

**#X2-085 – Barberton – Seiberling 23kV  
Generation Interconnection**

**General**

The Interconnection Customer is proposing a 14MW (5.32MW Capacity) photovoltaic solar project to be interconnected to the American Transmission Systems Inc. (ATSI) transmission system and located Barberton, OH. ATSI is a FirstEnergy (FE) company. The proposed in-service date for this project is October 1, 2012 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.

**Direct Connection Cost Estimate**

The total preliminary cost estimate for Direct Connection work performed by ATSI is \$0.

**Non-Direct Connection Cost Estimate**

The total preliminary cost estimate for Non-Direct Connection work performed by ATSI is \$39,400. This estimate consists of:

Description	Total Cost	Tax Gross Up %
Replace Seiberling 23kV line CO relays with (2) SEL351 at the Barberton substation.	\$39,400	23.60
<b>Total Cost:</b>	<b>\$39,400</b>	

*Note: Tax gross-ups are not included in the upgrade costs. However, if applicable, apply the tax gross-up percentage shown in the chart per upgrade item.*

**Revenue Metering and SCADA Requirements**

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

**For ATSI:** 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](http://www.firstenergycorp.com/feconnect)  
[www.pjm.com/planning/design-engineering/to-tech-standards.aspx](http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx)

## **Network Impacts**

The X2-085 project was studied as a 14MW (5.32MW Capacity) injection into the ATSI area at the tap of the 02BARB-2 23kV substation. Project X2-085 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)*

Not required.

### **Contribution to Previously Identified Overloads**

*(X2-085 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 caused by the addition of this project's generation.)*

Not required.

### **Contribution to Previously Identified System Reinforcements**

*(Overloads initially caused by prior Queue positions with additional contributions to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study.)*

Not required.

### **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.