# *Generation Interconnection System Impact Study Report*

# *For*

# *PJM Generation Interconnection Request Queue Position AB1-125*

# *Carroll-Monocacy 34.5 kV*

*(Revised)*

***June 2017***

# Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to 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 (on PJM web site) for the appropriate transmission owner.

In some instances an 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 System Impact Study is performed.

The System Impact 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.

# General

Biggs Ford Solar Center, LLC ("Interconnection Customer") has proposed a solar generating facility located at 8300 Biggs Ford Road, Walkersville, Frederick County, MD. GPS coordinates of location site: 39.482995,-77.375725. The installed facilities will have a total capability of 15 MW with 5.7 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is July 1, 2017. **This study does not imply a Potomac Edison ("Transmission Owner") commitment to this in-service date.**

Attachment facilities and local upgrades (if required) along with terms and conditions to interconnect AB1-125 will be specified in a separate two party Interconnection Agreement (IA) between Potomac Edison and the Interconnection Customer as this project is considered FERC non-jurisdictional per the PJM Open Access Transmission Tariff (OATT). From the transmission system perspective, no network impacts were identified as detailed below.

## Point of Interconnection

AB1-125 will interconnect with the Potomac Edison distribution system by tapping the Monocacy – Carroll 34.5 kV line. This POI is FERC jurisdictional. Please refer to the one-line diagram in Appendix 2 for system configuration.

## Cost Summary

Transmission Owner facilities and network upgrades required to support this interconnection project are listed below. All Upgrades shown are New System Upgrades unless otherwise specified. Contributions in Aid of Construction (CIAC) tax gross-up is not included.

(a.) Attachment Facilities:

Estimated total time to complete: 12 Months
Estimated total costs w/o. tax: **$ 256,100** (Tax included: **$ 336,400)**, detailed as follows:

(a.1) Carroll - Monocacy 34.5 kV Line Tap & Metering. Region Line Tap on Carroll - Monocacy 34.5 kV line AB1-125 Point of Interconnection including costs associated with 34.5 kV Meter Package.

Estimated total costs w/o. tax: **$ 243,600** (Tax included: **$ 319,900**)
Network Upgrade Number: not required

(a.2) Carroll & Monocacy Substations. Adjust Remote Relay and Metering Settings at the Carroll and Monocacy substations.

Estimated total costs w/o. tax: **$ 12,500** (Tax included: **$ 16,500**)
Network Upgrade Number: not required

(b.) Direct Connection Network Upgrades: **$ 0.0**

(c.) Non-Direct Connection Network Upgrades: **$ 0.0**

(d.) Direct Connection Local Upgrades: **$ 0.0**

(e.) Non-Direct Connection Local Upgrades: **$ 0.0**

(f.) Baseline Upgrades: **$ 0.0**

(g.) Option to Build Upgrades: **$ 0.0**

**Total costs (a.) to (g.) without Tax: $ 256,100 (Tax included: $ 336,400)**

# Interconnection Customer Requirements

In addition to the Potomac Edison facilities, Interconnection Customer will also be responsible for meeting all criteria as specified in the applicable sections of the FirstEnergy "Requirements for Transmission Connected Facilities" document including:

1. The purchase and installation of fully rated interrupting device on the high side of the (AB1-125) step-up transformer.

2. The purchase and installation of the minimum required FirstEnergy generation interconnection relaying and control facilities. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

3. The purchase and installation of SCADA equipment to provide information in a compatible format to the FirstEnergy Transmission System Control Center.

4. The establishment of dedicated communication circuits for SCADA to the FirstEnergy Transmission System Control Center.

5. A compliance with the FirstEnergy and PJM generator power factor and voltage control requirements.

6. The execution of a back-up retail service agreement with the electric distribution company to serve the customer load supplied from the AB1-125 generation project interconnection point when the units are out-of-service.

The above requirements are in addition to any metering or other requirements imposed by PJM.

