

SECTION 7 – CONGESTION

Congestion occurs when available, least-cost energy cannot be delivered to all loads for a period because transmission facilities are not adequate to deliver that energy to some loads. When the least-cost available energy cannot be delivered to load in a transmission-constrained area, higher cost units in the constrained area must be dispatched to meet that load.¹ The result is that the price of energy in the constrained area is higher than in the unconstrained area because of the combination of transmission limitations and the cost of local generation. Locational marginal prices (LMPs) reflect the price of the lowest-cost resources available to meet loads, taking into account actual delivery constraints imposed by the transmission system. Thus LMP is an efficient way to price energy when transmission constraints exist. Congestion reflects this efficient pricing.

Congestion reflects the underlying characteristics of the power system including the nature and capability of transmission facilities and the cost and geographical distribution of generation facilities. Congestion is neither good nor bad but is a direct measure of the extent to which there are differences in the cost of generation that cannot be equalized because of transmission constraints. A complete set of markets would require direct competition between investments in transmission and generation. The transmission system provides a physical hedge against congestion. The transmission system is paid for by firm load and, as a result, firm load receives the corollary financial hedge in the form of Auction Revenue Rights (ARRs) and/or Financial Transmission Rights (FTRs). While the transmission system and, therefore, ARRs/FTRs are not guaranteed to be a complete hedge against congestion, ARRs/FTRs do provide a substantial offset to the cost of congestion to firm load.²

The Market Monitoring Unit (MMU) analyzed congestion and its influence on PJM markets during the first nine months of 2009.

¹ This is referred to as dispatching units out of economic merit order. Economic merit order is the order of all generator offers from lowest to highest cost. Congestion occurs when loadings on transmission facilities mean the next unit in merit order cannot be used and a higher cost unit must be used in its place.

² See the 2008 State of the Market Report for PJM, Volume II, Section 8, "Financial Transmission and Auction Revenue Rights," at "ARR and FTR Revenue and Congestion."

Overview

Congestion Cost

- Total Congestion.** During the first nine months of 2009, total congestion costs decreased by \$1.235 billion or 69 percent, from \$1.778 billion to \$543.6 million. Day-ahead congestion costs decreased by \$1.546 billion or 69 percent, from \$2.251 billion during the first nine months of 2008 to \$704.6 million during the first nine months of 2009. Balancing congestion costs increased by \$311.7 million or 63 percent, from -\$472.7 million during the first nine months of 2008 to -\$161.0 during the first nine months of 2009. Total congestion costs have ranged from six percent to nine percent of PJM annual total billings since 2003. Congestion costs were three percent of total PJM billings for the first nine months of 2009. Total PJM billings for the first nine months of 2009 were \$13.457 billion, an 18 percent decrease from the \$16.369 billion billed during the first nine months of 2008.
- Monthly Congestion.** Fluctuations in monthly congestion costs continued to be substantial. During the first nine months of 2009, these differences were driven by varying load and energy import levels, different patterns of generation, weather-induced changes in demand and variations in congestion frequency on constraints affecting large portions of PJM load.

Congestion Component of LMP and Facility or Zonal Congestion

- Congestion Component of Locational Marginal Price (LMP).** To provide an indication of the geographic dispersion of congestion costs, the congestion component of LMP (CLMP) was calculated for control zones in PJM. Price separation between eastern, southern and western control zones in PJM was primarily a result of congestion on the AP South interface. This interface had the effect of increasing prices in eastern and southern control zones located on the constrained side of the affected facilities while reducing prices in the unconstrained western control zones.

- Congested Facilities.** As was the case in 2008, congestion frequency has been significantly higher in the Day-Ahead Market than in the Real-Time Market in 2009.³ Day-ahead congestion frequency increased during the first nine months of 2009 compared to the first nine months of 2008. During the first nine months of 2009, there were 59,290 day-ahead, congestion-event hours compared to 57,661 day-ahead congestion-event hours during the first nine months of 2008. Day-ahead, congestion-event hours increased on PJM transmission lines and the reciprocally coordinated flowgates between PJM and the Midwest Independent Transmission System Operator, Inc. (Midwest ISO) while congestion frequency on internal PJM interfaces and transformers decreased. Real-time congestion frequency decreased during the first nine months of 2009 compared to the first nine months of 2008. During the first nine months of 2009, there were 17,641 real-time, congestion-event hours compared to 12,640 real-time congestion-event hours during the first nine months of 2008. Real-time, congestion-event hours increased on the reciprocally coordinated flowgates between PJM and the Midwest ISO, while interfaces, transmission lines and transformers saw decreases. The AP South Interface was the largest contributor to congestion costs during the first nine months of 2009. With \$149.1 million in total congestion costs, it accounted for 27 percent of the total PJM congestion costs during the first nine months of 2009. The top five constraints in terms of congestion costs together contributed \$285 million, or 52 percent, of the total PJM congestion costs during the first nine months of 2009. The top five constraints included the AP South Interface, the West Interface, the 5004/5005 Interface, the Kammer transformer and the East Frankfort - Crete line.
- Zonal Congestion.** During the first nine months of 2009, the ComEd Control Zone experienced the highest congestion costs of the control zones in PJM. However, during the first nine months of 2009, the average congestion component of LMP in ComEd was -\$5.61 and -\$6.24 for day-ahead and real-time, respectively. The negative congestion components in ComEd resulted in -\$212.2 million in load congestion payments, -\$384.3 million in generation congestion credits, and -\$4.0 in explicit congestion charges. The net positive congestion number in ComEd is an example of how accounting congestion can be a misleading measure of congestion when it results from generation congestion credits which are more negative than load congestion

payments. In fact, congestion reduces prices in ComEd, and as a result, load incurs lower charges and generation receives lower credits. The \$123.1 million in net congestion costs in the ComEd Control Zone represented a 10.4 percent decrease from the \$168.1 million in congestion costs the zone had experienced during the first six months of 2008. The Pleasant Valley – Belvidere line, the Dunes Acres – Michigan City flowgate, the Kammer transformer, the East Frankfort – Crete line, and the AP South interface contributed \$90.5 million, or 54 percent of the total ComEd Control Zone congestion costs (Table 7-44). The Dominion Control Zone had the second highest congestion cost in PJM during the first nine months of 2009. The \$77.4 million in congestion costs in the Dominion Control Zone represented a 72 percent decrease from the \$272.6 million in congestion costs the zone had experienced during the first nine months of 2008. The AP South Interface contributed \$47.7 million, or 62 percent of the total Dominion Control Zone congestion cost.

Conclusion

Congestion reflects the underlying characteristics of the power system, including the nature and capability of transmission facilities and the cost and geographical distribution of generation facilities. Total congestion costs decreased by \$1.235 billion or 69 percent, from \$1.778 billion to \$543.6 million. Day-ahead congestion costs decreased by \$1.546 billion or 69 percent, from \$2.251 billion during the first nine months of 2008 to \$704.6 million during the first nine months of 2009. Balancing congestion costs increased by \$311.7 million or 63 percent, from -\$472.7 million during the first nine months of 2008 to -\$161.0 during the first nine months of 2009. Congestion costs were significantly higher in the Day-Ahead Market than in the balancing market. Congestion frequency was also significantly higher in the Day-Ahead Market than in the Real-Time Market. During the first nine months of 2009, there were 59,290 day-ahead, congestion-event hours compared to 57,661 congestion-event hours during the first nine months of 2008. During the first nine months of 2009, there were 17,641 real-time, congestion-event hours compared to 12,640 real-time congestion-event hours during the first nine months of 2008.

ARRs and FTRs served as an effective, but not total, hedge against congestion. ARR and FTR revenues hedged more than 100 percent of the total congestion costs in the Day-Ahead Energy Market and the balancing energy market within PJM for the 2008 to 2009 planning period. For the first

³ Prior state of the market reports measured real-time congestion frequency using the convention that a congestion-event hour exists if the particular facility is constrained for four or more of the 12 five-minute intervals comprising that hour. In the 2008 State of the Market Report for PJM, in order to have a consistent metric for real-time and day-ahead congestion frequency, real-time congestion frequency is measured using the convention that an hour is constrained if any of its component five-minute intervals is constrained. Comparisons to previous periods use the new standard for both current and prior periods.

four months of the 2009 to 2010 planning period, ARR and FTR revenue hedged 92.1 percent of the total congestion costs within PJM.⁴ FTRs were paid at 100 percent of the target allocation for the planning year ended May 31, 2009 and 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.

There are other ways to evaluate the effectiveness of ARRs as a hedge. The value of ARRs and ARRs converted to self scheduled FTRs was 3.5 percent of total energy charges to load for the first three quarters of 2009. FTRs acquired through FTR auctions had a net negative value, probably largely as a result of lower than expected congestion.

One constraint accounted for over a quarter of total congestion costs during the first nine months of 2009 and the top five constraints accounted for more than half of total congestion costs. The AP South interface was the largest contributor to congestion costs during the first nine months of 2009.

The congestion metric requires careful review. Net congestion, which includes both load congestion payments and generation congestion credits, is not a good measure of the congestion costs paid by load from the perspective of the wholesale market.⁵ While total congestion costs represent the overall charge or credit to a zone, the components of congestion costs measure the extent to which load or generation bear total congestion costs. Load congestion payments, when positive, measure the total congestion cost to load in an area. Load congestion payments, when negative, measure the total congestion credit to load in an area. Negative load congestion payments result when load is on the lower priced side of a constraint or constraints. For example, congestion across the AP South interface means lower prices in western control zones and higher prices in eastern and southern control zones. Load in western control zones will benefit from lower prices and receive a congestion credit (negative load congestion payment). Load in the eastern and southern control zones will incur a congestion charge (positive load congestion payment). The reverse is true for generation congestion credits. Generation congestion credits, when positive, measure the total congestion credit to generation in an area. Generation congestion credits, when negative, measure the total congestion cost to generation in an area. Negative generation congestion credits result when generation is on the lower priced side of a constraint or constraints. For example, congestion across the AP South interface means

lower prices in the western control zones and higher prices in the eastern and southern control zones. Generation in the western control zones will receive lower prices and incur a congestion charge (negative generation congestion credit). Generation in the eastern and southern control zones will receive higher prices and receive a congestion credit (positive generation congestion credit).

As an example, total congestion during the first nine months of 2009 in PJM was \$543.6 million, which was comprised of load congestion payments of \$210.6 million, negative generation credits of \$380.9 million and negative explicit congestion of \$48.0 million (see Table 7-2).

Congestion

Congestion Accounting

Total Calendar Year Congestion

Table 7-1 Total annual PJM congestion (Dollars (Millions)): Calendar years 2003 to September 2009 (See 2008 SOM Table 7-1)

	Congestion Charges	Percent Change	Total PJM Billing	Percent of PJM Billing
2003	\$464	NA	\$6,900	7%
2004	\$750	62%	\$8,700	9%
2005	\$2,092	179%	\$22,630	9%
2006	\$1,603	(23%)	\$20,945	8%
2007	\$1,846	15%	\$30,556	6%
2008	\$2,117	15%	\$34,306	6%
2009	\$544	NA	\$19,932	3%
Total	\$9,415		\$143,969	7%

⁴ See the 2008 State of the Market Report for PJM, Volume II, Section 8, "Financial Transmission and Auction Revenue Rights," at Table 8-28, "ARR and FTR congestion hedging: Planning periods 2007 to 2008 and 2008 to 2009."

⁵ The actual congestion payments by retail customers are a function of retail ratemaking policies and may or may not reflect an offset for congestion credits.

Table 7-2 Total annual PJM congestion costs by category (Dollars (Millions)): January through September 2008 and 2009 (New Table)

Year	Congestion Costs (Millions)			Total
	Load Payments	Generation Credits	Explicit	
2008 (Jan-Sep)	\$921.9	(\$880.7)	(\$24.5)	\$1,778.2
2009 (Jan-Sep)	\$210.6	(\$380.9)	(\$48.0)	\$543.6

Monthly Congestion

Table 7-3 Monthly PJM congestion charges (Dollars (Millions)): January through September 2008 and 2009 (See 2008 SOM Table 7-2)

	2008	2009	Change
Jan	\$231.0	\$149.3	(\$81.7)
Feb	\$168.1	\$83.0	(\$85.2)
Mar	\$86.4	\$74.6	(\$11.8)
Apr	\$126.2	\$25.6	(\$100.6)
May	\$182.8	\$25.9	(\$157.0)
Jun	\$371.5	\$49.8	(\$321.7)
Jul	\$359.9	\$39.4	(\$320.5)
Aug	\$127.4	\$72.1	(\$55.3)
Sep	\$124.8	\$23.9	(\$100.9)
2009 (Jan - Sep)	\$1,778.2	\$543.6	(\$1,234.6)

Congestion Component of LMP

Table 7-4 Annual average congestion component of LMP: January through September 2008 and 2009 (See 2008 SOM Table 7-3)

Control Zone	2008 (Jan - Sep)		2009 (Jan - Sep)	
	Day Ahead	Real Time	Day Ahead	Real Time
AECO	\$9.05	\$12.91	\$2.35	\$2.13
AEP	(\$11.24)	(\$12.66)	(\$2.24)	(\$2.32)
AP	(\$0.47)	(\$0.04)	\$0.83	\$1.62
BGE	\$12.50	\$12.82	\$3.24	\$3.05
ComEd	(\$12.82)	(\$15.07)	(\$5.61)	(\$6.24)
DAY	(\$11.68)	(\$13.36)	(\$3.01)	(\$2.99)
DLCO	(\$12.84)	(\$16.33)	(\$3.73)	(\$3.53)
Dominion	\$9.51	\$10.47	\$2.59	\$2.60
DPL	\$8.60	\$8.88	\$2.58	\$2.67
JCPL	\$9.18	\$10.32	\$2.07	\$2.11
Met-Ed	\$7.39	\$7.44	\$2.33	\$2.21
PECO	\$6.46	\$6.78	\$2.10	\$1.88
PENELEC	(\$1.22)	(\$3.27)	\$0.01	(\$0.04)
Pepco	\$14.06	\$14.16	\$3.78	\$3.82
PPL	\$6.23	\$6.20	\$2.12	\$1.90
PSEG	\$8.84	\$10.35	\$2.45	\$2.53
RECO	\$7.62	\$8.90	\$1.69	\$1.73

Congested Facilities

Congestion by Facility Type and Voltage

Table 7-5 Congestion summary (By facility type): January through September 2009 (See 2008 SOM Table 7-4)

Type	Congestion Costs (Millions)									Event Hours	
	Day Ahead				Balancing				Grand Total	Day Ahead	Real Time
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total			
Flowgate	\$16.7	(\$40.8)	\$15.1	\$72.7	(\$10.6)	\$3.4	(\$59.8)	(\$73.8)	(\$1.1)	6,119	2,656
Interface	\$39.2	(\$193.8)	\$1.3	\$234.3	\$3.2	(\$2.3)	\$1.9	\$7.4	\$241.7	4,154	1,058
Line	\$97.2	(\$154.4)	\$36.0	\$287.5	(\$16.4)	\$8.1	(\$33.4)	(\$57.8)	\$229.7	40,152	6,145
Transformer	\$89.9	(\$2.2)	\$21.8	\$114.0	(\$11.4)	(\$5.2)	(\$30.6)	(\$36.8)	\$77.2	8,865	2,781
Unclassified	\$2.7	\$6.2	(\$0.4)	(\$3.9)	\$0.0	\$0.0	\$0.0	\$0.0	(\$3.9)	NA	NA
Total	\$245.7	(\$385.0)	\$73.8	\$704.6	(\$35.1)	\$4.1	(\$121.9)	(\$161.0)	\$543.6	59,290	12,640

Table 7-6 Congestion summary (By facility type): January through September 2008 (See 2008 SOM Table 7-5)

Type	Congestion Costs (Millions)									Event Hours	
	Day Ahead				Balancing				Grand Total	Day Ahead	Real Time
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total			
Flowgate	\$6.8	(\$9.5)	\$7.3	\$23.5	(\$4.1)	\$4.6	(\$29.5)	(\$38.2)	(\$14.6)	1,709	1,212
Interface	\$324.6	(\$463.0)	\$34.7	\$822.3	(\$18.2)	\$22.1	(\$11.8)	(\$52.1)	\$770.2	6,378	1,780
Line	\$516.0	(\$353.7)	\$83.9	\$953.7	(\$113.0)	\$33.4	(\$111.5)	(\$257.9)	\$695.9	38,866	10,763
Transformer	\$270.1	(\$135.7)	\$25.3	\$431.1	(\$69.7)	\$30.4	(\$24.5)	(\$124.5)	\$306.5	10,708	3,886
Unclassified	\$9.4	(\$9.3)	\$1.6	\$20.3	\$0.0	\$0.0	\$0.0	\$0.0	\$20.3	NA	NA
Total	\$1,126.9	(\$971.2)	\$152.8	\$2,250.9	(\$204.9)	\$90.5	(\$177.3)	(\$472.7)	\$1,778.2	57,661	17,641

Table 7-7 Congestion summary (By facility voltage): January through September 2009 (See 2008 SOM Table 7-6)

Congestion Costs (Millions)											
Voltage (kV)	Day Ahead				Balancing				Grand Total	Event Hours	
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
765	(\$0.0)	(\$0.0)	\$0.0	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	24	0
500	\$101.9	(\$203.9)	\$12.9	\$318.7	(\$1.5)	(\$14.7)	(\$12.8)	\$0.4	\$319.1	9,546	2,784
345	\$24.8	(\$45.8)	\$31.7	\$102.2	(\$4.3)	\$4.3	(\$50.0)	(\$58.7)	\$43.6	6,072	1,793
230	\$38.5	(\$27.6)	\$7.7	\$73.9	(\$12.6)	\$5.3	(\$5.0)	(\$22.9)	\$50.9	12,123	1,617
138	\$61.4	(\$113.9)	\$21.4	\$196.7	(\$13.3)	\$7.6	(\$53.7)	(\$74.6)	\$122.1	22,256	5,587
115	\$9.3	(\$1.1)	\$0.3	\$10.7	\$0.4	\$0.6	(\$0.2)	(\$0.5)	\$10.2	4,429	531
69	\$6.9	\$0.9	\$0.2	\$6.2	(\$3.7)	\$0.9	(\$0.1)	(\$4.7)	\$1.5	4,150	326
34	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.0	50	2
Unclassified	\$0.2	\$0.2	\$0.0	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	NA	NA
Total	\$243.0	(\$391.3)	\$74.2	\$708.5	(\$35.1)	\$4.1	(\$121.9)	(\$161.0)	\$547.5	58,650	12,640

Table 7-8 Congestion summary (By facility voltage): January through September 2008 (See 2008 SOM Table 7-7)

