

## **ATTACHMENT G**

PJM Letter to The Honorable Kimberly D. Bose, Secretary,  
Federal Energy Regulatory Commission, September 24,  
2007



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September 24, 2007

The Honorable Kimberly D. Bose  
Secretary  
Federal Energy Regulatory Commission  
888 First Street, N.E., Room 1A  
Washington, D.C. 20426

Re: *District of Columbia Public Service Commission,  
EL05-145-000, -001*

Dear Ms. Bose:

PJM provides this letter to the Commission in satisfaction of the Commission's requirement, by order issued August 24, 2007, that PJM file with the Commission "a report addressing the regional reliability issues identified by PJM in its data request response of September 12, 2005, particularly those raised in answer to question 9, concerning voltages in the surrounding area during peak load conditions, as well as the concerns mentioned in the 2006 RTEP."<sup>1</sup> The Commission further required that this report identify (i) "potential reliability problems, including actual and projected violations of any reliability standards and/or reliability criteria, in the Washington, D.C. area absent the Potomac River Generating Station power plant;" (ii) "the corresponding plan to solve [such problems], including projected completion dates;" (iii) any project included in the plant "that are not tracked through the PJM RTEP Construction Status web site;" and (iv) "any work completed since September 12, 2005 in addition to the transmission upgrades described in the monthly progress reports in this proceeding."<sup>2</sup>

In September of 2005 PJM provided the following response to question 9, which the Commission referenced above:

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<sup>1</sup> *District of Columbia Public Service Commission*, 120 FERC ¶61,185 at P 6.

<sup>2</sup> *Id.*

**9. What specific scenarios would lead to violations of NERC or MAAC standards with shut down of the Potomac River Plant? Do these violations occur when the plant is in service?**

**PJM Response:** With the shutdown of the Potomac River Plant, PJM has identified a violation to the PJM planning criteria section III which analyzes the outage of both 230 kV circuits and limits the load loss at 70% of peak load to 300 MWs. With the Potomac River Plant available, the violation would not occur. The solution to this overload is the installation of two new Palmers Corner-Blue Plains 230 kV circuits as discussed in the response to Question #3. The violation has an immediate impact as load is at risk because the Potomac River Plant is needed to provide support in the event of maintenance or outage conditions. From an operating perspective, in order not to violate PJM operating criteria (which are derived from NERC criteria) PJM may need to shed load in the event a loss of one of the Palmers Corner - Blue Plains 230 kV circuits, given the unavailability of the Potomac River Plant.

For the larger region (Baltimore-Washington), there are several NERC Category C (lower probability contingencies) contingency overloads that were identified during PJM's previous study for the DC Commission as a result of the potential shut down of the Potomac River Plant in 2008. These overloads do not occur when the Plant is in service. PJM will work with Pepco and BG&E to determine appropriate system upgrades to be installed such that NERC and MAAC standards are not violated.

The retirement of the generators at the Potomac River Plant will negatively impact the surrounding area voltages during peak load conditions and result in the need for additional capacitors to provide adequate system voltages. Over 900 MVAR of capacitors had already been identified to be installed in the BG&E and Pepco zones through 2007. PJM has not completed a more detailed analysis at this time to specifically identify the scenarios that would result in voltage violations. PJM will work with Pepco and BG&E to determine the required capacitor installations such that NERC and MAAC standards are not violated. These voltage violations do not occur when the Plant is in service.

Below we address in turn each component that the Commission requested that this report cover:

(i) *Potential Reliability Problems Absent the Potomac River Generating Station Power Plant*

PJM and PEPCO are confident that they successfully have addressed the potential reliability problems that they identified earlier, including actual and projected violations of any reliability standards and/or reliability criteria, in the Washington, D.C. area absent the Potomac River Generating Station power plant. The NERC Category C (lower probability contingencies) contingency overloads that are referenced in the response to question 9 above are as follows:

- For a stuck breaker on the Burches Hill 230 kV 23082 tie:

- Palmers Corner to Blue Plains 230 kV 23107 is overloaded at 145.2%
  - Blue Plains – C230107R 230 kV is overloaded at 118.4%
  - Blue Plains-C230107W 230 kV is overloaded at 115.0%
  - Burches Hill – Palmers Corner 23092 230 kV is overloaded at 110.2%
- For a stuck breaker on the Burches Hill 230 kV 23092 tie:
    - Palmers Corner to Blue Plains 230 kV 23106 is overloaded at 147.9%
    - Blue Plains – C230106R 230 kV is overloaded at 120.6%
    - Blue Plains-C230106W 230 kV is overloaded at 117.2%
    - Burches Hill – Palmers Corner 23091 230 kV is overloaded at 112.6%

These NERC Category C contingencies are all mitigated with the installation of the two new Palmers Corner to Blue Plains 230 kV circuits and closing the 69 kV tie circuit breakers connecting the Potomac 69 kV east and west busses.

