

PJM Generator Interconnection

V1-033 Pumphrey 115 kV

132 MW Capacity

Feasibility Study Report

July 2009

DMS #550869v1

Introduction

This Feasibility Study has been prepared in accordance with the PJM Open Access Transmission Tariff §36.2 and the Feasibility Study Agreement between Interconnection Customer (IC) and PJM Interconnection, LLC (PJM) (Transmission Provider).

Preface

The intent of a Feasibility Study is to determine a plan, with cost and construction time estimates, to allow the subject generation interconnection project to inject into 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 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 Project V1-033 was studied as a 132 MW Capacity injection at Pumphrey 115 kV substation in the BG&E area. V1-033 was evaluated for compliance with reliability criteria for summer peak conditions in 2013. 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 contingencies only for the full energy output. Stuck breaker and bus fault contingencies will be performed for the Impact Study)

None.

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 Analysis

PJM conducted short circuit analysis on V1-033 and determined no 230 kV breakers in the BGE territory become overduty as a result of V1-033. BG&E confirmed the result. The PJM study also showed no significant fault current contribution to breakers that have already been identified as over-duty due to higher queue priority projects (i.e. no contributions exceed the cost allocation threshold). BG&E also performed a breaker scan for 115 kV voltage level and found that no breaker becomes overduty as a result of V1-033.

Stability and Reactive Power Requirement

To be determined at the System Impact Study.

Interconnection Requirements

The following provides the estimated cost and schedule for the Non-Direct and Direct Connection Network Upgrades and the Attachment Facilities:

Non – Direct Connection Network Upgrades

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.

Attachment Facilities & Direct Connection Network Upgrades

The location of the proposed facility offers two primary voltage level interconnection options. This study assumed a 115 kV option. BG&E performed cursory level estimate costs for redundant 34.5 kV and 115 kV interconnections. Both estimates were approximated between \$40 million and \$60 million. More detailed and accurate cost estimates will be provided at the System Impact Study. Due to pathway constraints that must be evaluated, schedule durations will also be provided at the System Impact Study.