Congestion Costs (Millions)											
Voltage (kV)	Day Ahead				Balancing				Grand Total	Event Hours	
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
765	\$1.6	(\$3.0)	\$0.1	\$4.7	\$1.4	\$0.6	(\$0.0)	\$0.7	\$5.4	83	21
500	\$639.5	(\$703.5)	\$71.9	\$1,415.0	(\$95.9)	\$6.3	(\$34.8)	(\$137.0)	\$1,278.0	14,175	5,883
345	\$35.6	(\$38.4)	\$24.0	\$98.0	(\$27.2)	\$12.4	(\$88.7)	(\$128.3)	(\$30.3)	3,114	1,628
230	\$186.9	(\$106.2)	\$24.7	\$317.8	(\$32.4)	\$49.1	(\$19.2)	(\$100.7)	\$217.0	11,579	3,391
138	\$166.0	(\$105.3)	\$29.1	\$300.4	(\$32.7)	\$9.8	(\$29.7)	(\$72.2)	\$228.2	16,328	4,890
115	\$53.8	(\$8.4)	\$1.0	\$63.2	(\$15.8)	\$10.5	(\$4.6)	(\$30.9)	\$32.3	6,874	1,251
69	\$34.2	\$3.0	\$0.3	\$31.6	(\$2.3)	\$1.8	(\$0.2)	(\$4.3)	\$27.3	5,508	553
34	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	0	24
12	(\$0.0)	(\$0.1)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0	0
Unclassified	\$9.4	(\$9.3)	\$1.6	\$20.3	\$0.0	\$0.0	\$0.0	\$0.0	\$20.3	NA	NA
Total	\$1,126.9	(\$971.2)	\$152.8	\$2,250.9	(\$204.9)	\$90.5	(\$177.3)	(\$472.7)	\$1,778.2	57,661	17,641

Constraint Duration

Table 7-9 Top 25 constraints with frequent occurrence: January through September 2008 and 2009 (See 2008 SOM Table 7-8)⁶

No.	Constraint	Type	Event Hours						Percent of Annual Hours					
			Day Ahead			Real Time			Day Ahead			Real Time		
			2008	2009	Change	2008	2009	Change	2008	2009	Change	2008	2009	Change
1	Cloverdale - Lexington	Line	2,941	752	(2,189)	1,506	335	(1,171)	45%	11%	(33%)	23%	5%	(18%)
2	Dunes Acres - Michigan City	Flowgate	310	2,888	2,578	263	907	644	5%	44%	39%	4%	14%	10%
3	Leonia - New Milford	Line	422	3,088	2,666	48	39	(9)	6%	47%	41%	1%	1%	(0%)
4	Pleasant Valley - Belvidere	Line	0	2,342	2,342	15	266	251	0%	36%	36%	0%	4%	4%
5	Burlington - Croydon	Line	256	2,420	2,164	5	3	(2)	4%	37%	33%	0%	0%	(0%)
6	Mount Storm - Pruntytown	Line	1,546	525	(1,021)	771	132	(639)	24%	8%	(16%)	12%	2%	(10%)
7	Trainer - Delco Tap	Line	1,658	0	(1,658)	0	0	0	25%	0%	(25%)	0%	0%	0%
8	Atlantic - Larrabee	Line	1,501	188	(1,313)	368	45	(323)	23%	3%	(20%)	6%	1%	(5%)
9	Pinehill - Stratford	Line	2,613	1,020	(1,593)	0	0	0	40%	16%	(24%)	0%	0%	0%
10	Kammer	Transformer	2,251	3,674	1,423	1,261	1,328	67	34%	56%	22%	19%	20%	1%
11	Tiltonville - Windsor	Line	0	1,258	1,258	5	237	232	0%	19%	19%	0%	4%	4%
12	Branchburg - Readington	Line	1,117	21	(1,096)	271	10	(261)	17%	0%	(17%)	4%	0%	(4%)
13	Mount Storm	Transformer	908	123	(785)	460	70	(390)	14%	2%	(12%)	7%	1%	(6%)
14	Oak Grove - Galesburg	Flowgate	0	645	645	4	531	527	0%	10%	10%	0%	8%	8%
15	Waterman - West Dekalb	Line	102	1,216	1,114	1	41	40	2%	19%	17%	0%	1%	1%
16	Bedington - Black Oak	Interface	1,361	395	(966)	209	61	(148)	21%	6%	(15%)	3%	1%	(2%)
17	East Towanda	Transformer	803	0	(803)	306	0	(306)	12%	0%	(12%)	5%	0%	(5%)
18	West	Interface	1,197	391	(806)	372	85	(287)	18%	6%	(12%)	6%	1%	(4%)
19	Athenia - Saddlebrook	Line	70	1,094	1,024	76	139	63	1%	17%	16%	1%	2%	1%
20	Kammer - Ormet	Line	0	552	552	0	509	509	0%	8%	8%	0%	8%	8%
21	Electric Jct - Nelson	Line	0	819	819	46	202	156	0%	13%	13%	1%	3%	2%
22	Ruth - Turner	Line	0	704	704	11	279	268	0%	11%	11%	0%	4%	4%
23	East Frankfort - Crete	Line	530	1,490	960	0	0	0	8%	23%	15%	0%	0%	0%
24	State Line - Wolf Lake	Flowgate	1,129	415	(714)	366	152	(214)	17%	6%	(11%)	6%	2%	(3%)
25	Meadow Brook	Transformer	774	50	(724)	173	0	(173)	12%	1%	(11%)	3%	0%	(3%)

⁶ Presented in descending order of absolute change between January through September 2008 and January through September 2009 day-ahead and real-time congestion-event hours.

Constraint Costs
Table 7-10 Top 25 constraints affecting annual PJM congestion costs (By facility): January through September 2009 (See 2008 SOM Table 7-9)

No.	Constraint	Type	Location	Congestion Costs (Millions)								Percent of Total PJM Congestion Costs 2009	
				Day Ahead				Balancing					
				Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		
1	AP South	Interface	500	\$8.8	(\$133.2)	(\$0.3)	\$141.7	\$2.2	(\$3.1)	\$2.2	\$7.5	\$149.1	27%
2	West	Interface	500	\$17.8	(\$21.4)	\$0.6	\$39.7	\$0.3	(\$0.2)	\$0.1	\$0.7	\$40.4	7%
3	5004/5005 Interface	Interface	500	\$9.5	(\$25.5)	\$0.1	\$35.2	\$1.3	\$0.4	\$0.1	\$1.0	\$36.2	7%
4	Kammer	Transformer	500	\$50.8	\$16.1	\$9.0	\$43.8	(\$4.9)	(\$6.7)	(\$11.6)	(\$9.8)	\$34.0	6%
5	East Frankfort - Crete	Line	ComEd	\$4.7	(\$12.8)	\$7.4	\$24.9	\$0.0	\$0.0	\$0.0	\$0.0	\$24.9	5%
6	Pleasant Valley - Belvidere	Line	ComEd	(\$4.0)	(\$29.4)	\$2.9	\$28.3	\$0.8	\$1.9	(\$4.1)	(\$5.1)	\$23.3	4%
7	Mount Storm - Pruntytown	Line	AP	\$1.8	(\$16.8)	\$0.5	\$19.1	\$0.9	(\$1.7)	(\$1.1)	\$1.5	\$20.5	4%
8	Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$13.5	(\$22.9)	\$8.6	\$44.9	(\$7.2)	(\$2.0)	(\$23.4)	(\$28.6)	\$16.3	3%
9	Cloverdale - Lexington	Line	AEP	\$6.8	(\$4.3)	\$1.7	\$12.9	(\$0.1)	(\$3.0)	(\$2.5)	\$0.4	\$13.2	2%
10	Bedington - Black Oak	Interface	500	\$2.4	(\$10.4)	\$0.6	\$13.4	(\$0.4)	(\$0.0)	\$0.2	(\$0.3)	\$13.1	2%
11	Pana North	Flowgate	Midwest ISO	\$0.1	(\$2.1)	\$1.7	\$3.9	(\$0.5)	\$1.1	(\$11.5)	(\$13.0)	(\$9.1)	(2%)
12	Crete - St Johns Tap	Flowgate	Midwest ISO	\$2.7	(\$9.2)	\$2.9	\$14.7	(\$0.9)	\$0.2	(\$5.1)	(\$6.2)	\$8.5	2%
13	Ruth - Turner	Line	AEP	\$2.5	(\$6.5)	\$0.5	\$9.5	(\$1.3)	(\$0.7)	(\$0.6)	(\$1.2)	\$8.3	2%
14	Tiltonsville - Windsor	Line	AP	\$7.9	(\$0.3)	\$0.3	\$8.5	(\$0.3)	(\$0.6)	(\$0.8)	(\$0.5)	\$7.9	1%
15	Kanawha River	Transformer	AEP	\$2.0	(\$3.6)	\$0.3	\$5.9	\$0.1	(\$0.5)	(\$0.1)	\$0.5	\$6.4	1%
16	Kammer - Ormet	Line	AEP	\$4.3	(\$4.1)	(\$0.1)	\$8.3	(\$1.6)	\$0.5	(\$0.0)	(\$2.2)	\$6.2	1%
17	Samms - Wylie Ridge	Line	AP	\$3.1	(\$2.7)	\$3.4	\$9.2	(\$1.1)	(\$0.3)	(\$2.8)	(\$3.5)	\$5.7	1%
18	Kanawha - Kincaid	Line	AEP	\$1.9	(\$3.5)	\$0.2	\$5.6	\$0.0	\$0.0	\$0.0	\$0.0	\$5.6	1%
19	Graceton - Raphael Road	Line	BGE	\$0.9	(\$3.6)	\$0.5	\$5.1	\$1.5	\$0.3	(\$0.6)	\$0.6	\$5.6	1%
20	Schahfer - Burr Oak	Flowgate	Midwest ISO	\$0.4	(\$1.3)	\$0.6	\$2.3	(\$2.0)	\$0.4	(\$5.4)	(\$7.8)	(\$5.6)	(1%)
21	Breed - Wheatland	Line	AEP	(\$0.2)	(\$4.9)	\$0.6	\$5.3	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	\$5.3	1%
22	Electric Jct - Nelson	Line	ComEd	\$0.0	(\$8.4)	\$1.2	\$9.6	\$1.8	\$1.7	(\$4.8)	(\$4.7)	\$4.9	1%
23	Kanawha River - Bradley	Line	AEP	(\$0.1)	(\$4.6)	\$0.3	\$4.7	(\$0.0)	\$0.1	(\$0.0)	(\$0.1)	\$4.7	1%
24	Mount Storm	Transformer	AP	\$0.8	(\$3.9)	(\$0.1)	\$4.7	(\$0.1)	\$0.1	\$0.1	(\$0.2)	\$4.5	1%
25	Doubs	Transformer	AP	\$2.6	(\$1.8)	\$0.0	\$4.4	(\$0.0)	(\$0.1)	(\$0.1)	(\$0.1)	\$4.3	1%

Table 7-11 Top 25 constraints affecting annual PJM congestion costs (By facility): January through September 2008 (See 2008 SOM Table 7-10)

No.	Constraint	Type	Location	Congestion Costs (Millions)								Percent of Total PJM Congestion Costs	
				Day Ahead				Balancing				Grand Total	2008
				Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		
1	AP South	Interface	500	\$175.2	(\$283.1)	\$17.5	\$475.8	(\$12.1)	\$7.1	(\$8.5)	(\$27.7)	\$448.1	25%
2	Cloverdale - Lexington	Line	AEP	\$143.3	(\$70.5)	\$7.3	\$221.1	(\$19.6)	(\$14.6)	(\$7.7)	(\$12.7)	\$208.4	12%
3	Mount Storm - Pruntytown	Line	AP	\$48.5	(\$122.2)	\$12.1	\$182.8	(\$21.8)	(\$15.4)	(\$2.8)	(\$9.3)	\$173.5	10%
4	Bedington - Black Oak	Interface	500	\$49.5	(\$99.9)	\$6.5	\$155.9	(\$1.0)	(\$0.3)	\$0.7	(\$0.1)	\$155.9	9%
5	West	Interface	500	\$56.2	(\$33.8)	\$6.0	\$96.0	(\$1.9)	\$8.3	(\$2.1)	(\$12.3)	\$83.7	5%
6	Kammer	Transformer	500	\$90.0	\$20.4	\$8.3	\$77.8	(\$15.7)	(\$2.0)	\$2.8	(\$10.9)	\$67.0	4%
7	Sammis - Wylie Ridge	Line	AP	\$9.1	(\$3.0)	\$12.5	\$24.6	(\$25.2)	\$6.4	(\$57.1)	(\$88.7)	(\$64.2)	(4%)
8	Bedington	Transformer	AP	\$19.5	(\$30.3)	\$1.7	\$51.5	(\$1.5)	(\$1.3)	(\$0.4)	(\$0.6)	\$50.9	3%
9	Mount Storm	Transformer	AP	\$22.0	(\$60.2)	\$9.8	\$92.0	(\$20.9)	\$14.2	(\$15.8)	(\$50.9)	\$41.1	2%
10	Atlantic - Larrabee	Line	JCPL	\$40.6	(\$15.2)	\$5.4	\$61.2	(\$9.6)	\$8.0	(\$4.7)	(\$22.3)	\$39.0	2%
11	Meadow Brook	Transformer	AP	\$21.8	(\$17.5)	\$0.8	\$40.1	(\$4.4)	(\$1.2)	(\$0.4)	(\$3.6)	\$36.5	2%
12	East	Interface	500	\$16.9	(\$13.2)	\$0.8	\$30.9	(\$0.1)	(\$0.0)	\$0.0	(\$0.0)	\$30.8	2%
13	Branchburg - Readington	Line	PSEG	\$30.4	(\$11.9)	\$4.7	\$47.0	(\$6.4)	\$8.8	(\$2.0)	(\$17.2)	\$29.8	2%
14	Aqueduct - Doubs	Line	AP	\$23.1	(\$3.7)	\$0.4	\$27.3	\$0.0	(\$0.1)	(\$0.0)	\$0.1	\$27.4	2%
15	Central	Interface	500	\$13.8	(\$11.0)	\$1.6	\$26.4	(\$0.0)	\$0.0	\$0.1	(\$0.0)	\$26.4	1%
16	5004/5005 Interface	Interface	500	\$12.9	(\$22.0)	\$2.3	\$37.3	(\$3.1)	\$6.8	(\$1.8)	(\$11.7)	\$25.6	1%
17	Axton	Transformer	AEP	\$8.8	(\$14.6)	\$1.5	\$25.0	\$0.0	\$0.0	\$0.0	\$0.0	\$25.0	1%
18	Harwood - Susquehanna	Line	PPL	\$8.9	(\$19.6)	\$0.4	\$28.9	(\$2.6)	\$3.0	(\$0.7)	(\$6.3)	\$22.7	1%
19	Krendale - Seneca	Line	AP	\$13.6	\$2.7	\$5.7	\$16.6	(\$0.1)	\$0.1	(\$0.0)	(\$0.2)	\$16.4	1%
20	Bristers - Ox	Line	Dominion	\$8.7	(\$7.4)	(\$0.9)	\$15.3	\$0.5	\$0.4	\$0.4	\$0.5	\$15.8	1%
21	North Seaford - Pine Street	Line	DPL	\$21.2	\$5.4	\$0.1	\$16.0	(\$1.0)	(\$0.6)	(\$0.1)	(\$0.6)	\$15.4	1%
22	East Frankfort - Crete	Line	ComEd	\$5.1	(\$6.3)	\$2.6	\$14.0	\$0.0	\$0.0	\$0.0	\$0.0	\$14.0	1%
23	Branchburg - Flagtown	Line	PSEG	\$11.8	(\$4.1)	\$0.1	\$16.0	\$0.3	\$1.0	(\$1.4)	(\$2.1)	\$13.9	1%
24	Buckingham - Pleasant Valley	Line	PECO	\$13.0	\$1.0	\$1.1	\$13.1	(\$0.7)	\$1.0	\$0.2	(\$1.5)	\$11.6	1%
25	Black Oak	Transformer	AP	\$6.4	(\$4.8)	\$0.4	\$11.5	(\$0.2)	(\$0.3)	(\$0.1)	(\$0.0)	\$11.5	1%

Congestion-Event Summary for Midwest ISO Flowgates

Table 7-12 Top congestion cost impacts from Midwest ISO flowgates affecting PJM dispatch (By facility): January through September 2009 (See 2008 SOM Table 7-11)

Constraint	Congestion Costs (Millions)										
	Day Ahead				Balancing				Grand Total	Event Hours	
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
Dunes Acres - Michigan City	\$13.5	(\$22.9)	\$8.6	\$44.9	(\$7.2)	(\$2.0)	(\$23.4)	(\$28.6)	\$16.3	2,888	907
Pana North	\$0.1	(\$2.1)	\$1.7	\$3.9	(\$0.5)	\$1.1	(\$11.5)	(\$13.0)	(\$9.1)	879	318
Crete - St Johns Tap	\$2.7	(\$9.2)	\$2.9	\$14.7	(\$0.9)	\$0.2	(\$5.1)	(\$6.2)	\$8.5	732	190
Schahfer - Burr Oak	\$0.4	(\$1.3)	\$0.6	\$2.3	(\$2.0)	\$0.4	(\$5.4)	(\$7.8)	(\$5.6)	62	81
Breed - Wheatland	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.7	(\$3.2)	(\$3.8)	(\$3.8)	0	161
Pleasant Prairie - Zion	(\$0.0)	(\$0.1)	\$0.1	\$0.2	\$0.3	\$0.5	(\$1.9)	(\$2.2)	(\$2.0)	51	45
Eugene - Bunsonville	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	\$0.1	(\$1.1)	(\$1.3)	(\$1.3)	0	44
Oak Grove - Galesburg	(\$0.5)	(\$3.8)	\$0.1	\$3.4	\$0.7	\$1.1	(\$4.0)	(\$4.5)	(\$1.1)	645	531
State Line - Roxana	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.2)	\$0.0	(\$0.4)	(\$0.6)	(\$0.6)	0	30
Rising	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	(\$0.5)	(\$0.5)	(\$0.5)	0	55
State Line - Wolf Lake	\$0.3	(\$1.0)	\$0.6	\$1.9	(\$0.4)	\$0.5	(\$1.5)	(\$2.4)	(\$0.5)	415	152
Pawnee	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.0	(\$0.4)	(\$0.4)	(\$0.4)	0	35
Lanesville	\$0.3	(\$0.1)	\$0.1	\$0.5	\$0.0	\$0.1	(\$0.8)	(\$0.9)	(\$0.4)	104	32
Pierce - Foster	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	\$0.3	(\$0.0)	(\$0.4)	(\$0.4)	0	5
Palisades - Argenta	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.2	(\$0.0)	(\$0.2)	(\$0.2)	0	8

Table 7-13 Top congestion cost impacts from Midwest ISO flowgates affecting PJM dispatch (By facility): January through September 2008 (See 2008 SOM Table 7-12)

