REPORT TO THE VIRGINIA STATE CORPORATION COMMISSION: Congestion in the Dominion Service Territory in Virginia

Overview of Congestion Calculations

This report provides details of congestion associated with Dominion Virginia Power's (DOM) service territory within the state of Virginia for the periods of May 1, 2005, to April 30, 2006 (2005/2006), and May 1, 2006, to April 30, 2007 (2006/2007), and May 1, 2007, to April 30, 2008 (2007/2008). Congestion calculations are for the entire territory and not for any specific organization; the total congestion calculations are the sum of all the congestion calculations 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 DOM, either positive or negative, and the congestion charges associated with each constraint. [1]

Total congestion costs equal load congestion payments minus generation congestion credits plus explicit congestion costs. Net congestion costs equal load congestion payments minus generation congestion credits.[2] Explicit congestion is the net congestion cost associated with point-to-point energy transactions. Each of these categories of congestion costs are comprised of day-ahead and balancing congestion costs. Day-ahead congestion is based on day-ahead MW while balancing congestion is based on deviations between day-ahead and real-time MW. [3]

Table 1 shows a summary of the congestion costs associated with the Virginia portion of the DOM service territory since its integration in May 2005. In addition, Table 2 shows a monthly breakdown of congestion costs.

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[1]   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.

[2]   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. Explicit congestion costs remained the same after June 1, 2007.

[3]   See Table 16, "Congestion Definitions," for a summary of relevant definitions.

Table 1 Total Dominion Virginia congestion costs (Dollars (Millions)): May 1, 2005 to April 30, 2008.

	Congestion Costs	Percent Change
2005/2006	$321.5	NA
2006/2007	$331.3	3%
2007/2008	$300.1	-9%
Total	$952.8	

Table 2 Monthly Dominion Virginia congestion costs (Dollars (Millions)): May 1, 2005 to April 30, 2008.

	Total Congestion Costs			
	2005	2006	2007	2008
Jan		$26.0	$18.4	$35.7
Feb		$37.5	$34.1	$20.7
Mar		$22.7	$31.2	$6.8
Apr		$10.9	$32.8	$16.6
May	$4.6	$13.9	$16.1	
Jun	$24.8	$34.5	$31.4	
Jul	$47.0	$57.9	$41.1	
Aug	$43.1	$79.3	$25.9	
Sept	$25.6	$7.1	$33.5	
Oct	$31.8	($0.4)	$22.4	
Nov	$14.4	$7.6	$26.3	
Dec	$33.1	$14.9	$23.6	

Congestion charges can be both positive and negative. When a constraint binds, the price effects of that constraint vary. The system marginal price (SMP) is uniform for all areas, while the congestion components of LMP will either be positive or negative in a specific area, meaning that actual LMPs are above or below the SMP.[4] Usually a smaller area affected by a constraint will have increased prices and the larger unconstrained system will have lower prices. If an area is located upstream from the constrained element, the area will experience negative congestion costs (lower prices) from that constrained element. Conversely, positive congestion costs occur when an area is located downstream from a constrained element. Balancing congestion results from load or generation deviations between Day-Ahead and Real-Time markets. If a participant has

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[4]   The SMP is the price of the distributed load reference bus. The price at the reference bus is equivalent to the five minute real-time or hourly day-ahead load weighted PJM LMP.

real-time generation or load that is less than its day-ahead generation or load then the deviation will be negative. If there is a negative load deviation at a bus where real-time LMP has a positive congestion component, negative balancing congestion costs will result. Similarly, if there is a positive load deviation at a bus where real-time LMP has a negative congestion component, negative balancing congestion costs will result.

Table 1 and Table 2 provide a summary of the total congestion charges in the Virginia portion 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 Bill

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. A participant may offset load congestion payments with its generation portfolio or by purchasing supply 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 between source and sink CLMP, specific to each constraint.

The Explicit Congestion Costs calculated for the Virginia portion of Dominion represent the costs associated with point to point transactions that sink in the Virginia portion of Dominion. For example, if a transaction is sourced in Pennsylvania and sinks in Dominion Virginia, 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 Virginia.