# Revenue Metering and SCADA Requirements

## PJM Requirements

The Interconnection Customer will be required to 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 Sections 24.1 and 24.2.

## Interconnected Transmission Owner Requirements

The Interconnection Customer will be required to comply with all FirstEnergy 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:

http://www.firstenergycorp.com/feconnect
http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

## Schedule

Based on the scope of Attachment Facilities and Network Upgrades required to support this generation interconnection project, it is expected to take a minimum of twelve (12) months from the date of a fully executed Interconnection Construction Service Agreement to complete the installation. It also assumes that Interconnection Customer will provide all rights-of-way, permits, easements, etc. that will be needed. A further assumption is that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined Direct and Non-Direct Network upgrades, and that all system outages will be allowed when requested.

## Other Supporting Facilities Charge

Subject to any required regulatory approvals or acceptance, the IC shall pay to PE a monthly charge of $22,482 for the connection of the customer facility to the PJM transmission system via the distribution system. The monthly charge will be part of Attachment H of the PJM OATT for this specific interconnection. Such charge may be billed to, and collected from the IC on behalf of PE by PJM and may be adjusted from time to time in accordance with Applicable Laws and Regulations.

# Network Impacts

The Queue Project AB1-125 was evaluated as a 15.0 MW (Capacity 5.7 MW) injection into a tap of the Carroll – Monocacy 34.5 kV line in the APS area. Project AB1-125 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB1-125 was studied with a commercial probability of 100%. Potential network impacts were as follows:

**Summer Peak Analysis - 2019**

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

None

**Multiple Facility Contingency**
*(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)*

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

**Steady-State Voltage Requirements**

None

**Short Circuit**

No over-dutied breakers found.

**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.
Only the most severely overloaded conditions are listed. 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 will study all overload conditions associated with the overloaded element(s) identified.

