Generation Interconnection

Feasibility Study Report

for

Queue Project AG1-512

UNIVERSITY PARK NORTH 345 KV

16 MW Capacity / 40 MW Energy

January 2021

Table of Contents

1 Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, 36.2, as well as the Feasibility Study Agreement between the Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is ComEd.

2 Preface

The intent of the feasibility study is to determine a plan, with ballpark cost and construction time estimates, to connect the subject generation to the PJM network at a location specified by the Interconnection Customer. The Interconnection Customer may request the interconnection of generation as a capacity resource or as an energy-only resource. As a requirement for interconnection, the Interconnection Customer may be responsible for the cost of constructing: (1) Direct Connections, which are new facilities and/or facilities upgrades needed to connect the generator to the PJM network, and (2) Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM system.

In some instances a generator interconnection may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection, may also contribute to the need for the same network reinforcement. Cost allocation rules for network upgrades can be found in PJM Manual 14A, Attachment B. 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 impact study is performed.

The Feasibility 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.

3 General

The Interconnection Customer (IC), has proposed a storage generating uprate to the facility under the AA1-078/AC2-117 project located in Will County, Illinois. The uprate facilities will have a total capability of 40 MW with 16 MW of this output being recognized by PJM as Capacity. The overall facility will have a total capability of 646 MW with 607.3 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is June 01, 2024. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-512
Project Name	UNIVERSITY PARK NORTH 345 KV
State	Illinois
County	Will
Transmission Owner	ComEd
MFO	646
MWE	40
MWC	16
Fuel	Storage
Basecase Study Year	2024

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

Queue Position AG1-512, a 40 MW storage facility, proposes to interconnect with the ComEd transmission system at TSS 970 University Park North Energy Center by utilizing the same attachment facilities installed for the AA1-078/AC2-117 project, as shown in the one-line diagram.

5 Cost Summary

The AG1-512 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$ 250,000
Total System Network Upgrade Costs	$ 0
Total Costs	$ 250,000

This cost excludes a Federal Income Tax Gross Up charges. This tax may or may not be charged based on whether this project meets the eligibility requirements of IRS Notice 2016-36, 2016-25 I.R.B. (6/20/2016). If at a future date it is determined that the Federal Income Tax Gross charge is required, the Transmission Owner shall be reimbursed by the Interconnection Customer for such taxes.

Cost allocations for any System Upgrades will be provided in the System Impact Study Report.

6 Transmission Owner Scope of Work

6.1 Attachment Facilities

The addition of a 40 MW storage facility behind the meter will require review and possible upgrade of SCADA, Communication, relays and metering. The estimated cost is $250,000. ComEd would take approximately 18-months to review and possibly upgrade SCADA, Communication, relays and metering after the ISA / ICSA are signed.

The total physical interconnection costs is given in the table below:

Description	Total Cost
Attachment Facilities	$ 250,000
Total Physical Interconnection Costs	$ 250,000

7 Schedule

See Sections 6.

8 Transmission Owner Analysis

See Sections 6.

9 Interconnection Customer Requirements

The Interconnection Customer is responsible for all design and construction related activities on the Interconnection Customer's side of the Point of Interconnection.

10 Revenue Metering and SCADA Requirements

10.1 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.

10.2 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:

ComEd interconnection requirements can be found at https://www.pjm.com/planning/design-engineering/to-tech-standards/private-comed.aspx

11 Summer Peak - Load Flow Analysis

The Queue Project AG1-512 was evaluated as a 40.0 MW (Capacity 16.0 MW) injection as an uprate to the AA1-078/AC2-117 facility at the University Park 345 kV substation in the ComEd area. Project AG1-512 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-512 was studied with a commercial probability of 53%. Potential network impacts were as follows:

11.1 Generation Deliverability

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

None

11.2 Multiple Facility Contingency

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

None

11.3 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

11.4 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.

Note: Only the most severely overloaded conditions are listed below. 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 shall study all overload conditions associated with the overloaded element(s) identified.

None

11.5 System Reinforcements - Summer Peak Load Flow - Primary POI

None

12 Short Circuit Analysis

No breakers were identified as overdutied.

13 Affected Systems

13.1 MISO

MISO Impacts to be determined during later study phases (as applicable).

Attachment 1: One Line Diagram