Constraint	Congestion Costs (Millions)										
	Day Ahead				Balancing				Event Hours		
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
Pleasant Prairie - Zion	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.7)	\$0.2	(\$5.3)	(\$6.2)	(\$6.2)	0	71
Pana North	\$0.7	(\$1.8)	\$0.6	\$3.1	(\$0.4)	\$1.2	(\$6.8)	(\$8.3)	(\$5.3)	190	299
Lanesville	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.2)	\$0.5	(\$3.8)	(\$4.4)	(\$4.4)	0	87
State Line - Wolf Lake	\$2.0	(\$3.6)	\$4.2	\$9.8	(\$1.0)	\$1.2	(\$4.0)	(\$6.3)	\$3.6	1,129	366
Dunes Acres - Michigan City	\$3.2	(\$2.8)	\$2.2	\$8.1	(\$1.4)	\$1.0	(\$8.7)	(\$11.1)	(\$3.0)	310	263
Crete - St Johns Tap	\$0.9	(\$1.3)	\$0.3	\$2.5	(\$0.2)	\$0.1	(\$0.4)	(\$0.7)	\$1.8	80	14
Breed - Wheatland	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.2	(\$0.3)	(\$0.4)	(\$0.4)	0	9
State Line - Roxana	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.1	(\$0.3)	(\$0.4)	(\$0.4)	0	37
Ontario Hydro - NYISO	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.3)	(\$0.1)	(\$0.0)	(\$0.2)	(\$0.2)	0	15
Krendale - Seneca	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	\$0.0	(\$0.0)	(\$0.2)	(\$0.2)	0	23
Salem	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	\$0.1	0	1
DC Cook - Palisades	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.0	\$0.1	\$0.0	\$0.0	0	3
Eugene - Bunsonville	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	0	2
State Line	\$0.0	\$0.0	(\$0.0)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	0	0
Eau Claire - Arpin	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	0	8

Congestion-Event Summary for the 500 kV System

Table 7-14 Regional constraints summary (By facility): January through September 2009 (See 2008 SOM Table 7-13)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
AP South	Interface	500	\$8.8	(\$133.2)	(\$0.3)	\$141.7	\$2.2	(\$3.1)	\$2.2	\$7.5	\$149.1	2,559	423
West	Interface	500	\$17.8	(\$21.4)	\$0.6	\$39.7	\$0.3	(\$0.2)	\$0.1	\$0.7	\$40.4	391	85
5004/5005 Interface	Interface	500	\$9.5	(\$25.5)	\$0.1	\$35.2	\$1.3	\$0.4	\$0.1	\$1.0	\$36.2	643	241
Kammer	Transformer	500	\$50.8	\$16.1	\$9.0	\$43.8	(\$4.9)	(\$6.7)	(\$11.6)	(\$9.8)	\$34.0	3,674	1,328
Bedington - Black Oak	Interface	500	\$2.4	(\$10.4)	\$0.6	\$13.4	(\$0.4)	(\$0.0)	\$0.2	(\$0.3)	\$13.1	395	61
AEP-DOM	Interface	500	\$0.5	(\$3.1)	\$0.3	\$3.9	(\$0.5)	(\$0.0)	(\$0.3)	(\$0.8)	\$3.1	126	64
East	Interface	500	\$0.2	(\$0.1)	(\$0.0)	\$0.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.3	21	0
Doubs - Mount Storm	Line	500	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.1)	\$0.0	\$0.1	\$0.1	0	18
Central	Interface	500	\$0.0	(\$0.1)	\$0.0	\$0.1	\$0.0	\$0.1	(\$0.0)	(\$0.1)	\$0.1	19	8
Harrison - Pruntytown	Line	500	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	0	4

Table 7-15 Regional constraints summary (By facility): January through September 2008 (See 2008 SOM Table 7-14)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
AP South	Interface	500	\$175.2	(\$283.1)	\$17.5	\$475.8	(\$12.1)	\$7.1	(\$8.5)	(\$27.7)	\$448.1	2,182	788
Bedington - Black Oak	Interface	500	\$49.5	(\$99.9)	\$6.5	\$155.9	(\$1.0)	(\$0.3)	\$0.7	(\$0.1)	\$155.9	1,361	209
West	Interface	500	\$56.2	(\$33.8)	\$6.0	\$96.0	(\$1.9)	\$8.3	(\$2.1)	(\$12.3)	\$83.7	1,197	372
Kammer	Transformer	500	\$90.0	\$20.4	\$8.3	\$77.8	(\$15.7)	(\$2.0)	\$2.8	(\$10.9)	\$67.0	2,251	1,261
East	Interface	500	\$16.9	(\$13.2)	\$0.8	\$30.9	(\$0.1)	(\$0.0)	\$0.0	(\$0.0)	\$30.8	510	9
Central	Interface	500	\$13.8	(\$11.0)	\$1.6	\$26.4	(\$0.0)	\$0.0	\$0.1	(\$0.0)	\$26.4	701	22
5004/5005 Interface	Interface	500	\$12.9	(\$22.0)	\$2.3	\$37.3	(\$3.1)	\$6.8	(\$1.8)	(\$11.7)	\$25.6	427	365
Fort Martin - Harrison	Line	500	\$2.0	(\$0.3)	\$0.4	\$2.7	\$0.0	\$0.0	\$0.0	\$0.0	\$2.7	45	0
Juniata - Keystone	Line	500	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.8)	\$0.4	\$0.2	(\$1.0)	(\$1.0)	0	21
Conemaugh - Keystone	Line	500	\$0.4	(\$0.2)	\$0.2	\$0.8	\$0.9	\$0.8	(\$0.1)	\$0.1	\$0.9	16	36
Cabot - Wylie Ridge	Line	500	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7	(\$0.1)	(\$0.8)	(\$0.8)	0	6
AEP-DOM	Interface	500	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.1	(\$0.1)	(\$0.2)	(\$0.2)	0	5
Doubs - Mount Storm	Line	500	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.1)	\$0.1	\$0.1	\$0.1	0	6

Zonal Congestion

Summary

Table 7-16 Congestion cost summary (By control zone): January through September 2009 (See 2008 SOM Table 7-16)

Control Zone	Congestion Costs (Millions)								Grand Total
	Day Ahead				Balancing				
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	
AECO	\$21.7	\$8.0	\$0.2	\$13.9	(\$0.5)	\$0.8	\$0.4	(\$0.9)	\$12.9
AEP	(\$46.4)	(\$129.4)	\$8.7	\$91.8	(\$5.1)	\$7.5	(\$10.7)	(\$23.4)	\$68.4
AP	\$32.3	(\$54.0)	\$13.3	\$99.5	(\$4.6)	\$2.7	(\$22.6)	(\$29.9)	\$69.7
BGE	\$71.8	\$57.2	\$1.1	\$15.7	\$5.3	(\$3.7)	(\$1.2)	\$7.9	\$23.6
ComEd	(\$206.4)	(\$386.3)	(\$3.3)	\$176.7	(\$5.8)	\$2.1	(\$0.7)	(\$8.6)	\$168.1
DAY	(\$8.0)	(\$15.1)	(\$0.5)	\$6.7	\$1.0	\$1.3	\$0.1	(\$0.2)	\$6.5
DLCO	(\$41.4)	(\$62.5)	(\$0.0)	\$21.1	(\$3.7)	\$5.1	(\$0.0)	(\$8.8)	\$12.3
DPL	\$43.7	\$13.0	\$0.4	\$31.1	(\$2.0)	\$1.5	(\$0.4)	(\$4.0)	\$27.1
Dominion	\$73.8	(\$0.8)	\$6.3	\$80.8	\$0.2	(\$3.9)	(\$7.6)	(\$3.4)	\$77.4
External	(\$18.0)	(\$46.3)	\$32.2	\$60.6	(\$2.0)	(\$5.6)	(\$71.2)	(\$67.6)	(\$7.0)
JCPL	\$40.2	\$16.3	\$0.0	\$23.9	\$0.4	(\$2.4)	(\$0.1)	\$2.7	\$26.6
Met-Ed	\$31.1	\$32.1	\$0.2	(\$0.7)	(\$0.1)	(\$0.5)	(\$0.3)	\$0.1	(\$0.6)
PECO	\$16.4	\$32.2	\$0.1	(\$15.8)	(\$0.3)	\$2.5	(\$0.0)	(\$2.8)	(\$18.6)
PENELEC	(\$2.7)	(\$27.1)	\$0.3	\$24.7	\$1.2	\$1.0	(\$0.1)	\$0.0	\$24.7
PPL	\$11.9	\$19.3	\$2.3	(\$5.1)	\$0.1	(\$0.6)	\$0.3	\$0.9	(\$4.2)
PSEG	\$64.9	\$52.4	\$10.1	\$22.6	(\$0.4)	\$4.9	(\$5.0)	(\$10.3)	\$12.4
Pepco	\$158.9	\$106.0	\$2.3	\$55.3	(\$18.8)	(\$8.6)	(\$2.5)	(\$12.7)	\$42.6
RECO	\$2.0	\$0.0	\$0.1	\$2.0	(\$0.0)	(\$0.0)	(\$0.1)	(\$0.1)	\$1.9
Total	\$245.7	(\$385.0)	\$73.8	\$704.6	(\$35.1)	\$4.1	(\$121.9)	(\$161.0)	\$543.6

Table 7-17 Congestion cost summary (By control zone): January through September 2008 (See 2008 SOM Table 7-17)

Control Zone	Congestion Costs (Millions)								Grand Total
	Load Payments	Day Ahead Generation Credits	Explicit	Total	Load Payments	Balancing Generation Credits	Explicit	Total	
AECO	\$96.7	\$25.8	\$1.0	\$71.9	(\$13.1)	\$7.6	(\$1.7)	(\$22.5)	\$49.4
AEP	(\$319.6)	(\$593.6)	\$9.4	\$283.4	(\$78.3)	\$1.5	(\$3.9)	(\$83.8)	\$199.7
AP	\$125.5	(\$320.3)	\$35.1	\$480.9	(\$13.6)	\$20.7	(\$23.9)	(\$58.2)	\$422.7
BGE	\$264.6	\$205.8	\$2.6	\$61.4	\$8.0	(\$12.6)	(\$3.5)	\$17.1	\$78.5
ComEd	(\$382.9)	(\$645.9)	(\$0.5)	\$262.5	(\$39.4)	\$9.8	(\$4.0)	(\$53.1)	\$209.4
DAY	(\$39.8)	(\$48.9)	\$0.3	\$9.4	\$3.4	\$1.9	(\$0.2)	\$1.2	\$10.6
DLCO	(\$129.9)	(\$198.2)	(\$0.0)	\$68.2	(\$44.8)	\$18.8	\$0.1	(\$63.5)	\$4.7
DPL	\$125.8	\$44.5	\$0.8	\$82.1	\$6.9	\$5.8	(\$1.4)	(\$0.3)	\$81.7
Dominion	\$291.2	\$7.6	\$32.2	\$315.8	(\$9.5)	\$3.6	(\$30.1)	(\$43.2)	\$272.6
External	(\$54.8)	(\$38.7)	\$11.5	(\$4.6)	(\$33.2)	(\$28.6)	(\$71.9)	(\$76.4)	(\$81.0)
JCPL	\$231.9	\$61.2	\$9.0	\$179.7	(\$0.4)	\$0.8	(\$8.8)	(\$10.0)	\$169.7
Met-Ed	\$86.2	\$82.2	\$2.7	\$6.7	\$2.5	\$1.5	\$11.2	\$12.2	\$18.9
PECO	\$59.0	\$95.1	\$0.5	(\$35.7)	\$0.0	\$14.3	(\$0.7)	(\$15.0)	(\$50.6)
PENELEC	(\$41.7)	(\$198.9)	\$4.4	\$161.6	(\$6.0)	\$10.4	(\$1.2)	(\$17.6)	\$144.0
PPL	\$25.5	\$29.1	\$10.5	\$6.9	\$0.2	\$6.5	(\$4.4)	(\$10.7)	(\$3.9)
PSEG	\$242.5	\$157.1	\$25.8	\$111.2	\$4.9	\$32.2	(\$23.9)	(\$51.2)	\$60.0
Pepco	\$538.2	\$364.7	\$6.2	\$179.8	\$6.7	(\$3.6)	(\$6.9)	\$3.5	\$183.3
RECO	\$8.4	\$0.1	\$1.4	\$9.7	\$0.6	(\$0.1)	(\$2.0)	(\$1.2)	\$8.5
Total	\$1,126.9	(\$971.2)	\$152.8	\$2,250.9	(\$204.9)	\$90.5	(\$177.3)	(\$472.7)	\$1,778.2

Details of Regional and Zonal Congestion**Mid-Atlantic Region Congestion-Event Summaries****AECO Control Zone****Table 7-18 AECO Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-18)**

Constraint	Type	Location	Congestion Costs (Millions)											Event Hours	
			Day Ahead				Balancing				Grand Total	Day Ahead	Real Time		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total					
Kammer	Transformer	500	\$4.2	\$1.3	\$0.0	\$2.9	\$0.2	(\$0.0)	\$0.0	\$0.3	\$3.1	3,674	1,328		
West	Interface	500	\$4.6	\$2.2	\$0.0	\$2.4	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$2.4	391	85		
5004/5005 Interface	Interface	500	\$3.8	\$1.7	\$0.0	\$2.1	\$0.1	\$0.1	\$0.0	\$0.1	\$2.2	643	241		
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$1.4	\$0.3	\$0.0	\$1.1	\$0.1	(\$0.0)	\$0.0	\$0.2	\$1.3	2,888	907		
Wylie Ridge	Transformer	AP	\$1.8	\$0.9	\$0.0	\$0.9	(\$0.0)	\$0.1	\$0.1	(\$0.0)	\$0.9	354	335		
Absecon - Lewis	Line	AECO	\$1.0	\$0.1	\$0.0	\$1.0	(\$1.2)	\$0.5	(\$0.0)	(\$1.7)	(\$0.8)	22	149		
Graceton - Raphael Road	Line	BGE	(\$1.2)	(\$0.4)	(\$0.0)	(\$0.8)	\$0.2	\$0.1	\$0.0	\$0.0	(\$0.8)	300	127		
AP South	Interface	500	\$1.0	\$0.5	\$0.0	\$0.6	\$0.0	\$0.0	\$0.1	\$0.1	\$0.6	2,559	423		
Monroe	Transformer	AECO	\$0.5	\$0.0	\$0.0	\$0.4	\$0.1	(\$0.0)	\$0.0	\$0.1	\$0.5	252	13		
Shieldalloy - Vineland	Line	AECO	\$1.1	\$0.3	\$0.0	\$0.9	(\$0.3)	\$0.1	(\$0.0)	(\$0.4)	\$0.5	148	61		
Monroe - New Freedom	Line	AECO	\$0.8	\$0.4	\$0.0	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5	584	0		
Tiltonsville - Windsor	Line	AP	\$0.6	\$0.2	\$0.0	\$0.4	\$0.0	(\$0.0)	(\$0.0)	\$0.1	\$0.4	1,258	237		
Sammis - Wylie Ridge	Line	AP	\$0.6	\$0.2	\$0.0	\$0.3	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$0.4	632	140		
East Frankfort - Crete	Line	ComEd	\$0.5	\$0.2	\$0.0	\$0.4	\$0.0	\$0.0	\$0.0	\$0.0	\$0.4	1,490	0		
Cloverdale - Lexington	Line	AEP	\$0.4	\$0.2	\$0.0	\$0.2	\$0.1	(\$0.0)	\$0.0	\$0.1	\$0.3	752	335		

Table 7-19 AECO Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-19)

Congestion Costs (Millions)														
Constraint	Type	Location	Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Event Hours	
				Generation Credits	Explicit	Explicit			Generation Credits	Explicit	Total		Day Ahead	Real Time
Monroe	Transformer	AECO	\$33.9	\$3.6	\$0.2	\$30.5	(\$14.5)	\$4.3	(\$0.7)	(\$19.5)	\$11.0	810	254	
AP South	Interface	500	\$11.6	\$5.0	\$0.2	\$6.8	\$0.1	\$0.1	(\$0.1)	(\$0.1)	\$6.7	2,182	788	
West	Interface	500	\$10.2	\$4.6	\$0.1	\$5.6	\$0.4	(\$0.0)	(\$0.1)	\$0.4	\$6.1	1,197	372	
Atlantic - Larrabee	Line	JCPL	(\$6.4)	(\$2.8)	(\$0.0)	(\$3.6)	(\$0.4)	\$0.4	\$0.0	(\$0.7)	(\$4.4)	1,501	368	
Cloverdale - Lexington	Line	AEP	\$7.4	\$3.9	\$0.0	\$3.5	\$0.6	(\$0.1)	(\$0.1)	\$0.7	\$4.2	2,941	1,506	
Kammer	Transformer	500	\$6.4	\$3.1	\$0.1	\$3.4	\$0.4	\$0.1	(\$0.1)	\$0.2	\$3.6	2,251	1,261	
Churchtown	Transformer	AECO	(\$0.3)	(\$3.0)	\$0.0	\$2.7	\$0.4	\$0.3	\$0.0	\$0.1	\$2.8	179	92	
Quinton - Roadstown	Line	AECO	\$6.3	\$1.0	\$0.0	\$5.3	(\$1.3)	\$1.4	(\$0.1)	(\$2.8)	\$2.5	288	124	
Central	Interface	500	\$4.5	\$2.4	\$0.0	\$2.1	\$0.0	\$0.0	(\$0.0)	(\$0.0)	\$2.1	701	22	
East	Interface	500	\$4.0	\$2.2	\$0.0	\$1.9	(\$0.0)	\$0.0	\$0.0	(\$0.0)	\$1.9	510	9	
5004/5005 Interface	Interface	500	\$2.9	\$1.2	\$0.0	\$1.7	\$0.0	\$0.0	(\$0.0)	(\$0.0)	\$1.6	427	365	
Bedington - Black Oak	Interface	500	\$2.3	\$1.2	\$0.0	\$1.2	\$0.0	\$0.0	(\$0.0)	\$0.0	\$1.2	1,361	209	
Mount Storm - Pruntytown	Line	AP	\$2.1	\$0.9	\$0.1	\$1.3	(\$0.1)	\$0.0	(\$0.2)	(\$0.3)	\$1.0	1,546	771	
Sammis - Wylie Ridge	Line	AP	\$1.1	\$0.7	\$0.0	\$0.4	\$0.5	\$0.1	(\$0.1)	\$0.3	\$0.7	708	789	
Dickerson - Pleasant View	Line	Pepco	\$1.4	\$0.7	\$0.0	\$0.7	\$0.0	(\$0.0)	(\$0.0)	\$0.1	\$0.7	468	124	

