per period): January through September 2009 (See 2008 SOM Table 8-10)**

Monthly Auction	MW Type	Current Month	Second Month	Third Month	Q1	Q2	Q3	Q4	Total
Jan-09	Bid	299,268	129,139	99,968				145,151	673,525
	Cleared	41,932	9,425	3,985				7,758	63,100
Feb-09	Bid	311,274	106,999	93,220				127,781	639,274
	Cleared	37,183	6,216	5,347				6,727	55,472
Mar-09	Bid	305,146	120,085	115,103				40,741	581,075
	Cleared	41,859	8,073	6,687				2,415	59,034
Apr-09	Bid	306,763	133,866						440,629
	Cleared	41,884	8,332						50,216
May-09	Bid	295,198							295,198
	Cleared	31,204							31,204
Jun-09	Bid	283,451	121,774	119,403	24,320	104,418	102,266	92,358	847,992
	Cleared	33,822	9,100	8,599	2,500	7,967	7,524	5,991	75,503
Jul-09	Bid	306,644	133,812	95,573		100,333	107,062	106,318	849,742
	Cleared	38,785	8,346	3,991		5,869	6,325	7,615	70,932
Aug-09	Bid	314,301	85,842	75,477		69,309	79,140	84,383	708,452
	Cleared	47,960	6,627	6,057		4,214	5,276	7,219	77,353
Sep-09	Bid	342,826	89,939	86,533		22,245	90,764	85,939	718,246
	Cleared	52,579	7,095	6,539		2,150	6,268	7,260	81,891

**Table 8-4 Secondary bilateral FTR market volume: Planning periods 2008 to 2009 and 2009 to 2010<sup>6</sup> (See 2008 SOM Table 8-11)**

Planning Period	Hedge Type	Class Type	Secondary (MW)
2008/2009	Obligation	24-Hour	800
		On Peak	1,133
		Off Peak	9
		Total	1,942
	Option	24-Hour	0
		On Peak	6
Off Peak		0	
	Total	6	
2009/2010*	Obligation	24-Hour	1,438
		On Peak	0
		Off Peak	125
	Total	1,563	

\* Shows four months ended 30-Sep-2009

6 The 2009 to 2010 planning period covers the 2009 to 2010 Annual FTR Auction and the Monthly Balance of Planning Period FTR Auctions through September 30, 2009.

Price

Table 8-5 Monthly Balance of Planning Period FTR Auction cleared, weighted-average, buy-bid price per period (Dollars per MWh): January through September 2009 (See 2008 SOM Table 8-14)

Monthly Auction	Current Month	Second Month	Third Month	Q1	Q2	Q3	Q4	Total
Jan-09	\$0.08	\$0.18	\$0.24				\$0.04	\$0.09
Feb-09	\$0.10	\$0.28	\$0.21				\$0.21	\$0.16
Mar-09	\$0.11	\$0.25	\$0.17				\$0.55	\$0.18
Apr-09	\$0.12	\$0.24						\$0.14
May-09	\$0.09							\$0.09
Jun-09	\$0.17	\$0.25	\$0.17	\$1.16	\$0.37	\$0.48	\$0.46	\$0.38
Jul-09	\$0.17	\$0.40	\$0.17		\$0.25	\$0.31	\$0.23	\$0.24
Aug-09	\$0.06	\$0.15	\$0.19		\$0.16	\$0.15	\$0.16	\$0.12
Sep-09	\$0.12	\$0.28	\$0.23		\$0.10	\$0.37	\$0.34	\$0.22

Revenue

Monthly Balance of Planning Period FTR Auction Revenue

Figure 8-1 Ten largest positive and negative revenue producing FTR sinks purchased in the Monthly Balance of Planning Period FTR Auctions: Planning period 2009 to 2010 through September 30, 2009 (See 2008 SOM Figure 8-7)

