

# FTR/ARR Market Problem Statement Discussion

MIC

October 16, 2019

Joseph Bowring

Howard Haas

Seth Hayik



Monitoring Analytics

# From the board report (Appendix p.13): Recommendations for the FTR Market

- **“In trying to fashion recommendations for an FTR market by using the policies and procedures of a futures exchange clearinghouse some key differences need to be recognized.”**
- **“Futures markets are continuous auction markets. Trading takes place throughout business hours on each and every trading day. Trading sessions are not periodic, scheduled events.”**
  - **More auctions?**
  - **Discussed in current task force (FRMSTF).**
- **Futures contracts focus liquidity on one, or, at most, a few delivery points. PJM offers FTRs on thousands of paths. PJM does not have liquidity focused on a single point; its liquidity is dispersed across many points.**
  - **Look at bid points**
  - **Part of IMM issue charge**
- **“We suggest a more general review of the FTR market and other PJM markets, to evaluate the risks and rewards of potential structural reforms (see recommendation F3).”**
  - **Review the risk/reward of the market of potential structural reforms**
    - **Risk discussion in current FRMSTF**
    - **Phase 1: Review reward potential the focus of IMM issue charge.**
    - **Phase 2: Anything else, so long as consistent with Phase 1.**

# IMM Problem Statement/Opportunity Statement

- **PJM's ARR/FTR Market Construct should be reviewed and changes considered to improve alignment between definition of congestion rights and actual congestion payments.**
- **There is a clear problem with the current construct as a means of offsetting congestion.**
- **In Phase 1, the PJM ARR/FTR Market Construct should be reviewed and changes considered to improve the alignment between allocated congestion rights and actual congestion.**
  - **Identifies and addresses an identified problem**
- **Phase 2: Identification of additional issues with the ARR/FTR market, not considered in Phase 1 and consistent with the modifications from Phase 1.**
  - **Provide an opportunity to consider other problems.**

# Expected Deliverables

- **Phase 1**
  - **Identification of causes of mismatch between the allocation of congestion rights and the payment of congestion.**
  - **Decide whether to recommend changes to the ARR/FTR market design.**
  - **Proposed revisions to the ARR/FTR market construct to better align congestion rights with payment of congestion.**
- **Phase 2**
  - **Identification of additional issues with the ARR/FTR market, not considered in Phase 1 and consistent with the modifications from Phase 1.**
  - **Decide whether to recommend any additional changes to the ARR/FTR market design, consistent with the modifications from Phase 1.**
  - **Proposed revisions to the ARR/FTR market construct to address issues raised in Phase 2, consistent with the modifications from Phase 1.**

