PJM Generator Interconnection
U2-056 West Point 230-kV
89 MW Capacity
Feasibility Study

October 2008
DMS #507999v1

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).

Preface

The intent of the 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 the Interconnection Customer. As a requirement for interconnection, the Interconnection Customer 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 system. All facilities required for interconnection of a generation interconnection project must be designed to meet the technical specifications for the appropriate transmission owner.

In some instances an interconnection customer may not be responsible for 100% of the identified network upgrade cost because other transmission network uses, e.g. another generation interconnection or merchant transmission upgrade, 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.

Potential Network Impacts

PJM queue U2-056 project was studied as an 89MW (89MW capacity) injection at the 230kV substation in West Point in Dominion's area. Project U2-056 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

Generator Deliverability

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

None.

Multiple Facility Contingency

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

None.

Short Circuit
(Summary form of Cost allocation for breakers will be inserted here if any)
Not required.

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.

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

Dominion Analysis
Dominion assessed the impact on the Dominion Transmission System that the proposed 89 MW injection of generation capacity associated with U2-056 which will be located at the existing Paper Mill Industrial 230 kV Substation. The system was assessed using the Summer 2012 RTEP case provided to Dominion by PJM for the analysis. This analysis did include the impacts that higher order queue generators may have on the study results. When performing a generation analysis, Dominion main analysis will be load flow study results under single contingency (with local generation dispatched to P(MAX)) and import/export system conditions.

The results of these load flow studies and import/export studies are indicating no transmission system deficiencies. However, power flow thru Paper Mill Industrial 230 – 13.2 kV Transformer will need to be limited to 50 MVA to prevent overload of the transformer.

Attachment Facilities
The proposed generation request involves the generation output from four different generators only one of which currently has metering. It will be necessary to install metering on the three generating units which currently do not have metering plus it will also be necessary to install a reverse power relay to protect the transformer from overloads. The estimated cost for this equipment is $120,000 dollars and the design and installation of this equipment will take approximately 18 months to complete. A more detailed engineering estimate will be completed during the System Impact Study phase of this project.