

***Generation Interconnection
Combined Feasibility/System
Impact Study Report***

For

***PJM Generation Interconnection Request
Queue Position Z2-090***

Blackhawk 12.5 kV

February 2015

Preface

The intent of the Combined Feasibility/System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications (on PJM web site) for the appropriate transmission owner.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation, if any, is included in the System Impact Study.

The Study estimates do not include the feasibility, cost, or time required to obtain property rights and permits for construction of the required facilities. The project developer is responsible for the right of way, real estate, and construction permit issues. For properties currently owned by Transmission Owners, the costs associated with them will be addressed when seeking an Interconnection Agreement as outlined below. . Developer will also be responsible for providing and installing metering equipment in compliance with applicable PJM and Transmission Owner standards.

General

Grid Stability Systems LLC, the Interconnection Customer (IC), has proposed a 4MW energy storage facility located at in Winnebago County, Illinois. The IC had indicated an in-service date for this project as 10/1/2014 in their Generation Interconnection Feasibility Study Agreement, however, this date has passed.

Attachment facilities and local upgrades (if required) along with terms and conditions to interconnect Z2-090 will be specified in a separate two party Interconnection Agreement (IA) between Commonwealth Edison (ComEd) and the Interconnection Customer as this project is not a FERC jurisdictional interconnection. From the transmission system perspective, no network impacts were identified as detailed below.

Point of Interconnection

Z2-090 will interconnect with the ComEd distribution system on a 12.5kV feeder out of TDC 387 Blackhawk substation.

Interconnection Customer Requirements

See ComEd Interconnection Guidelines for Generators Greater than 2 and Less than or equal to 20MW at <https://www.comed.com/Documents/customer-service/rates-pricing/interconnection/SmallGenInterconnectionGuidelinesgreaterthan2Mw.pdf>

Revenue Metering and SCADA Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D.

Network Impacts

The Queue Project Z2-090 was studied as a 4.0 MW energy only injection at the Blackhawk 138 kV substation in the ComEd area. Project Z2-090 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Potential network impacts were as follows:

Summer Peak Analysis - 2018

Generator Deliverability

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

No issues identified

Multiple Facility Contingency

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

No issues 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 issues identified

Steady-State Voltage Requirements

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

No issues identified

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.

No issues identified

System Reinforcements

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

Short Circuit

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

No issues identified

Stability and Reactive Power Requirement

(Results of the dynamic studies should be inserted here)

No issues identified

Attachment 1

System Configuration

