#V4-045 Peach Bottom 320 MW

Generation Interconnection

This analysis was completed to assess the reliability impact for a new generator interconnecting to the PJM system as a Capacity Resource.

Network Impacts

The Queue V4-045 project was studied as a **320 MW (Net) Capacity injection into the Peach Bottom 500 kV substation**. V4-045 was evaluated for compliance with reliability criteria for summer peak conditions in 2014. Potential network impacts were as follows:

NETWORK IMPACTS

Generator Deliverability

(Normal System with all facilities in-service and Single, or N-1, contingencies for the Capacity portion only of the interconnection)

No problems were identified.

Multiple Facility Contingency

(Double Circuit Tower Line contingencies only for the full energy output. Stuck breaker and bus fault contingencies will be performed for the Impact Study)

No problems were 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)

1. The Peach Bottom to Conastone 500 kV line (from bus 200013 to bus 200004 ckt 1) loads from **132.75% to 138.19%** of its **emergency rating** (2598 MVA) for the single line contingency outage of Hunterstown – Conastone 500kV (designated contingency 'PJM67'). This project contributes approximately **143.81 MW** to the thermal violation identified for a previous PJM generator interconnection request.

2. The Peach Bottom to Conastone 500 kV line (from bus 200013 to bus 200004 ckt 1) loads from **119.08% to 125.25%** of its **normal rating** (2490 MVA) for non-contingency conditions. This project contributes approximately **156.42 MW** to the thermal violation identified for a previous PJM generator interconnection request.

Short Circuit Analysis

No problems identified.

Stability Analysis

Will be performed for the Queue V4-045 Impact Study.

Power Factor Analysis

Will be performed for the Queue V4-045 Impact Study.

NETWORK UPGRADE REQUIREMENTS

New System Reinforcements
(Upgrades required to mitigate reliability criteria violations, i.e. "Network Impacts", initially caused by the addition of this project generation)

None identified*.

* Please note that Network Upgrade requirements may be necessary to satisfy violations resulting from Multiple Facility stuck breaker and bus fault contingencies, Stability or Power Factor analysis all of which will not be performed until the V4-045 Impact Study.

Contribution to Previously Identified System Reinforcements *(This project contributes to the Network Impact causing the need for these Network Upgrades. This project will be allocated a cost to be determined during the Impact Study)*

Peach Bottom to Conastone 500 kV line Network Impacts 1 & 2 can be satisfied with the following Network Upgrades:

PECO portion of the Peach Bottom to Conastone 500 kV line

The PECO portion of this reinforcement involves the replacement of substation terminal equipment at the Peach Bottom 500 kV substation to match the conductor's thermal rating. The portion of the upgrades is estimated to cost **$5,000,000** and would require **36 months** to complete the work.

BG&E portion of the Peach Bottom to Conastone 500 kV line

The BG&E portion of this reinforcement involves the relocation of line 5012 to a new 2 breaker 4000 Amp bay. The cost estimate for this work is **$10,800,000** and it would take approximately **24-36 months** to complete. The circuit's new emergency rating would be 3733 MVA.