BGE Control Zone

Table 7-20 BGE Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-20)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Total				
Kammer	Transformer	500	\$11.9	\$9.0	\$0.2	\$3.2	\$1.0	(\$0.6)	(\$0.2)	\$1.3	\$4.5	3,674	1,328	
AP South	Interface	500	\$18.4	\$16.9	\$0.2	\$1.7	\$1.3	(\$1.0)	(\$0.2)	\$2.1	\$3.8	2,559	423	
5004/5005 Interface	Interface	500	\$2.5	\$1.3	\$0.1	\$1.3	\$0.2	(\$0.2)	(\$0.1)	\$0.4	\$1.7	643	241	
West	Interface	500	\$8.1	\$6.8	\$0.2	\$1.4	\$0.1	(\$0.2)	(\$0.0)	\$0.2	\$1.6	391	85	
Wylie Ridge	Transformer	AP	\$3.6	\$3.4	\$0.1	\$0.3	\$0.6	(\$0.7)	(\$0.2)	\$1.2	\$1.5	354	335	
Graceton - Raphael Road	Line	BGE	\$4.3	\$2.9	\$0.0	\$1.4	\$0.0	\$0.1	(\$0.1)	(\$0.2)	\$1.3	300	127	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$3.4	\$2.7	\$0.0	\$0.6	\$0.3	(\$0.0)	(\$0.0)	\$0.4	\$1.0	2,888	907	
Mount Storm - Pruntytown	Line	AP	\$3.2	\$2.9	\$0.0	\$0.2	\$0.5	(\$0.3)	(\$0.1)	\$0.6	\$0.9	525	132	
Bedington - Black Oak	Interface	500	\$2.7	\$2.0	\$0.1	\$0.7	\$0.1	(\$0.0)	(\$0.0)	\$0.1	\$0.8	395	61	
Pumphrey - Westport	Line	Pepco	\$0.5	(\$0.1)	\$0.0	\$0.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7	1,179	0	
Cloverdale - Lexington	Line	AEP	\$2.3	\$2.2	\$0.0	\$0.2	\$0.3	(\$0.1)	(\$0.0)	\$0.4	\$0.5	752	335	
Tiltonville - Windsor	Line	AP	\$1.2	\$0.7	\$0.0	\$0.4	\$0.1	(\$0.0)	(\$0.0)	\$0.1	\$0.5	1,258	237	
Five Forks - Rock Ridge	Line	BGE	\$0.7	\$0.2	\$0.0	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5	136	0	
Sammis - Wylie Ridge	Line	AP	\$1.4	\$1.1	\$0.0	\$0.3	\$0.1	(\$0.1)	(\$0.0)	\$0.1	\$0.4	632	140	
Elrama - Mitchell	Line	AP	\$0.7	\$0.4	\$0.0	\$0.2	\$0.1	(\$0.0)	(\$0.0)	\$0.1	\$0.4	225	184	

Table 7-21 BGE Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-21)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Total				
AP South	Interface	500	\$73.3	\$57.1	\$0.5	\$16.7	\$4.1	(\$3.6)	(\$0.8)	\$6.9	\$23.6	2,182	788	
Mount Storm - Pruntytown	Line	AP	\$31.2	\$25.6	\$0.2	\$5.8	\$0.1	(\$2.3)	(\$0.1)	\$2.3	\$8.0	1,546	771	
West	Interface	500	\$17.0	\$12.7	\$0.3	\$4.6	\$1.1	(\$0.7)	(\$0.6)	\$1.3	\$5.9	1,197	372	
Kammer	Transformer	500	\$16.7	\$13.6	\$0.4	\$3.5	\$1.1	(\$1.3)	(\$0.4)	\$2.0	\$5.5	2,251	1,261	
Aqueduct - Doubs	Line	AP	\$11.9	\$6.8	\$0.0	\$5.1	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	\$5.1	293	7	
Pumphrey - Westport	Line	Pepco	\$4.0	(\$0.3)	\$0.0	\$4.3	\$0.0	\$0.0	\$0.0	\$0.0	\$4.3	1,039	0	
Bedington - Black Oak	Interface	500	\$23.1	\$21.3	\$0.3	\$2.1	\$0.8	(\$0.6)	(\$0.1)	\$1.3	\$3.4	1,361	209	
Conastone	Transformer	BGE	\$4.4	\$1.4	(\$0.0)	\$3.1	\$0.1	(\$0.0)	\$0.0	\$0.1	\$3.2	95	14	
Dickerson - Pleasant View	Line	Pepco	\$6.1	\$3.8	\$0.3	\$2.5	\$0.3	(\$0.1)	(\$0.1)	\$0.3	\$2.8	468	124	
Mount Storm	Transformer	AP	\$12.5	\$10.8	\$0.1	\$1.8	(\$0.3)	(\$1.0)	(\$0.1)	\$0.7	\$2.5	908	460	
Green Street - Westport	Line	BGE	\$2.3	(\$0.0)	\$0.0	\$2.3	\$0.0	\$0.0	\$0.0	\$0.0	\$2.3	308	0	
Cloverdale - Lexington	Line	AEP	\$37.2	\$38.3	\$0.4	(\$0.7)	\$2.0	(\$1.0)	(\$0.3)	\$2.7	\$1.9	2,941	1,506	
Sammis - Wylie Ridge	Line	AP	\$2.5	\$2.3	\$0.0	\$0.2	\$0.9	(\$0.7)	(\$0.4)	\$1.2	\$1.5	708	789	
5004/5005 Interface	Interface	500	\$2.4	\$1.4	\$0.1	\$1.1	\$0.1	(\$0.2)	(\$0.1)	\$0.2	\$1.3	427	365	
Brandon Shores - Riverside	Line	BGE	\$1.3	(\$0.7)	\$0.0	\$2.0	(\$0.6)	\$0.2	(\$0.0)	(\$0.9)	\$1.2	124	58	

DPL Control Zone

Table 7-22 DPL Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-22)

Congestion Costs (Millions)														
Constraint	Type	Location	Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Event Hours	
				Generation Credits	Explicit	Explicit			Generation Credits	Explicit	Explicit		Day Ahead	Real Time
Kammer	Transformer	500	\$7.5	\$1.7	\$0.0	\$5.9	(\$0.1)	\$0.3	(\$0.1)	(\$0.4)	\$5.4	3,674	1,328	
West	Interface	500	\$8.6	\$3.6	\$0.0	\$5.1	(\$0.0)	\$0.1	(\$0.0)	(\$0.1)	\$4.9	391	85	
5004/5005 Interface	Interface	500	\$6.2	\$2.5	\$0.1	\$3.8	\$0.0	\$0.3	(\$0.1)	(\$0.3)	\$3.5	643	241	
Short - Laurel	Line	DPL	\$0.0	\$0.0	\$0.0	\$0.0	(\$2.1)	\$0.2	(\$0.1)	(\$2.4)	(\$2.4)	0	27	
Wylie Ridge	Transformer	AP	\$3.4	\$1.3	\$0.0	\$2.1	\$0.2	\$0.2	(\$0.0)	(\$0.0)	\$2.1	354	335	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$2.4	\$0.3	(\$0.0)	\$2.1	(\$0.1)	\$0.0	\$0.0	(\$0.1)	\$2.0	2,888	907	
AP South	Interface	500	\$2.6	\$0.8	\$0.0	\$1.8	\$0.0	\$0.1	(\$0.0)	(\$0.1)	\$1.7	2,559	423	
Middletown - Mt Pleasant	Line	DPL	\$1.8	\$0.3	\$0.0	\$1.5	(\$0.2)	\$0.0	\$0.0	(\$0.2)	\$1.3	300	17	
Sammis - Wylie Ridge	Line	AP	\$1.2	\$0.2	\$0.0	\$1.0	(\$0.0)	\$0.0	(\$0.0)	(\$0.1)	\$0.9	632	140	
Graceton - Raphael Road	Line	BGE	(\$1.9)	(\$0.5)	(\$0.0)	(\$1.5)	\$0.3	(\$0.2)	\$0.0	\$0.6	(\$0.9)	300	127	
North Seaford - Pine Street	Line	DPL	\$1.0	\$0.2	\$0.0	\$0.8	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	\$0.8	310	1	
East Frankfort - Crete	Line	ComEd	\$1.0	\$0.2	\$0.0	\$0.8	\$0.0	\$0.0	\$0.0	\$0.0	\$0.8	1,490	0	
Tiltonsville - Windsor	Line	AP	\$1.0	\$0.2	\$0.0	\$0.8	(\$0.0)	\$0.0	(\$0.0)	(\$0.1)	\$0.7	1,258	237	
Cloverdale - Lexington	Line	AEP	\$0.9	\$0.2	\$0.0	\$0.7	(\$0.0)	\$0.0	(\$0.0)	(\$0.0)	\$0.7	752	335	
Easton - Trappe	Line	DPL	\$0.7	\$0.1	\$0.0	\$0.6	\$0.0	\$0.0	\$0.0	\$0.0	\$0.6	146	0	

Table 7-23 DPL Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-23)

Congestion Costs (Millions)														
Constraint	Type	Location	Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Event Hours	
				Generation Credits	Explicit	Explicit			Generation Credits	Explicit	Explicit		Day Ahead	Real Time
North Seaford - Pine Street	Line	DPL	\$21.2	\$5.4	\$0.1	\$16.0	(\$1.0)	(\$0.6)	(\$0.1)	(\$0.6)	\$15.4	689	147	
AP South	Interface	500	\$20.2	\$9.7	\$0.1	\$10.7	\$1.5	\$1.2	(\$0.1)	\$0.2	\$10.9	2,182	788	
West	Interface	500	\$16.0	\$5.9	\$0.1	\$10.3	\$1.0	\$1.0	(\$0.0)	\$0.0	\$10.3	1,197	372	
Cloverdale - Lexington	Line	AEP	\$13.3	\$4.3	\$0.1	\$9.1	\$0.9	(\$0.0)	(\$0.1)	\$0.9	\$10.0	2,941	1,506	
Kammer	Transformer	500	\$10.7	\$3.9	\$0.1	\$6.8	\$1.0	\$0.7	(\$0.1)	\$0.2	\$7.1	2,251	1,261	
East	Interface	500	\$6.8	\$2.3	\$0.0	\$4.6	\$0.0	(\$0.0)	\$0.0	\$0.0	\$4.6	510	9	
Central	Interface	500	\$7.5	\$3.3	\$0.0	\$4.2	\$0.0	(\$0.0)	\$0.0	\$0.1	\$4.2	701	22	
Bedington - Black Oak	Interface	500	\$4.8	\$1.8	\$0.0	\$2.9	\$0.2	\$0.0	(\$0.0)	\$0.1	\$3.1	1,361	209	
Atlantic - Larrabee	Line	JCPL	(\$4.4)	(\$1.9)	(\$0.0)	(\$2.5)	(\$0.5)	(\$0.0)	\$0.0	(\$0.4)	(\$2.9)	1,501	368	
5004/5005 Interface	Interface	500	\$4.5	\$1.7	\$0.0	\$2.8	\$0.5	\$0.4	(\$0.1)	\$0.1	\$2.9	427	365	
Mount Storm - Pruntytown	Line	AP	\$4.3	\$1.7	\$0.1	\$2.6	\$0.3	\$0.2	(\$0.1)	\$0.0	\$2.6	1,546	771	
Red Lion At5n	Transformer	DPL	\$3.8	\$1.4	\$0.1	\$2.5	\$0.0	(\$0.1)	\$0.0	\$0.1	\$2.5	53	3	
Branchburg - Readington	Line	PSEG	(\$3.3)	(\$1.4)	(\$0.1)	(\$1.9)	(\$0.2)	\$0.3	\$0.1	(\$0.4)	(\$2.3)	1,117	271	
Dickerson - Pleasant View	Line	Pepco	\$2.4	\$1.0	\$0.0	\$1.4	\$0.1	(\$0.1)	(\$0.0)	\$0.2	\$1.6	468	124	
Sammis - Wylie Ridge	Line	AP	\$2.0	\$0.5	\$0.0	\$1.5	\$0.8	\$0.7	(\$0.1)	\$0.1	\$1.6	708	789	

JCPL Control Zone

Table 7-24 JCPL Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-24)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Day Ahead				Balancing				Grand Total	Day Ahead	Real Time	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total				
West	Interface	500	\$9.7	\$3.9	\$0.0	\$5.7	\$0.1	(\$0.2)	(\$0.0)	\$0.2	\$6.0	391	85	
5004/5005 Interface	Interface	500	\$8.2	\$3.5	\$0.0	\$4.7	\$0.2	(\$0.9)	(\$0.0)	\$1.1	\$5.7	643	241	
Kammer	Transformer	500	\$8.2	\$3.5	\$0.0	\$4.8	\$0.1	(\$0.6)	(\$0.0)	\$0.7	\$5.4	3,674	1,328	
Wylie Ridge	Transformer	AP	\$3.9	\$1.4	\$0.0	\$2.5	\$0.1	(\$0.6)	(\$0.0)	\$0.7	\$3.2	354	335	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$3.0	\$1.3	(\$0.1)	\$1.6	(\$0.0)	(\$0.2)	\$0.0	\$0.2	\$1.7	2,888	907	
Atlantic - Larrabee	Line	JCPL	\$1.8	\$0.4	\$0.0	\$1.5	(\$0.6)	(\$0.5)	(\$0.0)	(\$0.1)	\$1.3	188	45	
Athenia - Saddlebrook	Line	PSEG	(\$1.4)	(\$0.3)	(\$0.0)	(\$1.0)	(\$0.0)	\$0.1	\$0.0	(\$0.1)	(\$1.1)	1,094	139	
Sammis - Wylie Ridge	Line	AP	\$1.4	\$0.5	\$0.0	\$0.9	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$0.9	632	140	
Graceton - Raphael Road	Line	BGE	(\$1.9)	(\$1.0)	(\$0.0)	(\$0.9)	\$0.4	\$0.2	\$0.0	\$0.2	(\$0.8)	300	127	
East Frankfort - Crete	Line	ComEd	\$1.3	\$0.5	(\$0.0)	\$0.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7	1,490	0	
Cloverdale - Lexington	Line	AEP	\$0.9	\$0.3	\$0.0	\$0.6	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$0.6	752	335	
Tiltonville - Windsor	Line	AP	\$1.2	\$0.6	\$0.0	\$0.6	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	\$0.6	1,258	237	
Buckingham - Pleasant Valley	Line	PECO	\$0.7	\$0.2	\$0.0	\$0.4	(\$0.1)	(\$0.1)	(\$0.0)	\$0.0	\$0.5	131	59	
Crete - St Johns Tap	Flowgate	Midwest ISO	\$0.7	\$0.3	\$0.0	\$0.4	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$0.5	732	190	
Leonia - New Milford	Line	PSEG	(\$0.6)	(\$0.2)	(\$0.0)	(\$0.4)	(\$0.0)	\$0.0	\$0.0	(\$0.0)	(\$0.4)	3,088	39	

Table 7-25 JCPL Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-25)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Day Ahead				Balancing				Grand Total	Day Ahead	Real Time	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total				
Atlantic - Larrabee	Line	JCPL	\$47.2	\$2.1	\$2.2	\$47.2	(\$3.0)	\$2.7	(\$2.4)	(\$8.1)	\$39.1	1,501	368	
Branchburg - Readington	Line	PSEG	\$27.7	\$4.5	\$2.2	\$25.4	(\$2.2)	(\$0.8)	(\$1.8)	(\$3.3)	\$22.1	1,117	271	
West	Interface	500	\$24.3	\$9.5	\$0.3	\$15.1	\$0.1	(\$0.2)	(\$0.6)	(\$0.4)	\$14.7	1,197	372	
Cloverdale - Lexington	Line	AEP	\$17.5	\$4.8	\$0.7	\$13.4	\$0.6	(\$0.2)	(\$0.5)	\$0.2	\$13.6	2,941	1,506	
AP South	Interface	500	\$20.7	\$8.4	\$0.8	\$13.0	\$0.2	(\$0.4)	(\$1.0)	(\$0.5)	\$12.6	2,182	788	
Kammer	Transformer	500	\$16.2	\$5.7	\$0.4	\$11.0	\$0.5	\$0.1	(\$0.4)	\$0.1	\$11.1	2,251	1,261	
Central	Interface	500	\$12.1	\$3.5	\$0.5	\$9.0	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	\$9.0	701	22	
Branchburg - Flagtown	Line	PSEG	\$10.9	\$2.8	\$0.1	\$8.2	\$1.4	\$0.6	(\$0.1)	\$0.7	\$8.8	260	61	
Cedar Grove - Roseland	Line	PSEG	(\$8.5)	(\$1.6)	(\$0.1)	(\$7.1)	(\$0.4)	(\$0.4)	\$0.1	\$0.1	(\$7.0)	627	178	
Buckingham - Pleasant Valley	Line	PECO	\$9.9	\$3.5	\$0.2	\$6.7	(\$0.1)	(\$0.1)	(\$0.1)	(\$0.1)	\$6.5	557	60	
East	Interface	500	\$8.8	\$2.6	\$0.0	\$6.2	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$6.2	510	9	
5004/5005 Interface	Interface	500	\$8.2	\$2.9	\$0.3	\$5.6	\$0.3	\$0.1	(\$0.2)	\$0.0	\$5.6	427	365	
Redoak - Sayreville	Line	JCPL	\$0.1	(\$2.2)	\$0.0	\$2.3	\$0.2	(\$0.5)	\$0.4	\$1.1	\$3.4	237	30	
Harwood - Susquehanna	Line	PPL	\$4.5	\$1.3	\$0.0	\$3.2	\$0.0	(\$0.0)	(\$0.0)	\$0.1	\$3.2	110	99	
Cedar Grove - Clifton	Line	PSEG	(\$3.7)	(\$0.6)	(\$0.0)	(\$3.1)	(\$0.3)	(\$0.3)	\$0.2	\$0.2	(\$2.9)	494	403	

Met-Ed Control Zone

Table 7-26 Met-Ed Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-26)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
Kammer	Transformer	500	\$6.0	\$7.9	\$0.1	(\$1.8)	(\$0.0)	(\$0.3)	(\$0.1)	\$0.2	(\$1.6)	3,674	1,328
Brunner Island - Yorkana	Line	Met-Ed	\$0.3	(\$0.7)	\$0.0	\$1.0	\$0.0	\$0.0	(\$0.0)	\$0.0	\$1.0	86	27
5004/5005 Interface	Interface	500	\$5.1	\$6.0	\$0.0	(\$0.9)	(\$0.1)	(\$0.3)	(\$0.0)	\$0.1	(\$0.8)	643	241
Graceton - Raphael Road	Line	BGE	(\$1.4)	(\$2.2)	(\$0.0)	\$0.8	\$0.1	\$0.3	\$0.0	(\$0.2)	\$0.6	300	127
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$2.0	\$2.5	\$0.0	(\$0.6)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	(\$0.6)	2,888	907
Hunterstown	Transformer	Met-Ed	\$0.3	(\$0.1)	(\$0.0)	\$0.4	(\$0.0)	(\$0.0)	\$0.0	(\$0.0)	\$0.4	53	1
Tiltonsville - Windsor	Line	AP	\$0.8	\$1.2	\$0.0	(\$0.4)	\$0.0	(\$0.1)	(\$0.0)	\$0.1	(\$0.3)	1,258	237
AP South	Interface	500	\$2.0	\$1.7	\$0.0	\$0.3	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.3	2,559	423
Wylie Ridge	Transformer	AP	\$3.1	\$2.8	\$0.0	\$0.3	(\$0.1)	(\$0.2)	(\$0.0)	\$0.0	\$0.3	354	335
East Frankfort - Crete	Line	ComEd	\$0.8	\$1.0	\$0.0	(\$0.2)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.2)	1,490	0
Crete - St Johns Tap	Flowgate	Midwest ISO	\$0.5	\$0.6	\$0.0	(\$0.1)	(\$0.0)	\$0.0	(\$0.0)	(\$0.0)	(\$0.2)	732	190
Hummelstown - Middletown Jct	Line	Met-Ed	\$0.1	\$0.3	\$0.0	(\$0.2)	\$0.0	(\$0.0)	(\$0.0)	\$0.0	(\$0.2)	51	14
West	Interface	500	\$6.9	\$6.8	\$0.0	\$0.1	(\$0.0)	(\$0.1)	(\$0.0)	\$0.1	\$0.2	391	85
Middletown Jct - Yorkhaven	Line	Met-Ed	\$0.2	\$0.0	\$0.0	\$0.2	(\$0.0)	\$0.0	\$0.0	(\$0.0)	\$0.2	28	2
Cloverdale - Lexington	Line	AEP	\$0.7	\$0.9	\$0.0	(\$0.2)	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.2)	752	335

