Congestion and Congestion Rights History

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LMPs, Congestion and FTRs: 1999

- **April 1, 1999**
  - **Real time only market with LMPs. Caused congestion.**
  - **FTRs introduced to directly permit the loads which pay for the transmission system to continue to receive the benefits of access to either local or remote low cost generation in the form of FTR revenues which offset congestion. (See 81 FERC ¶ 61,257 at 62,241 (1997)).**
  - **FTRs and the associated congestion revenues were directly provided to load in recognition of the fact that, as a result of LMP, load pays more for low cost generation than is paid to low cost generation.**

LMPs, Congestion and FTRs: 1999

- **April 1, 1999**
  - **The origin of FTRs was the recognition that the way to hold load harmless from making these excess payments created by the LMP system was to return the excess payments to load through the mechanism of FTRs. The rights to congestion belong to load.**
  - **Congestion revenues are the source of the funds to pay FTRs. Congestion revenues are assigned to the load that paid them through FTRs. See 81 FERC ¶ 61,257 at 62, 259–62,260 & n. 123 (1997).**

LMPs, Congestion and FTRs: 2000

- **June 1, 2000**
  - **Day ahead and Balancing two settlement market with day ahead and real time LMPs.**
  - **Caused day ahead and balancing congestion.**
  - **FTRs and the associated congestion revenues were directly provided to load in recognition of the fact that, as a result of LMP, load pays more for low cost generation than is paid to low cost generation.**
  - **FTRs returned total congestion including day-ahead and balancing congestion to load.**

LMPs, Congestion and FTRs: 2003

- **June 1, 2003**
  - **PJM replaced the direct allocation of FTRs to load with an allocation of Auction Revenue Rights (ARRs).**
  - **Load still owns rights to congestion revenue, but ARRs unintentionally limited load's access to congestion revenues.**
  - **ARR holders can claim the associated FTRs or sell the FTRs and receive auction revenues.**
  - **Allowed the sale of rights that were not measured by the path based ARR definitions. These were not in fact excess congestion rights.**

LMPs, Congestion and FTRs: 2016

- **September 15, 2016**
- **FERC ordered PJM to allocate balancing congestion to load, rather than to FTRs, to modify PJM's Stage 1A ARR allocation process and to continue to use portfolio netting. 153 FERC ¶ 61,180.**
- **May 31, 2018**
- **FERC issued an order accepting PJM's proposal to allocate surplus day-ahead congestion charges and surplus FTR auction revenue that remain at the end of the Planning Period to ARR holders, rather than to FTR holders. 163 FERC ¶ 61,165**

FTR: Basic Purpose

- **FTRs provided directly load to permit loads which pay for the transmission system to continue to receive the benefits of access to either local or remote low cost generation in the form of FTR revenues which offset congestion.**
- **ARR/FTR construct not working as intended.**
- **Congestion rights allocations are not matching actual congestion based on network use.**

FTR and Contract Path

- **Under Order 888 the FERC made a crucial choice regarding a central complication of the electricity system.**
- "A contract path is simply a path that can be designated to form a single continuous electrical path between the parties to an agreement. Because of the laws of physics, it is unlikely that the actual power flow will follow that contract path. … Flow-based pricing or contracting would be designed to account for the actual power flows on a transmission system. It would take into account the "unscheduled flows" that occur under a contract path regime." (FERC, Order 888, April 24, 1996, footnotes 184-185, p. 93.)

Contract Path: (Hogan p. 5)

- **“There is a fatal flaw in the old "contract path" model of power moving between locations along a designated path. The network effects are strong. Power flows across one "interface" can have a dramatic effect on the capacity of other, distant interfaces.”**
- **William W Hogan, Presentation: Electricity Market Design: Financial Transmission Rights, April 14, 2016. (page 5)**

Contract Path (Hogan p. 6)

- **Electricity restructuring requires open access to the transmission essential facility. A fully decentralized competitive market would benefit from tradable property rights in the transmission grid. However, the industry has never been able to define workable transmission property rights (Hogan p. 6):**
  - **"A primary purpose of the RIN is for users to learn what Available Transmission Capacity (ATC) may be available for their use. Because of effects of ongoing and changing transactions, changes in system conditions, loop flows, unforeseen outages, etc., ATC is not capable of precise determination or definition. "**
  - **Comments of the Members of the PJM Interconnection, Request for Comments Regarding Real-Time Information Networks, Docket No. RM95-9-000, FERC, July 5, 1995, p. 8.**

