

W3-161 Eagle Point 230kV

Generation Interconnection

Network Impacts

Queue project W3-161 was studied as a 13.0 MW incremental capacity injection into AEP's system at the Kanawha River 138.0 kV substation. This request addresses an increased output and change in machine parameters from the previous request (V1-035) at this site. Project W3-161 was evaluated for compliance with reliability criteria for summer peak conditions in 2014.

Note: The proposed facility is to be connected to AEP (PJM) via non-AEP transmission facilities shared by West Virginia Manufacturing and Brookfield Power. This report does not include assessment of the impact of the V1-035/W3-161 generator addition on these non-AEP facilities.

Potential transmission network impacts on the AEP system are as follows:

Generator Deliverability

(Single or N-1 contingencies for the Capacity portion only of the interconnection)

No problems identified

Multiple Facility Contingency

(Double Circuit Tower Line, Line with Failed Breaker and Bus Fault contingencies for the full energy output)

No problems identified

Short Circuit

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

The circuit breakers at Kanawha River 138kV station, listed below are overdutied due to the installation of the generator.

BUS_NO	BUS	BREAKER	Rating Type	Duty Percent With w3-161_AEP	Duty Percent Without w3-161_AEP	Duty Percent Difference	Note
558	05KANAWH 138.kV	H	T	105.80%	99.20%	6.60%	New Over-duty
558	05KANAWH 138.kV	J	T	105.80%	99.20%	6.60%	New Over-duty
558	05KANAWH 138.kV	L	T	105.80%	99.20%	6.60%	New Over-duty
558	05KANAWH 138.kV	I	T	105.30%	98.90%	6.40%	New Over-duty
558	05KANAWH 138.kV	K	T	105.30%	98.90%	6.40%	New Over-duty

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.)

No problems identified.

New System Reinforcements

The overdutied circuit breakers will be replaced with circuit breakers having a higher interrupting rating. The cost of replacing these circuit breakers is \$800,000 each with a total cost of **\$4,000,000** and will require about two years to complete.

Energy Portion of Interconnection Request

(PJM also studied the delivery of the energy portion of the surrounding generation. Any potential 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 Transmission Interconnection request.

Note: 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 analyzes all overload conditions associated with the overloaded element(s) identified. As a result of the aggregate energy resources in the area, the following violations were identified.)

None