# *Feasibility Study Report*
## *For*
# *Queue Position W3-166*
# *Nottingham 34kV*

## Transmission Network Impacts

PJM studied W3-166 as a 15 MW Energy (5.7 MW Capacity) injection into the PECO system on the 34kV Nottingham Substation bus. The project was evaluated for compliance with reliability criteria for summer peak conditions in 2014. The IC has requested a proposed in-service date, as stated in Attachment N, of December, 2011, however, the current PJM study schedule and PECO construction estimated duration does not support that date.

Potential transmission network impacts are as follows:

### Generator Deliverability

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

No violations found.

### Multiple Facility Contingency

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

No violations found.

### 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)*

None.

### Short Circuit

No violations found.

**Stability Analysis**

Not required due to project size.

**New System Reinforcements**

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

None required.

**Contribution to Previously Identified System Reinforcements**

*(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project.*

None required

**Potential Congestion due to Local Energy Deliverability**

*(PJM also studied the delivery of the energy portion of the surrounding generation. Any potential problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with Network Upgrades to eliminate the operational restriction at their discretion by submitting a Transmission Interconnection Request. Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full deliverability for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which analyzes all overload conditions associated with the identified overloaded element(s). As a result of the aggregate energy resources in the area, the following overloads were identified:*

1. (PECO/BG&E) The COOPER-Graceton 230 kV line (from bus 214089 to bus 220964 ckt 1) loads from 176.14% to 176.99% (DC power flow) of its emergency rating (485 MVA) for the operational contingency 'PJM17'. This project contributes approximately 5.08 MW to the thermal violation.

2. (PECO) The Peach Bottom Tap-COOPER 230 kV line (from bus 213869 to bus 214089 ckt 1) loads from 177.26% to 178.12% (DC power flow) of its emergency rating (485 MVA) for the operational contingency 'PJM17'. This project contributes approximately 5.08 MW to the thermal violation.