



Monitoring  
Analytics

Monitoring Analytics, LLC  
2621 Van Buren Avenue, Suite 160  
Valley Forge Corporate Center  
Eagleville, PA 19403  
Phone: 610-271-8050  
Fax: 610-271-8057

July 15, 2009

Sam Watson, Staff Attorney  
North Carolina Utilities Commission  
430 North Salisbury Street  
Dobbs Building  
Raleigh, NC 27603-5918

Re: Annual Report

Dear Mr. Watson:

This letter and associated report are provided pursuant to the Settlement Agreement in Docket No. E-22, Sub 418, dated December 15, 2004. The associated data files are being provided separately.

6. PJM will provide annual reports to the Commission detailing the following information:
  - (a) A description of transmission constraints impacting Dominion's service territory within North Carolina and the events leading up to such constraints. Such description should include an estimate of the congestion costs associated with each event.
  - (b) The actual locational marginal prices by bus impacting Dominion's service territory within North Carolina, including a separate identification of the congestion component of such prices.
  - (c) Such reports will be provided annually beginning one year from the Company's actual integration date into PJM and ending in 2014.

The Market Monitoring Unit is available to respond to questions about the report and associated data.

Please contact me if you have any questions.

Sincerely,

Joseph E. Bowring  
Independent Market Monitor for PJM  
President  
Monitoring Analytics, LLC  
2621 Van Buren Avenue, Suite 160  
Valley Forge Corporate Center  
Eagleville, Pennsylvania 19403  
(610) -271-8051  
*joseph.bowring@monitoringanalytics.com*



Monitoring  
Analytics

**REPORT TO THE NORTH  
CAROLINA STATE CORPORATION  
COMMISSION**

**Congestion in the Dominion Service  
Territory in North Carolina:  
May 1, 2008 through April 30, 2008**

The Independent Market Monitor for PJM

July 15, 2009

This page intentionally left blank.

## Overview of Congestion Calculations

This report provides details of congestion associated with Dominion's service territory within the state of North Carolina for the periods of May 1, 2007, to April 30, 2008 (2007/2008), and May 1, 2008, to April 30, 2009 (2008/2009). Congestion calculations are for the entire territory and not for any specific organization. The total congestion is the sum of all congestion for the organizations with market activity in the area. The report also includes congestion event hours for the constraints which had the largest impact on congestion charges in Dominion, either positive or negative, and the congestion charges associated with each constraint.<sup>1</sup>

Total congestion costs equal net congestion costs plus explicit congestion costs. Net congestion costs equal load congestion payments minus generation congestion credits.<sup>2</sup> Explicit congestion costs are the net congestion costs associated with point-to-point energy transactions. Each of these categories of congestion costs is comprised of day-ahead and balancing congestion costs. Day-ahead congestion costs are based on day-ahead MW while balancing congestion costs are based on deviations between day-ahead and real-time MW priced at the congestion price in the Real Time Energy Market.<sup>3</sup>

Table 1 shows a summary of the congestion costs associated with the North Carolina portion of the Dominion service territory starting May 2007. Table 2 shows a monthly breakdown of congestion costs.

---

<sup>1</sup> Congestion event hours are hours in which a transmission constraint is binding. In day ahead, an interval equals one hour. In real time, an interval equals five minutes. In order to have a consistent metric for day-ahead and real-time congestion frequency, real-time congestion frequency is measured using the convention that an hour is constrained if any one of its component five-minute intervals is constrained.

<sup>2</sup> Prior to June 1, 2007, PJM Congestion Accounting methods included implicit congestion costs, spot congestion costs, and explicit congestion costs. After June 1, 2007, PJM no longer calculates spot congestion costs. Implicit congestion costs are now equal to the difference between load congestion payments and generation congestion credits, i.e. net congestion. Explicit congestion costs remained the same after June 1, 2007.

<sup>3</sup> See Table 10, "Congestion Definitions," for a summary of relevant definitions.