Order 888 and the Contract Path (Hogan p. 7)

- **"We will not, at this time, require that flow-based pricing and contracting be used in the electric industry. In reaching this conclusion, we recognize that there may be difficulties in using a traditional contract path approach in a non-discriminatory open access transmission environment, as described by Hogan and others. At the same time, however, contract path pricing and contracting is the longstanding approach used in the electric industry and it is the approach familiar to all participants in the industry. To require now a dramatic overhaul of the traditional approach such as a shift to some form of flow-based pricing and contracting could severely slow, if not derail for some time, the move to open access and more competitive wholesale bulk power markets. In addition, we believe it is premature for the Commission to impose generically a new pricing regime without the benefit of any experience with such pricing. We welcome new and innovative proposals, but we will not impose them in this Rule." (FERC, Order 888, April 24, 1996, p. 96.)**

Order 888 and the Contract Path (Hogan p. 7)

- **Hogan's comment on the Order 888 statement:**
- **"Hence, although the fictional contract path approach would not work in theory, maintaining the fiction would be less disruptive in moving quickly to open access and an expanded competitive market!" Hogan p. 7**

Misalignment of Rights Under the Current Construct

- **Path specific congestion rights are inconsistent with actual congestion paid by network load use of the system.**
- **Theoretically inconsistent**
- **Path based construct is inefficient and ineffective**
- **Causes a misalignment of congestion actually paid through network use versus congestion allocated based on path based allocations**

Load Offset

Revenue					Pre 2017/2018 (Without Balancing)		2017/2018 (With Balancing)		Post 2017/2018 (With Surplus)	
Planning Period	ARR Credits	FTR Credits	Total Congestion	Surplus Revenue	ARR/FTR Offset	Percent Offset	Revenue Received	Percent Offset	Revenue Received	New Offset
2011/2012	$512.2	$249.8	$749.7	($192.5)	$762.0	101.6%	$598.6	79.8%	$563.0	79.8%
2012/2013	$349.5	$181.9	$524.8	($292.3)	$531.4	101.3%	$275.9	52.6%	$257.5	52.6%
2013/2014	$337.7	$456.4	$1,870.6	($678.7)	$794.0	42.4%	$574.1	30.7%	$623.1	30.7%
2014/2015	$482.4	$404.4	$1,357.6	$139.6	$886.8	65.3%	$686.6	50.6%	$715.0	52.7%
2015/2016	$635.3	$223.4	$951.1	$42.5	$858.8	90.3%	$744.8	78.3%	$745.2	78.4%
2016/2017	$640.0	$169.1	$780.8	$72.6	$809.1	103.6%	$727.7	93.2%	$763.8	97.8%
2017/2018	$427.3	$294.2	$1,192.6	$371.2	$721.5	60.5%	$595.7	50.0%	$886.5	74.3%
2018/2019	$529.1	$130.1	$680.0	$112.3	$675.93	99.4%	$530.8	78.1%	$626.3	92.1%
2019/2020*	$179.8	$35.9	$185.5	$47.9	$222.93	120.2%	$174.9	94.3%	$215.5	116.2%
Total	$4,093.3	$2,145.0	$8,292.8	($377.4)	$6,262.4	75.5%	$4,909.3	59.2%	$5,396.1	65.1%