None

# System Reinforcements

**Short Circuit**
*(Summary form of Cost allocation for breakers will be inserted here if any)*

None

## Summer Peak Load Flow Analysis Reinforcements

**New System Reinforcements**
*(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)*

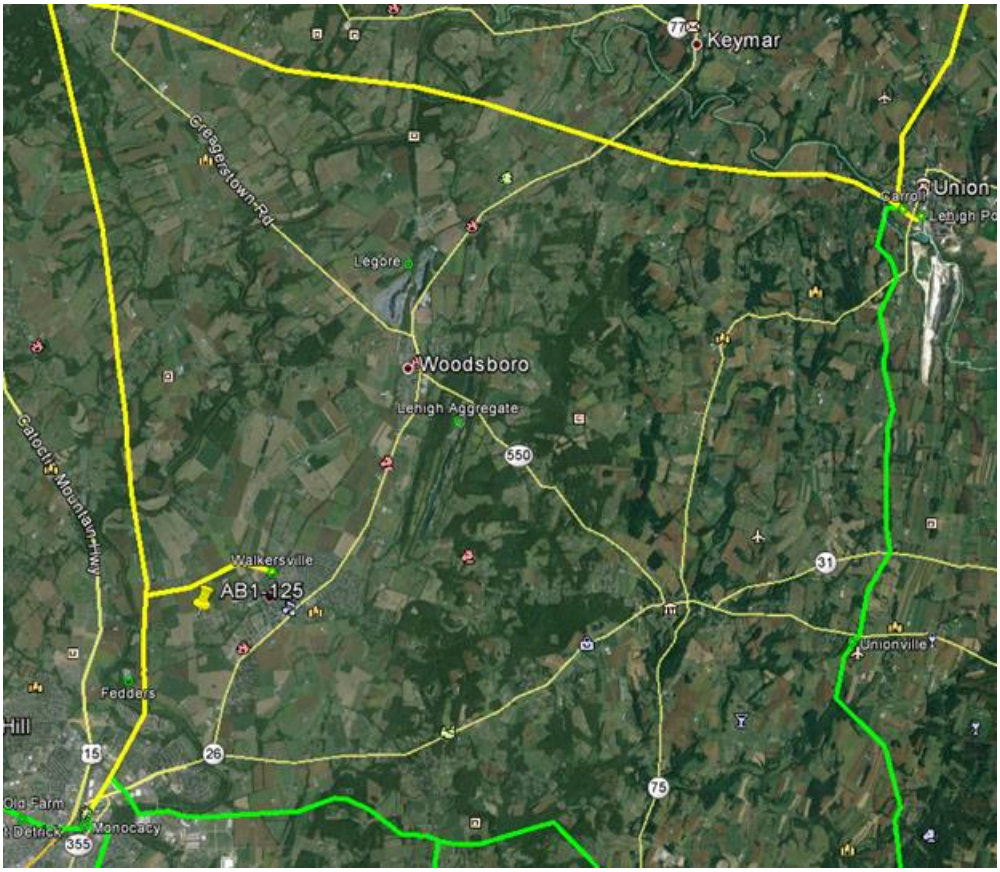
None

**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

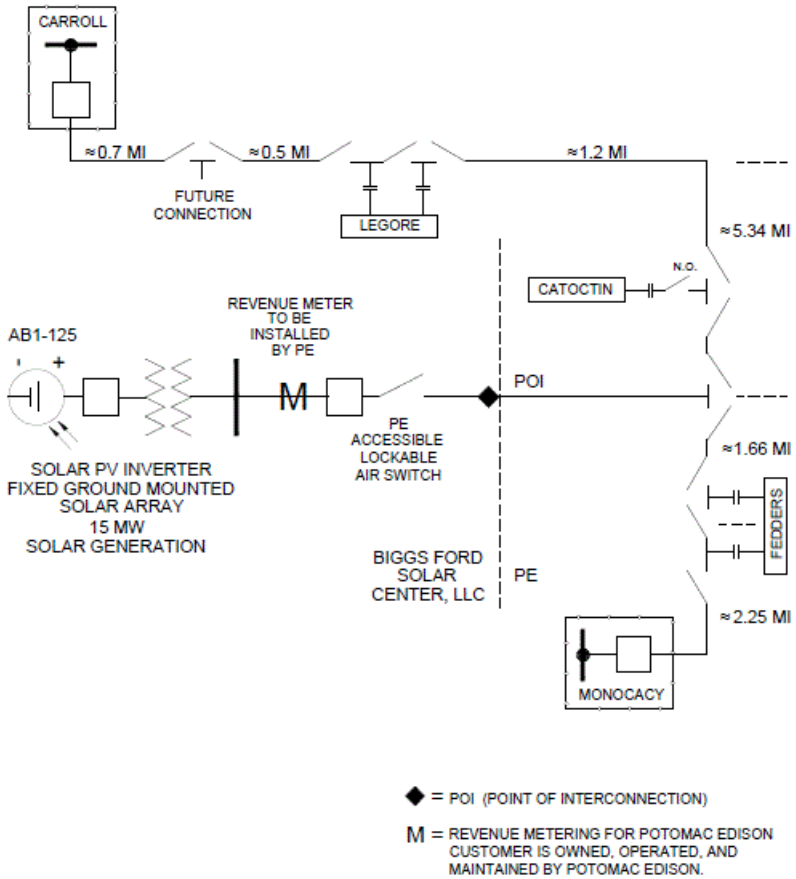
# Appendix 1

## Facility Location
## PJM Queue Position: AB1-125



# Appendix 2

## Interconnection One-Line Diagram
## PJM Queue Position: AB1-125



# *Generation Interconnection System Impact Study Report*

# *For*

# *PJM Generation Interconnection Request Queue Position AB1-125*

# *Carroll-Monocacy 34.5 kV*

*(Revised)*

***January 2017***

# Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to 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 (on PJM web site) for the appropriate transmission owner.

In some instances an 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 System Impact Study is performed.

The System Impact 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.

