PJM Generator Interconnection
V3-002 Ellicott City
0.5 MW Capacity / 1.2 MW Energy
Feasibility Study Report

January 2010
DMS #574134v1

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 Baltimore Gas and Electric Company.

Preface

The intent of a combined 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 Local and Network Upgrades, which are facility additions, or upgrades to existing facilities, that are needed to maintain the reliability of the PJM and 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 any right of way, real estate, and construction permit issues.

General

Queue V3-002 is an IC Capacity resource interconnection consisting of 1.2 MW of photovoltaic panels. V3-002 photovoltaic panels will be installed on site at the former New Cut Road Landfill, 8170 Hillsborough Road, Ellicott City in Howard County, Maryland. Output from the solar generation will be connected to the 480V service at Howard County's Worthington Elementary School. This school is supplied from Baltimore Gas & Electric's (BGE) 13kV distribution system via a 500kVA pad mounted transformer.

Potential PJM Network Impacts

The queue V3-002 project was studied as a 1.2MW injection (0.5 MW of which was capacity) into BGE's system at the WILDE LAKE 230-1 13.8kV substation. The project was studied on a Feasibility-Impact Study basis which utilizes an AC analysis, and incorporates all contingency types. Project V3-002 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)

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

There is no impact to breaker interrupting capabilities as a result of V3-002.

System Stability Analysis

Not required.

Interconnection Requirements

ITO has determined that the proposed generation can be connected to the school service with equipment modifications as follows:

a. Increase pad mounted transformer size to 1000kVA
b. Upgrade secondary conductors between transformer and billing meter CT's. (upgrade from 6 sets 500MCM Al to 10 sets)
c. Change billing meter to "net" meter.
d. The customer will be responsible for building additional conduit/duct bank for the secondary conductor additions.
e. Output from the solar generation will be used to offset the energy usage at Worthington Elementary School and excess power will be sold to the wholesale energy market.

Following are BGE costs for service upgrades at Worthington Elementary:

Labor:	$ 9,000
Material:	$17,000
Total:	$26,000

V3-002 ONE LINE DIAGRAM