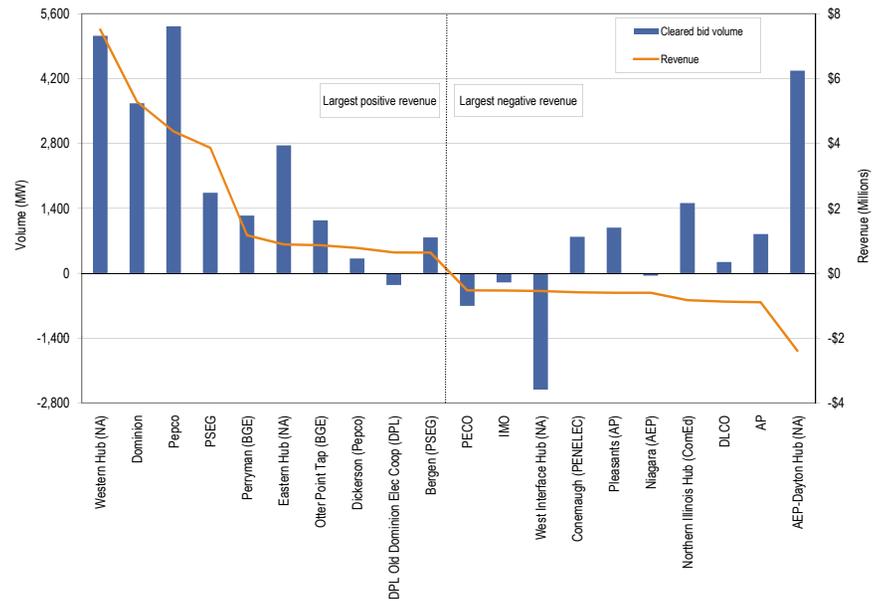


Figure 8-2 Ten largest positive and negative revenue producing FTR sources purchased in the Monthly Balance of Planning Period FTR Auctions: Planning period 2009 to 2010 through September 30, 2009 (See 2008 SOM Figure 8-8)

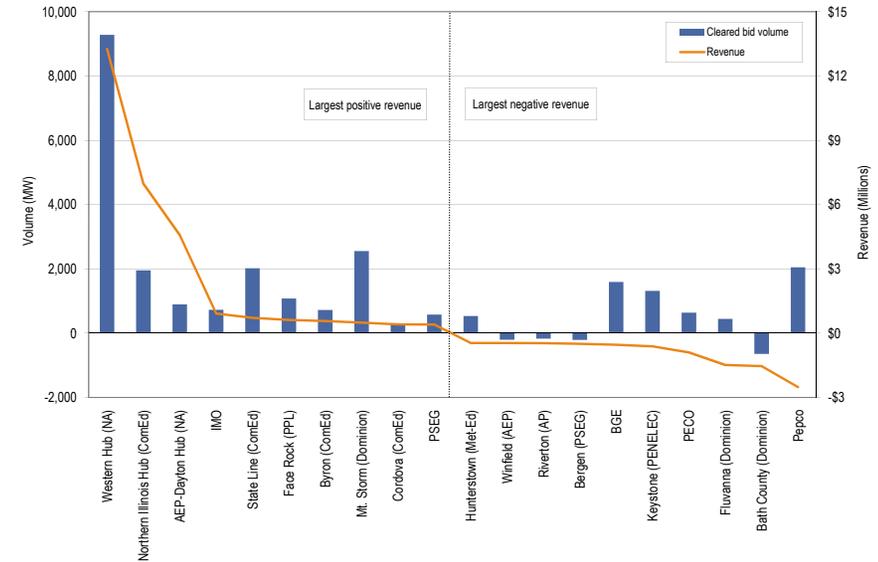


Table 8-6 Monthly Balance of Planning Period FTR Auction revenue: January through September 2009 (See 2008 SOM Table 8-17)