Table 3 shows the combined day-ahead and balancing load congestion payments, generation congestion credits, and explicit congestion costs for the Dominion Virginia

service territory for May 1, 2005 to April 30, 2008. 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 Virginia congestion costs by category: May 1, 2005 to April 30, 2008.

	Congestion Costs (Millions)				
	Load Payments	Generation Credits	Net Congestion Bill	Explicit	Grand Total
2005/2006	$912.0	$590.1	$321.9	($0.4)	$321.5
2006/2007	$841.1	$509.4	$331.7	($0.4)	$331.3
2007/2008	$597.0	$296.2	$300.8	($0.7)	$300.1

Table 4 Total day-ahead and balancing Dominion Virginia congestion costs by category: May 1, 2005 to April 30, 2008.

	Congestion Costs (Millions)								
	Day Ahead				Balancing				Grand
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Total
2005/2006	$895.3	$551.3	$14.8	$358.8	$16.7	$38.9	($15.2)	($37.4)	$321.5
2006/2007	$823.5	$503.0	$16.7	$337.2	$17.6	$6.4	($17.2)	($6.0)	$331.3
2007/2008	$578.0	$293.9	$17.7	$301.7	$19.1	$2.3	($18.4)	($1.6)	$300.1

Table 5 lists the top 15 constraints affecting Dominion Virginia congestion costs for the period beginning May 1, 2005 and ending April 30, 2006.[5] 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, Table 7, and Table 10 illustrate that constraints outside of the Dominion control zone, such as Cedar Grove – Roseland in PSEG or the Cloverdale – Lexington line in AEP, can impact the Dominion congestion costs.

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[5] The top 15 constraints are determined based on the absolute value of total congestion costs for the period.

Table 5 Top 15 constraints affecting Dominion Virginia congestion costs: May 1, 2005 to April 30, 2006.

No.	Constraint	Type	Location	Event Hours Day Ahead	Real Time
1	Bedington - Black Oak	Interface	500	4,934	2,045
2	Kammer	Transformer	500	4,316	1,900
3	Doubs - Mount Storm	Line	500	548	567
4	Kanawha - Matt Funk	Line	AEP	1,559	909
5	AP South	Interface	500	697	155
6	Doubs	Transformer	AP	1,004	684
7	Cedar Grove - Roseland	Line	PSEG	2,502	530
8	Cloverdale - Lexington	Line	AEP	691	611
9	Meadow Brook	Transformer	AP	758	221
10	Wylie Ridge	Transformer	AP	2,267	1,779
11	Central	Interface	500	890	21
12	Cedar Grove - Clifton	Line	PSEG	2,322	267
13	Homer City - Watercure	Line	PENELEC	870	30
14	Cloverdale	Transformer	AEP	192	0
15	Erie West	Transformer	PENELEC	434	223

Table 6 shows the congestion cost details for the top 15 constraints affecting Dominion Virginia for the period beginning May 1, 2005 and ending April 30, 2006. The Bedington - Black Oak interface had the largest impact on congestion costs with a total of $166.7 million or 52 percent of total congestion costs. The Kammer transformer was the second largest contributor to congestion costs in Dominion Virginia during the 2005/2006 period with $49.9 million.

Table 6 Congestion cost details for the top 15 constraints affecting Dominion Virginia: May 1, 2005 to April 30, 2006.