**Table 1 Total Dominion North Carolina congestion costs (Dollars (Millions)): May 1, 2007 through April 30, 2009**

	Congestion Costs	Percent Change
2007/2008	\$22.4	NA
2008/2009	\$17.9	(20%)
Total	\$40.3	

**Table 2 Monthly Dominion North Carolina congestion costs (Dollars (Millions)): May 1, 2007 through April 30, 2009**

	Total Congestion Costs		
	2007	2008	2009
Jan		\$3.1	\$1.2
Feb		\$1.1	\$1.0
Mar		\$0.2	\$0.9
Apr		\$0.5	\$0.2
May	\$1.7	\$1.1	
Jun	\$2.1	\$3.4	
Jul	\$2.9	\$3.8	
Aug	\$2.7	\$2.3	
Sept	\$1.7	\$2.0	
Oct	\$1.8	\$0.9	
Nov	\$2.1	\$0.7	
Dec	\$2.5	\$0.7	

Congestion at any point on the system can be expressed as a component of LMP measured relative to the system marginal price (SMP). The SMP is equal to the load weighted system price for the entire footprint. The price at the load weighted reference bus is called the system marginal price SMP. At the load weighted system reference bus there is no congestion and there are no marginal losses. The congestion component of LMP (CLMP) at any point on the system is calculated with respect to the SMP. When a transmission constraint occurs, the resulting CLMP is positive on one side of the constraint and negative on the other side of the constraint and the corresponding congestion costs are positive or negative. For each transmission constraint, the CLMP reflects the cost of the constraint at a pricing node and is equal to the product of the constraint shadow price and the distribution factor at the pricing node.

The total CLMP at a pricing node is the sum of all constraint contributions to LMP at the node and is equal to the difference between the actual LMP that results from transmission constraints, excluding losses, and the SMP. This total can be either positive or negative.

Where the load weighted CLMP for an area is negative, the area is experiencing negative congestion relative to the system load weighted reference bus and the area's load weighted LMP is less than SMP. Where the load weighted LMP in an area is less than SMP, total congestion in the area will be negative. Where the load weighted CLMP for an area is positive, the area is experiencing positive congestion relative to the system load weighted reference bus and the area's load weighted LMP is less than SMP. Where the load weighted LMP in an area is more than SMP, total congestion in the area will be positive.

Table 1 and Table 2 provide a summary of the total congestion charges in the North Carolina area of Dominion.

In order to provide a more detailed explanation of the congestion calculations from which the total congestion charges are derived, each category of congestion is defined and a table of the congestion charges or credits associated with each category is provided.

### ***Net Congestion***

The net congestion bill is calculated by subtracting generating congestion credits from load congestion payments. The logic is that increased congestion payments by load are offset by increased congestion revenues to generation, for the area analyzed. Whether the net congestion bill is an appropriate measure of congestion for load depends on who pays the load congestion payments and who receives the generation congestion credits. The net congestion bill is an appropriate measure of congestion for a utility that charges load congestion payments to load and credits generation congestion credits to load. The net congestion bill is not an appropriate measure of congestion in situations where load pays the load congestion payments but does not receive the generation credits as an offset.

Load congestion payments are netted against generation congestion credits on an hourly basis, by participant, and then summed for the given period. The load congestion payments for a participant may be offset by credits from its owned generation portfolio or by credits from supply purchased from another entity via a bilateral transaction.

Load congestion payments and generation congestion credits are calculated for both the Day-ahead and Balancing Energy Markets.

- **Day-ahead Load Congestion Payments.** Day-ahead load congestion payments are calculated for all cleared demand, decrement bids, and day-ahead energy sale transactions. (Decrement bids and energy sales can be thought of as scheduled load.) Day-ahead load congestion payments are calculated using load MW and the congestion component of LMP (CLMP) for the load bus, decrement bid location, or the source of the sale transaction, as applicable.

- **Day-ahead Generation Congestion Credits.** Day-ahead generation congestion credits are calculated for all cleared generation and increment offers and day-ahead energy purchase transactions. (Increment offers and energy purchases can be thought of as scheduled generation.) Day-ahead generation congestion credits are calculated using generation MW and the CLMP for the generator bus, increment offer location, or the sink of the purchase transaction, as applicable.
- **Balancing Load Congestion Payments.** Balancing load congestion payments are calculated for all deviations between a PJM Member's real-time load and energy sale transactions and their day-ahead cleared demand, decrement bids, and energy sale transactions. Balancing load congestion payments are calculated using MW deviations and the real-time CLMP for each bus where a deviation from a member's day-ahead scheduled load exists.
- **Balancing Generation Congestion Credits.** Balancing generation congestion credits are calculated for all deviations between a PJM Member's real-time generation and energy purchase transactions and the day-ahead cleared generation, increment offers and energy purchase transactions. Balancing generation congestion credits are calculated using MW deviations and the real-time CLMP for each bus where a deviation from a member's day-ahead scheduled generation exists.