Monthly Auction	Hedge Type	Trade Type	Class Type			
			24-Hour	On Peak	Off Peak	All
Jan-09	Obligations	Buy bids	\$1,207,292	\$934,011	\$244,584	\$2,385,888
		Sell offers	\$248,591	\$573,963	\$77,911	\$900,466
	Options	Buy bids	\$26,505	\$140,359	\$145,245	\$312,108
		Sell offers	\$0	\$203,453	\$129,447	\$332,900
Feb-09	Obligations	Buy bids	(\$83,145)	\$2,193,269	\$1,332,926	\$3,443,050
		Sell offers	\$413,446	\$1,442,454	\$530,041	\$2,385,941
	Options	Buy bids	\$31,233	\$278,934	\$178,062	\$488,229
		Sell offers	\$0	\$193,821	\$118,916	\$312,737
Mar-09	Obligations	Buy bids	\$395,276	\$2,107,188	\$1,467,981	\$3,970,446
		Sell offers	\$308,687	\$1,724,949	\$1,167,153	\$3,200,789
	Options	Buy bids	\$34,097	\$435,416	\$54,453	\$523,967
		Sell offers	\$0	\$181,733	\$52,487	\$234,221
Apr-09	Obligations	Buy bids	(\$223,411)	\$1,471,041	\$1,062,859	\$2,310,489
		Sell offers	\$19,324	\$954,279	\$602,223	\$1,575,826
	Options	Buy bids	\$1,511	\$291,731	\$15,883	\$309,126
		Sell offers	\$0	\$260,520	\$67,733	\$328,253
May-09	Obligations	Buy bids	(\$234,075)	\$902,305	\$371,453	\$1,039,683
		Sell offers	(\$12,927)	\$429,537	\$118,031	\$534,641
	Options	Buy bids	\$0	\$10,099	\$8,754	\$18,854
		Sell offers	\$1,336	\$115,521	\$48,174	\$165,031
Jun-09	Obligations	Buy bids	(\$455,827)	\$9,859,792	\$7,471,308	\$16,875,272
		Sell offers	\$940,697	\$4,742,041	\$3,783,072	\$9,465,811
	Options	Buy bids	\$0	\$454,961	\$67,016	\$521,977
		Sell offers	\$21,245	\$3,150,642	\$1,819,405	\$4,991,291
Jul-09	Obligations	Buy bids	\$415,277	\$4,786,066	\$4,229,832	\$9,431,174
		Sell offers	(\$59,890)	\$2,992,345	\$2,645,320	\$5,577,775
	Options	Buy bids	\$25,700	\$221,441	\$78,308	\$325,449
		Sell offers	\$1,231	\$959,249	\$766,196	\$1,726,677
Aug-09	Obligations	Buy bids	\$300,985	\$2,594,442	\$1,835,069	\$4,730,497
		Sell offers	(\$35,209)	\$1,385,079	\$1,265,654	\$2,615,525
	Options	Buy bids	\$0	\$151,123	\$3,931	\$155,054
		Sell offers	\$130	\$512,880	\$284,359	\$797,368
Sep-09	Obligations	Buy bids	\$1,017,942	\$4,713,934	\$3,266,091	\$8,997,967
		Sell offers	\$453,760	\$3,108,304	\$2,190,037	\$5,752,101
	Options	Buy bids	\$42,397	\$103,279	\$85,804	\$231,480
		Sell offers	\$2,554	\$1,000,222	\$537,203	\$1,539,979
2008/2009*	Obligations	Buy bids	\$18,536,366	\$62,983,127	\$39,113,790	\$120,633,283
		Sell offers	\$10,238,514	\$20,746,786	\$12,003,977	\$42,989,277
	Options	Buy bids	\$164,213	\$5,175,296	\$2,995,811	\$8,335,320
		Sell offers	\$26,515	\$13,614,983	\$5,286,634	\$18,928,133
2009/2010*	Obligations	Buy bids	\$1,278,377	\$21,954,234	\$16,802,299	\$40,034,910
		Sell offers	\$1,299,358	\$12,227,769	\$9,884,084	\$23,411,211
	Options	Buy bids	\$68,097	\$930,803	\$235,060	\$1,233,960
		Sell offers	\$25,160	\$5,622,993	\$3,407,163	\$9,055,315

\* Shows twelve months for 2008/2009 and four months ended 30-Sep-2009 for 2009/2010

**Revenue Adequacy****Table 8-7 Total annual PJM FTR revenue detail (Dollars (Millions)): Planning periods 2008 to 2009 and 2009 to 2010 (See 2008 SOM Table 8-18)**

