

#T68 Edgemoor 5.2 MW
Generator 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

Queue T68 was studied as a 5.2 MW Capacity injection at Edgemoor 69 kV bus. Project T68 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Network impacts were as follows:

Generator Deliverability

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

1. The Master –N Philadelphia line **may be** overloaded at approximately 100+ % of its emergency rating (882 MVA) for the outage of Concord – Lenape 230 kV line; Concord 230/35 kV transformer; and the Lenape 230/35 kV transformer. This project contributes approximately 0.65 MW to possibly cause the thermal violation.

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)

No problems were identified.

Short Circuit

Not applicable, there is no change to generator and transformer impedance.

Stability Analysis

Not required, there are no changes to generator characteristics

Power Factor Analysis

Preliminary results indicate that T68 can meet the PJM Tariff 0.90 lag power (at the generator terminals) factor requirement based on manufacturer's design data.

Queue T68 generator interconnection design must be capable of either;

- 1) A power factor of 0.95 lead to 0.90 lag (at the generator terminals) at the new MW value, or
- 2) A MVAR capability equal to the original MVAR capability (grandfathered lead and lag MVAR capability before the MW increase, or 0.95 lead to 0.90 lag for the original MWs whichever is less) plus a power factor of 1.0 to 0.90 lag for T68 MW increase, all measured at the generator terminals.

T68 design capability ("D" curves or other documentation) information was not provided by the Interconnection Customer in sufficient time to include a Power Factor analysis in this Feasibility Study. **Power Factor requirements will be further evaluated for the Impact Study.**

New System Reinforcements

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

The Master – N Philadelphia line **may be** overloaded at approximately 100+ %. Upgrade requirements, if any, will be determined during the Impact Study.

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)

None identified..