* Four months of 2019/2020 planning period

Zonal Load Offset: 2018/2019 Planning Year

Zone	ARR Credits	FTR Credits	Balancing+ M2M Charge	Surplus Allocation	Total Offset	Day Ahead Congestion	Balancing Congestion	M2M Payments	Total Congestion	Offset
AECO	$2.6	$0.0	($0.7)	$0.5	$2.4	$2.3	($0.5)	($0.1)	$1.6	147.6%
AEP	$22.4	$14.3	($7.5)	$10.6	$39.8	$45.3	($7.0)	($1.4)	$37.0	107.7%
APS	$13.9	$3.5	($2.8)	$4.0	$18.5	$13.7	($2.3)	($0.5)	$10.9	170.1%
ATSI	$11.7	$0.0	($4.0)	$2.2	$10.0	$18.1	($3.3)	($0.7)	$14.1	70.8%
BGE	$21.3	$1.4	($2.0)	$4.3	$24.9	$9.4	($1.7)	($0.4)	$7.3	343.2%
ComEd	$18.0	$2.1	($6.0)	$4.1	$18.2	$33.9	($4.6)	($1.1)	$28.2	64.4%
DAY	$3.7	$0.2	($1.1)	$0.7	$3.5	$5.4	($1.0)	($0.2)	$4.2	84.8%
DEOK	$11.4	$2.3	($1.7)	$2.8	$14.7	$9.0	($1.6)	($0.3)	$7.1	208.4%
DLCO	$1.8	$0.0	($0.9)	$0.3	$1.3	$2.9	($0.7)	($0.2)	$2.0	65.2%
Dominion	$1.4	$8.7	($6.3)	$4.1	$7.9	$29.1	($5.3)	($0.2)	$23.6	33.4%
DPL	$16.6	$0.8	($1.2)	$3.3	$19.5	$14.7	($0.9)	($1.2)	$12.7	153.8%
EKPC	$0.8	$0.0	($0.7)	$0.1	$0.2	$4.0	($0.7)	($0.1)	$3.2	5.9%
EXT	$0.8	$0.0	$0.0	$0.2	$1.0	$0.1	($1.6)	$0.0	($1.6)	(62.8%)
JCPL	$1.9	$0.0	($1.5)	$0.4	$0.8	$5.0	($1.2)	($0.3)	$3.5	23.1%
Met-Ed	$2.3	$0.1	($0.9)	$0.5	$2.0	$4.2	($0.8)	($0.2)	$3.2	62.4%
OVEC	$0.0	$0.0	$0.0	$0.0	$0.0	$0.2	$0.1	$0.0	$0.2	0.0%
PECO	$7.9	$0.1	($2.5)	$1.5	$7.0	$7.3	($2.0)	($0.5)	$4.8	144.0%
Penelec	$4.6	$1.2	($1.0)	$1.1	$6.0	$4.2	($0.7)	($0.2)	$3.3	179.6%
Pepco	$9.2	$0.9	($1.9)	$1.9	$10.1	$8.2	($1.6)	($0.3)	$6.3	161.6%
PPL	$11.9	$0.3	($2.3)	$2.4	$12.1	$9.1	($1.8)	($0.4)	$6.9	176.0%
PSEG	$15.3	$0.0	($2.8)	$2.9	$15.4	$10.0	($2.2)	($0.5)	$7.3	210.1%
RECO	$0.2	$0.0	($0.1)	$0.0	$0.2	$0.4	($0.1)	($0.0)	$0.3	61.6%
Total	$179.8	$35.9	($48.1)	$47.9	$215.5	$236.3	($41.5)	($8.8)	$186.0	115.8%

ARR Allocation Location Volume: 2018/2019

	Stage 1A		Stage 1B		Stage 2		Total	
Zone	Out of Zone	In Zone	Out of Zone	In Zone	Out of Zone	In Zone	Out of Zone	In Zone
AECO	17.4%	48.3%	7.9%	20.1%	0.0%	6.3%	25.3%	74.7%
AEP	8.5%	64.6%	1.4%	23.6%	0.2%	1.8%	10.0%	90.0%
APS	11.1%	51.7%	0.2%	34.1%	0.3%	2.6%	11.6%	88.4%
ATSI	26.1%	53.8%	9.7%	8.9%	0.2%	1.3%	36.1%	63.9%
BGE	26.8%	33.6%	0.0%	37.8%	0.0%	1.8%	26.8%	73.2%
COMED	0.0%	66.7%	0.0%	18.7%	0.0%	14.7%	0.0%	100.0%
DAY	71.3%	0.6%	2.2%	0.0%	0.0%	26.0%	73.4%	26.6%
DEOK	41.8%	34.5%	0.1%	13.5%	0.1%	9.9%	42.1%	57.9%
DOM	0.0%	62.2%	0.0%	36.0%	0.0%	1.8%	0.0%	100.0%
DPL	24.7%	59.9%	1.8%	10.0%	0.3%	3.3%	26.8%	73.2%
DUQ	35.8%	9.7%	0.2%	0.7%	9.7%	43.9%	45.7%	54.3%
EKPC/EXT	73.2%	14.5%	7.6%	0.0%	4.6%	0.0%	85.5%	14.5%
JCPL	7.9%	68.5%	0.1%	1.3%	13.9%	8.3%	22.0%	78.0%
METED	25.4%	67.7%	0.7%	0.5%	0.0%	5.7%	26.1%	73.9%
PECO	3.7%	57.7%	4.7%	22.8%	2.2%	8.9%	10.6%	89.4%
PENELEC	17.4%	60.3%	0.0%	16.3%	0.1%	6.0%	17.4%	82.6%
PEPCO	16.7%	31.1%	0.0%	11.4%	0.2%	40.6%	16.9%	83.1%
PPL	0.0%	83.7%	0.0%	7.7%	0.8%	7.7%	0.9%	99.1%
PSEG	27.1%	44.4%	1.8%	18.9%	0.3%	7.5%	29.2%	70.8%
RECO	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%