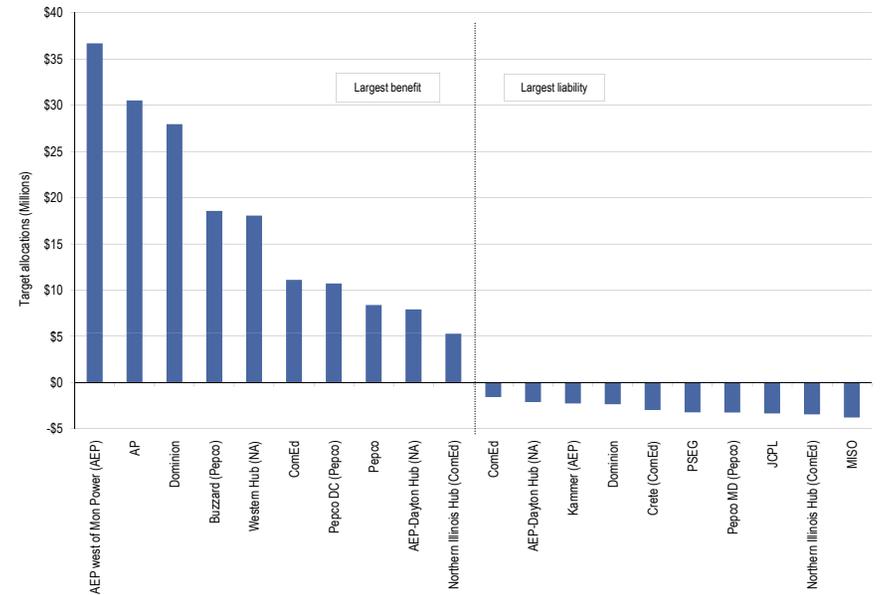
Accounting Element	2008/2009	2009/2010*
<b>ARR information</b>		
ARR target allocations	\$2,361.3	\$426.0
FTR auction revenue	\$2,489.6	\$454.9
ARR excess	\$128.3	\$28.9
<b>FTR targets</b>		
FTR target allocations	\$1,747.9	\$208.3
<b>Adjustments:</b>		
Adjustments to FTR target allocations	(\$4.1)	(\$0.1)
Total FTR targets	\$1,743.8	\$208.2
<b>FTR revenues</b>		
ARR excess	\$128.3	\$28.9
Competing uses	\$0.7	\$0.0
<b>Congestions</b>		
Net Negative Congestion (enter as negative)	(\$59.0)	(\$14.8)
Hourly congestion revenue	\$1,735.7	\$200.3
Midwest ISO M2M (credit to PJM minus credit to Midwest ISO)	(\$52.3)	(\$14.2)
Consolidated Edison Company of New York and Public Service Electric and Gas Company Wheel (CEPSW) congestion credit to Con Edison (enter as negative)	(\$3.1)	(\$0.3)
<b>Adjustments:</b>		
Excess revenues carried forward into future months	\$36.8	\$23.5
Excess revenues distributed back to previous months	\$16.1	\$0.0
Other adjustments to FTR revenues	(\$2.0)	\$0.0
Total FTR revenues	\$1,801.2	\$223.2
Excess revenues distributed to other months	(\$30.0)	(\$23.5)
Excess revenues distributed to CEPSW for end-of-year distribution	\$0.5	\$0.0
Excess revenues distributed to FTR holders	\$4.0	\$0.0
Total FTR congestion credits	\$1,743.8	\$199.7
Total congestion credits on bill (includes CEPSW and end-of-year distribution)	\$1,751.4	\$200.0
Remaining deficiency	\$0.0	\$8.5

\* Shows four months ended 30-Sep-09

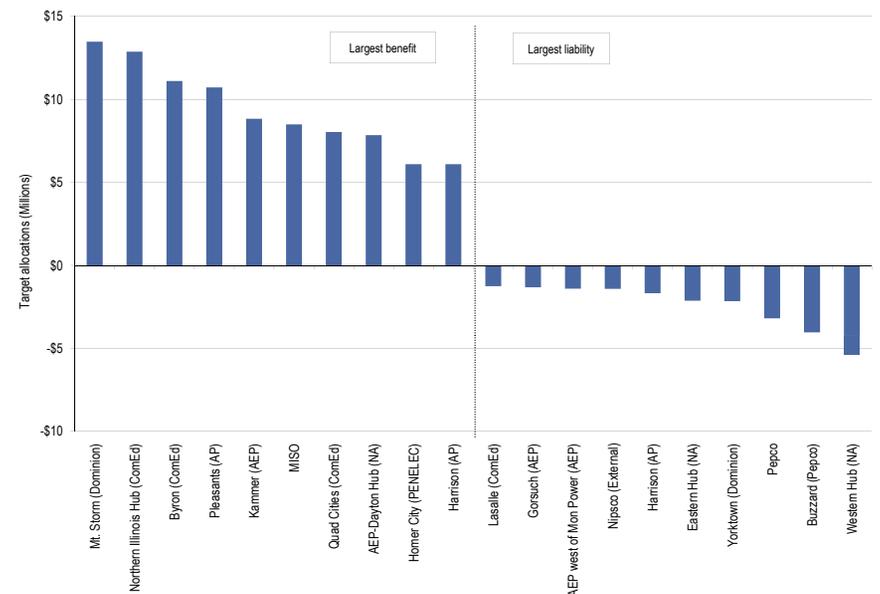
**Table 8-8 Monthly FTR accounting summary (Dollars (Millions)): Planning periods 2008 to 2009 and 2009 to 2010 (See 2008 SOM Table 8-19)**