In addition to the NERC Category C contingencies noted above, PJM also identified an additional thermal overload on the Mt. Storm to Doubs 500 kV line for the outage of the Bedington to Black Oak 500 kV line. The recommended solution to this violation is to upgrade terminal equipment on the circuit prior to the summer of 2009. However, with the unavailability of the Potomac River generating units the required in-service date for this upgrade was advanced to June 2007.

As noted in the September 2005 response, the unavailability of the Potomac River generating station also had an adverse impact on the transmission system voltages in the Washington D.C. and Baltimore area. As a result, significant reactive reinforcements have been identified. One of these upgrades was due to a reactive limit on the Bedington to Black Oak 500 kV line for the loss of the Prunytown to Mt. Storm 500 kV line. This reactive limit was identified as part of PJM's routine RTEP analysis to be required in 2009. The recommended solution was to install a 350 MVAR Static Var Compensator (SVC) at the Black Oak Substation prior to the summer of 2009. However, given the unavailability of the Potomac River facility the in-service date for the SVC was advanced from 2009 to June of 2008. In addition to the acceleration, the size of the SVC was increased to 450 MVAR. The table below indicates the additional reactive reinforcements in the Baltimore and Washington area:

Upgrade ID	Description	Trans. Owner	PJM Required Date	TQ Projected Date	Status Code	Percent Complete	Cost Estimate	State
b0039 1	BGE Reactive Upgrades	BGE	6/1/2007	6/1/2004	In-Service	100%	\$ 9.12 MD	
b0039 2	PEPCO Reactive Upgrades	PEPCO	6/1/2007	6/1/2005	In-Service	100%	\$ 2.64 MD	
b0039 5	Install Waugh Chapel 230kV 360MVAR capacitor bank	BGE	6/1/2006	6/1/2006	In-Service	100%	\$ 1.70 MD	
b0247	Install 14 MVAR of 69kV bus capacitors at Guince Orchard	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.45 MD	
b0248	Install 14 MVAR of 69kV bus capacitors at Norbeck	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.45 MD	
b0249	Install 28 MVAR of 69kV bus capacitors at Belts Mill	PEPCO	6/1/2006	12/2/2005	In-Service	100%	\$ 0.72 MD	
b0250	Install 108 MVAR of feeder capacitors at various locations	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 2.76 MD	
b0251	Install 100 MVAR of 230kV capacitors at Belts Mill	PEPCO	6/1/2009	6/1/2010	Eng & Planning	15%	\$ 3.90 MD	
b0252	Install 100 MVAR of 230kV capacitors at Belts Mill	PEPCO	6/1/2009	6/1/2010	Eng & Planning	10%	\$ 3.00 MD	

(ii) *Relevant Projects and Projected Completion Dates*

Consistent with the Regional Transmission Expansion Planning ("RTEP") protocol, PJM continues to analyze the Baltimore and Washington D.C. area for reliability criteria violations. Analysis of the system as it is expected to be after June of 2008 has been completed assuming the Potomac River generation is not available. System upgrades are developed to resolve any identified reliability criteria violations. A listing of the upgrades that have been identified for the PEPCO and BG&E transmission zones are shown in the attached table below. A complete listing of all of the upgrades that have been identified as part of the RTEP can be found on the PJM web site at the following link: <http://www.pjm.com/planning/project-queues/upgrade-projects.htm>

