ARR/FTR Market Design

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Proposed Approach to FTR Design

Purpose of FTRs

- **FTRs are intended to return all congestion revenue to load**
- **There are leakages in the current FTR market design:**
  - **Results in lost congestion revenue to load and inefficiencies/instabilities in the offset ability of load**
  - **Cross subsidies among LSEs**

Zonal Offset

Zone	ARR Credits	FTR Credits	Balancing+ M2M Charge	Surplus Allocation	Total Offset	Day Ahead Congestion	Balancing Congestion	M2M Payments	Total Congestion	Offset
AECO	$4.1	$0.0	($1.7)	$0.5	$2.9	$10.9	($1.3)	($0.3)	$9.3	66.3%
AEP	$47.3	$34.3	($20.7)	$15.5	$76.4	$115.9	($16.8)	($4.1)	$95.1	95.2%
APS	$33.9	$10.0	($8.0)	$6.4	$42.3	$49.0	($6.1)	($1.6)	$41.3	110.0%
ATSI	$36.1	$0.3	($10.8)	$4.8	$30.4	$59.5	($8.6)	($2.1)	$48.7	18.8%
BGE	$56.0	$1.3	($5.1)	$7.6	$59.8	$23.1	($4.3)	($1.0)	$17.8	185.0%
ComEd	$76.4	$10.1	($15.6)	$12.3	$83.2	$102.6	($11.6)	($3.1)	$87.9	118.3%
DAY	$6.0	$0.4	($2.8)	$0.8	$4.3	$14.5	($2.3)	($0.6)	$11.6	2.2%
DEOK	$34.5	$9.0	($4.4)	$5.5	$44.6	$26.5	($3.7)	($0.9)	$22.0	67.2%
Dominion	$6.0	$36.6	($16.3)	$6.7	$33.0	$74.2	($12.4)	($3.2)	$58.6	41.8%
DPL	$33.2	$8.0	($3.0)	$5.1	$43.2	$61.4	($2.6)	($0.6)	$58.1	113.8%
DLCO	$7.6	$0.0	($2.2)	$1.0	$6.4	$9.3	($1.7)	($0.4)	$7.2	19.7%
EKPC	$0.0	$0.0	($2.1)	$0.0	($2.0)	$10.6	($1.5)	($0.4)	$8.7	(13.2%)
EXT	$2.9	$0.0	$0.0	$0.4	$3.3	$0.6	($4.7)	$0.0	($4.1)	(59.1%)
JCPL	$2.1	$0.0	($3.7)	$0.3	($1.3)	$23.0	($3.0)	($0.7)	$19.3	8.7%
Met-Ed	$6.5	$0.4	($2.5)	$0.9	$5.3	$16.5	($2.3)	($0.5)	$13.7	41.5%
PECO	$17.6	$0.1	($6.5)	$2.4	$13.6	$34.6	($5.1)	($1.3)	$28.3	35.9%
Penelec	$9.2	$3.6	($2.8)	$1.4	$11.5	$19.9	($3.0)	($0.5)	$16.3	49.0%
Pepco	$24.0	$1.7	($4.8)	$3.5	$24.4	$20.8	($3.7)	($0.9)	$16.1	93.9%
PPL	$3.7	$0.0	($6.6)	$0.5	($2.4)	$40.9	($5.4)	($1.3)	$34.2	(11.9%)
PSEG	$34.2	$0.0	($7.1)	$4.5	$31.6	$44.3	($6.4)	($1.4)	$36.6	100.7%
RECO	$0.1	$0.0	($0.2)	$0.0	($0.2)	$1.8	($0.9)	($0.0)	$0.9	(16.3%)
Total	$441.4	$115.8	($127.0)	$80.1	$510.3	$759.8	($107.3)	($24.9)	$627.6	81.3%

Purpose of FTRs

- **FTRs are intended to return all congestion revenue to load.**
- **The market design should return all congestion revenue to load in an efficient and transparent manner.**

Proposed Design of FTR Market

- **Each LSE has the option to receive all congestion revenues it pays during a month, no more and no less.**
  - **DA**
  - **Balancing**
- **There is no such thing as underfunding.**
- **There are no generation to load paths**
- **Congestion is simple: the difference between what load pays and generators receive**

Proposed Design of FTR Market

- **Each LSE has the option to sell the rights to the variable congestion revenue in return for a fixed payment, the FTR.**
  - **PJM operated auction**
    - Design options
  - **LSE strike price**
    - LSEs can define the lowest price willing to accept
  - **Credit options**
    - Managed by PJM
    - Managed by third party

Proposed Modifications to Current FTR Design

Eliminate Long Term FTRs

- **Long Term FTRs do not provide an accurate congestion offset**
  - **Time frame does not allow accurate modeling**
  - **Prices in the long term auction much lower than in the annual auction for the same FTR paths**
  - **Auction rent from sale of rights not directly assigned to ARR holders (only if surplus maintained)**
- **The recent improvement of modeling future upgrades in YR1 has permanently bifurcated the YR1/YR2+ markets**

LT Auctions Undervalue FTRs

Planning Period	Long Term FTR Product YR3	YR2	YR1	YRALL	Total Difference
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
2018/2019	$7,872,604	$2,926,457	$13,480,353	($111,226)	$24,168,189
Total	$183,879,959	$76,198,567	$98,899,981	$2,426,270	$361,404,776

- LT FTRs are obtained at a significant discount relative to the same FTRs paths in the annual auction

Path Based FTRs Are Inconsistent with Network Service

- **Path based FTRs are inconsistent with a network delivery model**
  - **Includes ARR allocations as well**
- **Alternative allocation methods exist to allocate congestion to whom it belongs without reliance on path based models**

FTR Paths Should Follow Congestion

- **If paths are kept, biddable points should only be allowed on those paths that actually incur congestion**
- **Gen-Gen paths comprise a large portion of the annual market, but do not represent actual congestion**
  - **These paths simply take advantage of price differences in an LMP market**
  - **No congestion actually incurred on path**
  - **Congestion allocated to gen to gen FTRs syphon money from the gen to load paths in FTR market**

Node Type Market Share

	Sink Type							
Source Type	Aggregate	EHV Aggregate	Generator	Hub	Interface	Load	Residual Metered Aggregate	Zone
Aggregate	1.7%	0.0%	6.0%	0.4%	0.1%	0.4%	0.2%	0.5%
EHV Aggregate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Generator	10.3%	0.2%	48.3%	3.5%	1.0%	3.2%	4.4%	7.3%
Hub	0.3%	0.0%	0.4%	0.7%	0.0%	0.1%	0.3%	3.2%
Interface	0.0%	0.0%	0.4%	0.1%	0.0%	0.0%	0.1%	0.1%
Load	0.5%	0.0%	2.0%	0.1%	0.1%	0.2%	0.0%	0.1%
Residual Metered Aggregate	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%
Zone	0.6%	0.0%	0.7%	0.5%	0.1%	0.1%	0.3%	1.0%

- 18/19 Annual Auction
- Generator to Generator is 48.3 percent of total market share

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