Period	FTR Revenues	FTR Target Allocations	FTR Credits	FTR Payout Ratio	Credits Deficiency	Credits Excess
Jun-08	\$436.9	\$432.3	\$432.3	100%	\$0	\$4.7
Jul-08	\$371.4	\$364.2	\$364.2	100%	\$0	\$7.2
Aug-08	\$140.5	\$125.0	\$125.0	100%	\$0	\$15.4
Sep-08	\$154.6	\$154.6	\$154.6	100%	\$0	\$0.0
Oct-08	\$109.4	\$109.4	\$109.4	100%	\$0	\$0.0
Nov-08	\$97.2	\$97.2	\$97.2	100%	\$0	\$0.0
Dec-08	\$85.3	\$77.6	\$77.6	100%	\$0	\$7.7
Jan-09	\$159.5	\$151.1	\$151.1	100%	\$0	\$8.4
Feb-09	\$92.0	\$84.3	\$84.3	100%	\$0	\$7.7
Mar-09	\$86.7	\$86.7	\$86.7	100%	\$0	\$0.0
Apr-09	\$32.8	\$31.1	\$31.1	100%	\$0	\$1.7
May-09	\$34.8	\$30.3	\$30.3	100%	\$0	\$4.5
Summary for Planning Period 2008 to 2009						
Total	\$1,748.3	\$1,743.8	\$1,743.8	100%	\$0	\$4.5
Jun-09	\$54.6	\$43.9	\$43.9	100%	\$0	\$10.7
Jul-09	\$53.2	\$40.4	\$40.4	100%	\$0	\$12.8
Aug-09	\$87.9	\$92.4	\$87.9	95.1%	\$4.5	\$0.0
Sep-09	\$27.5	\$31.5	\$27.5	87.4%	\$4.0	\$0.0
Summary for Planning Period 2009 to 2010 through Sep 30, 2009						
Total	\$199.7	\$208.2	\$199.7	95.9%	\$8.5	\$0.0

**Figure 8-3 Ten largest positive and negative FTR target allocations summed by sink: Planning period 2009 to 2010 through September 30, 2009 (See 2008 SOM Figure 8-9)**



**Figure 8-4 Ten largest positive and negative FTR target allocations summed by source: Planning period 2009 to 2010 through September 30, 2009 (See 2008 SOM Figure 8-10)**



## Auction Revenue Rights

### Market Structure

#### ARR Reassignment for Retail Load Switching

Table 8-9 ARR and ARR revenue automatically reassigned for network load changes by control zone: June 1, 2008, through September 30, 2009 (See 2008 SOM Table 8-22)

Control Zone	ARRs Reassigned (MW-day)		ARR Revenue Reassigned [Dollars (Thousands) per MW-day]	
	2008/2009 (12 months)	2009/2010 (4 months)*	2008/2009 (12 months)	2009/2010 (4 months)*
AECO	501	297	\$16.1	\$5.5
AEP	11	241	\$0.2	\$5.7
AP	707	232	\$164.7	\$26.8
BGE	3,361	1,025	\$124.3	\$21.3
ComEd	3,074	1,086	\$10.0	\$3.3
DAY	1	0	\$0.0	\$0.0
DLCO	471	136	\$2.1	\$0.4
Dominion	5	0	\$0.4	\$0.0
DPL	1,404	385	\$24.8	\$4.3
JCPL	1,094	714	\$45.0	\$10.8
Met-Ed	0	0	\$0.0	\$0.0
PECO	47	15	\$1.4	\$0.2
PENELEC	0	0	\$0.0	\$0.0
Pepco	3,040	721	\$79.9	\$7.3
PPL	35	19	\$2.2	\$0.5
PSEG	1,537	1,188	\$62.7	\$29.5
RECO	40	40	\$0.0	\$0.0
Total	15,326	6,100	\$533.9	\$115.5