Upgrade ID	Description	Trans. Owner	PJM Required Date	TQ Projected Date	Status	Percent Complete	Cost Estimate	State
b0002	Increase emergency rating of Windy Edge - Lakespring - Texas 115 kV	BGE			In-Service	100%	\$ 3.77 MD	
b0010	Replace Northwest 230/115 kV transformers with 500 MVA transformers	BGE		5/1/2003	In-Service	100%	\$ 9.06 MD	
b0030	Construct a new 230kV lower line to separate the existing Brandon Shores-Riverside DCTL to eliminate MAAC 2C violation	BGE	6/1/2005	1/1/2007	In-Service	100%	\$ 4.00 MD	
b0031 1	Replace one (1) Conestone 230 kV breaker #6 (GCB) (2322/2302 line)	BGE		5/14/2004	In-Service	100%	\$ 0.50 MD	
b0031 2	Replace one (1) Conestone 230 kV breaker #5(ATB) (500-2/2322 line)	BGE		3/7/2003	In-Service	100%	\$ 0.22 MD	
b0032	Upgrade two Waugh Chapel 230 kV breakers	BGE			In-Service	100%	\$ - MD	
b0035	Change Calvert Cliffs unit 1 & 2 GSU tap settings	BGE		5/1/2004	In-Service	100%	\$ - MD	
b0039 1	BGE Reactive Upgrades	BGE	6/1/2007	6/1/2004	In-Service	100%	\$ 9.12 MD	
b0039 2	PEPCO Reactive Upgrades	PEPCO	6/1/2007	6/1/2005	In-Service	100%	\$ 2.64 MD	
b0039 5	Install Waugh Chapel 230kV 360MVAR capacitor bank	BGE	6/1/2006	6/1/2006	In-Service	100%	\$ 1.70 MD	
b0146 1	Replace Guince Orchard 230kV circuit breaker for line 23029	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 1.75 MD	
b0146 2	Installation of two additional 230kV circuit breakers at Guince Orchard substation on circuits 23028 and 23029	PEPCO	6/1/2006	12/31/2006	In-Service	100%	\$ 3.04 MD	
b0150	Modify fixed tap settings of Waugh Chapel 500/230 kV transformers	BGE	6/1/2005	6/1/2005	In-Service	100%	\$ - MD	
b0152.1	Add 1- 230 kV breakers at High Ridge	BGE	6/1/2005	6/1/2005	In-Service	100%	\$ 0.59 MD	
b0152.2	Install 230kV breaker at High Ridge for line 2308	BGE	6/1/2006	6/1/2006	In-Service	100%	\$ 0.59 MD	
b0167	Upgrade Oak Grove 230kV Breaker 13C	PEPCO	6/1/2006	12/31/2005	In-Service	100%	\$ 0.20 MD	
b0168	Upgrade Oak Grove 230kV Breaker 5C	PEPCO	6/1/2006	12/31/2006	In-Service	100%	\$ 0.21 MD	
b0167	Upgrade Dickerson Station "D" 230kV 1A	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.21 MD	
b0168	Upgrade Dickerson Station "D" 230 kV 1B	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.21 MD	
b0169	Upgrade Dickerson Station "D" 230 kV 2A	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.21 MD	
b0190	Upgrade Dickerson Station "D" 230 kV 2B	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.21 MD	
b0191	Upgrade Dickerson Station "D" 230 kV 3A	PEPCO	6/1/2006	12/31/2006	In-Service	100%	\$ 0.21 MD	
b0192	Upgrade Dickerson Station "D" 230 kV 3B	PEPCO	6/1/2006	12/31/2006	In-Service	100%	\$ 0.21 MD	
b0193	Upgrade Dickerson Station "D" 230 kV 5A	PEPCO	6/1/2006	12/31/2006	In-Service	100%	\$ 0.21 MD	
b0194	Upgrade Dickerson Station "D" 230 kV 5C	PEPCO	6/1/2006	12/31/2006	In-Service	100%	\$ 0.21 MD	