Table 7-27 Met-Ed Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-27)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
AP South	Interface	500	\$15.7	\$17.0	\$0.7	(\$0.7)	\$0.5	(\$0.2)	\$3.4	\$4.1	\$3.4	2,182	788
Cloverdale - Lexington	Line	AEP	\$11.4	\$10.6	\$0.7	\$1.5	\$0.2	\$0.4	\$0.5	\$0.4	\$1.9	2,941	1,506
Kammer	Transformer	500	\$9.1	\$9.6	\$0.5	(\$0.0)	\$0.2	(\$0.1)	\$1.4	\$1.6	\$1.6	2,251	1,261
Bedington - Black Oak	Interface	500	\$4.1	\$3.2	\$0.1	\$0.9	\$0.0	\$0.0	\$0.6	\$0.7	\$1.6	1,361	209
Bedington	Transformer	AP	\$1.7	\$0.3	\$0.0	\$1.4	\$0.0	\$0.0	\$0.2	\$0.2	\$1.6	999	234
Brunner Island - Yorkana	Line	Met-Ed	\$0.5	(\$0.9)	\$0.0	\$1.4	\$0.1	\$0.1	(\$0.0)	(\$0.0)	\$1.4	57	25
Middletown Jct	Transformer	Met-Ed	\$1.0	(\$0.1)	\$0.0	\$1.1	\$0.0	\$0.0	\$0.0	\$0.0	\$1.1	59	1
Collins - Middletown Jct	Line	Met-Ed	\$1.0	(\$0.0)	\$0.0	\$1.0	(\$0.0)	\$0.2	\$0.1	(\$0.1)	\$0.9	265	31
Conastone	Transformer	BGE	\$0.4	(\$0.3)	(\$0.1)	\$0.7	\$0.0	\$0.1	\$0.1	\$0.0	\$0.7	95	14
Sammis - Wylie Ridge	Line	AP	\$1.8	\$1.9	\$0.1	\$0.0	\$0.4	\$0.0	\$0.3	\$0.6	\$0.6	708	789
East Towanda	Transformer	PENELEC	\$0.3	\$0.4	\$0.0	\$0.0	\$0.1	(\$0.1)	\$0.4	\$0.6	\$0.6	803	306
Harwood - Susquehanna	Line	PPL	\$1.2	\$0.4	\$0.0	\$0.8	\$0.0	\$0.3	(\$0.0)	(\$0.2)	\$0.6	110	99
Aqueduct - Doubs	Line	AP	(\$0.8)	(\$0.2)	\$0.0	(\$0.6)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.6)	293	7
Mount Storm - Pruntytown	Line	AP	\$3.4	\$3.1	\$0.1	\$0.4	(\$0.0)	\$0.0	\$0.2	\$0.2	\$0.6	1,546	771
Altoona - Raystown	Line	PENELEC	\$0.4	\$0.4	\$0.0	\$0.0	\$0.0	(\$0.1)	\$0.4	\$0.5	\$0.5	161	48

PECO Control Zone

Table 7-28 PECO Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-28)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Explicit	Total			
Kammer	Transformer	500	\$3.7	\$9.8	\$0.0	(\$6.0)	(\$0.2)	(\$0.0)	\$0.0	(\$0.2)	(\$6.2)	3,674	1,328	
West	Interface	500	\$3.0	\$6.2	\$0.0	(\$3.1)	(\$0.0)	(\$0.1)	(\$0.0)	\$0.0	(\$3.1)	391	85	
AP South	Interface	500	\$0.6	\$3.2	\$0.0	(\$2.6)	(\$0.0)	\$0.0	\$0.0	(\$0.1)	(\$2.7)	2,559	423	
5004/5005 Interface	Interface	500	\$4.3	\$6.6	\$0.0	(\$2.3)	\$0.0	(\$0.0)	\$0.0	\$0.0	(\$2.3)	643	241	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$1.5	\$3.5	(\$0.0)	(\$2.0)	(\$0.1)	\$0.1	(\$0.0)	(\$0.1)	(\$2.1)	2,888	907	
Graceton - Raphael Road	Line	BGE	(\$0.9)	(\$2.9)	(\$0.0)	\$2.0	\$0.5	\$0.6	(\$0.0)	(\$0.1)	\$1.9	300	127	
Wylie Ridge	Transformer	AP	\$1.3	\$2.3	\$0.0	(\$0.9)	(\$0.1)	\$0.0	(\$0.1)	(\$0.1)	(\$1.1)	354	335	
Tiltonsville - Windsor	Line	AP	\$0.6	\$1.5	\$0.0	(\$0.9)	(\$0.0)	(\$0.1)	\$0.0	\$0.0	(\$0.9)	1,258	237	
East Frankfort - Crete	Line	ComEd	\$0.4	\$1.3	(\$0.0)	(\$0.8)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.8)	1,490	0	
Crete - St Johns Tap	Flowgate	Midwest ISO	\$0.2	\$1.0	(\$0.0)	(\$0.7)	(\$0.0)	\$0.0	(\$0.0)	(\$0.1)	(\$0.8)	732	190	
Sammis - Wylie Ridge	Line	AP	\$0.5	\$1.1	\$0.0	(\$0.7)	(\$0.0)	\$0.0	(\$0.0)	(\$0.1)	(\$0.7)	632	140	
Cloverdale - Lexington	Line	AEP	\$0.4	\$1.1	\$0.0	(\$0.7)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	(\$0.7)	752	335	
Mount Storm - Pruntytown	Line	AP	\$0.1	\$0.5	\$0.0	(\$0.5)	(\$0.0)	\$0.0	(\$0.0)	(\$0.0)	(\$0.5)	525	132	
Holmesburg - Richmond	Line	PECO	(\$0.2)	(\$0.5)	(\$0.0)	\$0.3	(\$0.0)	(\$0.1)	\$0.0	\$0.1	\$0.5	311	10	
Bedington - Black Oak	Interface	500	\$0.2	\$0.6	\$0.0	(\$0.4)	(\$0.0)	(\$0.0)	\$0.0	\$0.0	(\$0.4)	395	61	

Table 7-29 PECO Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-29)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Explicit	Total			
AP South	Interface	500	\$7.4	\$24.3	\$0.0	(\$16.9)	\$0.1	\$1.2	\$0.0	(\$1.1)	(\$18.0)	2,182	788	
West	Interface	500	\$7.6	\$18.2	\$0.1	(\$10.5)	\$0.2	\$1.7	\$0.0	(\$1.5)	(\$12.0)	1,197	372	
East	Interface	500	\$7.8	\$0.1	(\$0.0)	\$7.7	(\$0.0)	(\$0.1)	\$0.0	\$0.1	\$7.8	510	9	
Kammer	Transformer	500	\$6.1	\$12.3	\$0.0	(\$6.2)	\$0.5	\$1.0	\$0.0	(\$0.5)	(\$6.7)	2,251	1,261	
Cloverdale - Lexington	Line	AEP	\$7.9	\$13.3	\$0.1	(\$5.3)	\$0.1	\$1.4	(\$0.0)	(\$1.3)	(\$6.7)	2,941	1,506	
Bedington - Black Oak	Interface	500	\$1.5	\$5.9	\$0.0	(\$4.3)	\$0.0	\$0.2	\$0.0	(\$0.1)	(\$4.4)	1,361	209	
Mount Storm - Pruntytown	Line	AP	\$1.1	\$5.1	\$0.0	(\$3.9)	(\$0.1)	\$0.2	(\$0.0)	(\$0.3)	(\$4.2)	1,546	771	
5004/5005 Interface	Interface	500	\$2.4	\$4.9	\$0.0	(\$2.5)	\$0.2	\$0.7	(\$0.0)	(\$0.6)	(\$3.1)	427	365	
Branchburg - Readington	Line	PSEG	(\$1.9)	(\$4.5)	(\$0.0)	\$2.6	(\$0.0)	\$0.2	(\$0.0)	(\$0.3)	\$2.3	1,117	271	
Conastone	Transformer	BGE	(\$0.2)	(\$2.4)	(\$0.0)	\$2.2	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$2.3	95	14	
Dickerson - Pleasant View	Line	Peppo	\$1.4	\$3.5	\$0.0	(\$2.2)	(\$0.0)	(\$0.0)	\$0.0	\$0.0	(\$2.2)	468	124	
Bradford - Planebrook	Line	PECO	\$0.7	(\$1.1)	(\$0.0)	\$1.8	\$0.0	\$0.1	\$0.0	(\$0.1)	\$1.7	124	23	
Whitpain	Transformer	PECO	\$3.8	(\$1.4)	\$0.1	\$5.2	(\$0.4)	\$2.8	(\$0.3)	(\$3.5)	\$1.7	89	68	
Sammis - Wylie Ridge	Line	AP	\$1.6	\$1.8	\$0.0	(\$0.2)	\$0.0	\$1.6	\$0.0	(\$1.5)	(\$1.7)	708	789	
Unclassified	Unclassified	Unclassified	\$2.2	\$0.6	(\$0.0)	\$1.6	\$0.0	\$0.0	\$0.0	\$0.0	\$1.6	NA	NA	

PENELEC Control Zone

Table 7-30 PENELEC Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-30)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
AP South	Interface	500	(\$12.2)	(\$25.8)	(\$0.0)	\$13.6	\$0.8	\$0.3	\$0.1	\$0.5	\$14.1	2,559	423
West	Interface	500	(\$2.2)	(\$15.2)	(\$0.0)	\$13.0	\$0.0	\$0.1	\$0.0	(\$0.0)	\$13.0	391	85
5004/5005 Interface	Interface	500	(\$2.9)	(\$15.5)	(\$0.0)	\$12.6	\$0.4	\$1.6	\$0.1	(\$1.1)	\$11.4	643	241
Kammer	Transformer	500	\$4.8	\$15.9	\$0.2	(\$10.8)	(\$0.5)	(\$0.9)	(\$0.1)	\$0.2	(\$10.6)	3,674	1,328
Wylie Ridge	Transformer	AP	\$1.5	\$10.3	\$0.1	(\$8.8)	(\$0.6)	(\$0.7)	(\$0.0)	\$0.1	(\$8.7)	354	335
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$4.0	\$7.5	(\$0.0)	(\$3.5)	\$0.2	(\$0.5)	\$0.0	\$0.6	(\$2.9)	2,888	907
Seward	Transformer	PENELEC	\$6.5	\$3.7	(\$0.0)	\$2.8	\$0.0	\$0.0	\$0.0	\$0.0	\$2.8	218	0
Mount Storm - Pruntytown	Line	AP	(\$2.4)	(\$4.6)	(\$0.0)	\$2.2	\$0.3	(\$0.1)	\$0.0	\$0.5	\$2.7	525	132
Sammis - Wylie Ridge	Line	AP	\$1.0	\$3.8	\$0.1	(\$2.7)	(\$0.1)	(\$0.1)	\$0.0	(\$0.0)	(\$2.7)	632	140
Tiltonsville - Windsor	Line	AP	\$1.0	\$2.9	\$0.0	(\$1.9)	\$0.1	(\$0.0)	(\$0.0)	\$0.1	(\$1.9)	1,258	237
Bedington - Black Oak	Interface	500	(\$1.5)	(\$3.0)	(\$0.0)	\$1.6	(\$0.0)	\$0.0	\$0.0	(\$0.0)	\$1.5	395	61
East Frankfort - Crete	Line	ComEd	\$1.6	\$3.0	\$0.0	(\$1.3)	\$0.0	\$0.0	\$0.0	\$0.0	(\$1.3)	1,490	0
Homer City - Seward	Line	PENELEC	\$2.8	\$1.5	(\$0.0)	\$1.3	\$0.0	\$0.0	\$0.0	\$0.0	\$1.3	58	0
Homer City - Shelocta	Line	PENELEC	(\$3.2)	(\$4.6)	(\$0.1)	\$1.3	(\$0.1)	\$0.1	\$0.0	(\$0.1)	\$1.2	340	80
Altoona - Bear Rock	Line	PENELEC	(\$1.9)	(\$3.0)	(\$0.0)	\$1.1	(\$0.1)	(\$0.1)	\$0.0	(\$0.1)	\$1.1	176	32

Table 7-31 PENELEC Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-31)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
West	Interface	500	(\$6.7)	(\$39.1)	(\$0.3)	\$32.1	\$0.1	\$1.5	\$0.3	(\$1.1)	\$31.0	1,197	372
AP South	Interface	500	(\$27.6)	(\$54.1)	\$0.3	\$26.9	\$3.1	\$0.8	\$0.6	\$3.0	\$29.9	2,182	788
Mount Storm - Pruntytown	Line	AP	(\$22.0)	(\$45.3)	\$0.0	\$23.3	\$0.8	(\$0.3)	\$0.0	\$1.1	\$24.4	1,546	771
Bedington - Black Oak	Interface	500	(\$15.7)	(\$35.4)	\$0.1	\$19.8	\$0.7	\$0.4	\$0.1	\$0.4	\$20.2	1,361	209
Kammer	Transformer	500	\$9.0	\$29.5	\$0.7	(\$19.8)	(\$0.8)	(\$1.2)	\$0.2	\$0.6	(\$19.2)	2,251	1,261
5004/5005 Interface	Interface	500	(\$2.6)	(\$15.5)	(\$0.0)	\$12.9	(\$0.7)	\$0.9	\$0.1	(\$1.5)	\$11.4	427	365
Seward	Transformer	PENELEC	\$24.5	\$14.4	\$0.0	\$10.2	\$0.0	\$0.0	\$0.0	\$0.0	\$10.2	225	0
Mount Storm	Transformer	AP	(\$8.1)	(\$17.6)	\$0.1	\$9.5	(\$0.8)	\$0.0	(\$0.0)	(\$0.8)	\$8.7	908	460
Central	Interface	500	(\$0.5)	(\$8.5)	(\$0.0)	\$7.9	\$0.0	\$0.0	\$0.0	\$0.0	\$8.0	701	22
Sammis - Wylie Ridge	Line	AP	\$2.0	\$8.2	\$0.4	(\$5.8)	(\$0.6)	(\$0.3)	(\$1.0)	(\$1.3)	(\$7.1)	708	789
Krendale - Seneca	Line	AP	\$3.1	\$10.0	\$0.3	(\$6.7)	\$0.0	(\$0.0)	(\$0.0)	\$0.0	(\$6.6)	960	16
East Towanda	Transformer	PENELEC	\$14.1	(\$8.8)	\$1.0	\$23.8	(\$9.2)	\$8.4	(\$0.5)	(\$18.1)	\$5.7	803	306
East	Interface	500	(\$0.9)	(\$4.8)	(\$0.1)	\$3.8	(\$0.0)	\$0.0	\$0.0	(\$0.0)	\$3.8	510	9
Bedington	Transformer	AP	(\$0.5)	(\$4.1)	\$0.0	\$3.6	\$0.1	(\$0.0)	\$0.0	\$0.2	\$3.8	999	234
Altoona - Bear Rock	Line	PENELEC	(\$4.0)	(\$7.2)	(\$0.0)	\$3.1	\$0.2	\$0.0	(\$0.0)	\$0.2	\$3.3	173	16

Pepco Control Zone

Table 7-32 Pepco Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-32)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Explicit			Generation Credits	Explicit	Total			
AP South	Interface	500	\$41.9	\$31.6	\$0.7	\$11.0	(\$1.3)	(\$3.0)	(\$0.6)	\$1.1	\$12.1	2,559	423	
Kammer	Transformer	500	\$21.9	\$15.1	\$0.3	\$7.1	(\$1.1)	(\$2.0)	(\$0.4)	\$0.5	\$7.6	3,674	1,328	
Buzzard - Ritchie	Line	Pepco	\$25.3	\$3.2	\$0.2	\$22.3	(\$13.9)	\$1.9	(\$0.6)	(\$16.4)	\$5.9	409	149	
Mount Storm - Pruntytown	Line	AP	\$7.5	\$5.8	\$0.1	\$1.9	(\$0.2)	(\$0.8)	(\$0.1)	\$0.5	\$2.4	525	132	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$6.2	\$4.1	(\$0.0)	\$2.0	(\$0.2)	(\$0.5)	\$0.0	\$0.3	\$2.3	2,888	907	
West	Interface	500	\$8.1	\$6.0	\$0.0	\$2.1	(\$0.1)	(\$0.1)	(\$0.0)	\$0.0	\$2.2	391	85	
Graceton - Raphael Road	Line	BGE	\$4.5	\$3.1	\$0.2	\$1.5	(\$0.6)	(\$1.0)	(\$0.2)	\$0.3	\$1.8	300	127	
Bedington - Black Oak	Interface	500	\$5.8	\$4.2	\$0.1	\$1.6	(\$0.0)	(\$0.1)	(\$0.0)	\$0.1	\$1.7	395	61	
Wylie Ridge	Transformer	AP	\$6.2	\$4.9	\$0.0	\$1.3	(\$0.3)	(\$0.7)	(\$0.0)	\$0.3	\$1.7	354	335	
Cloverdale - Lexington	Line	AEP	\$5.3	\$3.9	\$0.1	\$1.5	(\$0.2)	(\$0.4)	(\$0.1)	\$0.1	\$1.6	752	335	
Sammis - Wylie Ridge	Line	AP	\$2.4	\$1.7	\$0.0	\$0.8	(\$0.1)	(\$0.2)	(\$0.0)	(\$0.0)	\$0.8	632	140	
East Frankfort - Crete	Line	ComEd	\$2.4	\$1.6	\$0.0	\$0.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7	1,490	0	
Mount Storm	Transformer	AP	\$1.7	\$1.3	\$0.0	\$0.5	\$0.0	(\$0.3)	(\$0.1)	\$0.2	\$0.7	123	70	
Tiltonville - Windsor	Line	AP	\$1.7	\$1.1	\$0.1	\$0.7	(\$0.0)	(\$0.1)	(\$0.1)	(\$0.0)	\$0.7	1,258	237	
5004/5005 Interface	Interface	500	\$1.9	\$1.3	\$0.0	\$0.6	(\$0.0)	(\$0.1)	(\$0.0)	\$0.1	\$0.7	643	241	

