# *System Impact Study Report*

*for*

# *PJM Generation Interconnection Request Queue Position AD2-060*

# *"Davis Creek 138kV"*

**January 2021**

## Preface

The intent of the System Impact 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 reinforcement costs may be shared with other projects, and the allocations tables are included in this report, if applicable.

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 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.

## General

The Interconnection Customer ("IC") has proposed a 20.0 MW Energy (20 MW Capacity) solar PV facility upgrade to prior queue project AC2-154 located in Kankakee County, IL. The combined facilities will be a 70 MW Energy and a 39 MW Capacity resource.

## Point of Interconnection

The Interconnection Customer AD2-060 proposes to use the same Point of Interconnection as prior queue position AC2-154 at the 138 kV bus at the Davis Creek TSS 86 Substation (see Attachment 1).

## Transmission Owner Scope of Work

It is assumed that all Transmission Owner scope of work has been completed by prior queue project AC2-154. In the event that AC2-154 withdraws from the queue, AD2-060 would be responsible for that Transmission Owner work scope.

## Attachment Facilities

None

## Direct Connection Network Upgrades

None.

## Non-Direct Connection Network Upgrades

None

**Network Impacts**

The Queue Project AD2-060 was evaluated as a 20.0 MW Energy (20 MW Capacity) injection at Davis Creek 138kV substation in the ComEd area. Project AD2-060 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AD2-060 was studied with a commercial probability of 100%. Potential network impacts were as follows:

# Summer Peak Analysis - 2021

**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)*

None

**Short Circuit**
*(Summary of impacted circuit breakers)*

None identified

# Affected System Analysis & Mitigation

**MISO Impacts:**

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

**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.

Not Applicable.

# Light Load Analysis - 2021

Not applicable.

# 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 completed during the Facilities 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)*

None

ATTACHMENT 1