

***Generation Interconnection  
Feasibility Study Report***

***For***

***PJM Generation Interconnection Request  
Queue Position AC1-209***

***“Sunnyburn”***

**July 2017**

## 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. 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.

## General

The Interconnection Customer (IC), has proposed a **solar** generating facility located in York County, Pennsylvania (see Attachment 1). The installed facilities will have a total capability of **20 MW** with **13.7 MW** of this output being recognized by PJM as capacity. The proposed in-service date for this project is **June 30, 2018**. **This study does not imply a PECO Energy Company commitment to this in-service date.**

Attachment facilities and local upgrades (if required) along with terms and conditions to interconnect AC1-209 will be specified in a separate two party Interconnection Agreement (IA) between PECO Energy Company 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.

PJM will perform an Impact Study at the request of the customer as the next phase in this project.

## Point of Interconnection

**AC1-209 “Sunnyburn”** originally proposed to interconnect with the PECO Energy Company 34.5 kV distribution system by tapping the Peach Bottom 361 (PB361) feeder. PECO indicated that the PB361 feeder would be overloaded with the addition of 20 MW generation at this POI. PECO and the IC will need to identify a feasible interconnection based on the amount of generation requested by the IC in a future study phase.

## Cost Summary

The AC1-209 project will be responsible for the following costs.

Description	Total Cost
Attachment Facilities	To be provided in the IA
Allocation for Transmission Upgrades	\$0
<b>Total Costs</b>	<b>To be provided in the IA</b>

## PECO Energy Company Scope of Work:

Scope, cost, and schedule will be provided in the Interconnection Agreement between the Interconnection Customer and PECO Energy Company.

## Interconnection Customer Requirements

PECO Energy Company's "Interconnection Requirements for Parallel Operation of Generation Greater than 50 kW Connected to the PECO Distribution System" document dated March 14, 2011:

<https://www.peco.com/SiteCollectionDocuments/GrayBook%20Greater%20Than%2050kW.pdf>

## Revenue Metering and SCADA Requirements

### 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 Sections 24.1 and 24.2.

### PECO Energy Company Requirements

AC1-209 IC is to be independently metered and the IC shall provide the communication link required for the meter data directly to PJM. All costs associated with the meter upgrades shall be the responsibility of the IC. The IC must meet the requirements of PJM.

## **Network Impacts (by PJM)**

The Queue Project AC1-209 was evaluated as a 20.0 MW (Capacity 14.3 MW) injection at the Peach Bottom 35kV substation in the PECO area. Project AC1-209 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AC1-209 was studied with a commercial probability of 53%. 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)*

To be determined in System Impact Study

#### **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.

None

### **Light Load Analysis - 2020**

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

Not Required for this solar queue request.

### **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)*

To be determined in System Impact Study phase.

### **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

## **Light Load 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

**Attachment 1**  
**Site Plan**

*AC1-209 “Sunnyburn” Generation Project*