Table 7-33 Pepco Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-33)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Explicit			Generation Credits	Explicit	Total			
AP South	Interface	500	\$155.6	\$107.7	\$1.4	\$49.3	(\$2.6)	(\$0.7)	(\$1.6)	(\$3.6)	\$45.8	2,182	788	
Cloverdale - Lexington	Line	AEP	\$83.9	\$59.7	\$1.7	\$25.9	\$5.6	(\$1.3)	(\$1.6)	\$5.3	\$31.2	2,941	1,506	
Mount Storm - Pruntytown	Line	AP	\$68.5	\$48.9	\$0.3	\$20.0	\$0.8	(\$1.5)	(\$0.3)	\$2.1	\$22.1	1,546	771	
Bedington - Black Oak	Interface	500	\$55.5	\$37.6	\$0.5	\$18.4	(\$0.4)	(\$0.4)	(\$0.2)	(\$0.2)	\$18.3	1,361	209	
Aqueduct - Doubs	Line	AP	\$37.6	\$22.9	\$0.1	\$14.8	\$0.1	(\$0.0)	(\$0.0)	\$0.1	\$14.9	293	7	
Kammer	Transformer	0	\$32.7	\$21.6	\$0.7	\$11.7	(\$0.4)	(\$0.7)	(\$0.6)	(\$0.2)	\$11.5	2,251	1,261	
Mount Storm	Transformer	AP	\$25.3	\$18.7	\$0.1	\$6.8	\$2.1	(\$0.6)	(\$0.1)	\$2.5	\$9.3	908	460	
West	Interface	500	\$19.4	\$12.0	\$0.5	\$7.8	(\$0.3)	(\$0.5)	(\$0.6)	(\$0.4)	\$7.4	1,197	372	
Dickerson - Pleasant View	Line	Pepco	\$18.2	\$12.3	\$0.6	\$6.5	(\$0.2)	(\$0.3)	(\$0.6)	(\$0.4)	\$6.1	468	124	
Dickerson - Quince Orchard	Line	Pepco	\$3.4	\$1.1	\$0.0	\$2.4	(\$0.0)	(\$0.0)	\$0.0	(\$0.0)	\$2.4	46	2	
Central	Interface	500	(\$8.0)	(\$6.0)	(\$0.1)	(\$2.1)	\$0.0	\$0.0	(\$0.0)	\$0.0	(\$2.1)	701	22	
Black Oak	Transformer	AP	\$6.2	\$4.2	\$0.0	\$2.0	(\$0.0)	(\$0.1)	(\$0.0)	\$0.1	\$2.1	384	29	
Brighton	Transformer	Pepco	\$6.1	\$3.9	\$0.0	\$2.3	(\$0.2)	\$0.1	(\$0.1)	(\$0.4)	\$1.9	37	32	
Branchburg - Readington	Line	PSEG	(\$5.3)	(\$3.5)	(\$0.2)	(\$2.0)	\$0.3	\$0.2	\$0.2	\$0.2	(\$1.8)	1,117	271	
Bristers - Ox	Line	Dominion	\$5.9	\$3.9	\$0.0	\$2.0	(\$0.0)	\$0.1	(\$0.1)	(\$0.2)	\$1.7	77	38	

PPL Control Zone

Table 7-34 PPL Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-34)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Load Payments	Balancing			Grand Total	Day Ahead	Real Time	
				Generation Credits	Explicit	Total		Generation Credits	Explicit	Total				
Kammer	Transformer	500	\$1.7	\$5.5	\$0.6	(\$3.2)	(\$0.2)	(\$0.2)	(\$0.1)	(\$0.0)	(\$3.2)	3,674	1,328	
5004/5005 Interface	Interface	500	\$2.3	\$5.7	\$0.4	(\$2.9)	\$0.1	(\$0.8)	(\$0.1)	\$0.8	(\$2.2)	643	241	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$0.6	\$2.3	(\$0.1)	(\$1.8)	(\$0.2)	(\$0.2)	\$0.0	\$0.0	(\$1.8)	2,888	907	
AP South	Interface	500	\$0.5	(\$0.2)	\$0.2	\$0.9	\$0.1	(\$0.1)	\$0.1	\$0.2	\$1.1	2,559	423	
Hummelstown - Middletown Jct	Line	Met-Ed	\$1.0	(\$0.0)	\$0.0	\$1.1	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$1.1	51	14	
Graceton - Raphael Road	Line	BGE	(\$0.5)	(\$1.5)	(\$0.0)	\$1.0	\$0.1	\$0.0	\$0.0	\$0.1	\$1.1	300	127	
Brunner Island - Yorkana	Line	Met-Ed	(\$0.0)	(\$0.9)	(\$0.0)	\$0.8	\$0.0	\$0.1	(\$0.0)	(\$0.0)	\$0.8	86	27	
West	Interface	500	\$2.8	\$4.1	\$0.5	(\$0.8)	(\$0.0)	(\$0.2)	(\$0.0)	\$0.1	(\$0.6)	391	85	
Harwood - Susquehanna	Line	PPL	\$0.1	(\$0.4)	\$0.0	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5	13	0	
Sammis - Wylie Ridge	Line	AP	\$0.1	\$0.7	\$0.1	(\$0.5)	\$0.0	(\$0.0)	\$0.0	\$0.0	(\$0.5)	632	140	
East Frankfort - Crete	Line	ComEd	\$0.2	\$0.6	\$0.0	(\$0.3)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.3)	1,490	0	
Wylie Ridge	Transformer	AP	\$1.1	\$1.8	\$0.3	(\$0.4)	\$0.2	\$0.1	\$0.0	\$0.1	(\$0.3)	354	335	
PL North	Interface	PPL	\$0.0	\$0.0	\$0.0	\$0.0	\$0.4	\$0.6	(\$0.0)	(\$0.3)	(\$0.3)	0	176	
Mount Storm - Pruntytown	Line	AP	\$0.1	(\$0.1)	\$0.0	\$0.3	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	\$0.3	525	132	
Atlantic - Larrabee	Line	JCPL	\$0.0	\$0.1	\$0.0	(\$0.1)	(\$0.1)	\$0.1	\$0.0	(\$0.2)	(\$0.3)	188	45	

Table 7-35 PPL Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-35)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Load Payments	Balancing			Grand Total	Day Ahead	Real Time	
				Generation Credits	Explicit	Total		Generation Credits	Explicit	Total				
Harwood - Susquehanna	Line	PPL	\$2.6	(\$14.3)	(\$0.1)	\$16.7	(\$1.2)	\$2.0	\$0.2	(\$3.0)	\$13.7	110	99	
West	Interface	500	\$2.3	\$10.5	\$1.2	(\$7.1)	\$0.2	\$1.0	(\$0.1)	(\$1.0)	(\$8.0)	1,197	372	
Cloverdale - Lexington	Line	AEP	\$1.3	\$8.2	\$1.6	(\$5.2)	(\$0.2)	\$0.1	(\$0.0)	(\$0.3)	(\$5.6)	2,941	1,506	
East Towanda	Transformer	PENELEC	\$0.4	\$1.8	\$0.0	(\$1.4)	\$0.1	\$1.1	(\$2.9)	(\$3.8)	(\$5.2)	803	306	
Kammer	Transformer	500	\$1.7	\$6.5	\$1.3	(\$3.5)	\$0.2	\$0.5	(\$0.2)	(\$0.6)	(\$4.1)	2,251	1,261	
East	Interface	500	\$0.1	(\$3.5)	(\$0.0)	\$3.6	\$0.0	(\$0.0)	\$0.0	\$0.0	\$3.6	510	9	
Central	Interface	500	\$0.8	\$4.9	\$0.4	(\$3.6)	\$0.0	(\$0.1)	(\$0.0)	\$0.1	(\$3.5)	701	22	
Mount Storm - Pruntytown	Line	AP	\$1.3	(\$0.9)	\$0.7	\$2.9	\$0.1	\$0.2	(\$0.1)	(\$0.1)	\$2.8	1,546	771	
Sammis - Wylie Ridge	Line	AP	\$0.1	\$2.0	\$0.3	(\$1.6)	\$0.1	\$0.4	(\$0.6)	(\$0.9)	(\$2.5)	708	789	
5004/5005 Interface	Interface	500	\$1.0	\$3.6	\$0.6	(\$2.0)	(\$0.1)	\$0.1	(\$0.3)	(\$0.5)	(\$2.5)	427	365	
Branchburg - Readington	Line	PSEG	\$0.7	(\$0.7)	(\$0.1)	\$1.4	\$0.0	(\$0.1)	\$0.1	\$0.2	\$1.6	1,117	271	
Bedington - Black Oak	Interface	500	\$1.5	\$0.6	\$0.5	\$1.4	\$0.1	\$0.1	\$0.1	\$0.1	\$1.5	1,361	209	
Krendale - Seneca	Line	AP	\$0.4	\$1.9	\$0.2	(\$1.3)	(\$0.0)	\$0.0	(\$0.0)	(\$0.0)	(\$1.3)	960	16	
Conastone	Transformer	BGE	\$0.1	(\$1.2)	(\$0.0)	\$1.2	\$0.0	(\$0.0)	\$0.0	\$0.1	\$1.3	95	14	
Mount Storm	Transformer	AP	\$0.4	(\$0.6)	\$0.3	\$1.2	\$0.1	\$0.0	(\$0.2)	(\$0.1)	\$1.1	908	460	

PSEG Control Zone

Table 7-36 PSEG Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-36)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Total				
Leonia - New Milford	Line	PSEG	\$1.9	\$0.7	\$2.8	\$4.1	(\$0.0)	\$0.0	(\$0.3)	(\$0.3)	\$3.8	3,088	39	
Athenia - Saddlebrook	Line	PSEG	\$3.2	\$0.5	\$1.3	\$4.0	(\$0.2)	\$0.1	(\$0.5)	(\$0.8)	\$3.1	1,094	139	
Plainsboro - Trenton	Line	PSEG	\$3.5	(\$0.1)	\$0.1	\$3.8	(\$0.3)	\$0.4	(\$0.1)	(\$0.7)	\$3.1	389	164	
Cedar Grove - Clifton	Line	PSEG	\$1.7	\$0.4	\$0.7	\$2.0	(\$0.0)	(\$0.0)	(\$0.1)	(\$0.1)	\$1.9	775	30	
AP South	Interface	500	\$0.6	\$3.1	\$0.8	(\$1.6)	\$0.0	(\$0.1)	(\$0.3)	(\$0.2)	(\$1.8)	2,559	423	
Fairlawn - Saddlebrook	Line	PSEG	\$1.1	\$0.2	\$0.6	\$1.6	\$0.0	\$0.0	\$0.0	\$0.0	\$1.6	841	0	
West	Interface	500	\$10.9	\$12.7	\$0.8	(\$1.0)	(\$0.1)	\$0.1	(\$0.2)	(\$0.3)	(\$1.3)	391	85	
Wylie Ridge	Transformer	AP	\$4.3	\$5.4	\$0.5	(\$0.6)	\$0.0	\$0.1	(\$0.6)	(\$0.7)	(\$1.3)	354	335	
Monroe - New Freedom	Line	AECO	(\$0.1)	(\$1.1)	(\$0.0)	\$0.9	\$0.0	\$0.0	\$0.0	\$0.0	\$0.9	584	0	
Hillsdale - Waldwick	Line	PSEG	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.3	(\$0.4)	(\$0.8)	(\$0.8)	0	47	
Buckingham - Pleasant Valley	Line	PECO	\$0.9	(\$0.1)	\$0.0	\$1.0	(\$0.0)	\$0.2	(\$0.0)	(\$0.3)	\$0.7	131	59	
Atlantic - Larrabee	Line	JCPL	\$0.3	(\$0.5)	\$0.0	\$0.8	\$0.0	\$0.1	(\$0.1)	(\$0.2)	\$0.6	188	45	
Bayway - Federal Square	Line	PSEG	\$0.4	(\$0.2)	\$0.0	\$0.6	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	\$0.6	167	11	
Brunswick - Edison	Line	PSEG	\$1.0	(\$0.0)	\$0.0	\$1.1	(\$0.1)	\$0.2	(\$0.2)	(\$0.5)	\$0.6	138	76	
Cedar Grove - Roseland	Line	PSEG	\$0.4	\$0.0	\$0.0	\$0.4	(\$0.2)	\$0.5	(\$0.2)	(\$0.9)	(\$0.5)	62	70	

Table 7-37 PSEG Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-37)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Total				
Atlantic - Larrabee	Line	JCPL	\$13.2	(\$5.9)	\$0.3	\$19.5	\$0.5	\$2.7	(\$0.8)	(\$3.0)	\$16.5	1,501	368	
Branchburg - Readington	Line	PSEG	\$16.3	\$0.8	\$0.6	\$16.1	\$0.2	\$2.9	(\$0.7)	(\$3.3)	\$12.8	1,117	271	
Buckingham - Pleasant Valley	Line	PECO	\$10.3	\$2.3	\$0.5	\$8.4	(\$0.1)	\$0.4	(\$0.1)	(\$0.6)	\$7.9	557	60	
Branchburg - Flagtown	Line	PSEG	\$6.7	\$0.1	\$0.2	\$6.7	\$0.4	(\$0.0)	(\$0.4)	(\$0.0)	\$6.7	260	61	
Cedar Grove - Roseland	Line	PSEG	\$11.4	\$1.8	\$0.3	\$9.9	(\$0.0)	\$2.6	(\$0.9)	(\$3.5)	\$6.4	627	178	
Unclassified	Unclassified	Unclassified	\$3.1	(\$2.8)	\$0.1	\$6.1	\$0.0	\$0.0	\$0.0	\$0.0	\$6.1	NA	NA	
AP South	Interface	500	\$23.1	\$28.0	\$3.1	(\$1.8)	(\$0.1)	\$1.0	(\$1.9)	(\$3.0)	(\$4.8)	2,182	788	
Brunswick - Edison	Line	PSEG	\$5.2	\$0.3	\$0.2	\$5.1	(\$0.0)	\$0.6	(\$0.3)	(\$0.9)	\$4.2	NA	NA	
Mount Storm - Pruntytown	Line	AP	\$0.8	\$4.8	\$1.4	(\$2.6)	\$0.1	(\$0.2)	(\$1.4)	(\$1.1)	(\$3.7)	1,546	771	
Cloverdale - Lexington	Line	AEP	\$20.4	\$22.9	\$2.4	(\$0.1)	\$0.3	\$1.8	(\$1.7)	(\$3.2)	(\$3.3)	2,941	1,506	
Sammis - Wylie Ridge	Line	AP	\$3.6	\$4.1	\$0.5	(\$0.1)	\$0.7	\$1.7	(\$2.0)	(\$3.0)	(\$3.1)	708	789	
Trainer - Delco Tap	Line	PECO	(\$1.8)	(\$4.6)	(\$0.1)	\$2.8	\$0.0	\$0.0	\$0.0	\$0.0	\$2.8	1,658	0	
Bedington - Black Oak	Interface	500	\$3.6	\$6.9	\$1.0	(\$2.2)	\$0.0	\$0.0	(\$0.2)	(\$0.2)	(\$2.4)	1,361	209	
Mount Storm	Transformer	AP	\$0.0	\$1.6	\$0.7	(\$0.9)	\$0.1	(\$0.1)	(\$1.0)	(\$0.8)	(\$1.7)	908	460	
North Ave - Pvsc	Line	PSEG	\$0.5	(\$1.0)	\$0.0	\$1.6	\$0.0	\$0.0	\$0.0	\$0.0	\$1.6	453	0	

RECO Control Zone

Table 7-38 RECO Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-38)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
West	Interface	500	\$0.5	\$0.0	\$0.0	\$0.5	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.5	391	85
Kammer	Transformer	500	\$0.4	\$0.0	\$0.0	\$0.4	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$0.4	3,674	1,328
5004/5005 Interface	Interface	500	\$0.4	\$0.0	\$0.0	\$0.4	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.1)	\$0.4	643	241
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$0.2	\$0.0	(\$0.0)	\$0.2	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$0.2	2,888	907
Wylie Ridge	Transformer	AP	\$0.2	\$0.0	\$0.0	\$0.2	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.2	354	335
Athenia - Saddlebrook	Line	PSEG	\$0.1	\$0.0	\$0.0	\$0.1	(\$0.0)	(\$0.0)	\$0.0	(\$0.0)	\$0.1	1,094	139
Graceton - Raphael Road	Line	BGE	(\$0.1)	(\$0.0)	(\$0.0)	(\$0.1)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	300	127
AP South	Interface	500	(\$0.1)	(\$0.0)	(\$0.0)	(\$0.1)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	2,559	423
East Frankfort - Crete	Line	ComEd	\$0.1	\$0.0	\$0.0	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	1,490	0
Sammis - Wylie Ridge	Line	AP	\$0.1	\$0.0	\$0.0	\$0.1	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	\$0.1	632	140
Tiltonsville - Windsor	Line	AP	\$0.1	\$0.0	\$0.0	\$0.1	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.1	1,258	237
Fairlawn - Saddlebrook	Line	PSEG	(\$0.1)	(\$0.0)	(\$0.0)	(\$0.1)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	841	0
Crete - St Johns Tap	Flowgate	Midwest ISO	\$0.0	\$0.0	(\$0.0)	\$0.0	\$0.0	(\$0.0)	\$0.0	\$0.0	\$0.0	732	190
Elrama - Mitchell	Line	AP	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.0	\$0.0	\$0.0	225	184
Cloverdale - Lexington	Line	AEP	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	\$0.0	752	335

Table 7-39 RECO Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-39)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
Branchburg - Readington	Line	PSEG	\$0.9	\$0.0	\$0.0	\$1.0	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$1.0	1,117	271
West	Interface	500	\$1.1	\$0.0	\$0.2	\$1.2	\$0.1	(\$0.0)	(\$0.4)	(\$0.3)	\$0.9	1,197	372
Cedar Grove - Roseland	Line	PSEG	\$0.8	\$0.0	\$0.0	\$0.7	\$0.1	(\$0.0)	(\$0.0)	\$0.1	\$0.8	627	178
Kammer	Transformer	500	\$0.7	\$0.0	\$0.1	\$0.8	\$0.0	(\$0.0)	(\$0.1)	(\$0.0)	\$0.8	2,251	1,261
Cloverdale - Lexington	Line	AEP	\$0.6	\$0.0	\$0.2	\$0.8	\$0.0	(\$0.0)	(\$0.1)	(\$0.1)	\$0.7	2,941	1,506
AP South	Interface	500	\$0.6	\$0.0	\$0.0	\$0.7	\$0.0	(\$0.0)	(\$0.1)	(\$0.1)	\$0.6	2,182	788
Atlantic - Larrabee	Line	JCPL	\$0.6	\$0.0	\$0.0	\$0.6	\$0.0	(\$0.0)	(\$0.1)	(\$0.0)	\$0.5	1,501	368
Central	Interface	500	\$0.5	\$0.0	\$0.0	\$0.5	\$0.0	(\$0.0)	\$0.0	\$0.0	\$0.5	701	22
Buckingham - Pleasant Valley	Line	PECO	\$0.4	\$0.0	\$0.0	\$0.4	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$0.4	557	60
East	Interface	500	\$0.4	\$0.0	\$0.0	\$0.4	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.4	510	9
Cedar Grove - Clifton	Line	PSEG	\$0.2	\$0.0	\$0.0	\$0.2	\$0.1	(\$0.0)	(\$0.0)	\$0.1	\$0.3	494	403
Krendale - Seneca	Line	AP	\$0.2	\$0.0	\$0.1	\$0.2	(\$0.0)	(\$0.0)	\$0.0	(\$0.0)	\$0.2	960	16
Harwood - Susquehanna	Line	PPL	\$0.2	\$0.0	\$0.0	\$0.2	\$0.0	(\$0.0)	\$0.0	\$0.0	\$0.2	110	99
Dickerson - Pleasant View	Line	Pepco	\$0.1	\$0.0	\$0.0	\$0.2	\$0.0	(\$0.0)	(\$0.0)	(\$0.0)	\$0.2	468	124
5004/5005 Interface	Interface	500	\$0.3	\$0.0	\$0.0	\$0.4	\$0.0	(\$0.0)	(\$0.3)	(\$0.2)	\$0.1	427	365