## Explicit Congestion Costs

Explicit congestion costs are the congestion costs associated with moving energy from one specific point to another across the transmission system. Point-to-point transactions may be either internal to PJM or be import or export transactions. Explicit congestion charges equal the difference between source and sink CLMPs for a point-to-point transaction.

- **Internal Purchases.** For internal purchases the explicit congestion costs are calculated based on the difference in CLMPs between the sink bus and source bus of the purchase.
- **Import & Export Transactions.** For point-to-point and network secondary transmission customers, the explicit congestion costs are calculated based on the difference in CLMPs between the sink bus and source bus of the purchase. Interface pricing points are the source bus for import transactions and the sink bus for export transactions.

The explicit congestion costs calculated for the North Carolina portion of Dominion represent the costs associated with point to point transactions that sink in the North Carolina portion of Dominion. For example, if a transaction is sourced in Pennsylvania and sinks in Dominion North Carolina, the charges would be based on the MW of the transaction multiplied by the difference between the sink CLMP and the source CLMP.



The resulting congestion costs are allocated to the zone and state of the sink location, in this case Dominion North Carolina.

Table 3 shows the combined day-ahead and balancing load congestion payments, generation congestion credits, and explicit congestion costs for the Dominion North Carolina service territory for May 1, 2007 through April 30, 2009. Table 4 shows the congestion costs categories separated by day-ahead and balancing to show the contributions from both the day-ahead and real-time markets.

**Table 3 Total Dominion North Carolina congestion costs by category: May 1, 2007 through April 30, 2009**

Congestion Costs (Millions)					
	Load Payments	Generation Credits	Net Congestion Bill	Explicit	Grand Total
2007/2008	\$24.6	\$6.6	\$18.1	\$4.3	\$22.4
2008/2009	\$18.2	\$0.1	\$18.1	(\$0.2)	\$17.9

**Table 4 Total day-ahead and balancing Dominion North Carolina congestion costs by category: May 1, 2007 through April 30, 2009**

Congestion Costs (Millions)									
	Day Ahead				Balancing				Grand Total
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	
2007/2008	\$29.8	\$6.9	\$4.5	\$27.4	(\$5.2)	(\$0.4)	(\$0.2)	(\$5.0)	\$22.4
2008/2009	\$24.5	\$0.6	\$1.5	\$25.4	(\$6.3)	(\$0.4)	(\$1.6)	(\$7.5)	\$17.9

Table 5 lists the top 15 constraints affecting Dominion North Carolina congestion costs for the period beginning May 1, 2008 and ending April 30, 2009. Table 5 provides the type of constraint (Line, Transformer, or Interface), the location of the constraint and the congestion event hours for the period analyzed.

**Table 5 Top 15 constraints affecting Dominion North Carolina congestion costs: May 1, 2008 through April 30, 2009**

No.	Constraint	Type	Location	Event Hours	
				Day Ahead	Real Time
1	AP South	Interface	500	3,931	871
2	Mount Storm - Pruntytown	Line	AP	2,871	753
3	Cloverdale - Lexington	Line	AEP	2,921	1,514
4	West	Interface	500	1,953	204
5	Mount Storm	Transformer	AP	1,015	491
6	Axton	Transformer	AEP	407	0
7	Bedington - Black Oak	Interface	500	873	232
8	Danville - East Danville	Line	Dominion	697	149
9	Beechwood - Kerr Dam	Line	Dominion	415	208
10	Kammer	Transformer	500	3,215	1,633
11	East	Interface	500	739	4
12	Dickerson - Pleasant View	Line	Pepco	446	114
13	Battleboro - Rocky Mount	Line	Dominion	187	0
14	East Frankfort - Crete	Line	ComEd	2,196	0
15	Bristers - Ox	Line	Dominion	77	38

Table 6 shows the congestion cost details of the top 15 constraints affecting Dominion North Carolina for the period beginning May 1, 2008 and ending April 30, 2009. The AP South interface had the largest impact on congestion costs with a total of \$5.2 million or 29 percent of total congestion costs.

