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Michael J. Kormos  
Senior Vice President - Operations

September 29, 2011

Betty Ann Kane, Chairman, Public Service Commission  
1333 H Street, NW, 2nd Floor Tower  
Washington, DC 20005

Re: Evaluation of Potomac River Generating Station Deactivation

Dear Madam Chair,

This letter is submitted on behalf of PJM Interconnection, L.L.C. ("PJM"), in response to the July 20, 2011 letter ("July 20 Letter") from the Public Service Commission of the District of Columbia ("PSC) requesting PJM to evaluate the potential deactivation (retirement) of the Potomac River Generating Station. PJM performed studies for years 2012 and 2016 using multiple conditions.<sup>1</sup>

This analysis was performed in accordance with studies required under section 113.2 of the PJM Tariff and this letter will serve to notify you that the Deactivation of the Potomac River Generating Station is expected to adversely affect the reliability of the PJM Transmission System absent upgrades to the Transmission System.

PJM Interconnection Analysis performed a study of the Transmission System and found reliability concerns that would result from the Deactivation of these generating units in 2016. The reliability impacts are being addressed in conjunction with baseline reliability impacts in the 2011 RTEP. The specific reliability impacts resulting from the proposed Deactivation include:

**Deactivation in 2012**

- No reliability violations are attributed to the deactivation of the Potomac River Generating Station

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<sup>1</sup> Based on a Notice to Deactivate submitted on behalf of GenOn Potomac River, LLC ("GenOn") requesting to deactivate (retire) the Potomac River Generating Station Units Nos. 1, 2, 3, 4, and 5 effective October 1, 2012, PJM advised GenOn that PJM did not identify any reliability violations resulting from the proposed 2012 Deactivation Date.

## **Deactivation in 2016**

Note that 2016 baseline studies are currently being conducted which may require reinforcements which may affect the results below.

### **N-1 Thermal and Voltage Study:**

- Overload of Bristors – Ox 500 kV line for the loss of Ladysmith to Possum Point 500kV line under critical system conditions of Possum Point Unit 5 off-line
- Overload of Fredericksburg – Mine Rd 230 kV line for the loss of Ladysmith to Possum Point 500kV line under critical system conditions of Possum Point Unit 5 off-line

### **Generator Deliverability Study:**

- Overload of Pleasant View to Edwards Ferry for the loss of Burches Hill – Possum Point 500 kV line
- Overload of Clark to Idlywood 230 kV line for the loss of Burches Hill – Possum Point 500 kV line
- Overload of Loudoun to Brambleton 500 kV line for the loss of Burches Hill – Possum Point 500 kV line

### **N-1-1 Thermal and Voltage Study:**

- Overload of Burches Hill – Palmers Corner 230 kV line for loss of Burches Hill – Palmers Corner 230 kV line 23091 + Burches Hill – Palmers Corner 230 kV line 23092
- Voltage violations for the loss of Chance – Ladysmith 500 kV line + loss of Ladysmith – Possum Point 500 kV line
- Voltage violations for the loss of Bristor – Ox 500 kV line + loss of Ladysmith – Possum Point 500 kV line
- Voltage violations for the loss of Chalk Point – Burches Hill 500 kV line + loss of Burches Hill – Possum Point 500 kV line
- Voltage violations for the loss of Burches Hill – Possum Point 500 kV line + loss of Chalk Point 500/230 kV transformer
- Voltage violations for the loss of Ladysmith – Possum Point 500 kV line + loss of Chalk Point 500/230 kV transformer

Current estimates for completion of the required system reinforcements indicate that the required reinforcements can be completed by May 1, 2016 for the 2016 violations.

Please be advised that four<sup>2</sup> out of the 11 system reinforcements identified below as required to mitigate reliability violations associated with the potential deactivation of the Potomac River Generating Station are currently included or will be included in the Regional Transmission Expansion Plan (RTEP).