Western Region Congestion-Event Summaries**AEP Control Zone****Table 7-40 AEP Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-40)**

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Total				
AP South	Interface	500	(\$16.5)	(\$29.0)	\$1.0	\$13.6	(\$0.7)	\$0.4	\$0.3	(\$0.9)	\$12.7	2,559	423	
Kammer	Transformer	500	(\$20.6)	(\$34.6)	(\$0.6)	\$13.4	(\$0.8)	\$2.5	\$0.4	(\$2.9)	\$10.6	3,674	1,328	
Ruth - Turner	Line	AEP	\$4.9	(\$1.6)	\$0.5	\$7.0	(\$1.2)	(\$0.4)	(\$0.1)	(\$0.9)	\$6.1	704	279	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$17.4	\$8.8	\$1.1	\$9.6	(\$2.6)	(\$1.1)	(\$2.4)	(\$3.9)	\$5.8	2,888	907	
Kanawha - Kincaid	Line	AEP	\$2.8	(\$2.1)	\$0.2	\$5.1	\$0.0	\$0.0	\$0.0	\$0.0	\$5.1	291	0	
Kammer - Ormet	Line	AEP	\$7.8	\$1.1	\$0.3	\$6.9	(\$1.6)	\$0.5	(\$0.1)	(\$2.2)	\$4.7	552	509	
Kanawha River	Transformer	AEP	\$3.2	(\$0.3)	\$0.5	\$4.0	\$0.1	(\$0.3)	(\$0.1)	\$0.4	\$4.3	161	37	
Kanawha River - Bradley	Line	AEP	\$1.3	(\$2.2)	\$0.2	\$3.8	(\$0.0)	\$0.1	\$0.0	(\$0.1)	\$3.7	24	15	
Breed - Wheatland	Line	AEP	\$0.1	(\$3.7)	(\$0.4)	\$3.4	\$0.0	\$0.0	\$0.0	\$0.0	\$3.4	511	2	
East Frankfort - Crete	Line	ComEd	\$3.5	\$2.0	\$1.4	\$2.9	\$0.0	\$0.0	\$0.0	\$0.0	\$2.9	1,490	0	
Sammis - Wylie Ridge	Line	AP	(\$4.4)	(\$2.3)	(\$0.1)	(\$2.1)	(\$0.3)	\$0.2	(\$0.0)	(\$0.5)	(\$2.6)	632	140	
5004/5005 Interface	Interface	500	(\$8.0)	(\$10.7)	\$0.0	\$2.8	\$0.2	\$0.5	\$0.1	(\$0.2)	\$2.5	643	241	
Mount Storm - Pruntytown	Line	AP	(\$3.1)	(\$5.2)	\$0.2	\$2.3	\$0.0	\$0.2	\$0.1	(\$0.1)	\$2.2	525	132	
Cloverdale - Lexington	Line	AEP	(\$6.3)	(\$4.5)	(\$0.4)	(\$2.1)	\$0.5	\$0.2	\$0.1	\$0.4	(\$1.8)	752	335	
Bedington - Black Oak	Interface	500	(\$2.0)	(\$3.5)	\$0.1	\$1.6	(\$0.1)	(\$0.0)	\$0.0	(\$0.0)	\$1.6	395	61	

Table 7-41 AEP Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-41)

Constraint	Type	Location	Congestion Costs (Millions)										Event Hours	
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Generation Credits			Explicit	Total				
AP South	Interface	500	(\$75.9)	(\$128.5)	\$1.5	\$54.1	(\$14.2)	\$0.3	\$0.3	(\$14.2)	\$39.9	2,182	788	
Kammer	Transformer	500	(\$27.2)	(\$73.1)	(\$0.9)	\$45.1	(\$9.5)	\$3.2	\$0.4	(\$12.4)	\$32.8	2,251	1,261	
Mount Storm - Pruntytown	Line	AP	(\$23.5)	(\$60.1)	\$3.1	\$39.6	(\$9.1)	\$0.3	(\$0.4)	(\$9.8)	\$29.8	1,546	771	
Bedington - Black Oak	Interface	500	(\$20.3)	(\$44.9)	\$1.6	\$26.2	(\$2.1)	\$0.8	(\$0.0)	(\$2.9)	\$23.3	1,361	209	
Axton	Transformer	AEP	\$2.7	(\$12.5)	\$2.1	\$17.3	\$0.0	\$0.0	\$0.0	\$0.0	\$17.3	418	0	
Mount Storm	Transformer	AP	(\$8.8)	(\$23.4)	\$1.1	\$15.7	(\$5.2)	(\$1.7)	(\$0.2)	(\$3.7)	\$12.0	908	460	
West	Interface	500	(\$18.9)	(\$34.3)	\$0.2	\$15.6	(\$3.3)	\$0.9	\$0.1	(\$4.0)	\$11.6	1,197	372	
Cloverdale - Lexington	Line	AEP	(\$88.6)	(\$97.5)	(\$7.0)	\$1.9	(\$15.7)	(\$4.1)	\$0.7	(\$10.9)	(\$8.9)	2,941	1,506	
Amos	Transformer	AEP	\$5.9	(\$1.6)	\$0.2	\$7.7	\$0.4	\$0.6	\$0.1	(\$0.2)	\$7.5	31	19	
Sammis - Wylie Ridge	Line	AP	(\$7.8)	(\$5.2)	\$0.1	(\$2.5)	(\$3.2)	(\$0.9)	(\$1.2)	(\$3.4)	(\$5.9)	708	789	
Mahans Lane - Tidd	Line	AEP	(\$1.9)	(\$4.7)	\$2.7	\$5.4	\$0.1	\$0.2	\$0.0	(\$0.0)	\$5.4	772	217	
Bedington	Transformer	AP	(\$4.3)	(\$8.3)	\$0.3	\$4.3	(\$0.4)	(\$0.1)	(\$0.0)	(\$0.3)	\$3.9	999	234	
Central	Interface	500	(\$6.3)	(\$9.7)	(\$0.0)	\$3.4	(\$0.1)	\$0.0	(\$0.0)	(\$0.1)	\$3.3	701	22	
Aqueduct - Doubs	Line	AP	(\$5.5)	(\$8.6)	\$0.1	\$3.2	(\$0.1)	(\$0.0)	\$0.0	(\$0.1)	\$3.2	293	7	
Axton - Jacksons Ferry	Line	AEP	\$0.5	(\$2.3)	\$0.3	\$3.1	\$0.0	\$0.0	\$0.0	\$0.0	\$3.1	83	0	

AP Control Zone

Table 7-42 AP Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-42)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
AP South	Interface	500	(\$12.7)	(\$50.5)	(\$3.9)	\$33.9	\$1.9	\$1.7	\$2.7	\$2.9	\$36.8	2,559	423
Kammer	Transformer	500	\$17.8	\$27.8	\$6.8	(\$3.2)	(\$3.0)	(\$0.9)	(\$8.2)	(\$10.3)	(\$13.5)	3,674	1,328
Mount Storm - Pruntytown	Line	AP	(\$2.0)	(\$10.1)	(\$0.6)	\$7.4	\$0.8	\$0.8	\$0.5	\$0.5	\$7.9	525	132
Bedington - Black Oak	Interface	500	(\$1.3)	(\$6.1)	(\$0.2)	\$4.6	(\$0.3)	\$0.2	\$0.4	(\$0.2)	\$4.5	395	61
5004/5005 Interface	Interface	500	(\$8.4)	(\$12.1)	(\$1.2)	\$2.5	\$0.9	\$0.8	\$1.8	\$1.9	\$4.4	643	241
Tiltonsville - Windsor	Line	AP	\$7.1	\$2.2	\$0.5	\$5.4	(\$0.5)	(\$0.2)	(\$0.8)	(\$1.1)	\$4.2	1,258	237
Wylie Ridge	Transformer	AP	\$6.1	\$7.4	\$5.4	\$4.1	(\$1.1)	(\$0.5)	(\$7.2)	(\$7.7)	(\$3.6)	354	335
Bedington - Harmony	Line	AP	\$2.0	(\$0.1)	\$0.5	\$2.6	\$0.0	\$0.0	(\$0.0)	(\$0.1)	\$2.6	262	28
Doubs	Transformer	AP	\$2.0	(\$0.3)	\$0.0	\$2.4	\$0.2	\$0.1	(\$0.1)	\$0.0	\$2.4	84	30
Cloverdale - Lexington	Line	AEP	\$1.2	(\$1.3)	\$0.8	\$3.3	(\$0.1)	\$0.0	(\$0.9)	(\$1.0)	\$2.3	752	335
Carroll - Catocin	Line	AP	\$0.4	\$0.0	(\$0.0)	\$0.3	\$0.7	(\$0.8)	\$0.2	\$1.6	\$2.0	99	22
Yukon	Transformer	AP	\$2.2	\$0.4	\$0.0	\$1.8	\$0.0	\$0.2	\$0.1	(\$0.1)	\$1.7	142	39
Belmont	Transformer	AP	\$3.2	\$0.2	\$0.6	\$3.6	(\$0.2)	\$0.4	(\$0.1)	(\$0.7)	\$2.9	871	71
West	Interface	500	(\$12.5)	(\$15.3)	(\$2.0)	\$0.8	\$0.3	\$0.2	\$0.4	\$0.5	\$1.3	391	85
Kingwood - Pruntytown	Line	AP	\$1.0	(\$0.1)	(\$0.0)	\$1.1	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$1.1	158	7

Table 7-43 AP Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-43)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
AP South	Interface	500	\$14.9	(\$107.9)	\$1.4	\$124.2	\$2.0	\$8.6	\$0.3	(\$6.4)	\$117.8	2,182	788
Mount Storm - Pruntytown	Line	AP	(\$2.8)	(\$71.7)	\$0.3	\$69.1	(\$0.4)	\$3.8	(\$0.2)	(\$4.4)	\$64.7	1,546	771
Bedington - Black Oak	Interface	500	(\$3.4)	(\$54.1)	(\$1.2)	\$49.5	\$0.5	\$0.2	\$0.5	\$0.8	\$50.3	1,361	209
Cloverdale - Lexington	Line	AEP	\$20.2	(\$25.4)	\$5.7	\$51.3	(\$3.2)	(\$0.3)	(\$7.2)	(\$10.1)	\$41.3	2,941	1,506
Bedington	Transformer	AP	\$29.6	(\$7.2)	\$0.9	\$37.7	(\$0.5)	(\$0.5)	(\$0.1)	(\$0.1)	\$37.7	999	234
Meadow Brook	Transformer	AP	\$28.4	(\$1.5)	\$0.6	\$30.5	(\$3.1)	(\$0.2)	(\$0.1)	(\$3.1)	\$27.4	774	173
Mount Storm	Transformer	AP	\$1.0	(\$27.9)	\$1.1	\$30.0	(\$2.0)	\$2.3	(\$0.9)	(\$5.3)	\$24.7	908	460
Sammis - Wylie Ridge	Line	AP	\$5.3	\$3.4	\$2.5	\$4.4	(\$5.8)	\$1.0	(\$10.7)	(\$17.5)	(\$13.1)	708	789
Kammer	Transformer	500	\$23.2	\$34.8	\$5.5	(\$6.1)	(\$3.3)	(\$2.8)	(\$4.6)	(\$5.2)	(\$11.2)	2,251	1,261
Aqueduct - Doubs	Line	AP	(\$16.5)	(\$5.8)	(\$0.3)	(\$11.1)	\$0.1	\$0.1	\$0.0	\$0.0	(\$11.0)	293	7
West	Interface	500	(\$12.4)	(\$18.0)	(\$0.1)	\$5.6	\$2.0	\$1.0	\$0.7	\$1.6	\$7.2	1,197	372
Krendale - Seneca	Line	AP	\$4.9	(\$0.4)	\$1.6	\$6.8	(\$0.0)	\$0.1	(\$0.0)	(\$0.1)	\$6.8	960	16
Cedar Grove - Roseland	Line	PSEG	\$5.3	\$1.6	\$2.0	\$5.7	\$0.0	\$0.0	\$0.3	\$0.4	\$6.1	627	178
Branchburg - Readington	Line	PSEG	\$1.7	(\$0.2)	\$2.7	\$4.6	\$0.3	\$0.1	\$0.2	\$0.3	\$4.9	1,117	271
5004/5005 Interface	Interface	500	(\$3.2)	(\$6.9)	\$0.0	\$3.6	\$1.4	\$1.1	\$0.6	\$0.8	\$4.5	427	365

ComEd Control Zone

Table 7-44 ComEd Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-44)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
Pleasant Valley - Belvidere	Line	ComEd	(\$3.0)	(\$28.1)	\$0.1	\$25.1	\$1.1	\$1.5	\$0.0	(\$0.3)	\$24.8	2,342	266
Dunes Acres - Michigan City	Flowgate	Midwest ISO	(\$45.7)	(\$69.8)	(\$3.1)	\$21.0	(\$3.4)	(\$1.1)	\$0.9	(\$1.4)	\$19.6	2,888	907
Kammer	Transformer	500	(\$30.8)	(\$49.7)	(\$0.1)	\$18.7	(\$0.4)	(\$0.9)	(\$0.0)	\$0.4	\$19.1	3,674	1,328
East Frankfort - Crete	Line	ComEd	(\$14.8)	(\$29.9)	(\$0.1)	\$15.0	\$0.0	\$0.0	\$0.0	\$0.0	\$15.0	1,490	0
AP South	Interface	500	(\$25.4)	(\$37.9)	(\$0.1)	\$12.5	(\$1.0)	(\$0.5)	(\$0.1)	(\$0.5)	\$12.0	2,559	423
Crete - St Johns Tap	Flowgate	Midwest ISO	(\$9.4)	(\$19.7)	(\$0.2)	\$10.1	(\$0.4)	(\$0.1)	(\$0.0)	(\$0.3)	\$9.8	732	190
Electric Jct - Nelson	Line	ComEd	\$0.2	(\$7.9)	\$0.1	\$8.2	\$2.1	\$1.4	(\$0.1)	\$0.6	\$8.8	819	202
5004/5005 Interface	Interface	500	(\$10.4)	(\$14.4)	(\$0.0)	\$3.9	(\$0.6)	(\$1.1)	(\$0.0)	\$0.5	\$4.4	643	241
Sliver Lake - Cherry Valley	Line	ComEd	\$0.1	(\$3.7)	\$0.1	\$3.9	\$0.8	\$0.2	(\$0.1)	\$0.5	\$4.3	340	41
Glidden - West Dekalb	Line	ComEd	(\$0.2)	(\$4.0)	\$0.1	\$3.8	\$0.0	\$0.0	\$0.0	\$0.0	\$3.8	703	0
Wylie Ridge	Transformer	AP	(\$7.9)	(\$10.9)	(\$0.0)	\$3.0	(\$0.8)	(\$1.5)	\$0.0	\$0.8	\$3.8	354	335
West	Interface	500	(\$11.4)	(\$14.9)	(\$0.0)	\$3.5	(\$0.1)	(\$0.1)	(\$0.0)	\$0.0	\$3.6	391	85
Mount Storm - Pruntytown	Line	AP	(\$4.1)	(\$6.8)	(\$0.0)	\$2.7	(\$0.2)	(\$0.6)	(\$0.0)	\$0.4	\$3.2	525	132
Cloverdale - Lexington	Line	AEP	(\$4.5)	(\$7.8)	(\$0.0)	\$3.3	(\$0.6)	(\$0.3)	\$0.0	(\$0.3)	\$3.1	752	335
Oak Grove - Galesburg	Flowgate	Midwest ISO	(\$0.4)	(\$3.5)	\$0.0	\$3.1	\$1.1	\$1.0	(\$0.2)	(\$0.2)	\$2.9	645	531

Table 7-45 ComEd Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-45)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
Cloverdale - Lexington	Line	AEP	(\$62.4)	(\$118.1)	(\$0.1)	\$55.6	(\$4.6)	(\$0.5)	(\$0.2)	(\$4.2)	\$51.4	2,941	1,506
AP South	Interface	500	(\$77.8)	(\$117.2)	(\$0.1)	\$39.4	(\$3.9)	(\$0.1)	(\$0.1)	(\$3.8)	\$35.5	2,182	788
Kammer	Transformer	500	(\$35.9)	(\$62.2)	(\$0.1)	\$26.2	(\$4.2)	\$3.6	(\$0.1)	(\$7.8)	\$18.4	2,251	1,261
Bedington - Black Oak	Interface	500	(\$23.7)	(\$39.0)	(\$0.1)	\$15.2	\$0.0	(\$0.0)	\$0.0	\$0.1	\$15.3	1,361	209
West	Interface	500	(\$20.7)	(\$32.6)	(\$0.0)	\$11.9	(\$0.2)	(\$0.6)	(\$0.0)	\$0.4	\$12.3	1,197	372
Mount Storm - Pruntytown	Line	AP	(\$35.1)	(\$54.2)	(\$0.1)	\$19.0	(\$6.4)	\$1.3	(\$0.2)	(\$7.9)	\$11.2	1,546	771
East Frankfort - Crete	Line	ComEd	(\$7.1)	(\$16.8)	(\$0.1)	\$9.6	\$0.0	\$0.0	\$0.0	\$0.0	\$9.6	530	0
Burnham - Munster	Line	ComEd	(\$14.5)	(\$23.7)	(\$0.0)	\$9.2	(\$2.6)	(\$2.6)	(\$0.5)	(\$0.5)	\$8.7	422	140
Central	Interface	500	(\$5.5)	(\$9.9)	(\$0.0)	\$4.3	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$4.3	701	22
Axton	Transformer	AEP	(\$6.9)	(\$10.9)	(\$0.0)	\$4.0	\$0.0	\$0.0	\$0.0	\$0.0	\$4.0	418	0
Krendale - Seneca	Line	AP	(\$4.3)	(\$8.1)	(\$0.0)	\$3.8	\$0.0	(\$0.0)	\$0.0	\$0.0	\$3.9	960	16
Sliver Lake - Cherry Valley	Line	ComEd	\$0.1	(\$3.0)	\$0.0	\$3.1	\$0.0	\$0.0	\$0.0	\$0.0	\$3.1	97	0
Mount Storm	Transformer	AP	(\$13.7)	(\$21.1)	(\$0.0)	\$7.4	(\$4.0)	\$0.4	(\$0.2)	(\$4.6)	\$2.7	908	460
Cherry Valley	Transformer	ComEd	\$1.8	(\$0.9)	\$0.0	\$2.7	\$0.3	\$0.3	(\$0.0)	\$0.0	\$2.7	68	88
East	Interface	500	(\$3.3)	(\$5.9)	\$0.0	\$2.6	\$0.0	\$0.0	(\$0.0)	\$0.0	\$2.7	510	9