**Table 6 Congestion cost details for the top 15 constraints affecting Dominion North Carolina: May 1, 2008 through April 30, 2009**

Constraint	Congestion Costs (Millions)								
	Day Ahead				Balancing				Grand Total
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	
AP South	\$6.6	\$0.2	\$0.3	\$6.7	(\$1.4)	(\$0.2)	(\$0.3)	(\$1.5)	\$5.2
Mount Storm - Pruntytown	\$6.3	\$0.1	\$0.3	\$6.5	(\$1.6)	(\$0.1)	(\$0.3)	(\$1.8)	\$4.6
Cloverdale - Lexington	\$4.1	\$0.1	\$0.2	\$4.3	(\$0.8)	\$0.0	(\$0.3)	(\$1.1)	\$3.2
West	(\$1.9)	(\$0.1)	\$0.0	(\$1.8)	\$0.1	\$0.0	\$0.0	\$0.1	(\$1.6)
Mount Storm	\$2.6	\$0.0	\$0.2	\$2.7	(\$1.2)	\$0.0	(\$0.2)	(\$1.4)	\$1.3
Axton	\$1.3	\$0.1	\$0.0	\$1.2	\$0.0	\$0.0	\$0.0	\$0.0	\$1.2
Bedington - Black Oak	\$1.4	\$0.0	\$0.1	\$1.4	(\$0.2)	(\$0.0)	(\$0.0)	(\$0.2)	\$1.2
Danville - East Danville	\$1.2	\$0.0	\$0.0	\$1.2	(\$0.2)	\$0.0	\$0.0	(\$0.2)	\$1.0
Beechwood - Kerr Dam	\$1.3	\$0.1	\$0.1	\$1.2	(\$0.5)	(\$0.1)	(\$0.1)	(\$0.5)	\$0.7
Kammer	\$0.9	\$0.0	\$0.1	\$1.0	(\$0.3)	(\$0.0)	(\$0.1)	(\$0.3)	\$0.7
East	(\$0.5)	(\$0.0)	(\$0.0)	(\$0.5)	\$0.0	(\$0.0)	\$0.0	\$0.0	(\$0.5)
Dickerson - Pleasant View	(\$0.6)	(\$0.0)	(\$0.0)	(\$0.6)	\$0.2	\$0.0	\$0.0	\$0.2	(\$0.4)
Battleboro - Rocky Mount	\$0.3	(\$0.0)	\$0.1	\$0.4	\$0.0	\$0.0	\$0.0	\$0.0	\$0.4
East Frankfort - Crete	\$0.3	\$0.0	\$0.0	\$0.3	\$0.0	\$0.0	\$0.0	\$0.0	\$0.3
Bristers - Ox	(\$0.5)	(\$0.0)	(\$0.0)	(\$0.5)	\$0.3	\$0.0	\$0.0	\$0.3	(\$0.2)

Table 7 lists the top 15 constraints affecting Dominion North Carolina congestion costs for the period beginning May 1, 2007 and ending April 30, 2008. Table 7 provides the type of constraint (Line, Transformer, or Interface), the location of the constraint and the congestion event hours for the period analyzed.

**Table 7 Top 15 constraints affecting Dominion North Carolina congestion costs: May 1, 2007 through April 30, 2008**

No.	Constraint	Type	Location	Event Hours	
				Day Ahead	Real Time
1	Bedington - Black Oak	Interface	500	3,751	1,335
2	Cloverdale - Lexington	Line	AEP	3,554	1,666
3	AP South	Interface	500	1,204	461
4	Kammer	Transformer	500	2,329	1,173
5	Central	Interface	500	1,289	43
6	Axton	Transformer	AEP	247	0
7	Mount Storm - Pruntytown	Line	AP	226	214
8	Lakeview - Clubhouse	Line	Dominion	0	24
9	Axton - Jacksons Ferry	Line	AEP	272	5
10	Danville - East Danville	Line	Dominion	210	36
11	Kanawha - Matt Funk	Line	AEP	90	82
12	Bedington	Transformer	AP	904	446
13	Beechwood - Kerr Dam	Line	Dominion	405	248
14	Branchburg - Readington	Line	PSEG	2,152	546
15	Meadow Brook	Transformer	AP	1,245	320

Table 8 shows the congestion cost details of the top 15 constraints affecting Dominion North Carolina for the period beginning May 1, 2007 and ending April 30, 2008. The Bedington – Black Oak interface had the largest impact on congestion costs with a total of \$10.3 million or 46 percent of total congestion costs.

