Generation Interconnection

Combined Feasibility / System Impact Study Report

for

Queue Project AG1-200

KINGSLAND 13 KV

0 MW Capacity / 3.98 MW Energy

January 2021

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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 PSEG.

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 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 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), Kingsland Redevelopment Urban Renewal, LLC, has proposed a Solar generating facility located in Bergen County, New Jersey. The installed facilities will have a total capability of 3.98 MW with 0 MW of this output being recognized by PJM as Capacity. The proposed in-service date for this project is December 01, 2021. This study does not imply a TO commitment to this in-service date.

Queue Number	AG1-200
Project Name	KINGSLAND 13 KV
State	New Jersey
County	Bergen
Transmission Owner	PSEG
MFO	3.98
MWE	3.98
MWC	0
Fuel	Solar
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

AG1-200 will interconnect with the PSEG distribution system via a new express feeder from the Kingsland 13 kV substation. The Point of Interconnection will be located at the termination of the cable in the IC's switchgear.

5 Cost Summary

The AG1-200 project will be responsible for the following costs:

Description	Total Cost
Total Physical Interconnection Costs	$3,662,000
Total System Network Upgrade Costs	$0
Total Costs	$3,662,000

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.

6 Transmission Owner Scope of Work

This project is connecting to a non-Ferc Jurisdictional circuit. As a result, a detailed scope will be provided in the two party Interconnection Agreement between the Interconnection Customer and the Transmission Owner. A preliminary estimate is provided below.

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

Description	Total Cost
Attachment Facilities: Construct a new express feeder from the Kingsland substation to the site. Install revenue grade metering	$3,662,000
Direct Connection Network Upgrades	$0
Non-Direct Connection Network Upgrades	$0 -
Total Physical Interconnection Costs	$3,662,000

7 Schedule

The estimated time to complete the scope of work is **14 months** after the relevant agreement(s) are signed and PSE&G receives Notice to Proceed. This duration does not include time for the IC to obtain necessary permits, easement, and approvals for Interconnection Facilities. The developer must obtain these approvals prior to PSE&G installation. PSE&G's schedule assumes reasonable efforts will be made by the Interconnection Customer to meet the proposed schedule, consequently delays to the Interconnection Customer's activities may lead to delays/changes to the PSEG's schedule as well.

8 Assumptions / Considerations

Due to construction on privately owned land the Interconnection Customer will need to provide easement from the edge of the property to the project site including for the crossing of the New Jersey Turnpike. Additionally, the Interconnection Customer will need to provide 30 feet perpetual clear access on both sides of the new circuit to ensure adequate space for PSEG operations and maintenance efforts.

9 Revenue Metering and SCADA Requirements

9.1 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.

9.2 Meteorological Data Reporting Requirements

The solar generation facility shall provide the Transmission Provider with site-specific meteorological data including:

- Back Panel temperature (Fahrenheit) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Irradiance (Watts/meter2) - (Required for plants with Maximum Facility Output of 3 MW or higher)
- Ambient air temperature (Fahrenheit) - (Accepted, not required)
- Wind speed (meters/second) - (Accepted, not required)
- Wind direction (decimal degrees from true north) - (Accepted, not required)

9.3 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/

10 Summer Peak - Load Flow Analysis

The Queue Project AG1-200 was evaluated as a 3.98 MW (Capacity 0.0 MW) injection at the Kingsland 13.2 kV substation in the PSEG area. Project AG1-200 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AG1-200 was studied with a commercial probability of 100.0 %. Potential network impacts were as follows:

10.1 Generation Deliverability

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

None

10.2 Multiple Facility Contingency

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

None

10.3 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

10.4 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

10.5 System Reinforcements - Summer Peak Load Flow - Primary POI

None

11 Short Circuit Analysis

The following Breakers are overdutied:

None

12 Affected Systems

12.1 NYISO

None

13 Attachment 1: One Line Diagram