Upgrade ID	Description	Trans. Owner	PJM Required Date	TD Projected Date	Status	Percent Complete	Cost Estimate	State
b0219	Install two new 230kV circuits between Palmers Corner and Blue Plains	PEPCO	6/1/2007	7/1/2007	In-Service	100%	\$ 91.00	MD
b0228	Upgrade Burtonsville - Sandy Springs 230kV circuit	PEPCO	6/1/2010	6/1/2010	Eng. & Planning	0%	\$ 0.40	MD
b0228.1	Modify Dickerson Station H 230 kV	PEPCO	6/1/2009	6/30/2009	Eng. & Planning	5%	\$ 2.00	MD
	Install a 4th Vaugh Chapel 500/230kV transformer, terminate the transformer in a new 500 kV bay and operate the existing in-service spare transformer on standby and other assoc. configuration changes	BGE	5/1/2008	6/1/2008	Eng. & Planning		\$ 25.80	MD
b0244	Install 14 MYAR of 69kV bus capacitors at Quince Orchard	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.45	MD
b0248	Install 14 MYAR of 69kV bus capacitors at Norbeck	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 0.45	MD
b0249	Install 28 MYAR of 69kV bus capacitors at Bells Mill	PEPCO	6/1/2006	12/2/2005	In-Service	100%	\$ 0.72	MD
b0250	Install 108 MYAR of feeder capacitors at various locations	PEPCO	6/1/2006	6/1/2006	In-Service	100%	\$ 2.76	MD
b0251	Install 100 MYAR of 230kV capacitors at Bells Mill	PEPCO	6/1/2009	6/1/2010	Eng. & Planning	15%	\$ 3.90	MD
b0252	Install 100 MYAR of 230kV capacitors at Bells Mill	PEPCO	6/1/2009	6/1/2010	Eng. & Planning	10%	\$ 3.00	MD
b0288	Brighton Substation - Add 2nd 1000 MYA 500/230kV transformer, 2 500kV circuit breakers and miscellaneous bus work	PEPCO	6/1/2009	6/1/2009	Eng. & Planning	30%	\$ 33.10	MD
b0298	Replace both Conastone 500/230kV transformer banks with larger transformers, replace breakers #4 & #7 and other configuration changes	BGE	5/31/2009	5/31/2009	Eng. & Planning		\$ 43.50	MD
b0298.1	Replace Conastone 230kV breaker 500-3/2323	BGE	5/31/2008	9/23/2007	Eng. & Planning		\$ 1.00	MD
b0719	Burches Hill Substation - Add 2nd 1000 MYA 500/230kV Transformer	PEPCO	6/1/2011	6/1/2011	Eng. & Planning	20%	\$ 36.70	MD
b0366	Install 4th Ritchie 230/69kV transformer	PEPCO	6/1/2011	6/1/2011	Eng. & Planning	10%	\$ 11.50	MD
b0367	Reconductor 230kV Quince Orchard to Dickerson circuits 33 & 35	PEPCO	6/1/2011	6/1/2011	Eng. & Planning	10%	\$ 20.00	MD
b0375	Upgrade Dickerson - Pleasant View 230kV Circuit	PEPCO	6/1/2011	6/1/2011	Eng. & Planning	10%	\$ 5.00	MD/VA
b0467.1	Reconductor the Dickerson - Pleasant View 230kV circuit	PEPCO	6/1/2011	6/1/2011	Eng. & Planning		\$ 5.00	MD
b0474	Add a fourth 230 / 115 kV transformer, two 230 kV circuit breakers and a 115 kV breaker at Vaugh Chapel	BGE	6/1/2012		Eng. & Planning		\$ 17.00	MD
	Create two 230 kV ring buses at North West, add two 230 / 115 kV transformers at North West and Create a new 115 kV station at North West	BGE	6/1/2012		Eng. & Planning		\$ 20.00	MD
b0475	Rebuild High Ridge 230kV substation to Breaker and Half configuration	BGE	6/1/2012		Eng. & Planning		\$ 65.50	MD
b0476	Replace the Vaugh Chapel 500/230 kV transformer #1 with three single phase transformers	BGE	6/1/2012	6/1/2011	Eng. & Planning		\$ 25.00	MD
b0477	Reconductor the four circuits from Burches Hill to Palmers Corner and replace terminal equipment	PEPCO	6/1/2012		Eng. & Planning		\$ 14.50	MD
b0478	Replace existing 500/230 kV transformer at Brighton	PEPCO	6/1/2012		Eng. & Planning		\$ 18.00	MD
b0496	Install a second Conastone - Graceton 230 kV circuit and replace	BGE	6/1/2012		Eng. & Planning		\$ 13.00	MD
b0497	Conastone 230 kV breaker 2323/2302	BGE	6/1/2012		Eng. & Planning		\$ 13.00	MD
b0499	Install third Burches Hill 500/230 kV transformer	PEPCO	6/1/2012		Eng. & Planning		\$ 35.00	MD

(iii) *Projects not Tracked through the PJM RTEP Construction Status Website*

The PJM RTEP Construction Status Website tracks all of the relevant projects.

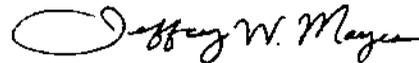
(iv) *Work Completed Since September 12, 2005 Beyond That Described in the Monthly Progress Reports*

The monthly progress reports submitted in this proceeding have captured all of the transmission upgrades completed since September 12, 2005.

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PJM has prepared this report in cooperation with Potomac Electric Power Company (PEPCO), and PEPCO's representatives have authorized us to inform the Commission that they have reviewed and approve this filing.

Respectfully submitted,



Craig Glazer  
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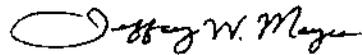
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**CERTIFICATE OF SERVICE**

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding.

Dated at Norristown, Pennsylvania  
This 24<sup>th</sup> day of September, 2007.



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