\* Through 30-Sep-09

### Market Performance

#### Revenue Adequacy

Table 8-10 ARR revenue adequacy (Dollars (Millions)): Planning periods 2008 to 2009 and 2009 to 2010 (See 2008 SOM Table 8-24)

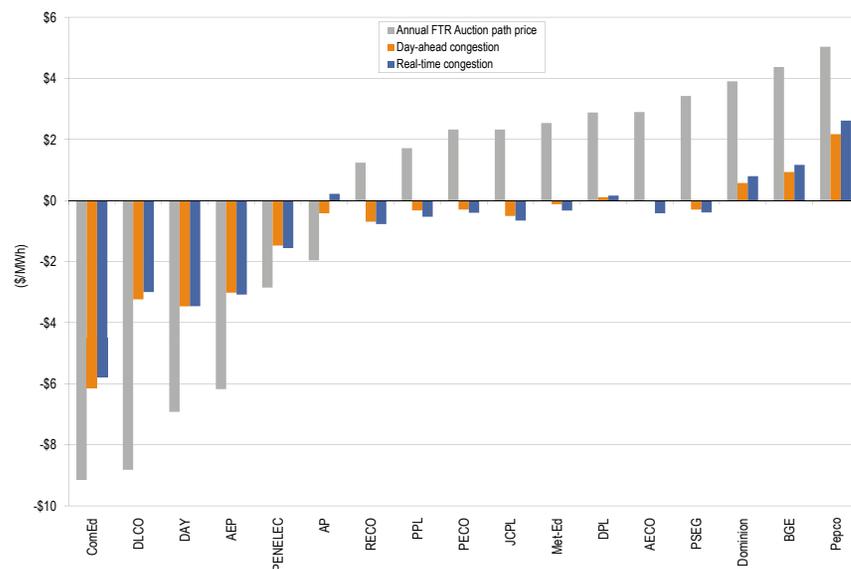
	2008/2009	2009/2010
Total FTR auction net revenue	\$2,489.6	\$1,338.6
Annual FTR Auction net revenue	\$2,422.6	\$1,329.8
Monthly Balance of Planning Period FTR Auction net revenue*	\$67.1	\$8.8
ARR target allocations	\$2,361.3	\$1,273.5
ARR credits	\$2,361.3	\$1,273.5
Surplus auction revenue	\$128.3	\$65.1
ARR payout ratio	100%	100%
FTR payout ratio*	100%	95.9%

\* Shows twelve months for 2008/2009 and four months ended 30-Sep-09 for 2009/2010

## ARR and FTR Revenue and Congestion

### FTR Prices and Zonal Price Differences

Figure 8-5 Annual FTR Auction prices vs. average day-ahead and real-time congestion for all control zones relative to the Western Hub: Planning period 2009 to 2010 through September 30, 2009 (See 2008 SOM Figure 8-11)



### Effectiveness of ARRs and FTRs as a Hedge against Congestion

Table 8-11 ARR and FTR congestion hedging: Planning periods 2008 to 2009 and 2009 to 2010 (See 2008 SOM Table 8-28)

Planning Period	ARR Credits	FTR Credits	FTR Auction Revenue	Total ARR and FTR Hedge	Congestion	Total Hedge - Congestion Difference	Percent Hedged
2008/2009	\$2,361,292,807	\$1,748,201,585	\$2,489,609,470	\$1,619,884,922	\$1,489,647,665	\$130,237,257	>100%
2009/2010*	\$426,023,336	\$199,335,975	\$454,904,797	\$170,454,514	\$185,175,292	(\$14,720,777)	92.1%

\* Shows four months ended 30-Sep-09

**ARRs and FTRs as a Hedge against Total Real Time Energy Charges**

The hedge provided by ARRs and self scheduled FTRs can also be measured by comparing the value of the ARR and self-scheduled FTRs that sink in a zone to the cost of real time energy in the zone. This is a direct measure of the net price of energy rather than a comparison of the ARR/FTR credits to an accounting measure of congestion. This is a measure of the value of the hedge against real time energy costs provided

by ARRs received by loads during this period. Table 8-12 shows the results of this measure by control zone for January through September 2009. As an example, Table 8-12 shows the total value of ARR and self-scheduled FTR credits in the AP Control Zone was \$152 million, which was 10.9 percent of the \$1.4 billion in total real time energy charges in the AP Control Zone.