# General

Biggs Ford Solar Center, LLC ("Interconnection Customer") has proposed a solar generating facility located at 8300 Biggs Ford Road, Walkersville, Frederick County, MD. GPS coordinates of location site: 39.482995,-77.375725. The installed facilities will have a total capability of 15 MW with 5.7 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is July 1, 2017. **This study does not imply a Potomac Edison ("Transmission Owner") commitment to this in-service date.**

## Point of Interconnection

AB1-125 will interconnect with the Potomac Edison distribution system by tapping the Monocacy – Carroll 34.5 kV line. This POI is FERC jurisdictional. Please refer to the one-line diagram in Appendix 2 for system configuration.

## Cost Summary

Transmission Owner facilities and network upgrades required to support this interconnection project are listed below. All Upgrades shown are New System Upgrades unless otherwise specified. Contributions in Aid of Construction (CIAC) tax gross-up is not included.

(a.) Attachment Facilities:

Estimated total time to complete: 12 Months
Estimated total costs w/o. tax: **$ 256,100** (Tax included: **$ 336,400)**, detailed as follows:

(a.1) Carroll - Monocacy 34.5 kV Line Tap & Metering. Region Line Tap on Carroll - Monocacy 34.5 kV line AB1-125 Point of Interconnection including costs associated with 34.5 kV Meter Package.

Estimated total costs w/o. tax: **$ 243,600** (Tax included: **$ 319,900**)
Network Upgrade Number: not required

(a.2) Carroll & Monocacy Substations. Adjust Remote Relay and Metering Settings at the Carroll and Monocacy substations.

Estimated total costs w/o. tax: **$ 12,500** (Tax included: **$ 16,500**)
Network Upgrade Number: not required

(b.) Direct Connection Network Upgrades: **$ 0.0**

(c.) Non-Direct Connection Network Upgrades: **$ 0.0**

(d.) Direct Connection Local Upgrades: **$ 0.0**

(e.) Non-Direct Connection Local Upgrades: **$ 0.0**

(f.) Baseline Upgrades: **$ 0.0**

(g.) Option to Build Upgrades: **$ 0.0**

**Total costs (a.) to (g.) without Tax: $ 256,100 (Tax included: $ 336,400)**

## Interconnection Customer Requirements

In addition to the Potomac Edison facilities, Interconnection Customer will also be responsible for meeting all criteria as specified in the applicable sections of the FirstEnergy "Requirements for Transmission Connected Facilities" document including:

1. The purchase and installation of fully rated interrupting device on the high side of the (AB1-125) step-up transformer.

2. The purchase and installation of the minimum required FirstEnergy generation interconnection relaying and control facilities. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

3. The purchase and installation of SCADA equipment to provide information in a compatible format to the FirstEnergy Transmission System Control Center.

4. The establishment of dedicated communication circuits for SCADA to the FirstEnergy Transmission System Control Center.

5. A compliance with the FirstEnergy and PJM generator power factor and voltage control requirements.

6. The execution of a back-up retail service agreement with the electric distribution company to serve the customer load supplied from the AB1-125 generation project interconnection point when the units are out-of-service.

The above requirements are in addition to any metering or other requirements imposed by PJM.

## Revenue Metering and SCADA Requirements

### PJM Requirements

The Interconnection Customer will be required to 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 Sections 24.1 and 24.2.

### Interconnected Transmission Owner Requirements

The Interconnection Customer will be required to comply with all FirstEnergy 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:

http://www.firstenergycorp.com/feconnect
http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

## Schedule

Based on the scope of Attachment Facilities and Network Upgrades required to support this generation interconnection project, it is expected to take a minimum of twelve (12) months from the date of a fully executed Interconnection Construction Service Agreement to complete the installation. It also assumes that Interconnection Customer will provide all rights-of-way, permits, easements, etc. that will be needed. A further assumption is that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined Direct and Non-Direct Network upgrades, and that all system outages will be allowed when requested.