**Table 8 Congestion cost details for the top 15 constraints affecting Dominion North Carolina: May 1, 2007 through April 30, 2008**

Constraint	Congestion Costs (Millions)								
	Day Ahead				Balancing				Grand Total
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	
Bedington - Black Oak	\$17.2	\$5.0	\$1.2	\$13.4	(\$3.1)	(\$0.1)	(\$0.1)	(\$3.1)	\$10.3
Cloverdale - Lexington	\$5.9	\$0.9	\$1.4	\$6.4	(\$0.7)	\$0.0	(\$0.0)	(\$0.8)	\$5.6
AP South	\$2.1	\$0.3	\$0.4	\$2.2	(\$0.2)	\$0.0	(\$0.0)	(\$0.2)	\$2.0
Kammer	\$1.0	\$0.0	\$0.3	\$1.3	(\$0.2)	\$0.0	(\$0.0)	(\$0.2)	\$1.1
Central	(\$1.4)	(\$0.4)	(\$0.0)	(\$0.9)	\$0.0	(\$0.0)	(\$0.0)	\$0.0	(\$0.9)
Axton	\$1.2	\$0.4	\$0.0	\$0.7	\$0.0	\$0.0	\$0.0	\$0.0	\$0.7
Mount Storm - Pruntytown	\$1.0	\$0.1	\$0.0	\$1.0	(\$0.3)	(\$0.0)	(\$0.0)	(\$0.3)	\$0.7
Lakeview - Clubhouse	\$0.0	\$0.0	\$0.0	\$0.0	(\$1.0)	(\$0.3)	\$0.0	(\$0.6)	(\$0.6)
Axton - Jacksons Ferry	\$0.9	\$0.3	\$0.0	\$0.6	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.6
Danville - East Danville	\$0.7	\$0.3	\$0.1	\$0.5	(\$0.0)	(\$0.0)	(\$0.0)	(\$0.0)	\$0.5
Kanawha - Matt Funk	\$0.8	\$0.3	\$0.1	\$0.6	(\$0.1)	(\$0.0)	(\$0.0)	(\$0.1)	\$0.5
Bedington	\$0.7	\$0.2	\$0.1	\$0.5	(\$0.1)	\$0.0	(\$0.0)	(\$0.1)	\$0.5
Beechwood - Kerr Dam	\$2.0	\$0.8	\$0.0	\$1.2	(\$0.8)	(\$0.1)	(\$0.0)	(\$0.8)	\$0.4
Branchburg - Readington	(\$1.0)	(\$0.4)	(\$0.0)	(\$0.7)	\$0.2	\$0.0	\$0.0	\$0.2	(\$0.4)
Meadow Brook	(\$0.8)	(\$0.2)	\$0.0	(\$0.6)	\$0.2	\$0.0	\$0.0	\$0.2	(\$0.4)

Table 9 shows the largest deltas by constraint for the period ending April 30, 2009 compared to the period ending April 30, 2008. Congestion costs for the Bedington – Black Oak interface decreased from the 2007/2008 period to the 2008/2009 period by \$9.1 million. The decrease in congestion costs and frequency on the Bedington – Black Oak interface is largely due to transmission system upgrades on the Bedington – Black Oak circuit and also the updated definition of the AP South interface. These two upgrades have shifted both congestion costs and frequency from the Bedington – Black Oak interface to the AP South interface. The AP South interface congestion costs increased by \$3.2 million from the 2007/2008 period to the 2008/2009 period. In addition, congestion costs for the Mount Storm – Pruntytown line increased by \$4.0 million from the 2007/2008 period to the 2008/2009 period. The increases on the AP South interface and the Mount Storm – Pruntytown line, coupled with smaller increase from other constraints, offset the decrease in congestion costs from the Bedington – Black Oak interface.

**Table 9 Top 15 constraint congestion cost deltas from the prior period: May 1, 2008 through April 30, 2009 minus May 1, 2007 to April 30, 2008**

