

**PJM Generator Interconnection
X2-061 Lawrenceville 34.5 kV
4 MW Capacity / 4 MW Energy
Feasibility Study Report**

*October 2011
DMS #670411v1*

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 Interconnection Customer (IC), and PJM Interconnection, LLC (PJM), Transmission Provider (TP). The Interconnected Transmission Owner (ITO) is Virginia Electric and Power Company.

Preface

The intent of this Feasibility Study is to determine a plan, with preliminary cost and construction time estimates, to connect the subject generation interconnection project to the PJM network at a location specified by IC. As a requirement for interconnection, IC 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 and the underlying system. All facilities required for interconnection of a generation interconnection project must be designed to meet ITO technical specifications.

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. IC is responsible for its right of way, real estate, and construction permit issues.

General

Queue project X2-061 was studied as a 4 MW (4 MW of which was Capacity) injection into Dominion's system at the Lawrenceville 115 kV substation. Project X2-061 was evaluated for compliance with reliability criteria for summer peak conditions in 2015.

Network Impacts:

Generator Deliverability

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

No problems identified.

Multiple Facility Contingency

(Double Circuit Tower Line Contingencies only with full energy output. Stuck Breaker and Bus Fault contingencies will be applied during the Impact Study)

No problems identified.

Contribution to Previously Identified Overloads

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have % allocation of cost responsibility which will be calculated and reported for the Impact Study.)

None.

Short Circuit

(Report Overdutied breakers here)

No problems identified.

Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of the surrounding generation. Any potential problems identified below are likely to result in operational restrictions to the project under study. The IC can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Transmission Interconnection request.

Note: 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 analyzes all overload conditions associated with the overloaded element(s) identified. As a result of the aggregate energy resources in the area, the following violations were identified.

No problems identified.

ITO Analysis

IC has requested a 4 MW increase in capacity output in its existing Brunswick County, VA Landfill facility onto ITO 34.5 kV distribution system. The system was assessed using the summer 2015 RTEP case provided to ITO by PJM.

Attachment Facilities

Existing ITO Attachment Facilities are adequate to accommodate this request.

Local Network Upgrades

Three line sections between Lawrenceville and the IC are made of #2 All Aluminum Conductor (AAC) and need to be upgraded to 1/0 AAC to permit the IC to increase its generation capability up to 14 MW. The upgrade will increase the line capability to 15 MVA.

- 1- Reconductor line section along Bright Leaf Road east of Planters Road from #2 AAC to 1/0 AAC. This section has a total distance of 1.14 miles;
- 2- Reconductor line section along US 58 and Brooks Crossing Road from #2 AAC to 1/0 AAC. This section has a total distance of 0.68 miles; and
- 3- Reconductor #2 AAC between pole L1712-DP33 and pole L1712-YN24 with 1/0 AAC. This line section has a total distance of 0.57 miles.

The total estimated cost to reconductor the above three sections is \$410,000. The estimated time for completion of this option is approximately three months.

ITO has requested to perform a combined System Impact and Facilities Study to assess the distribution line between 353 R12 and the X2-061 site (refer to one-line) to field-verify and assure there are no other sections that are smaller than 1/0 AAC. ITO is targeting a mid-December study completion.

Proposed One-Line: