Generation Interconnection Feasibility Study Report Queue Position AC2-118

General

Interconnection Customer has proposed a 1200 MW natural gas generating facility located South Buffalo Township, Armstrong County, Pennsylvania; GPS coordinates: 40.7161170, -79.5841440. The installed facilities will have a total capability of 1200 MW with 1100 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is June 1, 2021. **This study does not imply a West Penn Power commitment to this in-service date.**

Point of Interconnection

AC2-118 will interconnect with the West Penn Power transmission system by tapping the Cabot – Keystone 500 kV line via a new three breaker substation. Generation site and ring bus will be located on the west side of Allegheny River. Line crosses over Allegheny River above ground. No secondary POI is selected. Refer to the one-line diagram in Appendix 2 for more details.

Network Impacts

The Queue Project AC2-118 was evaluated as a 1200.0 MW (Capacity 1100.0 MW) injection tapping the Keystone – Cabot 500 kV line in the APS area. Project AC2-118 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AC2-118 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

To be determined at later study phases.

Short Circuit

Short circuit impacts were identified. Refer to Appendix 3 for listing of overdutied breakers.

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

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

System Reinforcements

Short Circuit

Replace 10 over-duty 138 kV breakers with 80 kA, replace bus, ground grid and switches at Cabot substation. Refer to Appendix 3 for more details.

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)

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

Appendix 3

PJM Queue Position: AC2-155
Overview Power Flow Analysis Results

10 overdutied breakers identified.

Bus #	Bus Name	BREAKER	Rating Type	Breaker Capacity (Amps)	Duty Percent With AC2-118_APS	Duty Percent Without AC2-118_APS	Duty Percent Difference	Duty Amps With AC2-118_APS	Duty Amps Without AC2-118_APS
235153	CABOT 138.kV	C1 BUTLER W	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C11 1 BANK	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C14 BUTLER E	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C15 BUT E 1	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C20 2 BANK	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C2BUT W-CABJ	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C3 CABREYJCT	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C4LAWSONJCT1	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C7 4B-KISKIV	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1
235153	CABOT 138.kV	C8 KISKIV-4B	T	62755.5	101.26%	96.23%	5.03%	63544.4	60390.1