| Constraint | Congestion Costs (Millions) | | | | | | | | |
| | Day Ahead | | | | Balancing | | | | Grand |
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Total
Bedington - Black Oak	$610.9	$438.7	$5.4	$177.5	$7.9	$15.9	($2.8)	($10.8)	$166.7
Kammer	$136.1	$85.0	$3.1	$54.1	$2.5	$5.1	($1.6)	($4.2)	$49.9
Doubs - Mount Storm	$61.4	$34.2	$0.9	$28.1	$3.4	($2.5)	($1.6)	$4.3	$32.4
Kanawha - Matt Funk	$86.5	$59.8	$1.0	$27.7	($0.1)	$3.8	($0.4)	($4.3)	$23.3
AP South	$39.7	$23.0	$0.2	$17.0	$0.3	($0.3)	($0.0)	$0.5	$17.5
Doubs	$13.7	($1.1)	($0.1)	$14.6	$0.9	($0.3)	$0.1	$1.3	$15.9
Cedar Grove - Roseland	($38.2)	($25.4)	($0.1)	($12.8)	($0.6)	($3.1)	$0.1	$2.6	($10.2)
Cloverdale - Lexington	$18.8	$4.1	$1.3	$15.9	$2.3	$4.5	($4.9)	($7.1)	$8.8
Meadow Brook	$4.6	($4.6)	$0.1	$9.2	($0.4)	$0.3	($0.0)	($0.7)	$8.5
Wylie Ridge	$24.3	$14.5	$1.0	$10.8	$0.6	$2.1	($1.0)	($2.6)	$8.2
Central	($34.6)	($26.6)	($0.2)	($8.3)	$0.0	($0.1)	$0.0	$0.1	($8.1)
Cedar Grove - Clifton	($26.0)	($19.2)	($0.0)	($6.8)	($0.2)	($0.8)	$0.0	$0.7	($6.1)
Homer City - Watercure	($22.2)	($16.3)	$0.0	($5.9)	($0.0)	($0.1)	($0.0)	$0.1	($5.8)
Cloverdale	$6.0	$1.9	$0.5	$4.5	$0.0	$0.0	$0.0	$0.0	$4.5
Erie West	($13.6)	($9.0)	$0.1	($4.5)	($0.1)	($0.2)	($0.0)	$0.0	($4.5)

Table 7 lists the top 15 constraints affecting Dominion Virginia congestion costs for the period beginning May 1, 2006 and ending April 30, 2007. 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 Virginia congestion costs: May 1, 2006 to April 30, 2007.

No.	Constraint	Type	Location	Event Hours Day Ahead	Real Time
1	Bedington - Black Oak	Interface	500	4,527	1,679
2	Cloverdale - Lexington	Line	AEP	2,674	1,542
3	Mount Storm - Pruntytown	Line	AP	909	478
4	AP South	Interface	500	660	174
5	Branchburg - Readington	Line	PSEG	1,614	774
6	Cedar Grove - Roseland	Line	PSEG	2,800	486
7	Meadow Brook	Transformer	AP	920	194
8	Dooms	Transformer	Dominion	150	147
9	Doubs - Mount Storm	Line	500	240	22
10	Cloverdale	Transformer	AEP	267	38
11	Kammer	Transformer	500	1,275	455
12	Aqueduct - Doubs	Line	AP	364	118
13	Central	Interface	500	1,265	18
14	Kanawha - Matt Funk	Line	AEP	790	234
15	Wylie Ridge	Transformer	AP	2,108	846

Table 8 shows the congestion cost details of the top 15 constraints affecting Dominion Virginia for the period beginning May 1, 2006 and ending April 30, 2007. The Bedington - Black Oak interface had the largest impact on congestion costs with a total of $124.6 million or 38 percent of total congestion costs.

Table 8 Congestion cost details for the top 15 constraints affecting Dominion Virginia: May 1, 2006 to April 30, 2007.