# Zonal Offset 18/19 Actual (Surplus is allocated to load)

Zone	ARR Credits	FTR Credits	Balancing+ M2M Charge	Surplus Allocation	Total Offset	Day Ahead Congestion	Balancing Congestion	M2M Payments	Total Congestion	Offset
AECO	\$4.9	\$0.0	(\$1.9)	\$0.8	\$3.8	\$11.9	(\$1.5)	(\$0.4)	\$10.0	37.8%
AEP	\$56.8	\$38.9	(\$23.7)	\$21.8	\$93.8	\$129.6	(\$18.9)	(\$5.1)	\$105.7	88.7%
APS	\$40.8	\$10.4	(\$9.2)	\$8.9	\$50.9	\$53.7	(\$6.9)	(\$2.0)	\$44.8	113.6%
ATSI	\$43.3	\$0.3	(\$12.4)	\$6.7	\$37.9	\$64.8	(\$9.7)	(\$2.6)	\$52.5	72.3%
BGE	\$67.2	\$1.5	(\$5.8)	\$10.7	\$73.6	\$26.1	(\$4.8)	(\$1.2)	\$20.0	367.3%
ComEd	\$91.7	\$10.2	(\$17.8)	\$17.3	\$101.3	\$113.0	(\$12.7)	(\$3.8)	\$96.5	105.0%
DAY	\$7.2	\$0.5	(\$3.2)	\$1.1	\$5.5	\$16.1	(\$2.6)	(\$0.7)	\$12.8	42.8%
DEOK	\$41.5	\$9.1	(\$5.0)	\$7.7	\$53.4	\$28.9	(\$4.1)	(\$1.1)	\$23.7	225.5%
DLCO	\$9.1	\$0.0	(\$2.5)	\$1.4	\$8.0	\$10.2	(\$1.9)	(\$0.5)	\$7.7	104.2%
Dominion	\$7.1	\$44.3	(\$18.7)	\$9.4	\$42.3	\$84.4	(\$14.2)	(\$4.0)	\$66.2	63.9%
DPL	\$39.3	\$8.2	(\$3.4)	\$7.0	\$51.0	\$63.0	(\$3.3)	(\$0.7)	\$59.0	86.5%
EKPC	\$0.0	\$0.0	(\$2.4)	\$0.0	(\$2.3)	\$11.8	(\$1.7)	(\$0.5)	\$9.5	(24.1%)
EXT	\$3.4	\$0.0	\$0.0	\$0.5	\$3.9	\$0.7	(\$4.8)	\$0.0	(\$4.1)	(95.8%)
JCPL	\$2.5	\$0.0	(\$4.2)	\$0.4	(\$1.3)	\$24.6	(\$3.3)	(\$0.9)	\$20.4	(6.2%)
Met-Ed	\$7.9	\$0.4	(\$2.9)	\$1.3	\$6.6	\$17.9	(\$2.6)	(\$0.6)	\$14.6	45.2%
PECO	\$21.2	\$0.2	(\$7.5)	\$3.3	\$17.2	\$37.3	(\$5.7)	(\$1.6)	\$30.0	57.3%
Penelec	\$10.9	\$4.0	(\$3.2)	\$2.0	\$13.7	\$21.7	(\$3.4)	(\$0.7)	\$17.6	77.7%
Pepco	\$28.9	\$2.0	(\$5.5)	\$5.0	\$30.3	\$23.6	(\$4.2)	(\$1.2)	\$18.2	166.3%
PPL	\$4.4	\$0.0	(\$7.6)	\$0.7	(\$2.4)	\$44.2	(\$5.9)	(\$1.6)	\$36.7	(6.7%)
PSEG	\$40.9	\$0.0	(\$8.1)	\$6.3	\$39.2	\$47.3	(\$7.0)	(\$1.7)	\$38.6	101.5%
RECO	\$0.1	\$0.0	(\$0.3)	\$0.0	(\$0.2)	\$2.0	(\$0.9)	(\$0.1)	\$1.1	(19.0%)
Total	\$529.0	\$130.1	(\$145.2)	\$112.3	\$626.2	\$832.7	(\$120.0)	(\$31.1)	\$681.6	91.9%

