Generation Interconnection
Feasibility Study Report

For

PJM Generation Interconnection Request Queue Position AC2-007

Belvidere

June 1, 2018

Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement.

For Local and Network Upgrades which are required due to overloads associated with the System Impact Studies of an individual New Services Queue, and have a cost less than $5,000,000, the cost of the Local and Network Upgrades will be shared by all proposed projects which have been assigned a Queue Position in the New Services Queue in which the need for the Local and Network Upgrades was identified. The Load Flow Cost Allocation methods discussed in this manual, including cutoffs, still apply to the individual projects. •

For Local and Network Upgrades which are required due to the overloads associated with the System Impact Studies of an individual New Services Queue, and have a cost of $5,000,000 or greater, the cost of the Local and Network Upgrades will be allocated according to the order of the New Service Requests in the New Services Queue and the MW contribution of each individual Interconnection Request for those projects which cause or contribute to the need for the Local or Network Upgrades. The Load Flow Cost Allocation methods discussed in this manual, including cutoffs, still apply to the individual projects.

Cost allocation rules can be found in PJM Manual 14A, Attachment B. The possibility of sharing the reinforcement costs with other projects may be identified in the feasibility study, but the actual allocation will be deferred until the impact study is performed.

The Feasibility 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 may be included in the study.

General

Queue AC2-007 is a proposal to install 20MW of solar panels units (poly silicon modules utilizing trackers as the racking configuration, with 8 SMA Sunny Central 2500-EV inverters) at 3234 Genoa Rd., Belvidere, IL 61008. This Attachment N requests an MFO of 20 MWs, (7 MW capacity). The IC will be calling the facility "Hendricks Solar". The IC had proposed an in service date for this project of December 31, 2017, and is currently under review.

This Generation Interconnection Feasibility Study provides analysis results to aid the IC in assessing the practicality and cost of incorporating the facility into the PJM system.

This interconnection has been identified as not being under the jurisdiction of the FERC, or the PJM Open Access Transmission Tariff. This scope of the study in this case has been limited to transmission system impacts. In order to obtain interconnection rights, the Interconnection Customer has applied to Commonwealth Edison under their Illinois state tariff. For more information see ComEd Queue Number Q1648.

Point of Interconnection

The requested POI is a 34kv feeder out of TSS 122 Belvidere.

Attachment Facilities

To be addressed under the state interconnection procedures.

Network Impacts

The Queue Project AC2-007 was evaluated as a 20.0 MW (Capacity 7.0 MW) injection at the Belvidere 138 kV substation in the ComEd area. Project AC2-007 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AC2-007 was studied with a commercial probability of 100%. Potential network impacts were as follows:

Summer Peak Analysis – 2020

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)
None.

Multiple Facility Contingency

(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)
None.

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

(Summary of impacted circuit breakers)
None.

Stability and Reactive Power Requirement

(Results of the dynamic studies should be inserted here)

To be determined in later study phases of the project. This project will be analyzed together AC2-115 and AC2-116 for joint issues within the AC2 queue due to their electrical proximity.

Potential Congestion due to Local Energy Deliverability

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.
None.

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)
None.