# Network Impacts

The Queue Project AB1-125 was evaluated as a 15.0 MW (Capacity 5.7 MW) injection into a tap of the Carroll – Monocacy 34.5 kV line in the APS area. Project AB1-125 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB1-125 was studied with a commercial probability of 100%. Potential network impacts were as follows:

**Summer Peak Analysis - 2019**

**Generator Deliverability**

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

None

**Multiple Facility Contingency**

*(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)*

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

**Steady-State Voltage Requirements**

None

**Short Circuit**

No over-dutied breakers found.

**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.
Only the most severely overloaded conditions are listed. 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 will study all overload conditions associated with the overloaded element(s) identified.

None

# System Reinforcements

**Short Circuit**
*(Summary form of Cost allocation for breakers will be inserted here if any)*

None

## Summer Peak Load Flow Analysis Reinforcements

**New System Reinforcements**
*(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)*

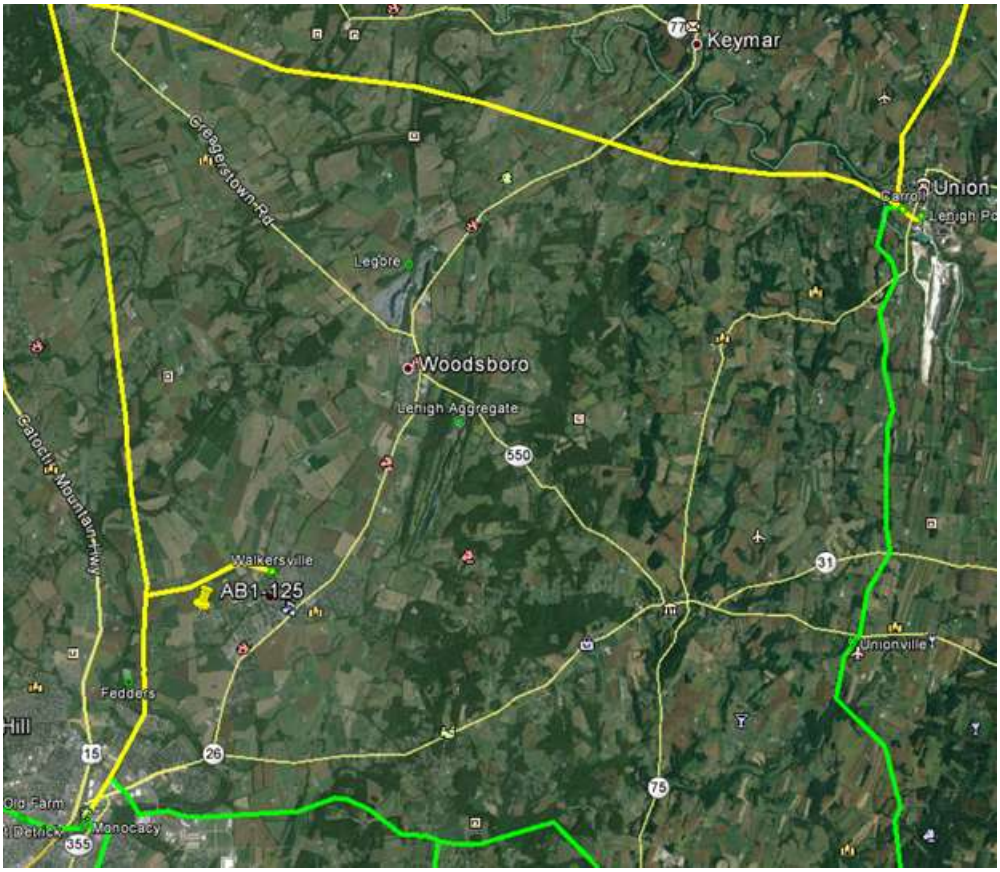
None

**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

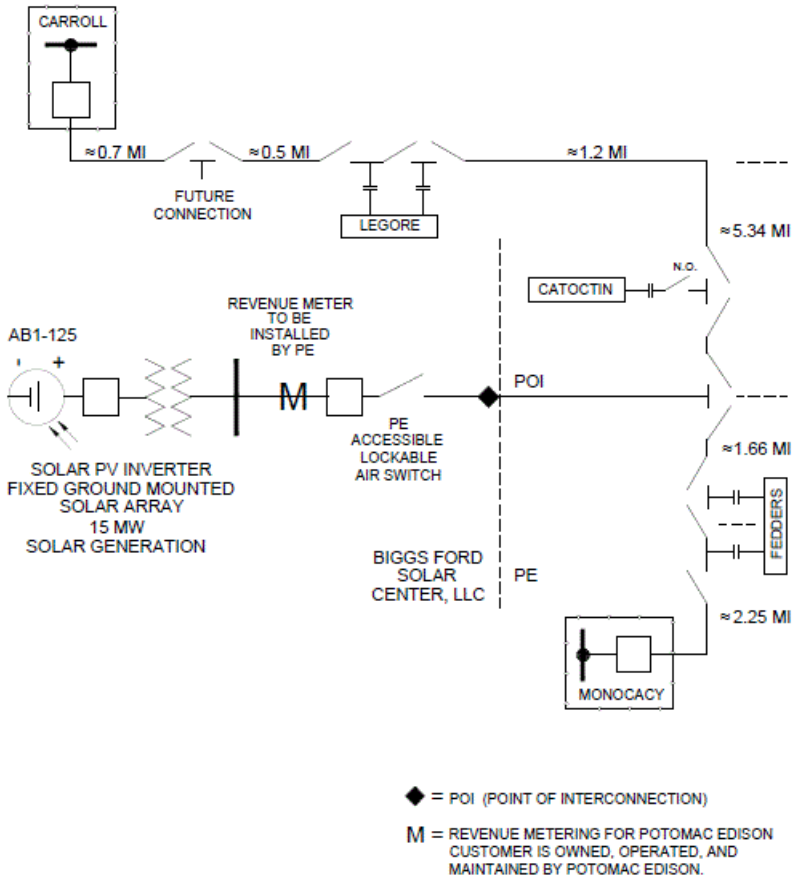
# Appendix 1

## Facility Location
## PJM Queue Position: AB1-125



# Appendix 2

## Interconnection One-Line Diagram
## PJM Queue Position: AB1-125



# *Generation Interconnection System Impact Study Report*

# *For*

# *PJM Generation Interconnection