

***Generation Interconnection
Combined Feasibility/System Impact Study
Report***

For

***PJM Generation Interconnection Request
Queue Position V2-014***

Waretown 12.47kV

January 2010

Preface

The intent of the Combined Feasibility/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.

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

Pepco Energy Services, Inc., the Interconnection Customer (IC), has proposed a 5.06 MWE (1.92 MWC) solar powered generating facility consisting of three (3) photovoltaic arrays. The facility will be located at the Ocean Township Landfill in Waretown, New Jersey. V2-014 was studied as a 5.06 MW injection into the Atlantic City Electric's distribution system and evaluated for compliance with reliability criteria for summer peak conditions in 2013.

Point of Interconnection

V2-014 will interconnect with the Atlantic City Electric distribution system at the Barnegat 69/12kV substation (see Attachment 1).

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

The scope of work and estimated costs for the direct connection facilities is as follows:

1. The construction of a new 7 mile (approximate) 12kV dedicated feeder with aerial cable to be built between the IC's generating site and the Barnegat 69/12kV substation. The estimated cost to perform this work is **\$3,200,000**.
2. A feeder terminal will be created at the Barnegat substation for the new dedicated 12kV feeder. The estimated cost to perform this work is **\$385,000**.

3. A utility operated recloser will be required on the IC tap that will have proper relaying and communication. The estimated cost to perform this work is **\$50,000**.
4. Utility grade primary metering will be required. The estimated cost to perform this work is **\$20,000**.
5. A SCADA point addition to Control Center will be required. The estimated cost to perform this work is **\$10,000**.
6. System protection planning. The estimated cost to perform this work is **\$15,000**.

The total estimated cost to perform the above work is **\$3,680,000**. The estimated time to complete the work is **6 to 12 months** following receipt of a fully executed Interconnection Services Agreement and Interconnection Construction Service Agreement. Schedule and costs to be refined during the Facilities Study phase of the project.

Note: the above cost does not include the Contribution in Aid of Construction (CIAC) tax.

Interconnection Customer Scope of Direct Connection Work

The Interconnection Customer assumes full responsibility for design and construction of all facilities associated with the V2-014 generating station on their side of the POI. Site preparation including grading and an access road, if necessary, is assumed to be by the IC.

The IC will be required to install metering and telemetry equipment to provide revenue metering and real-time telemetry data to PJM. The requirements for this equipment are listed in Appendix 2, Section 8 of Attachment O to the PJM Tariff, as well as PJM Manuals 01 and 14D. Protective relaying and metering design and installation must comply with Atlantic City Electric Applicable Standards.

Network Impacts

Potential transmission network impacts are 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, Line with Failed 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

Short Circuit

Not required.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. “Network Impacts,” initially caused by the addition of this project’s generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project.)

