

PJM Generator Interconnection
U1-032 Hopewell 230-kV (20 MW Energy)
Feasibility Study

July 2008
DMS #491993

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 James River Cogeneration Company (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.

Network Impacts

The queue project U1-032 was studied as a 20MW (Energy) injection into the Dominion system at the Hopewell 230kV substation. U1-032 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)

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)

No problems identified.

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.

Short Circuit

Not required.

DOMINION STUDY RESULTS

Dominion assessed feasibility of injection on the Dominion Transmission System the proposed of 20 MW of new generation into the Hopewell 230 kV Substation. This is an increase of capability of an existing generation unit. The system was assessed using the Summer 2012 RTEP case provided to Dominion by PJM for this analysis. This analysis did include the impacts that higher order queue generators may have on the study results, specifically those generators located on the Dominion Transmission System which have a signed a PJM ISA or interim ISA and their associated network upgrades were also modeled. When performing a generation analysis Dominion's main analysis will be load flow study results under single contingency (both normal and stressed system conditions) and import/export system conditions. Dominion Criteria consider a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. For import /export studies Dominion considers a transmission facility overloaded if it exceed 100% of its emergency rating. A full listing of Dominion's Planning Criteria and interconnection requirements can be found in the Company's Facility Connection Requirements which are publicly available at http://www.dom.com/about/elec-transmission/pdf/Facility_Connection_Requirements.pdf.

As part of its generation impact analysis Dominion routinely evaluates the impact that a proposed new generation resource will have under maximum generation conditions and stressed system conditions. For the U1-032 evaluation only one different assessment was conducted, as noted below.

- a. Local generation, including the proposed U1-032 Facility, operated at their maximum capability. The result of this study indicated no system deficiencies. Also since the proposed generation amount is less than or equal to 20 MW, no FCITC Analysis was required.

Attachment Facilities

Since the proposed generation addition is an increase in capacity from an existing facility no new attachment facilities are needed.