

Long Term FTRs in PJM

MIC

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Monitoring Analytics

Long Term FTR Auction Basics

- **Three round auction process**
- **Total volume based on previous year's ARR allocation**
- **Available for each of next individual planning periods(YR1,YR2,YR3), or all three (YRALL)**
- **Prices distinct from Annual FTR Auction**
 - **Target allocations calculated as hourly values during effective planning period**

LT Modeling

- **Modeling issues can result in ARR allocation issues**
- **Modeling issues can result in LT FTR auction issues**
- **PJM is implementing improvements to modeling for the YR1 product, but not YR2, YR3 or YRALL**
 - **The YR2 model will differ from the YR1 model the next year. Different model for same year.**
 - **PJM concerned “LT FTR auction clearing prices may not fully reflect the true future system capability”¹**

¹Chmielewski, Brian “FTR Modeling Enhancements for Future Transmission Expansions.” 6 Dec 2017, <http://www.pjm.com/-/media/committees-groups/committees/mic/20171213/20171213-item-04a-ftr-modeling-enhancements-for-future-transmission-expansions.ashx>

LT Modeling

- **The YR2, YR3 and YRALL products rely on transitional models and these models change from auction to auction**
- **The transitional models cannot accurately represent the system three years in the future**
- **The modeling:**
 - **Impacts FTR overallocations and FTR underfunding**
 - **May impact ARR values**

Long Term FTR Volume

- **LT FTRs effective in a planning period are sold based on different models and with different prices**
- **Total LT FTR volume effective in a planning period averages 42.6% of total FTRs in a planning period**

Long Term FTR Volume

Long Term FTR Product

Planning Period	Year 3	Year 2	Year 1	Total Long Term	Annual (including self scheduled)	Long Term Percent of Total Cleared
2014/2015	81,666	86,754	131,911	300,330	356,522	45.7%
2015/2016	89,419	99,329	123,400	312,148	355,682	46.7%
2016/2017	97,837	95,637	107,182	300,656	397,258	43.1%
2017/2018	69,161	86,323	108,126	263,609	493,683	34.8%



Long Term FTR Net Revenue

- **LT FTR net revenue is the net of buys and sells from the LT FTR Auction**
 - **YRALL product is split over individual effective years**
- **LT FTRs are 42.6% of total effective volume, but only 3.0% of net revenue**
- **This is a result of very low prices paid for LT FTRs**

Long Term FTR Net Revenue

Long Term FTR Product

Planning Period	Year 3	Year 2	Year 1	Total Long Term	Annual (including self scheduled)	Long Term Percent of Total Net Revenue
2014/2015	\$13,016,512	\$7,176,209	\$6,863,135	\$27,055,856	\$735,998,448	3.5%
2015/2016	\$12,479,874	\$7,378,550	\$5,156,206	\$25,014,630	\$893,043,415	2.7%
2016/2017	\$7,624,149	\$2,105,984	\$11,087,250	\$20,817,382	\$861,031,182	2.4%
2017/2018	\$1,670,521	\$7,210,445	\$9,763,312	\$18,644,279	\$513,587,222	3.5%



Revenue Difference From Purchasing LT FTRs Instead of Annual FTRs

- **LT FTR Prices are independent of the Annual FTR Auction prices.**
- **FTRs sold in the LT FTR Auction were undervalued in comparison with their Annual FTR Auction equivalent by \$337.2 million.**
- **Reduces demand in Annual FTR Auction which may decrease ARR value**

Revenue Difference From Purchasing LT FTRs Instead of Annual FTRs

Planning Period	Long Term FTR Product				Total Difference
	YR3	YR2	YR1	YRALL	
2014/2015	\$59,598,642	\$30,284,173	\$52,030,909	\$926,989	\$142,840,713
2015/2016	\$67,896,588	\$40,975,278	\$9,936,078	\$303,082	\$119,111,026
2016/2017	\$42,378,048	\$3,854,373	\$11,055,824	\$1,079,901	\$58,368,147
2017/2018	\$6,134,076	(\$1,841,715)	\$12,396,817	\$227,524	\$16,916,702
Total	\$176,007,354	\$73,272,109	\$85,419,628	\$2,537,496	\$337,236,587

LT FTR Summary

- **Ownership of YRALL LT FTRs is highly concentrated**
 - **With one owner, HHI = 10000**
 - **With two equal size owners, HHI = 5000**
 - **With four equal size owners, HHI = 2500**
- **Financial entities purchase an increasing share of LT FTRs of all types**

