PJM Generator Interconnection
T147 Perryman 10 MW
Combined Feasibility & System Impact Study

May 2008

DMS # 477096

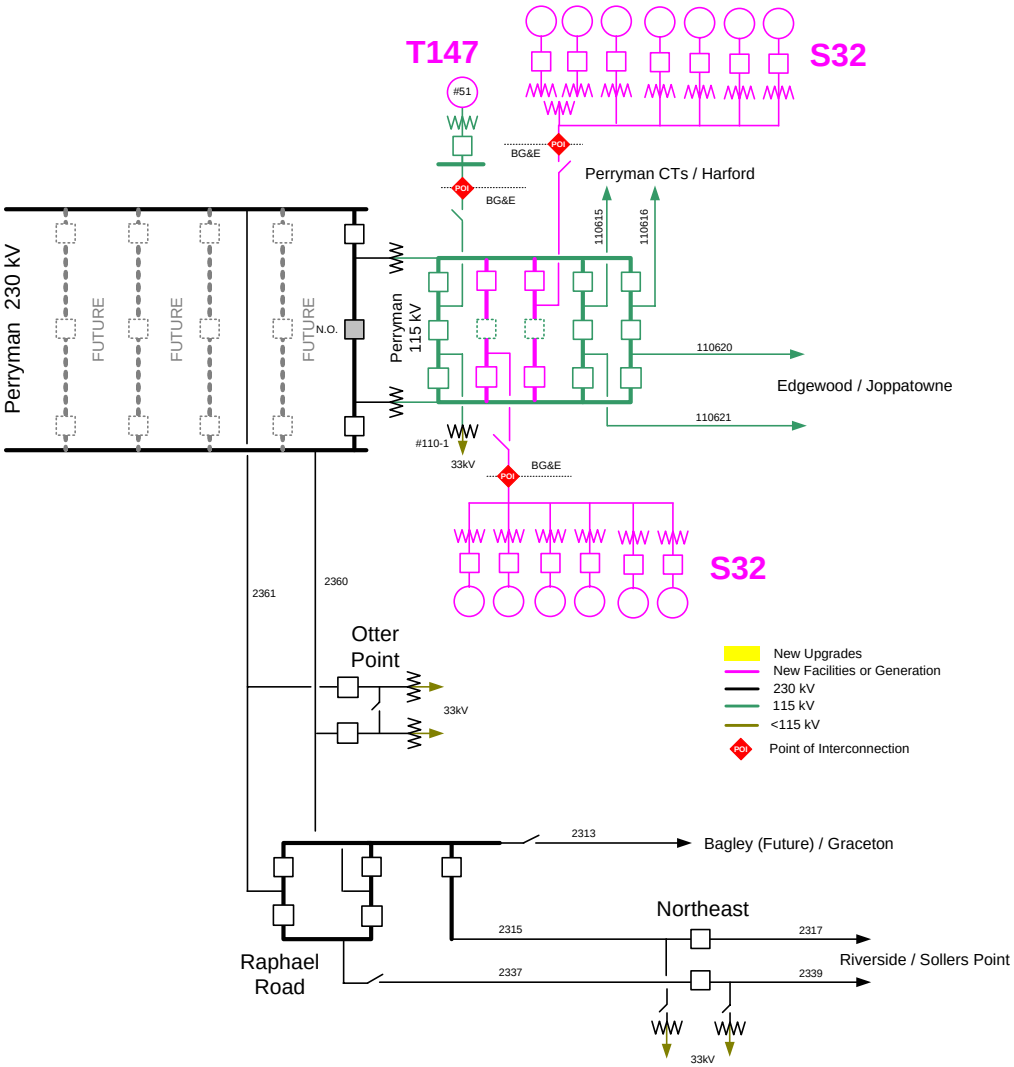
General

Queue T147 is a Constellation Power Source Generation, Inc. request to increase the Capacity Interconnection Rights of Perryman Unit #51 by 10 MW (from 152 MW to 162 MW). Perryman Unit #51 is a simple cycle gas fired combustion turbine located at Perryman Generating Station, 900 Chelsea Road, Perryman, Maryland. Queue T147 Capacity increase is scheduled for commercial operation in June 2008.

Note: Constellation also has an earlier interconnection request at Perryman, Queue S32, which will be considered connected for purposes of the T147 Feasibility / Impact Study.

Direct Connection Requirements

Queue T147 generation is connected to the Perryman 115 kV bus as shown on the one line diagram below. No new attachment facilities are required for the T147 Capacity increase of 10 MW (152 MW to 162 MW).



Interconnection Customer Scope of Direct Connection Work
Constellation will be responsible for all work on their side of the POI (Point of Interconnection).

BG&E Scope of Direct Connection work

None required.

Network Impacts

Queue T147 was studied as a 10 MW Capacity increase (152 MW to 162 MW) to existing unit #51 connected to Perryman 115 kV bus. T147 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Network impacts were as follows:

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

No reliability criteria violations found.

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 reliability criteria violations found.

Short Circuit Analysis
Not required. There are no impedance changes to the generator or generator step-up transformer.

Stability Analysis
Stability analysis is not required because the MW increase is less than 25 MW and there were no changes to the generator or step-up transformer.

Tariff Power Factor Requirements

Queue T147 must meet the PJM Tariff synchronous generator small (less than 20 MW increase) required Power Factor design capability of:

1. Maintaining the existing Power Factor dynamic control over the range of 0.95 lead to 0.90 lag (or less range if grandfathered capability was less range), and
2. Providing Power Factor dynamic control over the range of Unity to 0.90 lag for the new MW increase.

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)

Queue T147 does not contribute to reliability criteria violations, identified for earlier queue projects, in an amount above the threshold for cost allocation.

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

None.

Uprgrades for Contributed to Previously Identified System Reinforcements
(Overloads initially caused by prior Queue positions with additional contribution, above the allowed threshold, to overloading by this project. This project may have a % allocation cost responsibility as shown)

None.