

**PJM Generator Interconnection
W1-053 Pleasant View 500 kV
Merchant Transmission Project
Feasibility Study Report**

*July 2010
DMS #603075v1*

Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff, §36.2, as well as the Transmission Interconnection 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 perform the Merchant Interconnection project on 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 W1-053 is a request to upgrade the existing 500-230 kV transformer bank located at Pleasant View Substation with a larger unit. The requested in-service date is June 1, 2013. The construction time is estimated to be 30 months from execution of the Upgrade Construction Service Agreement.

Feasibility Study Summary

Project Description	Total Cost
Upgrade Cost	\$21,000,000
Tax Effect Recovery Factor (TERF)	\$7,140,000
Project Totals	\$28,140,000 ¹

Potential PJM Network Impacts

Queue project W1-053 was studied as a 229 MVA increase to ITO's Pleasant View 500 kV transformer. Project W1-025 was evaluated for compliance with reliability criteria for summer peak conditions in 2014.

¹ IC requested, per PJM OAT Tariff §217.3(a), PJM and ITO to determine any RTEP project cost deferments that could be obtained by reuse of the replaced transformer units; thus, offsetting this project's costs. PJM and ITO will determine if any RTEP projects benefit as part of the System Impact Study.

Potential network impacts were as follows:

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 for the full energy output. Stuck breaker and bus fault contingencies will be performed for the Impact Study)

No problems identified.

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.

Short Circuit

None identified.

System Stability Analysis

Dynamic studies are part of the System Impact Study.

ITO Requirements

Non-Direct Connection Network Upgrades

At Pleasant View Substation, replace the existing 4 - 280 MVA Transformer Banks with 4 - 370 MVA Transformer Banks (three operating units and one spare). Upgrade the existing 230 kV facilities (Breaker Bay) to be capable of at 3130 amps at 230 kV (1247 MVA). This will require that the bus work and 4 - 2000 amp switches be replaced.

Replace Existing 500-230 kV Transformer Bank

1. Purchase and install 4 - 370 MVA 500-230 kV Transformer(s)
2. Upgrade existing 230 kV equipment to handle 3130 Amps

These facilities are estimated to take approximately 30 months to engineer and construct. This estimate is based on typical equipment lead times and normal permitting activities. Transportation of the new transformer banks to the site may pose significant challenges based on the difficulties encountered getting the existing units to the site.

Figure A: W1-053 500 kV Transformation



Figure B: W1-053 One-Line

