#X2-038 –Halfway 12kV
Generation Interconnection

General

The Interconnection Customer (IC) is proposing a 2MW (0MW Capacity) landfill gas generating facility to be interconnected to the APS transmission system in Washington County, Maryland. The proposed in-service date for this project is April 1, 2013 and is currently under review.

This Generation Interconnection Feasibility Study provides analysis results to aid the Interconnection Customer in assessing the practicality and cost of incorporating the facility into the PJM system. This study was limited to load flow analyses of probable contingencies. Preliminary estimates of the scope, cost, and lead time for construction of facilities are provided below. If the interconnection customer elects to pursue a System Impact Study, a more comprehensive analysis will be performed.

Direct Connection Cost Estimate

The total preliminary estimate for Direct Connection work performed by Dayton is given in the following table:

Description	Total Cost
Install 12kV net meter facility	$32,042
Total	**$32,042**

Table 1. Direct Connection Cost Estimate

Note - This is an estimate based on similar work orders previously worked by PE for the types of work described in the analysis above. It is accurate to within plus or minus 50 percent. Should the customer want to proceed with the connection of this facility, a contract with PE will be developed based on these costs and a true-up of actual charges will be made at the completion of the project.

Timetable for Construction:
Total time to complete this project is (6-7) months from receipt of "Interconnect Agreement", "Construction Agreement" and receipt of "Estimated Project Costs". PE estimates (2) months after receipt of above for design work to be completed. PE estimates it will require an additional (4-5) months to complete the identified infrastructure upgrades.

Revenue Metering and SCADA Requirements

For PJM: The Interconnection Customer (IC) will install equipment necessary to provide Revenue Metering (KWH, KVARH) and real time data (KW, KVAR) for IC's generating Resource. See PJM Manuals M-01 and M-14D, and PJM Tariff Sections 24.1 and 24.2.

For APS: The Interconnection Customer will be required to comply with all FE Revenue Metering Requirements for Generation Interconnection Customers. The Revenue Metering Requirements may be found within the "FirstEnergy Requirements for Transmission Connected Facilities" document located at the following links:
www.firstenergycorp.com/feconnect
www.pjm.com/planning/design-engineering/to-tech-standards.aspx

Network Impacts

The Queue Project X2-038 was studied as a 2.0MW (0.0MW Capacity) injection into the 01HALFWY 138.0kV line in the APS area. Project X2-038 was evaluated for compliance with reliability criteria for summer peak conditions in 2015. Potential network impacts were as follows:

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

No violations were identified.

Multiple Facility Contingency
(Double Circuit Tower Line contingencies were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study.)

No violations were identified.

Short Circuit
(Summary of impacted circuit breakers)

PJM has completed the short circuit analysis of the X2-038 queue project Halfway 12.5kV. One option was considered during this study: the option was a direct connection to Halfway 12.5 kV substation. No new breakers were found to be over-duty in the APS transmission area.

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 violations were identified.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially cause 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.)

None.

Delivery of Energy Portion of Interconnection Request

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

As a result of the aggregate energy resources in the area, no violations were identified.