PJM Generator Interconnection

W2-049 Reedy Creek 115 kV

47.4 MW Capacity / 47.4 MW Energy

Feasibility Study Report

October 2010
DMS #617266v1

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 W2-049 was studied as a 47.4 MW energy and Capacity injection into ITO's system at the Reedy Creek 115kV substation. Project W2-049 was evaluated for compliance with reliability criteria for summer peak conditions in 2014. 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 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.)

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

(Report Overdutied breakers here)

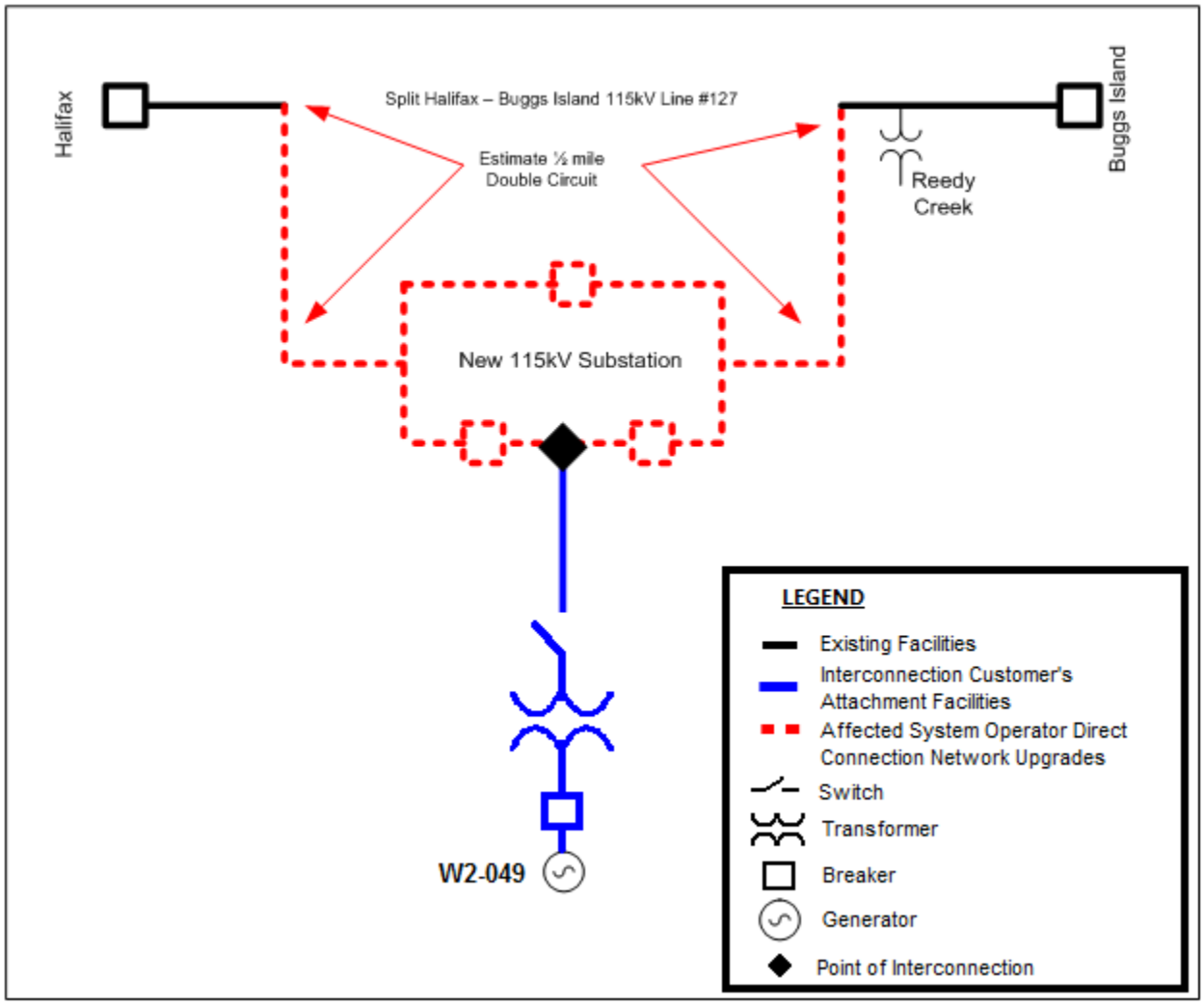
No problems identified.

ITO Analyses

ITO assessed the impact of the proposed 47.4 MW generation on the ITO Transmission System. The system was assessed using the Summer 2014 RTEP case provided to ITO by PJM where the proposed generation was injected on the 115kV transmission line between Buggs Island and Halifax just north of Reed Creek Substation. This analysis did include the impacts of the generation capacity for all higher order queue generators within the ITO Transmission System. When performing a generation analysis, ITO's main analysis will be load flow study results under single contingency (both normal and stressed system conditions) and import/export system conditions. ITO Criteria considers a transmission facility overloaded if it exceeds 94% of its emergency rating under normal and stressed system conditions. For import/export studies ITO considers a transmission facility overloaded if it exceeded 100% of its emergency rating. A full listing of ITO's Planning Criteria and interconnection requirements can be found in the ITO's Facility Connection Requirements which are publicly available at: http://www.dom.com.

The results of this study indicate that the proposed W2-049 generation does not adversely impact ITO's Transmission System.

Figure A: Reedy Creek 115 kV



Attachment Facilities

The proposed layout and attachment facilities for the W2-049 are illustrated in Figure A. The estimated cost of these facilities which also includes metering, protection equipment along with 100 feet of 115kV line is $ 0.25 million and is estimated to take 12 months to complete.

Direct Connection Network Upgrades

Consistent with ITO facility connection requirements, the proposed facility will need to interconnect with the Halifax to Buggs Island 115kV Line as shown in Figure A. This arrangement will require splitting the line just north of Reedy Creek and building an estimated 0.5 mile double circuit tap to the proposed site, installing three 115kV breakers and associated equipment. The estimated cost for this work is $2.0 Million and is estimated to take 24 months.