Generation Interconnection
System Impact Study Report

For

PJM Generation Interconnection Request Queue
Position AB2-132

Haumesser Road

Revised: February 2022
Previous Issue: December 2020

Preface

The intent of the 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.

Cost allocation rules for identified violations can be found in PJM Manual 14A, Attachment B.

An Interconnection Customer entering the New Services Queue on or after October 1, 2012 with a proposed new Customer Facility that has a Maximum Facility Output equal to or greater than 100 MW shall install and maintain, at its expense, phasor measurement units (PMUs). See Section 8.5.3 of Appendix 2 to the Interconnection Service Agreement as well as section 4.3 of PJM Manual 14D for additional information.

The System Impact 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

The Interconnection Customer (IC) is proposing to convert 2.5 MW of energy storage included in their present ISA back to wind energy. They also requested an additional 2.2 MW of Capacity Interconnection Rights (total of 42.2 MW) as allowed by PJM Manual 21 Appendix B based on the operational history for this mature wind farm. The MFO will remain at 240MW (220 MW wind and 20 MW energy storage). The facility is located in Lee and DeKalb County, IL.

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 study was limited to load flow analyses of probable contingencies.

Revision History

This February 2022 issued report revises the previously issued report to include results of the Q57/AB2-132 reactive assessment.

Point of Interconnection

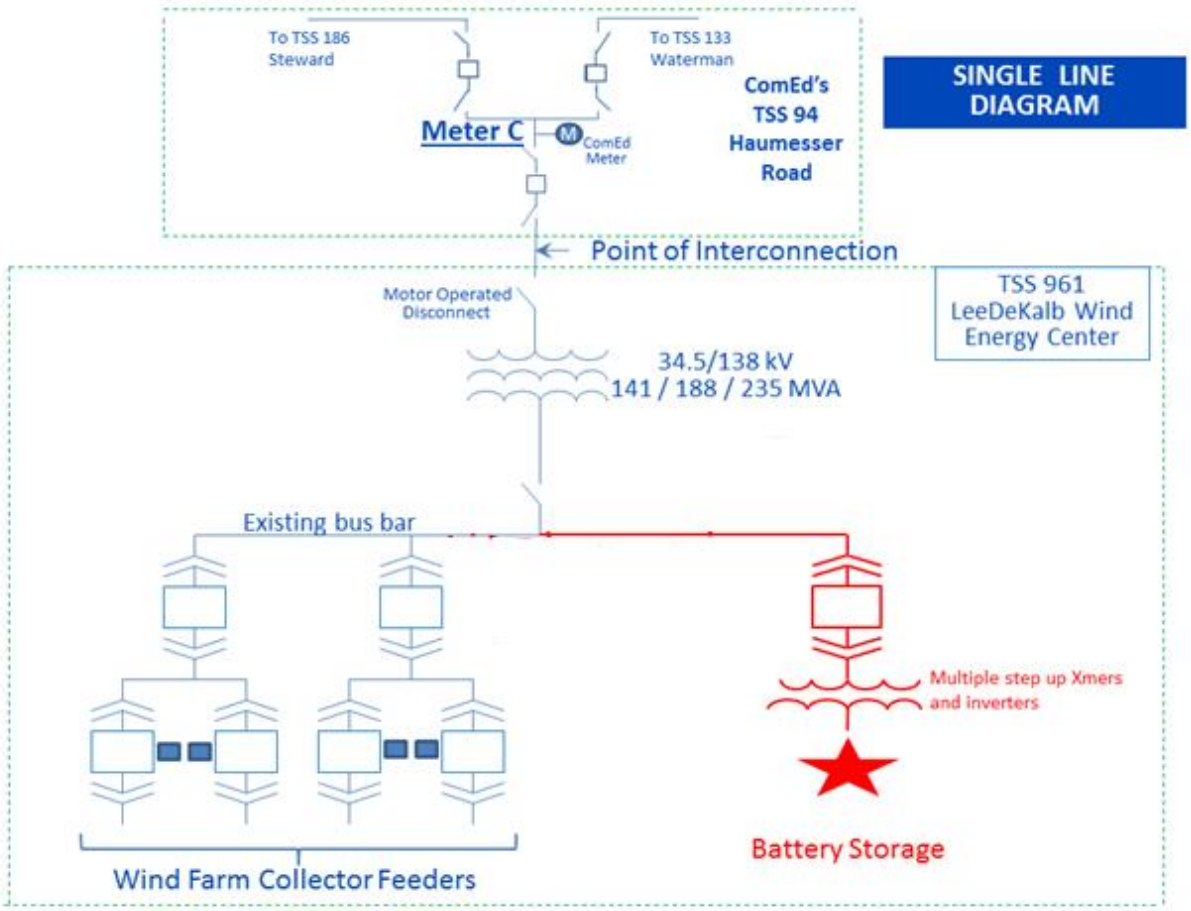
It is proposed in the Interconnection Request (Attachment N) and submitted one line diagram that the point of interconnection (existing) to be studied is at the 138kV TSS 94 Haumesser Road Substation (PSSe bus no.271680) (Customer owned substation is TSS961 Lee DeKalb, PSSe bus no. 274432).

Attachment Facilities

No new attachment facilities

Direct Connection Network Upgrades

No new direct connection network upgrades.



Network Impacts

The Queue Project AB2-132 was evaluated as a 2.2 MW Capacity increase (no change in MFO) uprate to the Q57/NQ86 project in the ComEd area. Project AB2-132 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB2-132 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

Steady-State Voltage Requirements
(Results of the steady-state voltage studies should be inserted here)

None

Short Circuit
(Summary of impacted circuit breakers)

No issues identified

Affected System Analysis & Mitigation

MISO Impacts:

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.

None

Light Load Analysis - 2020

Not applicable.

System Reinforcements

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

Not applicable

Stability and Reactive Power Requirement
(Results of the dynamic studies should be inserted here)

The results of the reactive assessment show that the combined Q57/AB2-132 wind/non-synchronous Customer Facility meets a power factor of at least 0.95 leading to 0.95 lagging measured at the generator's terminals.

Summer Peak Load Flow Analysis 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

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