Generation Interconnection Feasibility Study Report Queue Position AC2-142

General

Interconnection Customer has proposed a 129.7 MW uprate to prior 535 MW queue request AA2-173/AB1-112. The increased capability associated with this queue request, AC2-142, is achieved by changing the 1x1 combined cycle power plant configuration to single shaft arrangement consisting of 1x gas turbine plus 1x steam turbine generators.

AC2-142 requested an uprate of 129.7 MW Energy and 129.7 MW CIR to AA1-173/AB1-112. PJM recognizes at total of 664.7 MW MFO and 667.7 MW Capacity Interconnection Rights (CIR).

Summary of previous queue requests associated with AC2-142 project
AA1-173 requested initially new 515 MW Energy (MFO) and 515 MW CIR. Then AB1-112 requested an uprate of 20 MW Energy and 20 MW CIR. PJM recognized 535 MW (MFO) Energy and 535 MW CIR for both projects combined, AA1-173/AB1-112.

The proposed in-service date for this project is May 31, 2020. **This study does not imply a West Penn Power commitment to this in-service date.**

Point of Interconnection

AC2-142 will interconnect with the West Penn Power transmission system by direct injection into Hatfield substation 500 kV bus. The Point of Interconnection is located on Thomas Road, approximately 2 miles north of Nemacolin, Green County, PA. Please refer to the single line diagram in Appendix 2 for more details.

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Revenue Metering and SCADA Requirements

PJM Requirements

The Interconnection Customer will be required to install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for Interconnection Customer's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

FirstEnergy Requirements

The FirstEnergy Revenue Metering Requirements may be found in the FirstEnergy Requirements for Transmission Connected Facilities document located at the following links:

https://www.firstenergycorp.com/content/dam/feconnect/files/wholesale/Requirements-for-Transmission-Connected-Facilities-10-03-2016.pdf

www.pjm.com/planning/design-engineering/to-tech-standards.aspx

Network Impacts

The Queue Project AC2-142 was evaluated as a 129.7 MW (Capacity 129.7 MW) injection at the Hatfield 500 kV substation in the APS area. Project AC2-142 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AC2-142 was studied with a commercial probability of 53%. 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

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To be determined at later study phases.

Short Circuit

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

Light Load Analysis - 2020

Light Load Studies to be conducted during later study phases (as required by PJM Manual 14B).

System Reinforcements

Short Circuit

None

Stability and Reactive Power Requirement

To be determined at later study phases.

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)

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None

Light Load 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)
None

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