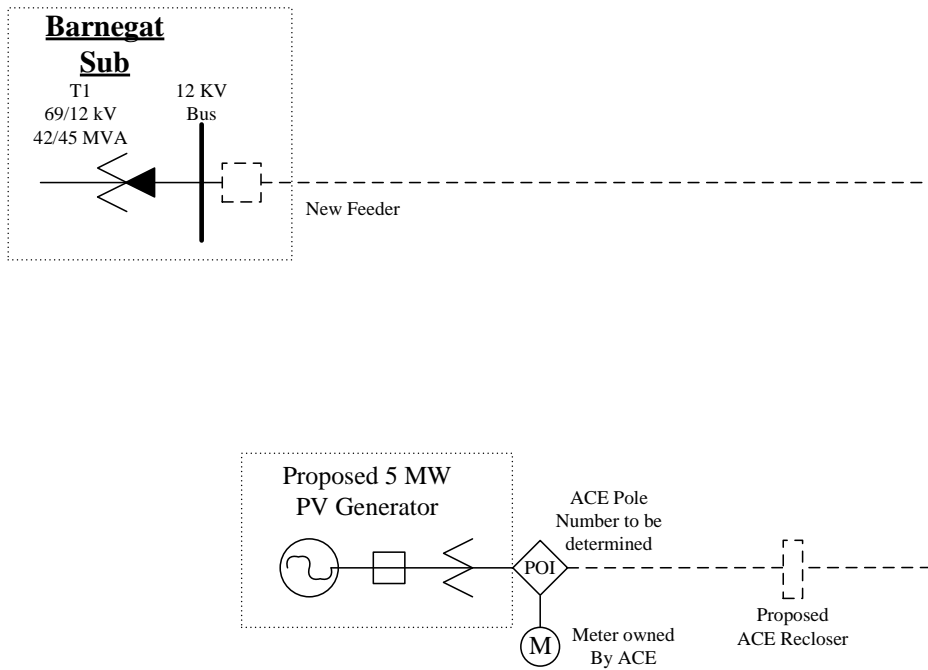
None

Dynamic Analysis

The dynamic study is in progress and will be completed during the Facilities Study phase of V2-014. The IC may be required to provide dynamic VAR compensation as a result of the study. The study may identify the need for additional system equipment, settings, distribution system reinforcements, and possibly Point of Interconnection alternatives.

V2-014

Barnegat 69/12 kV Sub





955 Jefferson Avenue
Valley Forge Corporate Center
Norristown, PA 19403-2497

VIA FEDEX

January 12, 2010

Mr. Ron Marks
Manager, Project Development
Pepco Energy Services, Inc.
1825 Atlantic Avenue
Atlantic City, NJ 08401

Dear Mr. Marks:

Re: PJM Queue Project V2-014, "Waretown 12.47kV" Combined Feasibility/System Impact Study Report (final) and Facilities Study Agreement

Attached is a report documenting the results of the PJM queue project V2-014, "Waretown 12.47kV" Combined Feasibility/System Impact Study. The results of this study are predicated on a year 2013 transmission system and based on PJM's best assumptions at the present time for load growth and for connection of proposed new generation additions. Combined Feasibility/System Impact Studies are performed to determine the facilities required for interconnection and to define the cost and timing for construction of direct connection facilities and transmission network upgrades required for the reliable interconnection of a generation project to the transmission system.

The direct connection facilities, network upgrade costs, and associated timing described in the enclosed report is based upon estimates given to PJM by Atlantic City Electric Company. The costs are your responsibility as the project developer.

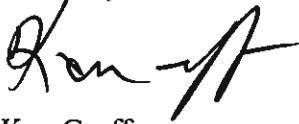
Pursuant to section 206 of the PJM Tariff, attached is a Facilities Study Agreement for your consideration. The Agreement must be executed within thirty (30) days (**by close of business on February 12, 2010**) to maintain the project's position in the queue. Please note that a refundable deposit of **\$50,000** is required to accompany the signed Agreement. Two copies, with original signature on each, of the executed Facilities Study Agreement should be returned with the required study deposit to:

Jeannette Mittan
PJM Interconnection, L.L.C.
955 Jefferson Avenue, Business Center
Valley Forge Corporate Center
Norristown, PA 19403-2497
Phone: (610) 666-3158
FAX: (610) 666-4779

Costs for the Combined Feasibility/System Impact Study are being tabulated and you will receive an invoice in the near future. If you desire to discuss the Combined Feasibility/System Impact Study Report or the Facilities Study Agreement in more detail, please call me at (610) 666-4566 or email me at graffk@pjm.com. A meeting or teleconference will be arranged at your convenience.

The following information is provided for wire transfers: Bank: PNC Bank, NA, New Jersey; ABA Number: 031-207-607; Account Number: 8013589826. Please e-mail Jeannette Mittan at mittaj@pjm.com with the project's name, queue number, date and amount of wire.