DAY Control Zone

Table 7-46 DAY Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-46)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
Kammer	Transformer	500	(\$1.9)	(\$4.5)	(\$0.1)	\$2.6	\$0.4	(\$0.1)	\$0.0	\$0.5	\$3.1	3,674	1,328
AP South	Interface	500	(\$1.9)	(\$2.9)	(\$0.0)	\$1.0	\$0.1	\$0.2	(\$0.0)	(\$0.1)	\$0.9	2,559	423
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$0.4	\$1.0	(\$0.5)	(\$1.1)	(\$0.0)	(\$0.0)	\$0.1	\$0.2	(\$0.9)	2,888	907
West	Interface	500	(\$0.8)	(\$1.4)	\$0.0	\$0.7	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.7	391	85
Wylie Ridge	Transformer	AP	(\$0.6)	(\$1.1)	(\$0.0)	\$0.5	\$0.2	\$0.2	\$0.0	(\$0.0)	\$0.4	354	335
Cloverdale - Lexington	Line	AEP	(\$0.3)	(\$0.8)	\$0.0	\$0.5	\$0.0	\$0.1	\$0.0	(\$0.1)	\$0.4	752	335
5004/5005 Interface	Interface	500	(\$0.7)	(\$1.0)	(\$0.0)	\$0.3	\$0.1	\$0.1	\$0.0	\$0.0	\$0.3	643	241
Tiltonsville - Windsor	Line	AP	(\$0.2)	(\$0.6)	(\$0.0)	\$0.4	\$0.0	\$0.1	\$0.0	(\$0.1)	\$0.3	1,258	237
Marquis - Waverly	Line	AEP	\$0.0	(\$0.3)	(\$0.0)	\$0.3	(\$0.0)	\$0.0	\$0.0	(\$0.0)	\$0.2	74	14
Elrama - Mitchell	Line	AP	(\$0.1)	(\$0.3)	(\$0.0)	\$0.2	\$0.1	\$0.0	\$0.0	\$0.1	\$0.2	225	184
Sammis - Wylie Ridge	Line	AP	(\$0.2)	(\$0.4)	(\$0.0)	\$0.2	\$0.0	\$0.1	(\$0.0)	(\$0.0)	\$0.2	632	140
Pierce - Foster	Flowgate	Midwest ISO	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.1	(\$0.0)	(\$0.2)	(\$0.2)	0	5
Kammer - Ormet	Line	AEP	(\$0.1)	(\$0.2)	(\$0.0)	\$0.1	\$0.0	\$0.0	\$0.0	(\$0.0)	\$0.1	552	509
East Frankfort - Crete	Line	ComEd	\$0.2	\$0.3	\$0.0	(\$0.1)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.1)	1,490	0
Breed - Wheatland	Line	AEP	\$0.0	\$0.1	\$0.0	(\$0.1)	\$0.0	(\$0.0)	(\$0.0)	\$0.0	(\$0.1)	511	2

Table 7-47 DAY Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-47)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Grand Total	Event Hours	
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total		Day Ahead	Real Time
Cloverdale - Lexington	Line	AEP	(\$7.8)	(\$10.0)	\$0.1	\$2.3	\$0.3	(\$0.7)	\$0.0	\$1.0	\$3.3	2,941	1,506
Kammer	Transformer	500	(\$4.5)	(\$5.7)	(\$0.0)	\$1.2	\$1.1	\$0.1	\$0.0	\$0.9	\$2.1	2,251	1,261
AP South	Interface	500	(\$8.1)	(\$10.1)	\$0.0	\$2.0	\$0.4	\$0.7	(\$0.0)	(\$0.3)	\$1.7	2,182	788
Bedington - Black Oak	Interface	500	(\$2.7)	(\$4.0)	(\$0.0)	\$1.3	\$0.1	\$0.3	(\$0.0)	(\$0.3)	\$1.0	1,361	209
Mount Storm - Pruntytown	Line	AP	(\$4.3)	(\$3.6)	\$0.0	(\$0.7)	\$0.1	\$0.4	(\$0.0)	(\$0.3)	(\$0.9)	1,546	771
West	Interface	500	(\$2.0)	(\$3.2)	\$0.0	\$1.2	\$0.2	\$0.6	(\$0.0)	(\$0.5)	\$0.8	1,197	372
5004/5005 Interface	Interface	500	(\$0.6)	(\$1.2)	\$0.0	\$0.5	\$0.1	\$0.1	(\$0.0)	\$0.0	\$0.6	427	365
Sammis - Wylie Ridge	Line	AP	(\$0.8)	(\$0.6)	(\$0.0)	(\$0.3)	\$0.8	(\$0.1)	(\$0.2)	\$0.7	\$0.4	708	789
Central	Interface	500	(\$0.6)	(\$1.0)	\$0.0	\$0.4	(\$0.0)	\$0.0	(\$0.0)	(\$0.0)	\$0.4	701	22
Axton	Transformer	AEP	(\$0.6)	(\$1.0)	(\$0.0)	\$0.4	\$0.0	\$0.0	\$0.0	\$0.0	\$0.4	418	0
Conemaugh - Keystone	Line	500	(\$0.0)	(\$0.0)	\$0.0	\$0.0	\$0.3	\$0.0	(\$0.0)	\$0.3	\$0.3	16	36
Mount Storm	Transformer	AP	(\$1.7)	(\$1.3)	\$0.0	(\$0.4)	(\$0.0)	(\$0.2)	(\$0.0)	\$0.2	(\$0.2)	908	460
Axton - Jacksons Ferry	Line	AEP	(\$0.1)	(\$0.3)	(\$0.0)	\$0.2	\$0.0	\$0.0	\$0.0	\$0.0	\$0.2	83	0
Whitpain	Transformer	PECO	(\$0.0)	(\$0.1)	\$0.0	\$0.1	\$0.0	(\$0.0)	(\$0.0)	\$0.1	\$0.2	89	68
Wakefield - Sargents	Line	AEP	\$0.0	(\$0.1)	\$0.0	\$0.1	\$0.0	\$0.0	\$0.0	\$0.0	\$0.1	15	0

DLCO Control Zone

Table 7-48 DLCO Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-48)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
Sammis - Wylie Ridge	Line	AP	(\$4.0)	(\$8.0)	(\$0.0)	\$4.0	(\$0.2)	\$0.5	\$0.0	(\$0.7)	\$3.3	632	140
AP South	Interface	500	(\$10.8)	(\$14.9)	(\$0.0)	\$4.1	(\$0.7)	\$0.3	\$0.0	(\$1.0)	\$3.1	2,559	423
Elrama - Mitchell	Line	AP	(\$2.7)	(\$1.8)	(\$0.0)	(\$0.9)	(\$0.2)	\$0.9	\$0.0	(\$1.1)	(\$2.1)	225	184
West	Interface	500	(\$3.8)	(\$5.5)	(\$0.0)	\$1.6	(\$0.1)	\$0.0	\$0.0	(\$0.1)	\$1.5	391	85
Logans Ferry - Universal	Line	DLCO	\$0.2	(\$1.3)	\$0.0	\$1.5	\$0.0	\$0.1	(\$0.0)	(\$0.1)	\$1.4	395	156
Collier	Transformer	DLCO	\$1.4	\$0.3	\$0.0	\$1.2	\$0.0	\$0.0	\$0.0	\$0.0	\$1.2	46	0
Wylie Ridge	Transformer	AP	(\$8.5)	(\$12.9)	(\$0.0)	\$4.4	(\$1.2)	\$2.2	\$0.0	(\$3.3)	\$1.1	354	335
Kammer	Transformer	500	(\$3.6)	(\$4.8)	\$0.0	\$1.3	(\$0.4)	(\$0.1)	(\$0.0)	(\$0.4)	\$0.9	3,674	1,328
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$1.7	\$2.6	(\$0.0)	(\$0.9)	\$0.2	\$0.1	(\$0.0)	\$0.1	(\$0.8)	2,888	907
Mount Storm - Pruntytown	Line	AP	(\$1.9)	(\$2.8)	(\$0.0)	\$0.9	(\$0.2)	\$0.1	\$0.0	(\$0.3)	\$0.6	525	132
East Frankfort - Crete	Line	ComEd	\$0.7	\$1.1	\$0.0	(\$0.4)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.4)	1,490	0
Krendale - Seneca	Line	AP	(\$0.7)	(\$1.0)	(\$0.0)	\$0.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.3	245	0
Kammer - West Bellaire	Line	AP	\$0.3	\$0.3	\$0.0	\$0.0	\$0.1	(\$0.1)	\$0.0	\$0.3	\$0.3	50	19
Cloverdale - Lexington	Line	AEP	(\$0.7)	(\$1.1)	\$0.0	\$0.4	(\$0.1)	\$0.0	(\$0.0)	(\$0.1)	\$0.3	752	335
Bedington - Black Oak	Interface	500	(\$1.2)	(\$1.6)	(\$0.0)	\$0.3	(\$0.0)	\$0.0	\$0.0	(\$0.1)	\$0.3	395	61

Table 7-49 DLCO Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-49)

Congestion Costs (Millions)													
Constraint	Type	Location	Day Ahead				Balancing				Event Hours		
			Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total	Day Ahead	Real Time
Sammis - Wylie Ridge	Line	AP	(\$7.3)	(\$16.6)	(\$0.0)	\$9.3	(\$15.0)	\$5.9	\$0.0	(\$20.9)	(\$11.6)	708	789
Bedington - Black Oak	Interface	500	(\$12.5)	(\$17.7)	(\$0.0)	\$5.2	(\$1.0)	\$0.6	\$0.0	(\$1.6)	\$3.6	1,361	209
AP South	Interface	500	(\$30.2)	(\$42.4)	(\$0.0)	\$12.3	(\$7.1)	\$1.6	\$0.0	(\$8.8)	\$3.5	2,182	788
Krendale - Seneca	Line	AP	(\$3.8)	(\$6.5)	(\$0.0)	\$2.7	(\$0.1)	\$0.0	\$0.0	(\$0.1)	\$2.7	960	16
Cheswick - Universal	Line	DLCO	(\$1.3)	(\$3.7)	\$0.0	\$2.4	\$0.1	\$0.3	(\$0.0)	(\$0.2)	\$2.3	411	158
Cloverdale - Lexington	Line	AEP	(\$10.4)	(\$16.3)	\$0.0	\$5.9	(\$2.7)	\$0.9	(\$0.0)	(\$3.7)	\$2.2	2,941	1,506
Mount Storm - Pruntytown	Line	AP	(\$17.3)	(\$24.5)	(\$0.0)	\$7.2	(\$5.6)	\$3.3	\$0.0	(\$8.8)	(\$1.7)	1,546	771
Mount Storm	Transformer	AP	(\$6.8)	(\$9.9)	(\$0.0)	\$3.1	(\$3.1)	\$1.7	\$0.0	(\$4.8)	(\$1.7)	908	460
Beaver - Clinton	Line	DLCO	\$0.6	(\$0.9)	\$0.0	\$1.5	\$0.0	\$0.0	\$0.0	\$0.0	\$1.5	140	0
Central	Interface	500	(\$2.0)	(\$3.3)	(\$0.0)	\$1.3	(\$0.1)	\$0.0	\$0.0	(\$0.1)	\$1.3	701	22
Cheswick - Evergreen	Line	DLCO	\$0.4	(\$1.2)	\$0.0	\$1.6	(\$0.2)	\$0.4	\$0.0	(\$0.5)	\$1.1	85	130
Crescent	Transformer	DLCO	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7	(\$0.3)	(\$0.0)	\$1.0	\$1.0	0	30
5004/5005 Interface	Interface	500	(\$3.2)	(\$4.1)	(\$0.0)	\$0.9	(\$1.3)	\$0.6	\$0.0	(\$1.8)	(\$0.9)	427	365
Krendale - Shanorma	Line	AP	(\$0.9)	(\$1.7)	(\$0.0)	\$0.8	\$0.0	\$0.0	\$0.0	\$0.0	\$0.8	326	0
Bedington - Harmony	Line	AP	(\$0.3)	(\$0.5)	(\$0.0)	\$0.1	(\$0.6)	\$0.3	\$0.0	(\$0.9)	(\$0.8)	379	360

Southern Region Congestion-Event Summaries

Dominion Control Zone

Table 7-50 Dominion Control Zone top congestion cost impacts (By facility): January through September 2009 (See 2008 SOM Table 7-50)

Constraint	Type	Location	Congestion Costs (Millions)									Event Hours		
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Implicit			Generation Credits	Explicit	Implicit			
AP South	Interface	500	\$26.0	(\$20.9)	(\$0.4)	\$46.6	\$1.1	\$0.1	\$0.2	\$1.1	\$47.7	2,559	423	
Cloverdale - Lexington	Line	AEP	\$5.8	\$2.4	\$0.9	\$4.3	(\$0.1)	(\$1.8)	(\$1.2)	\$0.5	\$4.8	752	335	
Kammer	Transformer	500	\$10.3	\$8.3	\$2.1	\$4.2	(\$0.0)	(\$0.8)	(\$2.0)	(\$1.2)	\$3.0	3,674	1,328	
Dunes Acres - Michigan City	Flowgate	Midwest ISO	\$4.3	\$2.1	\$0.1	\$2.3	(\$0.2)	(\$0.6)	(\$0.1)	\$0.3	\$2.6	2,888	907	
Beechwood - Kerr Dam	Line	Dominion	\$1.5	(\$0.8)	(\$0.1)	\$2.2	(\$0.2)	\$0.1	\$0.1	(\$0.2)	\$2.0	632	228	
Chuckatuck - Benns Church	Line	Dominion	\$1.5	(\$0.0)	\$0.0	\$1.6	\$0.0	\$0.0	\$0.0	\$0.0	\$1.6	45	0	
Bedington - Black Oak	Interface	500	\$2.6	\$1.6	\$0.6	\$1.5	(\$0.1)	(\$0.1)	(\$0.2)	(\$0.1)	\$1.4	395	61	
West	Interface	500	(\$2.4)	(\$3.3)	\$0.0	\$1.0	\$0.1	\$0.2	\$0.1	\$0.0	\$1.0	391	85	
Wylie Ridge	Transformer	AP	\$2.5	\$1.7	\$0.4	\$1.2	(\$0.1)	(\$0.2)	(\$0.4)	(\$0.2)	\$1.0	354	335	
Ox	Transformer	Dominion	\$0.8	(\$0.1)	\$0.0	\$1.0	\$0.0	\$0.0	\$0.0	\$0.0	\$1.0	8	0	
Crozet - Dooms	Line	Dominion	\$0.7	(\$0.3)	\$0.0	\$1.0	(\$0.3)	(\$0.2)	(\$0.0)	(\$0.1)	\$0.9	54	37	
5004/5005 Interface	Interface	500	(\$0.6)	(\$1.3)	(\$0.1)	\$0.6	\$0.1	\$0.1	\$0.0	\$0.1	\$0.7	643	241	
Chickahominy - Lanexa	Line	Dominion	\$0.5	(\$0.0)	\$0.0	\$0.6	(\$0.1)	(\$0.3)	\$0.0	\$0.1	\$0.7	42	19	
Clover - Farmville	Line	Dominion	(\$0.0)	(\$0.7)	\$0.0	\$0.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7	41	0	
Crete - St Johns Tap	Flowgate	Midwest ISO	\$1.0	\$0.5	\$0.1	\$0.6	(\$0.1)	(\$0.2)	(\$0.1)	\$0.0	\$0.7	732	190	

Table 7-51 Dominion Control Zone top congestion cost impacts (By facility): January through September 2008 (See 2008 SOM Table 7-51)

Constraint	Type	Location	Congestion Costs (Millions)									Event Hours		
			Load Payments	Day Ahead			Total	Load Payments	Balancing			Grand Total	Day Ahead	Real Time
				Generation Credits	Explicit	Implicit			Generation Credits	Explicit	Implicit			
AP South	Interface	500	\$63.8	(\$78.6)	\$3.9	\$146.3	\$5.7	\$7.3	(\$2.9)	(\$4.4)	\$141.8	2,182	788	
Cloverdale - Lexington	Line	AEP	\$103.2	\$42.7	\$12.3	\$72.8	\$0.0	(\$5.7)	(\$9.4)	(\$3.7)	\$69.1	2,941	1,506	
Bedington - Black Oak	Interface	500	\$32.0	\$17.2	\$2.2	\$17.0	\$0.2	(\$0.8)	(\$0.5)	\$0.5	\$17.5	1,361	209	
Mount Storm	Transformer	AP	\$21.0	\$8.7	\$4.1	\$16.4	(\$8.8)	\$16.4	(\$4.3)	(\$29.5)	(\$13.1)	908	460	
Aqueduct - Doubs	Line	AP	\$9.1	(\$2.7)	\$0.2	\$12.0	\$0.0	(\$0.0)	(\$0.0)	\$0.0	\$12.0	293	7	
Bristers - Ox	Line	Dominion	(\$1.2)	(\$12.4)	(\$0.6)	\$10.7	\$0.8	\$1.1	\$0.4	\$0.1	\$10.8	77	38	
Meadow Brook	Transformer	AP	(\$0.7)	(\$6.8)	(\$0.0)	\$6.1	(\$0.1)	\$0.3	\$0.1	(\$0.3)	\$5.8	774	173	
Kammer	Transformer	500	\$14.5	\$12.6	\$1.9	\$3.8	(\$0.2)	(\$2.9)	(\$1.6)	\$1.1	\$4.9	2,251	1,261	
Dickerson - Pleasant View	Line	Pepco	(\$6.8)	(\$2.9)	(\$0.1)	(\$4.0)	(\$0.1)	\$0.7	\$0.1	(\$0.7)	(\$4.8)	468	124	
Mount Storm - Pruntytown	Line	AP	\$47.0	\$51.9	\$5.8	\$0.9	(\$4.3)	(\$14.7)	(\$6.6)	\$3.7	\$4.6	1,546	771	
Danville - East Danville	Line	Dominion	\$4.5	\$1.8	\$0.2	\$3.0	(\$0.2)	(\$0.2)	\$0.3	\$0.3	\$3.3	646	147	
Pleasantville - Ashburn	Line	Dominion	\$3.2	\$0.2	\$0.0	\$3.1	\$0.0	\$0.0	\$0.0	\$0.0	\$3.1	10	0	
East	Interface	500	(\$4.6)	(\$2.2)	(\$0.4)	(\$2.8)	\$0.0	\$0.0	\$0.0	(\$0.0)	(\$2.8)	510	9	
West	Interface	500	(\$11.6)	(\$9.2)	\$0.1	(\$2.3)	\$0.4	\$0.9	\$0.1	(\$0.4)	(\$2.6)	1,197	372	
Central	Interface	500	(\$5.6)	(\$3.1)	(\$0.1)	(\$2.6)	(\$0.0)	\$0.0	\$0.0	(\$0.0)	(\$2.6)	701	22	