Generation Interconnection

Queue Project AE1-003

Williams 138 kV

Feasibility Study Report

Capacity :17.6 MW / Energy : 124.3 MW

January, 2019

General

Interconnection Customer has proposed a battery storage facility located in the Tucker County, West Virginia. The capability of the facility will be 124.3 MW. PJM recognizes 29.0 MW of this output as Capacity Interconnection Rights (CIR).

The proposed in-service date is December 31, 2020. **This study does not imply a Monongahela Power Company (Transmission Owner or Mon Power) commitment to this in-service date.**

Point of Interconnection

The AE1-003 battery storage facility will interconnect with the Mon Power transmission system by direct injection into the Williams substation 138 kV bus.

Network Impacts

The Queue Project AE1-003 was evaluated as a 124.3 MW (Capacity 0.0 MW) injection at Williams substation, 138 kV bus, in the APS area (FirstEnergy, Mon Power zone). Project AE1-003 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AE1-003 was studied with a commercial probability of 53%. Potential network impacts were as follows:

Summer Peak Analysis - 2022

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

None. (No overdutied circuit breakers 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

System Reinforcements

Short Circuit
None.

Stability and Reactive Power Requirement
Will be determined at a later study stages.

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)

Contingency Description	Overloaded Element	Rating (MVA)	% Loading After [QUEUE]	Final % Loading	FE Comments/Reinforcements
Albright Breaker Failure – Tie Breaker	William – Parsons 138 kV line	179	130.64%	134%	Convert Albright 138 kV Substation to Breaker-and-a-Half Scheme
Albright Breaker Failure – Tie Breaker	Loughs Lane – Parsons 138 kV line	179	125.84%	129.2%	Convert Albright 138 kV Substation to Breaker-and-a-Half Scheme

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.