Request Queue Position AB1-125*

# *Carroll-Monocacy 34.5 kV*

***September 2016***

# Preface

The intent of the System Impact Study is to determine a plan, with approximate cost and construction time estimates, to connect the subject generation interconnection project to 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 (on PJM web site) for the appropriate transmission owner.

In some instances an 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 System Impact Study is performed.

The System Impact 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.

# General

Biggs Ford Solar Center, LLC ("Interconnection Customer") has proposed a solar generating facility located at 8300 Biggs Ford Road, Walkersville, Frederick County, MD. GPS coordinates of location site: 39.482995,-77.375725. The installed facilities will have a total capability of 15 MW with 5.7 MW of this output being recognized by PJM as capacity. The proposed in-service date for this project is July 1, 2017. **This study does not imply a Potomac Edison ("Transmission Owner") commitment to this in-service date.**

## Point of Interconnection

AB1-125 will interconnect with the Potomac Edison distribution system by tapping the Monocacy – Carroll 34.5 kV line. This POI is FERC jurisdictional. Please refer to the one-line diagram in Appendix 2 for system configuration.

## Cost Summary

Transmission Owner facilities and network upgrades required to support this interconnection project are listed below. All Upgrades shown are New System Upgrades unless otherwise specified. Contributions in Aid of Construction (CIAC) tax gross-up is not included.