| Constraint | Congestion Costs (Millions) | | | | | | | | |
| | Day Ahead | | | | Balancing | | | | Grand |
	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Total
Bedington - Black Oak	$461.9	$345.3	$6.8	$123.3	$1.6	($5.2)	($5.5)	$1.3	$124.6
Cloverdale - Lexington	$153.1	$60.8	$4.0	$96.3	$5.8	$9.6	($5.2)	($9.0)	$87.2
Mount Storm - Pruntytown	$113.9	$88.0	$1.3	$27.2	$1.8	$1.4	($1.0)	($0.7)	$26.5
AP South	$36.1	$22.8	$0.3	$13.6	$3.0	($1.5)	($0.6)	$3.8	$17.5
Branchburg - Readington	($51.7)	($38.9)	($0.2)	($13.1)	$0.4	$2.3	$0.4	($1.5)	($14.5)
Cedar Grove - Roseland	($42.2)	($29.3)	($0.1)	($13.1)	($0.1)	$0.1	$0.1	($0.2)	($13.3)
Meadow Brook	($8.1)	($20.2)	$0.2	$12.3	($0.1)	$0.1	($0.1)	($0.3)	$12.0
Dooms	$13.6	$5.4	$0.5	$8.7	($0.5)	($2.9)	($1.2)	$1.3	$10.0
Doubs - Mount Storm	$15.1	$6.7	$0.3	$8.7	$0.5	($0.1)	($0.1)	$0.5	$9.2
Cloverdale	$13.3	$4.9	$0.3	$8.7	$0.1	$0.3	($0.1)	($0.3)	$8.5
Kammer	$23.5	$15.1	$0.6	$9.0	$0.1	$0.3	($0.6)	($0.7)	$8.3
Aqueduct - Doubs	$15.3	$7.9	$0.3	$7.7	$0.3	($0.4)	($0.2)	$0.5	$8.2
Central	($34.5)	($27.0)	($0.1)	($7.6)	($0.0)	$0.0	$0.0	($0.0)	($7.6)
Kanawha - Matt Funk	$24.4	$17.1	$0.4	$7.7	$0.4	$1.0	($0.1)	($0.8)	$6.9
Wylie Ridge	$15.3	$9.3	$0.7	$6.6	$0.1	$0.2	($0.6)	($0.6)	$6.0

Table 9 shows the largest deltas by constraint for the period ending April 30, 2007 compared to the period ending April 30, 2006. The $124.6 million in congestion costs from the Bedington-Black Oak interface represented a 25 percent decrease in congestion costs from the prior period, or $42.1 million. The Kammer transformer experienced a decrease in congestion costs from $49.9 million to $8.8 million. Congestion costs on the Cloverdale – Lexington line increased from $8.8 million to $87.2 million. In addition, the Mount Storm – Pruntytown line congestion costs increased by $25.8 million. The net increase in congestion costs for these four constraints was $20.4 million. However, across all constraints affecting the Dominion service territory of Virginia, the net increase in congestion costs from the 2005/2006 period to the 2006/2007 period was approximately $10 million or three percent.

Table 9 Top 15 constraint congestion cost deltas from the prior period: May 1, 2006 to April 30, 2007 minus May 1, 2005 to April 30, 2006.

| | Congestion Cost Deltas (Millions) | | | | | | | | |
| | Day Ahead | | | | Balancing | | | | Grand |
Constraint	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Total
Cloverdale - Lexington	$134.3	$56.7	$2.7	$80.3	$3.5	$5.1	($0.3)	($1.9)	$78.4
Bedington - Black Oak	($149.0)	($93.4)	$1.4	($54.2)	($6.3)	($21.1)	($2.7)	$12.2	($42.1)
Kammer	($112.6)	($69.9)	($2.4)	($45.1)	($2.4)	($4.8)	$1.0	$3.4	($41.7)
Mount Storm - Pruntytown	$62.5	$50.0	$0.7	$13.2	($0.1)	($12.0)	$0.7	$12.6	$25.8
Doubs - Mount Storm	($46.3)	($27.5)	($0.6)	($19.4)	($3.0)	$2.4	$1.5	($3.8)	($23.2)
Kanawha - Matt Funk	($62.0)	($42.7)	($0.7)	($20.0)	$0.5	($2.8)	$0.3	$3.6	($16.4)
Branchburg - Readington	($35.9)	($27.5)	($0.2)	($8.5)	$0.6	$2.6	$0.4	($1.6)	($10.2)
Doubs	($10.1)	($1.0)	$0.3	($8.7)	($0.8)	$0.3	($0.2)	($1.3)	($10.0)
Dooms	$12.3	$4.9	$0.4	$7.9	($0.5)	($2.6)	($1.1)	$1.0	$8.9
Aqueduct - Doubs	$15.3	$7.9	$0.3	$7.7	$0.2	($0.5)	($0.2)	$0.6	$8.3
Homer City - Watercure	$22.2	$16.3	($0.0)	$5.9	$0.0	$0.1	($0.0)	($0.1)	$5.8
Cedar Grove - Clifton	$25.1	$18.6	$0.0	$6.6	$0.1	$1.3	$0.0	($1.2)	$5.4
Erie West	$13.6	$9.0	($0.1)	$4.5	$0.1	$0.2	$0.0	($0.0)	$4.5
Bedington	$11.2	$8.6	$0.2	$2.9	$0.8	($1.4)	($0.6)	$1.6	$4.5
Cloverdale	$7.3	$3.0	($0.2)	$4.2	$0.1	$0.3	($0.1)	($0.3)	$3.9