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<sup>2</sup> The following system reinforcements included in the PJM 2015 RTEP are: Reconductoring of the four circuits from Burches Hill to Palmers Corner and replacement of terminal equipment, Reconfiguration of Line #203 to feed Edwards Ferry substation radial from Pleasant View 230 kV and install a new breaker bay at Pleasant View Substation, Construction of a 2nd Clark - Idlywood 230 kV line and installation of 230 kV gas-hybrid breakers at Clark substation, Rebuild of the Loudoun to Brambleton 500kV line.

Please contact Aaron Berner (610-666-8951) (bernea@pjm.com) if you have any questions about the PJM analysis.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Michael J. Kormos', with a large, stylized flourish at the end.

Michael J. Kormos  
Senior Vice President  
Operations

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cc: Christophe Tulou, DDOE  
Cecily Beall, DDOE  
Rick Morgan, Commissioner PSC  
Lori Murphy Lee, Commissioner PSC

## Deactivation Study Potomac River Generating Station

### General

PJM received a request from the District of Columbia Public Service Commission to evaluate the deactivation of the Potomac River generators. The study was performed on simulated conditions in the 2012 summer peak period and 2016 summer peak period.

### Reliability Analysis Results

PJM Interconnection Analysis department performed the following studies for these units:

Deactivated Units:

- Potomac River Generating Station

### **Deactivation in 2012**

No reliability violations are attributed to the deactivation of the Potomac River Generating Station

### **Deactivation in 2016**

Note that 2016 baseline studies are currently being conducted as part of the 2011 RTEP. In some instances the deactivation of the unit aggravated problems that had been identified with the generators in-service. Regardless it is estimated that all reinforcements can be completed prior to June 1, 2016.

### **N-1 Thermal and Voltage Study:**

- Overload of Bristers – Ox 500 kV line for the loss of Ladysmith to Possum Point 500kV line under critical system conditions of Possum Point Unit 5 off-line

Solution: Replacement of wave traps on the Bristers to Ox 500kV line

- Estimated Cost: \$80,000

- Overload of Fredericksburg – Mine Rd 230 kV line for the loss of Ladysmith to Possum Point 500kV line under critical system conditions of Possum Point Unit 5 off-line

Solution: Replacement of terminal equipment on the Fredericksburg to Mine Rd 230 kV line

- Estimated Cost: \$300,000

### **Generator Deliverability Study:**

- Overload of Pleasant View to Edwards Ferry for the loss of Burches Hill – Possum Point 500 kV line

## Deactivation Study Potomac River Generating Station

Solution: Reconfiguration of Line #203 to feed Edwards Ferry substation radial from Pleasant View 230 kV and install a new breaker bay at Pleasant View Substation

- Estimated Cost: \$4,000,000
- Overload of Clark to Idlywood 230 kV line for the loss of Burches Hill – Possum Point 500 kV line

Solution: Construction of a 2nd Clark - Idylwood 230 kV line and installation of 230 kV gas-hybrid breakers at Clark substation

- Estimated Cost: \$20,000,000
- Overload of Loudoun to Brambleton 500 kV line for the loss of Burches Hill – Possum Point 500 kV line

Solution: Rebuild of the Loudoun to Brambleton 500kV line

- Estimated Cost: \$40,000,000

### **N-1-1 Thermal and Voltage Study:**

- Voltage violations for the loss of Chance – Ladysmith 500 kV line + loss of Ladysmith – Possum Point 500 kV line
- Voltage violations for the loss of Bristol – Ox 500 kV line + loss of Ladysmith – Possum Point 500 kV line
- Voltage violations for the loss of Chalk Point – Burches Hill 500 kV line + loss of Burches Hill – Possum Point 500 kV line
- Voltage violations for the loss of Burches Hill – Possum Point 500 kV line + loss of Chalk Point 500/230 kV transformer
- Voltage violations for the loss of Ladysmith – Possum Point 500 kV line + loss of Chalk Point 500/230 kV transformer

The deactivation of the Potomac River generating units will exacerbate voltage problems in 2016 that are currently being studied in the RTEP. The N-1-1 voltage violations noted above are a subset of the larger voltage problems that will likely require reactive upgrades at several locations within PJM. It is estimated that these reactive upgrades will be installed by the summer of 2016.