

***PJM Generator Interconnection Request
Queue #Y3-025
Bridge-South Park 12kV
Feasibility/System Impact Study***

November/2013
Revised May 2015

Y3-025 Bridge-South Park 12kV Impact Study Report

General

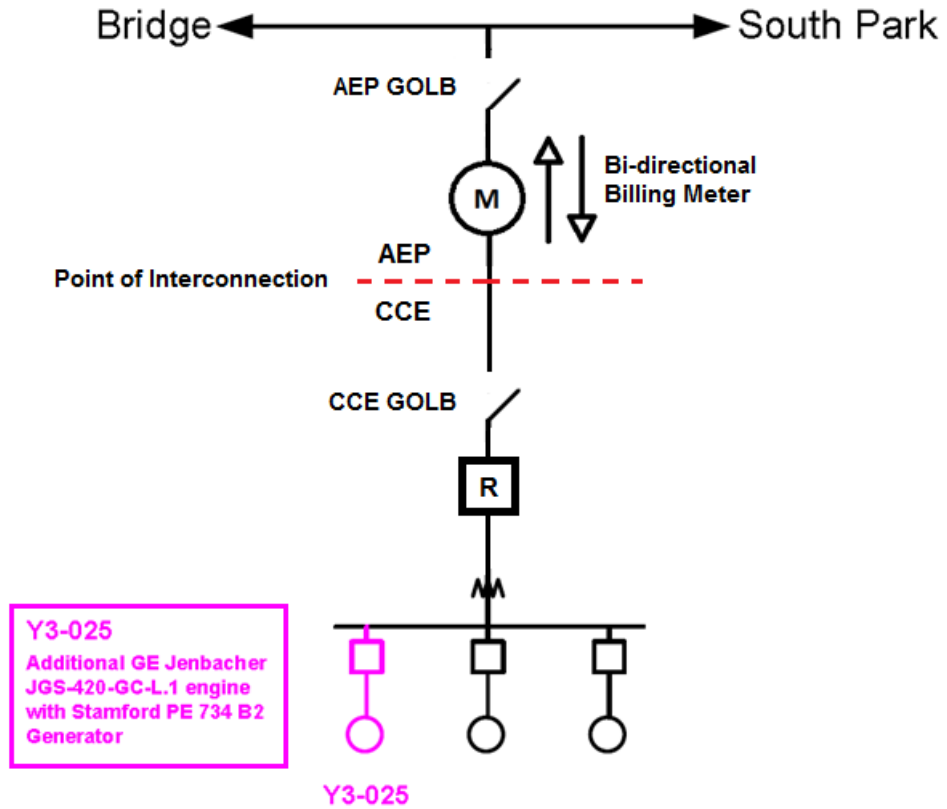
Charleston Clean Energy, LLC is proposing to install an additional 1.06 MW of generation at the City of Charleston Landfill. This will be in addition to the existing two (2) generators installed under Queue project V1-023. Methane gas from the landfill will be utilized as the generation fuel. The equipment configuration will consist of one additional G.E. Jenbacher JGS-320-CG-L.L engine with a Stamford PE 734 B2 generator. It will be connected to the Bridge – South Park 12 kV circuit as shown in Figure #1

The intent of the Impact study is to determine system reinforcements and associated costs and construction time estimates required to facilitate the addition of the new generating plant to the transmission system. The reinforcements include the direct connection of the generator to the system and any network upgrades necessary to maintain the reliability of the transmission system.

Attachment Facilities

None required. Attachment facilities and metering already installed under Queue Project V1-023.

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The Point of Interconnection is the load side of the 12.47 kV metering pole on Bridge-South Park 12.47 kV Circuit with AEP owning the pole and metering equipment.

Figure 1

Local AEP Impacts

The impact of the proposed generating facility on the AEP transmission system was assessed according to applicable reliability criteria and AEP planning criteria. The transmission system must meet single contingency performance in accordance with AEP FERC Form 715 criteria. The Black Fork project was studied as a 3.18 MW net energy injection. The results are summarized below.

Normal System – Capacity Output (2012 Summer Conditions)

- No problems identified.

Single Contingency – Capacity Output (2012 Summer Conditions)

- No problems identified.

Multiple Contingency – Full Output (2012 Summer Conditions)

- No problems identified.

Short Circuit Analysis

- No problems identified.

Stability Analysis

- No problems identified.

Network Upgrades

- None required.

Contributions to Previously Identified Network Limitations

- No problems identified.

Additional Limitations of Concern – Full Output

- No problems identified.

Network Impacts

The Queue Project #Y3-025 was studied as a 3.18 MW (Capacity 3.18 MW) injection at the BRIDGE 69 kV substation in the AEP area. Project #Y3-025 was evaluated for compliance with reliability criteria for summer peak conditions in 2017. Potential network impacts were as follows:

Generator Deliverability

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

None

Light Load Analysis

Light Load Studies to be conducted during later study phases (applicable to wind, coal, nuclear, and pumped storage projects).

Not required

Multiple Facility Contingency

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

None

Short Circuit

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

Not required

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

Steady-State Voltage Requirements

(Results of the steady-state voltage studies should be inserted here)

Not Required

Stability and Reactive Power Requirement

(Results of the dynamic studies should be inserted here)

Not required

New System Reinforcements

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

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)

(Summary form of Cost allocation for transmission lines and transformers will be inserted here if any)

None

Delivery of Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of this interconnection request. Any 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 Merchant Transmission Interconnection request.

Only the most severely overloaded conditions are listed. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed, which will study all overload conditions associated with the overloaded element(s) identified.

Not Applicable

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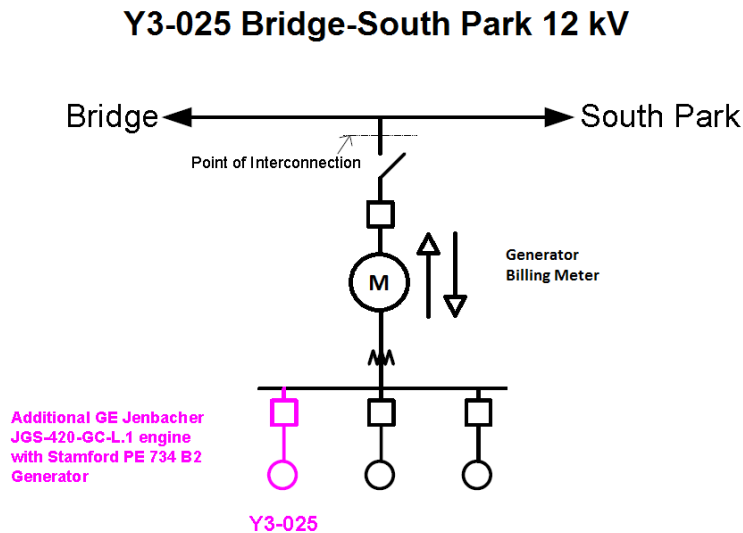


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