Table 10 lists the top 15 constraints affecting Dominion Virginia congestion costs for the period beginning May 1, 2007 and ending April 30, 2008. Table 10 provides the type of constraint (Line, Transformer, or Interface), the location of the constraint and the congestion event hours for the period analyzed.

Table 10 Top 15 constraints affecting Dominion Virginia congestion costs: May 1, 2007 to April 30, 2008.

No.	Constraint	Type	Location	Event Hours Day Ahead	Real Time
1	Cloverdale - Lexington	Line	AEP	3,554	1,666
2	Bedington - Black Oak	Interface	500	3,751	1,335
3	AP South	Interface	500	1,204	461
4	Kammer	Transformer	500	2,329	1,173
5	Dickerson - Plesant View	Line	Pepco	446	163
6	Central	Interface	500	1,289	43
7	Bedington	Transformer	AP	904	446
8	Meadow Brook	Transformer	AP	1,245	320
9	Branchburg - Readington	Line	PSEG	2,152	546
10	Mount Storm - Pruntytown	Line	AP	226	214
11	Cloverdale	Transformer	AEP	187	148
12	Halifax - Clover	Line	Dominion	130	5
13	Ox	Transformer	Dominion	39	43
14	Aqueduct - Doubs	Line	AP	266	21
15	Wylie Ridge	Transformer	AP	516	344

Table 11 shows the congestion cost details of the top 15 constraints affecting Dominion Virginia for the period beginning May 1, 2007 and ending April 30, 2008. The Cloverdale – Lexington line had the largest impact on congestion costs with a total of $110.6 million or 37 percent of total congestion costs.

Table 11 Congestion cost details for the top 15 constraints affecting Dominion Virginia: May 1, 2007 to April 30, 2008.

| | Congestion Costs (Millions) | | | | | | | | |
| | Day Ahead | | | | Balancing | | | | Grand |
Constraint	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Total
Cloverdale - Lexington	$147.7	$44.8	$7.7	$110.6	$9.2	$4.2	($5.1)	($0.0)	$110.6
Bedington - Black Oak	$296.3	$216.8	$5.1	$84.6	$8.2	($8.5)	($3.5)	$13.2	$97.8
AP South	$51.0	$14.9	$1.0	$37.0	$1.9	($3.5)	($0.7)	$4.8	$41.8
Kammer	$29.4	$15.8	$1.4	$14.9	$1.1	($1.2)	($1.0)	$1.2	$16.1
Dickerson - Plesant View	($3.8)	$0.4	($0.1)	($4.3)	($1.2)	$0.5	$0.0	($1.6)	($5.9)
Central	($14.3)	($8.6)	($0.1)	($5.8)	($0.0)	$0.0	$0.0	($0.1)	($5.9)
Bedington	$16.6	$11.8	$0.2	$5.1	$0.0	($1.0)	($0.3)	$0.7	$5.8
Meadow Brook	($2.3)	($8.0)	($0.1)	$5.6	($0.3)	($0.2)	$0.1	$0.1	$5.7
Branchburg - Readington	($12.4)	($8.6)	($0.3)	($4.1)	($0.7)	$0.7	$0.3	($1.1)	($5.2)
Mount Storm - Pruntytown	$7.5	$1.4	$0.3	$6.4	$0.7	$1.1	($0.9)	($1.3)	$5.1
Cloverdale	$7.0	$3.5	$0.3	$3.8	$0.6	($0.1)	($0.3)	$0.4	$4.1
Halifax - Clover	($0.2)	($4.2)	($0.0)	$4.0	$0.0	$0.0	$0.0	$0.0	$4.0
Ox	$2.4	($1.7)	$0.0	$4.1	$0.5	$0.7	$0.0	($0.2)	$3.9
Aqueduct - Doubs	$4.4	$1.8	$0.1	$2.7	$0.1	($0.1)	($0.0)	$0.1	$2.8
Wylie Ridge	$5.6	$3.2	$0.2	$2.6	($0.0)	($0.0)	($0.1)	($0.0)	$2.6