Constraint	Congestion Cost Deltas (Millions)								
	Day Ahead				Balancing				Grand Total
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	
Bedington - Black Oak	(\$15.8)	(\$5.0)	(\$1.1)	(\$12.0)	\$2.9	\$0.1	\$0.1	\$2.8	(\$9.1)
Mount Storm - Pruntytown	\$5.3	\$0.0	\$0.3	\$5.5	(\$1.4)	(\$0.1)	(\$0.3)	(\$1.5)	\$4.0
AP South	\$4.5	(\$0.1)	(\$0.1)	\$4.5	(\$1.2)	(\$0.2)	(\$0.2)	(\$1.3)	\$3.2
Cloverdale - Lexington	(\$1.8)	(\$0.8)	(\$1.2)	(\$2.1)	(\$0.1)	(\$0.0)	(\$0.2)	(\$0.3)	(\$2.4)
West	(\$1.6)	(\$0.0)	\$0.0	(\$1.6)	(\$0.2)	(\$0.0)	\$0.0	(\$0.2)	(\$1.7)
Mount Storm	\$2.6	\$0.0	\$0.2	\$2.7	(\$1.2)	\$0.0	(\$0.2)	(\$1.4)	\$1.3
Central	\$1.2	\$0.4	\$0.0	\$0.8	(\$0.0)	\$0.0	\$0.0	(\$0.0)	\$0.7
Lakeview - Clubhouse	\$0.0	\$0.0	\$0.0	\$0.0	\$1.0	\$0.3	(\$0.0)	\$0.6	\$0.6
Danville - East Danville	\$0.5	(\$0.2)	(\$0.1)	\$0.7	(\$0.1)	\$0.0	\$0.0	(\$0.1)	\$0.5
Bedington	(\$0.7)	(\$0.2)	(\$0.1)	(\$0.5)	\$0.0	(\$0.0)	(\$0.0)	\$0.0	(\$0.5)
Kanawha - Matt Funk	(\$0.8)	(\$0.3)	(\$0.1)	(\$0.6)	\$0.1	\$0.0	\$0.0	\$0.1	(\$0.5)
Bristers - Ox	(\$0.5)	\$0.0	(\$0.0)	(\$0.5)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.5)
East	(\$0.5)	(\$0.0)	(\$0.0)	(\$0.5)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.5)
Axton	\$0.2	(\$0.3)	(\$0.0)	\$0.5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.5
Axton - Jacksons Ferry	(\$0.8)	(\$0.3)	(\$0.0)	(\$0.5)	\$0.0	\$0.0	\$0.0	\$0.0	(\$0.5)

## Conclusion

Congestion costs in the Dominion service territory of North Carolina decreased from 2007/2008 to 2008/2009 by \$4.5 million or twenty percent. Load congestion payments decreased by \$6.4 million from 2007/2008 to 2008/2009, while generation congestion credits decreased by \$6.5 million from 2007/2008 to 2008/2009. The decrease in generation congestion credits was primarily due to the decrease in congestion event hours on the Bedington – Black Oak interface. The Bedington – Black Oak interface generation congestion credits decreased by \$4.9 million or 75.3 percent of the total

decrease in generation congestion credits. The Bedington – Black Oak interface load congestion payments decreased by \$12.9 million, but the load congestion payments on the Mount Storm – Pruntytown line and AP South interface increased by \$3.9 million and \$3.3 million. The decrease in load congestion payments from the Bedington – Black Oak interface coupled with the increase in load\_congestion payments from the Mount Storm – Pruntytown line and AP South interface accounted for 89 percent of the total decrease in load congestion payments. While load congestion payments and generation congestion credits decreased by nearly the same amount and resulted in zero change in net congestion from 2007/2008 to 2008/2009, explicit congestion costs decreased by \$4.5 million from 2007/2008 to 2008/2009. The decrease in explicit congestion costs was 100 percent of the decrease in total congestion costs from 2007/2008 to 2008/2009.

## Congestion Definitions

Table 10 Congestion Definitions

Congestion Category	Calculation
DA Load Congestion Payments	DA Demand MWh * DA CLMP
DA Generation Congestion Credits	DA Supply MWh * DA CLMP
DA Net Congestion Bill	DA Load Congestion Payments - DA Generation Congestion Credits
DA Explicit Congestion Costs	DA Transaction MW * (DA Sink CLMP - DA Source CLMP)
DA Total Congestion Costs	DA Load Congestion Payments - DA Generation Congestion Credits + DA Explicit Congestion Costs
BAL Load Congestion Payments	BAL Demand MWh * RT CLMP
BAL Generation Congestion Credits	BAL Supply MWh * RT CLMP
BAL Net Congestion Bill	BAL Load Congestion Payments - BAL Generation Congestion Credits
BAL Explicit Congestion Costs	BAL Transaction MW * (RT Sink CLMP - RT Source CLMP)
BAL Total Congestion Costs	BAL Load Congestion Payments - BAL Generation Congestion Credits + BAL Explicit Congestion Costs
Total Congestion Costs	DA Total Congestion Costs + BAL Total Congestion Costs

  

MWh Category	Definition
DA Demand MWh	Cleared Demand, Decrement Bids, Energy Sale Transactions
DA Supply MWh	Cleared Generation, Increment Bids, Energy Purchase Transactions
RT Demand MWh	Load and Energy Sale Transactions
RT Supply MWh	Generation and Energy Purchase Transactions
BAL Demand MWh	RT Demand MWh - DA Demand MWh
BAL Supply MWh	RT Supply MWh - DA Supply MWh