Sincerely,



Ken Graff
Project Manager
System Planning Department

PJM DOCS #574749-v1
Enclosures

cc: Via e-mail (w/enclosures)
Jim Summers - PHI
Mike Mayer - PHI

PJM Office of the Interconnection (w/enclosures)
Jay Liu - PJM
File

***Generation Interconnection
Combined Feasibility/System Impact Study
Report***

For

***PJM Generation Interconnection Request
Queue Position V2-014***

Waretown 12.47kV

January 2010

Preface

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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.

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

Pepco Energy Services, Inc., the Interconnection Customer (IC), has proposed a 5.06 MWE (1.92 MWC) solar powered generating facility consisting of three (3) photovoltaic arrays. The facility will be located at the Ocean Township Landfill in Waretown, New Jersey. V2-014 was studied as a 5.06 MW injection into the Atlantic City Electric's distribution system and evaluated for compliance with reliability criteria for summer peak conditions in 2013.

Point of Interconnection

V2-014 will interconnect with the Atlantic City Electric distribution system at the Barnegat 69/12kV substation (see Attachment 1).

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

The scope of work and estimated costs for the direct connection facilities is as follows:

1. The construction of a new 7 mile (approximate) 12kV dedicated feeder with aerial cable to be built between the IC's generating site and the Barnegat 69/12kV substation. The estimated cost to perform this work is **\$3,200,000**.
2. A feeder terminal will be created at the Barnegat substation for the new dedicated 12kV feeder. The estimated cost to perform this work is **\$385,000**.

3. A utility operated recloser will be required on the IC tap that will have proper relaying and communication. The estimated cost to perform this work is **\$50,000**.
4. Utility grade primary metering will be required. The estimated cost to perform this work is **\$20,000**.
5. A SCADA point addition to Control Center will be required. The estimated cost to perform this work is **\$10,000**.
6. System protection planning. The estimated cost to perform this work is **\$15,000**.

The total estimated cost to perform the above work is **\$3,680,000**. The estimated time to complete the work is **6 to 12 months** following receipt of a fully executed Interconnection Services Agreement and Interconnection Construction Service Agreement. Schedule and costs to be refined during the Facilities Study phase of the project.

Note: the above cost does not include the Contribution in Aid of Construction (CIAC) tax.

Interconnection Customer Scope of Direct Connection Work

The Interconnection Customer assumes full responsibility for design and construction of all facilities associated with the V2-014 generating station on their side of the POI. Site preparation including grading and an access road, if necessary, is assumed to be by the IC.

The IC will be required to install metering and telemetry equipment to provide revenue metering and real-time telemetry data to PJM. The requirements for this equipment are listed in Appendix 2, Section 8 of Attachment O to the PJM Tariff, as well as PJM Manuals 01 and 14D. Protective relaying and metering design and installation must comply with Atlantic City Electric Applicable Standards.

Network Impacts

Potential transmission network impacts are 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, Line with Failed 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

Short Circuit

Not required.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. “Network Impacts,” initially caused by the addition of this project’s generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project.)