Table 12 shows the largest deltas by constraint for the period ending April 30, 2008 compared to the period ending April 30, 2007. Congestion costs for the Cloverdale – Lexington line increased from the 2006/2007 period to the 2007/2008 period by 27 percent. Congestion costs for the AP South interface and the Kammer transformer also increased from the 2006/2007 period. However, the congestion costs for the Bedington – Black Oak interface decreased by 22 percent from $124.6 million to $97.8 million. Congestion costs for the Mount Storm – Pruntytown line also decreased from the 2006/2007 period by $21.4 million. In total, congestion costs increased by $7.3 million across these four constraints. However total congestion costs for Dominion Virginia decreased by $31 million or nine percent. The overall decrease in congestion costs during 2007/2008 was partly due to decreases in congestion on several constraints including the Doubs – Mount Storm line, the Dooms transformer and the Kanawha River – Matt Funk line. These three constraints were among the top 15 constraints in 2006/2007, but they were not in the top 15 during 2007/2008.

Table 12 Top 15 constraint congestion cost deltas from the prior period: May 1, 2007 to April 30, 2008 minus May 1, 2006 to April 30, 2007.

| | Congestion Cost Deltas (Millions) | | | | | | | | |
| | Day Ahead | | | | Balancing | | | | Grand |
Constraint	Load Payments	Generation Credits	Explicit	Total	Load Payments	Generation Credits	Explicit	Total	Grand Total
Bedington - Black Oak	($165.6)	($128.5)	($1.7)	($38.7)	$6.5	($3.3)	$2.1	$11.9	($26.9)
AP South	$14.8	($7.9)	$0.7	$23.4	($1.1)	($2.1)	($0.0)	$1.0	$24.3
Cloverdale - Lexington	($5.3)	($16.0)	$3.7	$14.3	$3.4	($5.5)	$0.2	$9.0	$23.4
Mount Storm - Pruntytown	($106.3)	($86.6)	($1.0)	($20.7)	($1.1)	($0.3)	$0.1	($0.7)	($21.4)
Cedar Grove - Roseland	$39.2	$27.0	$0.0	$12.1	$0.1	($0.1)	($0.0)	$0.2	$12.3
Branchburg - Readington	$39.3	$30.3	($0.1)	$8.9	($1.2)	($1.7)	($0.1)	$0.4	$9.3
Doubs - Mount Storm	($15.1)	($6.7)	($0.3)	($8.7)	($0.5)	($0.0)	$0.1	($0.4)	($9.1)
Dooms	($11.6)	($4.8)	($0.4)	($7.2)	$0.6	$2.7	$1.1	($1.1)	($8.3)
Kammer	$5.9	$0.7	$0.8	$5.9	$0.9	($1.4)	($0.4)	$2.0	$7.9
Meadow Brook	$5.7	$12.1	($0.3)	($6.7)	($0.1)	($0.3)	$0.2	$0.3	($6.4)
Dickerson - Plesant View	($3.5)	$0.6	($0.1)	($4.2)	($1.3)	$0.3	($0.0)	($1.6)	($5.8)
Aqueduct - Doubs	($10.9)	($6.1)	($0.2)	($5.0)	($0.2)	$0.4	$0.2	($0.4)	($5.4)
Kanawha - Matt Funk	($12.2)	($6.5)	$0.0	($5.7)	$0.1	($0.7)	($0.3)	$0.6	($5.1)
Doubs	($3.3)	$0.7	($0.2)	($4.2)	($0.0)	$0.2	$0.1	($0.2)	($4.4)
Loudoun - Morrisville	($1.3)	($2.4)	($0.0)	$1.1	($0.0)	$4.9	($0.6)	($5.5)	($4.4)

