Generation Interconnection

Combined Feasibility / System Impact Study Report

for

Queue Project AF2-368

PINE CREEK 23 KV

9.5 MW Capacity / 9.5 MW Energy

July 2020

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1 Introduction

This System Impact Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 205, as well as the System Impact Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is DL.

2 Preface

The intent of the Combined 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, if any, is included in the System Impact Study.

The Interconnection Customer seeking to interconnect a wind or solar generation facility shall maintain meteorological data facilities as well as provide that meteorological data which is required per Schedule H to the Interconnection Service Agreement and Section 8 of Manual 14D.

The 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 associated with them will be addressed when seeking an Interconnection Agreement as outlined below. Developer will also be responsible for providing and installing metering equipment in compliance with applicable PJM and Transmission Owner standards.

3 General

The Interconnection Customer (IC), has proposed a Hydro generating facility located in Allegheny County, Pennsylvania. The installed facilities will have a total capability of 9.5 MW with 9.5 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is March 31, 2023. This study does not imply a TO commitment to this in-service date.

Attachment facilities and local upgrades (if required) along with terms and conditions to interconnect AF2-368 will be specified in a separate two party Interconnection Agreement (IA) between DL and the Interconnection Customer as this project is considered FERC non-jurisdictional per the PJM Open Access Transmission Tariff (OATT). From the transmission system perspective, no network impacts were identified in the Feasibility/Impact Study. Preliminary costs and schedules to interconnect the project are provided in this report.

Queue Number	AF2-368
Project Name	PINE CREEK 23 KV
State	Pennsylvania
County	Allegheny
Transmission Owner	DL
MFO	9.5
MWE	9.5
MWC	9.5
Fuel	Hydro
Basecase Study Year	2023

Any new service customers who can feasibly be commercially operable prior to June 1st of the basecase study year are required to request interim deliverability analysis.

4 Point of Interconnection

AF2-368 will interconnect with the DL on transmission system at the Pine Creek 23 kV substation.

5 Cost Summary

The AF2-368 project will be responsible for the following costs:

Description	Total Cost
Total Cost for Distribution Portion (DL Physical Interconnection Costs)	$To Be Provided by DL
Total cost for the Transmission Portion (PJM System Network Upgrade Costs)	$0
Total Costs	$0 + DL costs

NOTE: CIAC Tax Gross Up charges will be charged to the project if it does not meet the eligibility requirements of IRS Notice 88-129.

Scope, cost and schedule for the final attachment facilities and local upgrades (if required) to interconnect AF2-368 will be specified in a separate two party Interconnection Agreement (IA) between DL and the Interconnection Customer as this project is considered FERC non-jurisdictional per the PJM Open Access Transmission Tariff (OATT).

From the transmission perspective, no network impacts were identified as detailed in the “Network Impacts” section below.

6 Transmission Owner Scope of Work

Detailed scope, cost, and schedule will be provided in a separate two party Interconnection Agreement (IA) between DL and the Interconnection Customer after the conclusion of the Impact Study phase.

Description	Total Cost
Total Cost for Distribution Portion (DL Physical Interconnection Costs)	$ To Be Provided by DL
Total Physical Interconnection Costs	$ To Be Provided by DL

7 Interconnection Customer Requirements

Duquesne Light Company's "Facility Interconnection Requirements" document dated 12/30/2015: http://www.pjm.com/planning/design-engineering/to-tech-standards/private-duquesne.aspx

8 Revenue Metering and SCADA Requirements

8.1 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 IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Section 8 of Attachment O.

8.2 Interconnected Transmission Owner Requirements

The IC will be required to comply with all Interconnected Transmission Owner's revenue metering requirements for generation interconnection customers located at the following link:

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

The Transmission Owner will install, own and maintain the metering equipment at the Point of Interconnection (See Attachment 1). The IC's facility shall be independently metered, and the IC shall provide the communication link required to send the Revenue Metering and real time data directly to PJM. All costs associated with the installation and maintenance of the metering equipment (including upgrades) shall be the responsibility of the IC.

9 Summer Peak Analysis

The Queue Project AF2-368 was evaluated as a 9.5 MW (Capacity 9.5 MW) injection at the Pine Creek 138 kV substation in the DL area. Project AF2-368 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AF2-368 was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

9.1 Generation Deliverability

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

None

9.2 Multiple Facility Contingency

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

None

9.3 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

9.4 Steady-State Voltage Requirements

To be determined by DL

9.5 Potential Congestion due to Local Energy Deliverability

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.

None

9.6 System Reinforcements

None

10 Light Load Analysis

Light Load Studies (As applicable)

None

11 Short Circuit Analysis

The following Breakers are overdutied:

To be determined during later study phases.

12 Stability and Reactive Power Assessment

(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined during later study phases.

13 Affected Systems

None