ARR Allocation Location Value: 2018/2019

	Stage 1A		Stage 1B		Stage 2		Total	
Zone	Out of Zone	In Zone	Out of Zone	In Zone	Out of Zone	In Zone	Out of Zone	In Zone
AECO	32.3%	38.0%	7.9%	18.6%	0.0%	3.3%	40.1%	59.9%
AEP	13.5%	72.4%	1.2%	12.2%	0.1%	0.5%	14.9%	85.1%
APS	27.2%	54.0%	-0.1%	17.6%	0.2%	1.1%	27.3%	72.7%
ATSI	69.0%	26.7%	0.1%	3.2%	0.2%	0.7%	69.3%	30.7%
BGE	78.4%	14.5%	0.0%	6.9%	0.0%	0.1%	78.4%	21.6%
COMED	0.0%	96.4%	0.0%	0.8%	0.0%	2.8%	0.0%	100.0%
DAY	98.2%	0.0%	1.7%	0.0%	0.0%	0.2%	99.9%	0.1%
DEOK	71.5%	26.9%	0.1%	1.2%	0.0%	0.3%	71.6%	28.4%
DOM	0.0%	87.4%	0.0%	11.0%	0.0%	1.6%	0.0%	100.0%
DPL	35.5%	57.5%	1.3%	3.8%	0.1%	1.8%	36.9%	63.1%
DUQ	70.8%	-1.5%	0.0%	-0.1%	10.3%	20.5%	81.1%	18.9%
EKPC/EXT	62.5%	29.6%	4.7%	0.0%	3.2%	0.0%	70.4%	29.6%
JCPL	10.0%	33.4%	0.0%	0.1%	50.5%	6.1%	60.4%	39.6%
METED	31.8%	62.9%	0.7%	0.4%	0.1%	4.1%	32.6%	67.4%
PECO	1.4%	85.4%	1.7%	5.5%	4.3%	1.6%	7.4%	92.6%
PENELEC	32.7%	56.6%	0.0%	7.3%	0.0%	3.3%	32.8%	67.2%
PEPCO	82.6%	12.2%	0.0%	-0.3%	0.2%	5.3%	82.8%	17.2%
PPL	0.0%	95.9%	0.0%	2.9%	-0.2%	1.4%	-0.2%	100.2%
PSEG	42.0%	53.6%	0.8%	1.5%	0.1%	1.9%	42.9%	57.1%
RECO	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%	0.0%

Self Scheduled FTR Offset Ability

	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	$49,277,756	$80,179,600	61.5%	$42,504,278	$152,675,600	27.8%	$55,695,323	$70,199,000	79.3%
DPL	$39,575,232	$39,505,200	100.2%	$34,280,368	$58,901,700	58.2%	$52,556,602	$59,742,200	88.0%
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%
PECO	$9,882,926	$32,482,100	30.4%	$15,712,942	$63,774,900	24.6%	$15,656,690	$31,603,100	49.5%
Penelec	$8,193,719	$14,569,000	56.2%	$13,483,754	$29,903,100	45.1%	$17,497,247	$18,260,800	95.8%
Pepco	$11,139,343	$27,031,100	41.2%	$30,306,767	$45,584,700	66.5%	$16,731,958	$19,412,600	86.2%
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	$630,814,104	$825,272,300	76.4%	$844,682,385	$1,297,731,200	65.1%	$556,907,550	$712,702,000	78.1%

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