Conclusion

Congestion costs in the Dominion service territory of Virginia increased from 2005/2006 to 2006/2007 by $9.8 million or three percent. Load congestion payments decreased by eight percent from 2005/2006 to 2006/2007, while generation congestion credits decreased by 14 percent from 2005/2006 to 2006/2007. The decrease in generation congestion credits was greater than the decrease in load congestion payments, resulting in an overall increase in the net congestion bill from 2005/2006 to 2006/2007. The Cloverdale – Lexington 500 kV line had a significant increase in congestion costs and event hours during the 2006/2007 period, offset by decreases in congestion costs for the Bedington-Black Oak interface and the Kammer transformer. The Mount Storm – Pruntytown line congestion costs also increased by $25.6 million and contributed to the overall increase in congestion costs for Dominion Virginia.

Congestion costs for the Dominion service territory of Virginia decreased by 9 percent from 2006/2007 to 2007/2008. Load congestion payments decreased by 29 percent from 2006/2007 to 2007/2008, while generation congestion credits decreased by 42 percent from 2006/2007 to 2007/2008. The decrease in generation congestion credits was less than the decrease in load congestion payments, resulting in an overall decrease in the net congestion bill from 2006/2007 to 2007/2008. Congestion costs on the Cloverdale – Lexington 500 kV line increased from the prior period by 27 percent. In addition, congestion costs for the AP South interface and the Kammer transformer also increased. These increases were offset by decreases in congestion costs for the Bedington – Black

Oak interface and the Mount Storm – Pruntytown line. In addition, several constraints that were contributors to positive congestion costs in 2006/2007 decreased in both frequency and congestion costs in 2007/2008. These decreases in congestion costs contributed to an overall decrease in total congestion for the Dominion service territory of Virginia during the 2007/2008 period.

ARRs and FTRs are designed to provide a hedge against congestion costs. This report does not include data on either ARRs or FTRs. That information will be provided in a future report. The data on ARRs and FTRs and congestion need to be considered together when evaluating the net impact of congestion on an area.

Congestion Definitions

Table 13 Congestion Definitions

Congestion Category	Calculation
Day-Ahead Load Congestion Payments	Day-Ahead Demand MWh * Day-Ahead CLMP
Day-Ahead Generation Congestion Credits	Day-Ahead Supply MWh * Day-Ahead CLMP
Day-Ahead Net Congestion Bill	Day-Ahead Load Congestion Payments - Day-Ahead Generation Congestion Credits
Day-Ahead Explicit Congestion Costs	Day-Ahead Transaction MW * (Day-Ahead Sink CLMP - Day-Ahead Source CLMP)
Day-Ahead Total Congestion Costs	Day-Ahead Load Congestion Payments - Day-Ahead Generation Congestion Credits + Day-Ahead Explicit Conges
Balancing Load Congestion Payments	Balancing Demand MWh * Real-Time CLMP
Balancing Generation Congestion Credits	Balancing Supply MWh * Real-Time CLMP
Balancing Net Congestion Bill	Balancing Load Congestion Payments - Balancing Generation Congestion Credits
Balancing Explicit Congestion Costs	Balancing Transaction MW * (Real-Time Sink CLMP - Real-Time Source CLMP)
Balancing Total Congestion Costs	Balancing Load Congestion Payments - Balancing Generation Congestion Credits + Balancing Explicit Congestion
Total Congestion Costs	Day-Ahead Total Congestion Costs + Balancing Total Congestion Costs

MWh Category	Definition
Day-Ahead Demand MWh	Cleared Demand, Decrement Bids, Energy Sale Transactions
Day-Ahead Supply MWh	Cleared Generation, Increment Bids, Energy Purchase Transactions
Real-Time Demand MWh	Load and Energy Sale Transactions
Real-Time Supply MWh	Generation and Energy Purchase Transactions
Balancing Demand MWh	Real-Time Demand MWh - Day-Ahead Demand MWh
Balancing Supply MWh	Real-Time Supply MWh - Day-Ahead Supply MWh