

## **W3-048 Hope Creek 500kV**

### **Generation Interconnection**

#### **Network Impacts**

Queue project W3-048 was studied as a(n) 79.0 MW (79.0 MW of which was Capacity) injection into PSEG's system at the Hope Creek 500.0 kV substation. Project W3-048 was evaluated for compliance with reliability criteria for summer peak conditions in 2014.

#### **Generator Deliverability**

*(Single or N-1 contingencies for the Capacity portion only of the interconnection)*

No problems identified

#### **Multiple Facility Contingency**

*(Double Circuit Tower Line, Line with Failed Breaker and Bus Fault contingencies for the full energy output)*

No problems identified.

#### **Short Circuit**

*(Summary form of Cost allocation for breakers will be inserted here if any)*

No problems identified

#### **Contribution to Previously Identified Overloads**

*(This project contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue.)*

2. (PECO/BG&E) The Cooper-Graceton 230 kV line (from bus 214089 to bus 220964 ckt 1) loads from 148.33% to 148.56% (DC power flow) of its emergency rating (485 MVA) for the single contingency 'PJM17'. This project contributes approximately 7.30 MW to the thermal violation.

3. (PJM) The Peach Bottom-Conastone 500 kV line (from bus 200013 to bus 200004 ckt 1) loads from 141.97% to 142.01% (DC power flow) of its emergency rating (2815 MVA) for the single contingency 'PJM67'. This project contributes approximately 28.93 MW to the thermal violation.

4. (PJM) The Peach Bottom-Conastone 500 kV line (from bus 200013 to bus 200004 ckt 1) loads from 143.00% to 143.05% (DC power flow) of its normal rating (2490 MVA) for non contingency condition. This project contributes approximately 31.18 MW to the thermal violation.

5. (PECO) The Nottingham-Nottingham Reactor 230 kV line (from bus 213844 to bus 213846 ckt 1) loads from 117.12% to 117.3% (DC power flow) of its emergency rating (627 MVA) for the single contingency 'PJM17'. This project contributes approximately 7.30 MW to the thermal violation.

6. (PECO) The Nottingham Reactor-Peach Bottom 230 kV line (from bus 213846 to bus 213869 ckt 1) loads from 117.10% to 117.28% (DC power flow) of its emergency rating (627 MVA) for the single contingency 'PJM17'. This project contributes approximately 7.30 MW to the thermal violation.

7. (PECO) The Peach Bottom-Cooper 230 kV line (from bus 213869 to bus 214089 ckt 1) loads from 151.40% to 151.64% (DC power flow) of its emergency rating (485 MVA) for the single contingency 'PJM17'. This project contributes approximately 7.30 MW to the thermal violation.

### **New System Reinforcements**

None

### **Contribution to Previously Identified System Reinforcements**

*(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study.)*

2. PECO portion: Reconductor Line 220-93 from Cooper Substation to Graceton Substation to get a minimum summer emergency rating of 725 MVA. The line is approximately 4 miles long. This cost is for the PECO portion only. The estimated cost to perform this work is **\$2.8M** and will require 24 months to complete.

BGE Portion: Rebuild Cooper to Graceton 230 kV line 1.85 miles to PA border. New rating is 648N/802E MVA. The estimated cost to perform this work is **\$7.5M** and will require 54 months to complete.

3,4. PECO builds a new 2nd PB-Conastone 500 kV line with a minimum normal and emergency rating of 2,920 / 3,707 MVA, respectively. The line is approximately 6 miles long. Replace the 5012 terminal equipment at PB substation to achieve the conductor normal and emergency rating of 2,920 / 3,707 MVA, respectively. This cost is for the PECO portion only, and does not include right-of-way costs for new line. The estimated cost to perform this work is **\$25M** and will require 60 months to complete.

BGE builds a new 500 kV line adjacent to circuit 5012 from Conastone to PA line. The estimated cost to perform this work is **\$56.7M** and will require 7 years to complete.

5. Replace Line 220-08 reactor and by-pass circuit switcher at Nottingham substation to get a minimum summer emergency rating of 741 MVA. The estimated cost to perform this work is **\$1.7M** and will require 24 months to complete.

6. Reconductor Line 220-08 from Nottingham Reactor to PB Tap to get a minimum summer emergency rating of 741 MVA. The line is approximately 14 miles long. The estimated cost to perform this work is **\$10M** and will require 48 months to complete.

7. Reconductor Line 220-08 from PB Tap to Cooper Substation to get a minimum summer emergency rating of 741 MVA. The line is approximately 1.4 miles long. The estimated cost to perform this work is **\$1.0M** and will require 24 months to complete.