

***PJM Generator Interconnection Request
Queue AC2-045
Clark 12 kV
Feasibility/Impact Study Report***

October 2017

Preface

The intent of the Feasibility/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.

In some instances an Interconnection Customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, may also contribute to the need for the same network reinforcement. The possibility of sharing the reinforcement costs with other projects may be identified in the Feasibility Study, but the actual allocation will be deferred until the Feasibility/System Impact Study is performed.

The Feasibility/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.

Network Impacts

The Queue Project AC2-045 was evaluated as a 10.0 MW (Capacity 3.8 MW) injection at the Clark 69 kV substation in the AEP area. Project AC2-045 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AC2-045 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)

Not required for this project

Short Circuit

(Summary of impacted circuit breakers)

None

Affected System Analysis & Mitigation

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.

AC2-045 Delivery of Energy Portion of Interconnection Request													
#	Type	Contingency Name	Affected Area	Facility Description	Bus		Loading		Rating		MW		
					From	To	Cir.	PF	Initial	Final	Type	MVA	Con.
1	N-1	5923_B2_TOR10098A_MOAB	AEP - AEP	SPENCER RIDGE-CROOKSVILLE 138 kV line	243107	242986	1	AC	105	108	ER	134	3.61

CONTINGENCY:

Contingency Name	Description
5923_B2_TOR10098A_MOAB	CONTINGENCY '5923_B2_TOR10098A_MOAB' OPEN BRANCH FROM BUS 243531 TO BUS 243555 CKT 1 / 243531 05KIMBRY 138 243555 05POSTON 138 1 END

Light Load Analysis - 2020

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

Not Required

Transmission System Reinforcements

Short Circuit

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

None

Stability and Reactive Power Requirement

(Results of the dynamic studies should be inserted here)

Not Required for Transmission System

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)

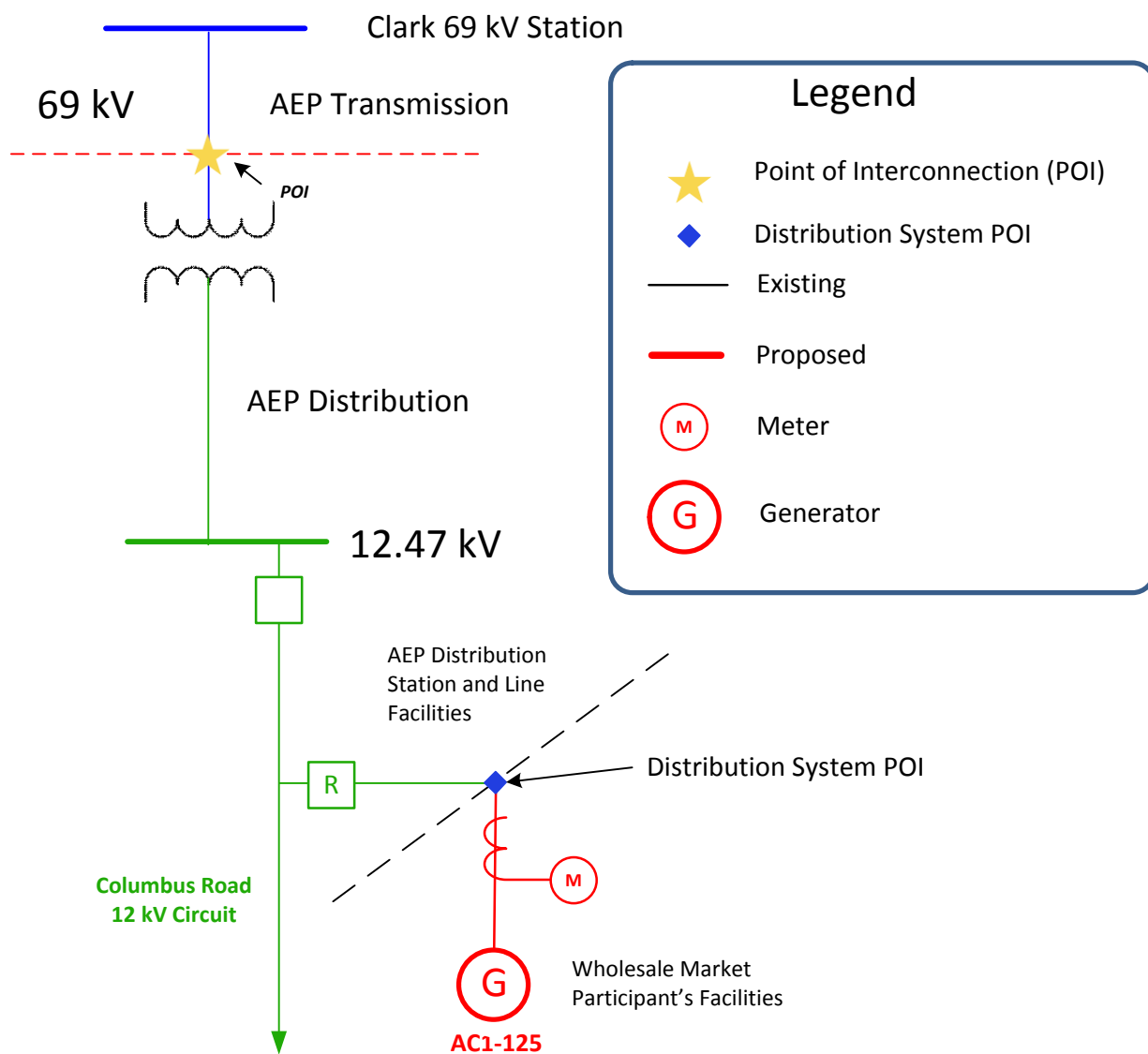
None

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



The Point of Interconnection with the transmission system is at Transmission Owner's Clark 69 kV Station at the Transmission Owner's 69 kV disconnect switch. The point of interconnection with the local distribution system will remain at AEP's distribution primary meter facility on the Wholesale Market Participant's premise.

Figure 1 – Single Line Diagram