# Zonal Offset 17/18 Actual (Surplus not allocated to load)

Zone	ARR Credits	FTR Credits	Balancing+ M2M Charge	Surplus Allocation	Total Offset	Day Ahead Congestion	Balancing Congestion	M2M Payments	Total Congestion	Offset
AECO	\$7.3	\$0.0	(\$1.6)	\$0.0	\$5.7	\$15.9	(\$0.5)	(\$1.3)	\$14.2	73.9%
AEP	\$28.7	\$171.5	(\$20.4)	\$0.0	\$179.8	\$223.1	(\$5.7)	(\$16.5)	\$200.8	95.2%
APS	\$32.6	\$20.2	(\$7.8)	\$0.0	\$45.0	\$67.2	(\$1.7)	(\$6.3)	\$59.1	110.0%
ATSI	\$15.1	(\$0.1)	(\$10.6)	\$0.0	\$4.4	\$87.7	(\$3.1)	(\$8.6)	\$75.9	18.8%
BGE	\$51.6	\$2.9	(\$5.0)	\$0.0	\$49.5	\$50.0	(\$1.2)	(\$4.0)	\$44.8	184.9%
ComEd	\$129.6	\$17.4	(\$15.4)	\$0.0	\$131.6	\$205.3	(\$4.9)	(\$12.5)	\$187.9	118.2%
DAY	\$2.3	(\$0.9)	(\$2.8)	\$0.0	(\$1.3)	\$25.2	(\$0.6)	(\$2.2)	\$22.4	2.0%
DEOK	\$10.4	\$18.1	(\$4.3)	\$0.0	\$24.1	\$44.9	(\$0.3)	(\$3.5)	\$41.1	67.1%
DLCO	\$4.3	\$52.3	(\$15.8)	\$0.0	\$40.9	\$15.1	(\$0.5)	(\$1.8)	\$139.9	19.4%
Dominion	\$34.6	\$8.5	(\$2.9)	\$0.0	\$40.2	\$155.9	(\$3.3)	(\$12.8)	\$56.5	41.8%
DPL	\$2.8	\$0.1	(\$2.2)	\$0.0	\$0.7	\$48.9	\$10.0	(\$2.4)	\$12.8	113.6%
EKPC	\$0.7	(\$2.4)	(\$2.1)	\$0.0	(\$3.8)	\$23.5	(\$0.0)	(\$1.7)	\$21.9	(12.5%)
EXT	\$1.2	\$0.0	\$0.0	\$0.0	\$1.2	\$0.3	(\$3.8)	\$0.0	(\$3.5)	(59.5%)
JCPL	\$3.9	(\$0.0)	(\$3.6)	\$0.0	\$0.3	\$38.6	(\$0.9)	(\$2.9)	\$34.8	8.1%
Met-Ed	\$8.2	\$0.2	(\$2.5)	\$0.0	\$6.0	\$31.5	(\$2.1)	(\$2.0)	\$27.4	41.6%
PECO	\$16.5	\$0.1	(\$6.4)	\$0.0	\$10.2	\$65.5	(\$1.7)	(\$5.2)	\$58.6	35.7%
Penelec	\$9.4	\$0.9	(\$2.7)	\$0.0	\$7.5	\$30.7	(\$0.8)	(\$2.2)	\$27.7	49.2%
Pepco	\$24.8	\$2.8	(\$4.8)	\$0.0	\$22.8	\$46.4	(\$0.9)	(\$3.9)	\$41.7	93.7%
PPL	(\$0.9)	\$0.7	(\$6.4)	\$0.0	(\$6.7)	\$71.2	(\$0.9)	(\$5.2)	\$65.1	(10.5%)
PSEG	\$44.2	\$0.0	(\$6.9)	\$0.0	\$37.3	\$72.8	(\$1.7)	(\$5.6)	\$65.5	100.6%
RECO	(\$0.1)	\$0.0	(\$0.2)	\$0.0	(\$0.3)	\$2.3	(\$0.1)	(\$0.2)	\$2.0	(15.0%)
<b>Total</b>	<b>\$427.3</b>	<b>\$292.2</b>	<b>(\$124.3)</b>	<b>\$0.0</b>	<b>\$595.2</b>	<b>\$1,322.1</b>	<b>(\$24.4)</b>	<b>(\$100.9)</b>	<b>\$1,196.8</b>	<b>49.7%</b>