**Table 8-12 ARRs and self-scheduled FTR credits as a hedge against energy charges by control zone: January through September, 2009 (New Table)**

Control Zone	ARR Credits	Self-Scheduled FTR Credits	Total Hedge	Total Energy Charges	Percent of Energy Charges Covered by ARR and Self-Scheduled FTR Credits
AECO	\$16,055,257	\$394,215	\$16,449,472	\$362,531,281	4.5%
AEP	\$2,886,158	\$123,796,031	\$126,682,189	\$3,430,853,351	3.7%
AP	\$36,005,367	\$115,659,090	\$151,664,456	\$1,391,655,720	10.9%
BGE	\$54,101,786	\$899,680	\$55,001,467	\$1,125,948,483	4.9%
ComEd	\$11,396,285	\$21,666,115	\$33,062,400	\$2,210,306,347	1.5%
DAY	\$5,944,120	\$515,919	\$6,460,039	\$441,017,205	1.5%
DLCO	\$2,759,934	\$838	\$2,760,772	\$352,284,804	0.8%
Dominion	\$4,942,139	\$73,090,075	\$78,032,214	\$3,052,779,315	2.6%
DPL	\$15,614,464	\$896,243	\$16,510,707	\$622,709,476	2.7%
JCPL	\$36,064,022	\$1,892,054	\$37,956,077	\$760,753,914	5.0%
Met-Ed	\$127,750	\$7,691,384	\$7,819,134	\$483,838,555	1.6%
PECO	\$2,439,977	\$10,854,527	\$13,294,503	\$1,302,980,204	1.0%
PENELEC	\$27,957,938	\$7,907,489	\$35,865,428	\$483,763,924	7.4%
Pepco	\$31,422,818	\$741,863	\$32,164,682	\$1,079,848,058	3.0%
External	\$8,215,938	(\$9,032,064)	(\$816,126)	NA	NA
PPL	\$1,115,198	\$9,035,012	\$10,150,211	\$1,290,220,318	0.8%
PSEG	\$77,531,006	\$4,413,611	\$81,944,617	\$1,475,006,871	5.6%
RECO	(\$13,856)	\$0	(\$13,856)	\$47,469,825	(0.0%)
Total	\$334,566,301	\$370,422,084	\$704,988,384	\$19,946,740,011	3.5%

The hedge provided by FTRs can also be measured by comparing the value of the FTRs that sink in a zone to the cost of real time energy in the zone. This is a direct measure of the net price of energy rather than a comparison of the FTR credits to an accounting measure of congestion. This is a measure of the value of the hedge against real time energy costs

provided by FTRs purchased for this period. Table 8-13 shows the results of this measure by control zone for January through September 2009. When the purchase cost of the FTRs exceeds the FTR credits, the hedge is negative.