LT FTR Summary

		Physical					Financial					HHI	
		Quoted Participants	Quoted MW	Cleared Participants	Cleared MW	% of Cleared	Quoted Participants	Quoted MW	Cleared Participants	Cleared MW	% of Cleared	Quoted HHI	Cleared HHI
2014/2017	YR1	47	42,331.9	41	13,108.8	48.8%	23	49,055.7	23	13,746.5	51.2%	716	583
	YR2	41	38,582.7	35	11,115.5	51.9%	18	33,957.3	17	10,320.5	48.1%	936	748
	YR3	34	24,838.7	29	8,747.4	49.3%	16	28,458.7	15	8,985.1	50.7%	990	788
	YRALL	0	0.0	0	0.0	0.0%	3	4,173.9	2	1,528.5	100.0%	9949	8263
2015/2018	YR1	52	39,155.6	36	11,013.6	42.7%	26	44,861.8	26	14,790.6	57.3%	744	599
	YR2	47	23,791.8	33	7,540.8	35.8%	22	38,721.4	22	13,498.4	64.2%	1061	856
	YR3	34	19,702.7	28	6,223.3	43.7%	20	25,588.7	20	8,019.2	56.3%	927	621
	YRALL	0	0.0	0	0.0	0.0%	2	5,066.6	2	1,779.9	100.0%	9521	6321
2016/2019	YR1	61	32,541.1	51	9,322.1	36.8%	30	44,100.8	30	16,007.3	63.2%	639	546
	YR2	48	21,209.4	44	6,981.7	36.2%	26	33,867.6	25	12,305.6	63.8%	792	643
	YR3	38	16,482.6	36	4,881.7	27.4%	20	35,185.7	19	12,945.4	72.6%	1290	697
	YRALL	13	281.3	10	31.7	8.6%	3	1,091.1	3	335.7	91.4%	5591	4349
2017/2020	YR1	63	25,060.2	55	7,819.3	37.1%	37	41,622.1	36	13,249.8	62.9%	429	353
	YR2	54	15,471.2	51	4,993.1	25.6%	30	40,992.7	30	14,514.9	74.4%	1635	1069
	YR3	45	12,012.4	40	3,586.4	27.1%	27	27,253.3	26	9,642.4	72.9%	1303	898
	YRALL	3	68.0	2	26.0	16.4%	3	725.8	1	132.7	83.6%	8696	5638

LT FTR Profitability

- **Prices of LT FTRs were significantly less than the prices for same FTRs in the Annual FTR Auction**
 - **For the last four planning periods this has resulted in an additional \$493.6 million in profits for LT FTR holders**
- **LT FTR prices are not reflective of actual congestion costs in the effective planning period**

LT FTR Profitability

	Product	Profits at LT Price	Profits at Annual Price	Additional Profits from LT FTRs
2013/2014	YR1	\$56,777,944	\$19,518,101	\$37,259,843
	YR2	\$69,160,248	\$36,409,978	\$32,750,270
	YR3	\$67,693,831	\$39,695,323	\$27,998,508
	YRALL	\$6,915,598	\$5,296,019	\$1,619,579
	Total	\$200,547,620	\$100,919,421	\$99,628,200
2014/2015	YR1	\$58,422,178	(\$4,934,891)	\$63,357,069
	YR2	\$47,792,159	\$2,183,036	\$45,609,122
	YR3	\$83,519,953	\$17,205,709	\$66,314,244
	YRALL	\$993,087	(\$396,699)	\$1,389,787
	Total	\$190,727,376	\$14,057,155	\$176,670,222
2015/2016	YR1	\$514,558	(\$24,582,096)	\$25,096,654
	YR2	\$26,951,621	(\$20,109,003)	\$47,060,624
	YR3	\$62,217,482	(\$15,804,379)	\$78,021,860
	YRALL	\$1,183,820	\$512,019	\$671,801
	Total	\$90,867,480	(\$59,983,459)	\$150,850,939
2016/2017	YR1	(\$5,783,242)	(\$19,305,220)	\$13,521,978
	YR2	(\$1,789,629)	(\$8,235,743)	\$6,446,114
	YR3	\$38,347,744	(\$6,911,761)	\$45,259,505
	YRALL	\$2,067,622	\$865,212	\$1,202,409
	Total	\$32,842,495	(\$33,587,511)	\$66,430,006

LT FTR Profitability

- **LT FTR prices are not reflective of Annual FTR prices in the effective planning period**
- **Modeling differences and limited activity result in windfall profits based on the differences between the LT FTR and annual FTR market**



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