# Zonal Offset: All ARRs Self-Scheduled (Including IARR), ARR Only

	16/17 Planning Period			17/18 Planning Period			18/19 Planning Period		
	SS FTR	Congestion	Offset	SS FTR	Congestion	Offset	SS FTR	Congestion	Offset
AECO	\$3,021,689	\$11,741,200	25.7%	\$1,756,697	\$15,437,400	11.4%	\$11,525,172	\$10,416,500	110.6%
AEP	\$85,681,538	\$121,265,800	70.7%	\$203,301,753	\$217,384,700	93.5%	\$84,938,073	\$110,740,100	76.7%
APS	\$25,526,131	\$33,719,400	75.7%	\$78,655,453	\$65,480,700	120.1%	\$37,381,074	\$46,805,200	79.9%
ATSI	\$10,129,257	\$52,917,900	19.1%	\$54,097,113	\$84,555,700	64.0%	\$45,315,660	\$55,119,300	82.2%
BGE	\$100,805,106	\$36,110,900	279.2%	\$83,097,233	\$48,851,200	170.1%	\$49,035,317	\$21,287,600	230.3%
ComEd	\$247,621,797	\$211,702,700	117.0%	\$110,887,308	\$200,428,700	55.3%	\$51,445,873	\$100,361,400	51.3%
DAY	\$1,841,793	\$14,131,300	13.0%	\$10,531,674	\$24,686,700	42.7%	\$11,196,523	\$13,487,400	83.0%
DEOK	\$9,608,158	\$27,103,700	35.4%	\$72,152,140	\$44,630,400	161.7%	\$50,416,227	\$24,742,200	203.8%
DLCO	\$382,027	\$9,293,800	4.1%	\$10,562,209	\$14,592,500	72.4%	\$7,234,008	\$8,263,800	87.5%
Dominion	\$49,442,578	\$80,179,600	61.7%	\$42,405,655	\$152,675,600	27.8%	\$55,830,363	\$70,199,000	79.5%
DPL	\$43,196,546	\$39,505,200	109.3%	\$38,023,382	\$58,901,700	64.6%	\$57,702,656	\$59,742,200	96.6%
EKPC	(\$265,236)	\$11,465,600	-2.3%	(\$3,507,456)	\$23,542,000	-14.9%	\$882,230	\$10,051,300	8.8%
EXT	\$1,627,463	(\$5,461,500)	-29.8%	\$3,380,922	(\$3,483,900)	-97.0%	\$1,672,545	(\$4,118,000)	-40.6%
JCPL	\$1,580,327	\$18,648,300	8.5%	\$2,700,148	\$37,696,300	7.2%	\$2,617,822	\$21,284,500	12.3%
Met-Ed	\$8,949,900	\$17,241,300	51.9%	\$7,558,664	\$29,416,300	25.7%	\$5,004,146	\$15,268,500	32.8%
OVEC	NA	NA	NA	NA	NA	NA	NA	\$75,400	NA
PECO	\$9,882,927	\$32,482,100	30.4%	\$15,712,942	\$63,774,900	24.6%	\$15,656,690	\$31,603,100	49.5%
PENELEC	\$3,766,150	\$14,569,000	25.9%	\$15,442,708	\$29,903,100	51.6%	\$17,497,247	\$18,260,800	95.8%
Pepco	\$18,780,552	\$27,031,100	69.5%	\$38,062,128	\$45,584,700	83.5%	\$19,541,345	\$19,412,600	100.7%
PPL	(\$2,363,170)	\$33,139,500	-7.1%	\$14,704,954	\$70,348,700	20.9%	\$4,332,715	\$38,278,200	11.3%
PSEG	\$18,579,476	\$37,066,500	50.1%	\$58,606,470	\$71,100,300	82.4%	\$35,609,098	\$40,339,500	88.3%
RECO	\$18,871	\$1,418,900	1.3%	(\$91,008)	\$2,223,500	-4.1%	\$163,246	\$1,156,800	14.1%
Total	\$637,813,881	\$825,272,300	77.3%	\$858,041,090	\$1,297,731,200	66.1%	\$564,998,030	\$712,777,400	79.3%

**Monitoring Analytics, LLC**

**2621 Van Buren Avenue**

**Suite 160**

**Eagleville, PA**

**19403**

**(610) 271-8050**

**MA@monitoringanalytics.com**

**www.MonitoringAnalytics.com**