**Table 8-13 FTRs as a hedge against energy charges by control zone: January through September, 2009 (New Table)**

Control Zone	FTR Credits (Excluding Self-Scheduled FTRs)	FTR Auction Revenue (Excluding Self-Scheduled FTRs)	Total FTR Hedge (Excluding Self-Scheduled FTRs)	Total Energy Charges	Percent of Energy Charges Covered by FTR Credits (Excluding Self-Scheduled FTRs)
AECO	\$5,524,630	\$18,873,817	(\$13,349,187)	\$362,531,281	(3.7%)
AEP	\$10,013,903	(\$35,087,598)	\$45,101,500	\$3,430,853,351	1.3%
AP	\$19,779,699	\$30,818,684	(\$11,038,985)	\$1,391,655,720	(0.8%)
BGE	\$15,105,748	\$32,326,803	(\$17,221,055)	\$1,125,948,483	(1.5%)
ComEd	(\$5,289,388)	(\$9,586,391)	\$4,297,003	\$2,210,306,347	0.2%
DAY	\$1,452,915	(\$1,474,373)	\$2,927,288	\$441,017,205	0.7%
DLCO	(\$2,513,610)	(\$8,951,850)	\$6,438,240	\$352,284,804	1.8%
Dominion	\$19,697,570	\$39,643,409	(\$19,945,840)	\$3,052,779,315	(0.7%)
DPL	\$12,932,046	\$24,995,329	(\$12,063,284)	\$622,709,476	(1.9%)
JCPL	\$2,113,718	\$42,364,842	(\$40,251,125)	\$760,753,914	(5.3%)
Met-Ed	\$2,370,888	\$5,871,078	(\$3,500,190)	\$483,838,555	(0.7%)
PECO	\$2,778,961	\$4,695,559	(\$1,916,599)	\$1,302,980,204	(0.1%)
PENELEC	\$32,041,859	\$38,701,452	(\$6,659,593)	\$483,763,924	(1.4%)
Pepco	\$71,117,429	\$125,449,166	(\$54,331,737)	\$1,079,848,058	(5.0%)
External	\$1,802,461	\$13,809,850	(\$12,007,389)	NA	NA
PPL	\$4,093,757	\$7,323,362	(\$3,229,605)	\$1,290,220,318	(0.3%)
PSEG	\$20,960,583	\$81,776,784	(\$60,816,201)	\$1,475,006,871	(4.1%)
RECO	(\$343,535)	\$221,077	(\$564,612)	\$47,469,825	(1.2%)
Total	\$213,639,632	\$411,771,002	(\$198,131,370)	\$19,946,740,011	(1.0%)

Table 8-14 combines the results for the ARR related hedge and the FTR related hedge by zone. This is a measure of the total value of ARRs received by those who pay for the transmission system plus the total value of FTRs received by those who purchased FTRs in the FTR auctions. The combined

ARR plus FTR credits hedges the largest percentage of total energy charges in the AP Control Zone (10.1 percent), and the lowest percentage of total energy charges in the Pepco Control Zone (-2.1 percent).

**Table 8-14 ARRs and FTRs as a hedge against energy charges by control zone: January through September, 2009 (New Table)**

Control Zone	ARR Related Hedge (Including Self-Scheduled FTRs)	FTR Hedge (Excluding Self-Scheduled FTRs)	Total ARR and FTR Hedge	Total Energy Charges	Percent of Energy Charges Covered by ARR and FTR Credits
AECO	\$16,449,472	(\$13,349,187)	\$3,100,285	\$362,531,281	0.9%
AEP	\$126,682,189	\$45,101,500	\$171,783,689	\$3,430,853,351	5.0%
AP	\$151,664,456	(\$11,038,985)	\$140,625,471	\$1,391,655,720	10.1%
BGE	\$55,001,467	(\$17,221,055)	\$37,780,411	\$1,125,948,483	3.4%
ComEd	\$33,062,400	\$4,297,003	\$37,359,403	\$2,210,306,347	1.7%
DAY	\$6,460,039	\$2,927,288	\$9,387,326	\$441,017,205	2.1%
DLCO	\$2,760,772	\$6,438,240	\$9,199,012	\$352,284,804	2.6%
Dominion	\$78,032,214	(\$19,945,840)	\$58,086,374	\$3,052,779,315	1.9%
DPL	\$16,510,707	(\$12,063,284)	\$4,447,423	\$622,709,476	0.7%
JCPL	\$37,956,077	(\$40,251,125)	(\$2,295,048)	\$760,753,914	(0.3%)
Met-Ed	\$7,819,134	(\$3,500,190)	\$4,318,944	\$483,838,555	0.9%
PECO	\$13,294,503	(\$1,916,599)	\$11,377,905	\$1,302,980,204	0.9%
PENELEC	\$35,865,428	(\$6,659,593)	\$29,205,834	\$483,763,924	6.0%
Pepco	\$32,164,682	(\$54,331,737)	(\$22,167,055)	\$1,079,848,058	(2.1%)
External	(\$816,126)	(\$12,007,389)	(\$12,823,515)	NA	NA
PPL	\$10,150,211	(\$3,229,605)	\$6,920,605	\$1,290,220,318	0.5%
PSEG	\$81,944,617	(\$60,816,201)	\$21,128,416	\$1,475,006,871	1.4%
RECO	(\$13,856)	(\$564,612)	(\$578,468)	\$47,469,825	(1.2%)
Total	\$704,988,384	(\$198,131,370)	\$506,857,014	\$19,946,740,011	2.5%