(a.) Attachment Facilities:

Estimated total time to complete: 12 Months
Estimated total costs w/o. tax: **$ 256,100** (Tax included: **$ 336,400)**, detailed as follows:

(a.1) Carroll - Monocacy 34.5 kV Line Tap & Metering. Region Line Tap on Carroll - Monocacy 34.5 kV line AB1-125 Point of Interconnection including costs associated with 34.5 kV Meter Package.

Estimated total costs w/o. tax: **$ 243,600** (Tax included: **$ 319,900**)
Network Upgrade Number: not required

(a.2) Carroll & Monocacy Substations. Adjust Remote Relay and Metering Settings at the Carroll and Monocacy substations.

Estimated total costs w/o. tax: **$ 12,500** (Tax included: **$ 16,500**)
Network Upgrade Number: not required

(b.) Direct Connection Network Upgrades: **$ 0.0**

(c.) Non-Direct Connection Network Upgrades: **$ 0.0**

(d.) Direct Connection Local Upgrades: **$ 0.0**

(e.) Non-Direct Connection Local Upgrades: **$ 0.0**

(f.) Baseline Upgrades: **$ 0.0**

(g.) Option to Build Upgrades: **$ 0.0**

**Total costs (a.) to (g.) without Tax: $ 256,100 (Tax included: $ 336,400)**

## Interconnection Customer Requirements

In addition to the Potomac Edison facilities, Interconnection Customer will also be responsible for meeting all criteria as specified in the applicable sections of the FirstEnergy "Requirements for Transmission Connected Facilities" document including:

1. The purchase and installation of fully rated interrupting device on the high side of the (AB1-125) step-up transformer.

2. The purchase and installation of the minimum required FirstEnergy generation interconnection relaying and control facilities. This includes over/under voltage protection, over/under frequency protection, and zero sequence voltage protection relays.

3. The purchase and installation of SCADA equipment to provide information in a compatible format to the FirstEnergy Transmission System Control Center.

4. The establishment of dedicated communication circuits for SCADA to the FirstEnergy Transmission System Control Center.

5. A compliance with the FirstEnergy and PJM generator power factor and voltage control requirements.

6. The execution of a back-up retail service agreement with the electric distribution company to serve the customer load supplied from the AB1-125 generation project interconnection point when the units are out-of-service.

The above requirements are in addition to any metering or other requirements imposed by PJM.

## Revenue Metering and SCADA Requirements

### PJM Requirements

The Interconnection Customer will be required to 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 Sections 24.1 and 24.2.

### Interconnected Transmission Owner Requirements

The Interconnection Customer will be required to comply with all FirstEnergy 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:

http://www.firstenergycorp.com/feconnect
http://www.pjm.com/planning/design-engineering/to-tech-standards.aspx

## Schedule

Based on the scope of Attachment Facilities and Network Upgrades required to support this generation interconnection project, it is expected to take a minimum of twelve (12) months from the date of a fully executed Interconnection Construction Service Agreement to complete the installation. It also assumes that Interconnection Customer will provide all rights-of-way, permits, easements, etc. that will be needed. A further assumption is that there will be no environmental issues with any of the new properties associated with this project, that there will be no delays in acquiring the necessary permits for implementing the defined Direct and Non-Direct Network upgrades, and that all system outages will be allowed when requested.

## Other Supporting Facilities Charge

Subject to any required regulatory approvals or acceptance, the IC shall pay to PE a monthly charge of $22,482 for the connection of the customer facility to the PJM transmission system via the distribution system. The monthly charge will be part of Attachment H of the PJM OATT for this specific interconnection. Such charge may be billed to, and collected from the IC on behalf of PE by PJM and may be adjusted from time to time in accordance with Applicable Laws and Regulations.

# Network Impacts

The Queue Project AB1-125 was evaluated as a 15.0 MW (Capacity 5.7 MW) injection into a tap of the Carroll – Monocacy 34.5 kV line in the APS area. Project AB1-125 was evaluated for compliance with applicable reliability planning criteria (PJM, NERC, NERC Regional Reliability Councils, and Transmission Owners). Project AB1-125 was studied with a commercial probability of 100%. Potential network impacts were as follows:

**Summer Peak Analysis - 2019**

**Generator Deliverability**

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

None

**Multiple Facility Contingency**

*(Double Circuit Tower Line, Fault with a Stuck Breaker, and Bus Fault contingencies for the full energy output)*

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

**Steady-State Voltage Requirements**

None

**Short Circuit**

No over-dutied breakers found.

**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.
Only the most severely overloaded conditions are listed. 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 will study all overload conditions associated with the overloaded element(s) identified.

None

# System Reinforcements

**Short Circuit**
*(Summary form of Cost allocation for breakers will be inserted here if any)*

None

## Summer Peak Load Flow Analysis Reinforcements

**New System Reinforcements**
*(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)*

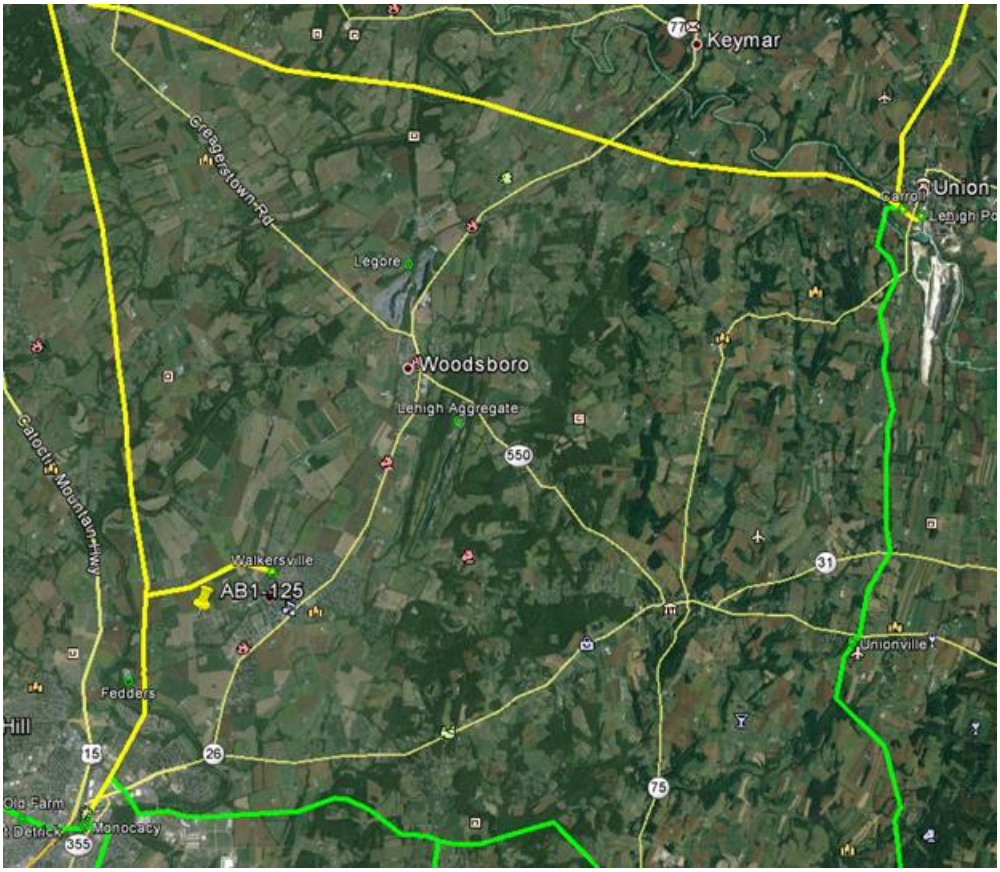
None

**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

# Appendix 1

## Facility Location
## PJM Queue Position: AB1-125



# Appendix 2

## Interconnection One-Line Diagram
## PJM Queue Position: AB1-125