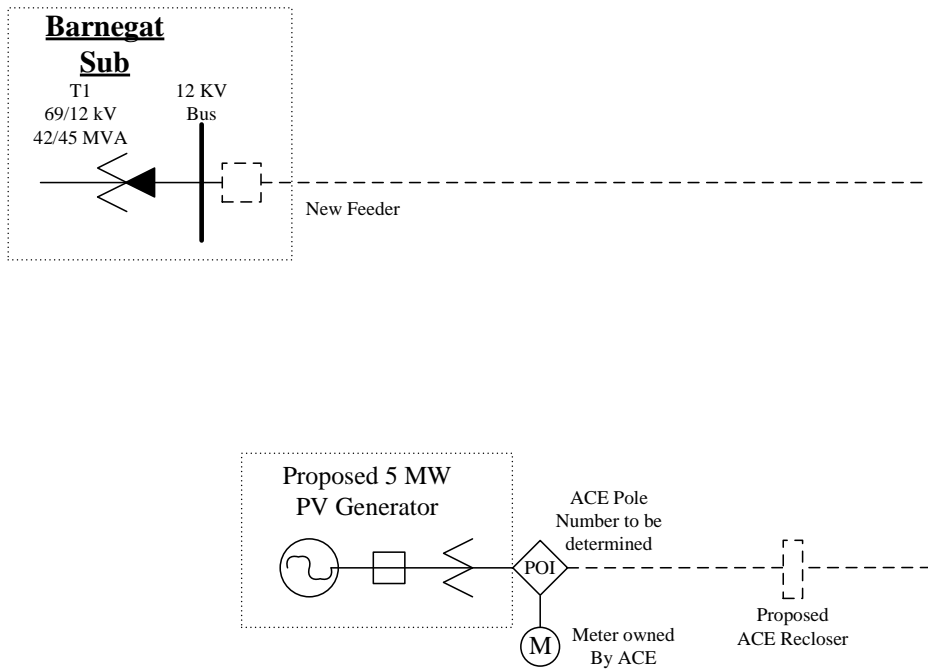
None

Dynamic Analysis

The dynamic study is in progress and will be completed during the Facilities Study phase of V2-014. The IC may be required to provide dynamic VAR compensation as a result of the study. The study may identify the need for additional system equipment, settings, distribution system reinforcements, and possibly Point of Interconnection alternatives.

V2-014

Barnegat 69/12 kV Sub





955 Jefferson Avenue
Valley Forge Corporate Center
Norristown, PA 19403-2497

VIA FEDEX

October 28, 2009

Mr. Ron Marks
Manager, Project Development
Pepeco Energy Services, Inc.
1825 Atlantic Avenue
Atlantic City, NJ 08401

Dear Mr. Marks:

Re: PJM Queue Position V2-014, Waretown 12.47 kV, Combined Feasibility/System Impact Study Report - PJM portion.

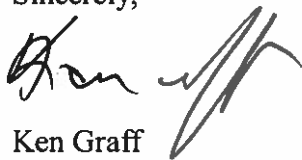
Enclosed is a report documenting the PJM results of the Combined Feasibility/System Impact Study for V2-014, Waretown 12.47 kV. The report does not include the Transmission Owner's (TO) results which will be provided under separate cover in the near future. No additional deposits or agreements will be required for the TO's results. V2-012 did not cause any transmission network impacts or overloads.

The results of the study are predicated on a year 2013 transmission system and based upon PJM's best assumptions at the present time for load growth and connection of proposed new generation additions. The project was studied on a combined feasibility/impact basis which utilizes an AC analysis, and incorporates all contingency types.

Combined Feasibility/System Impact Studies are performed to provide the generation developer with ballpark reinforcement costs and timing information concerning both direct connection facilities and potential transmission network upgrades. The analysis inherently has to include assumptions regarding existing uncertainties; therefore, the results should be used in this context.

If you desire to discuss the Combined Feasibility/System Impact Study Report in more detail, please call me at (610) 666-4566 or e-mail me at graffk@pjm.com. A meeting or teleconference will be arranged at your convenience.

Sincerely,



Ken Graff
Project Manager
System Planning Department

PJM DOCS #563247-v1
Enclosures

cc: Via U.S. Mail (w/enclosures)
Jim Summers - PHI
Mike Mayer - PHI

PJM Office of the Interconnection (w/enclosures)
Jay Liu - PJM
File

***Generation Interconnection
Combined Feasibility/System Impact
Study Report
(PJM Portion)***

For

***PJM Generation Interconnection Request
Queue Position V2-014***

Waretown 12.47 kV

October 2009

Preface

The intent of a Combined Feasibility/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.

The following report documents the PJM results of the Combined Feasibility/System Impact Study for V2-014, Waretown 12.47 kV. It does not include the Transmission Owner's (TO) results which will be provided under separate cover. No transmission network impacts were found.

General

Pepco Energy Services, Inc., the Interconnection Customer (IC), has proposed a 5.06 MWE (1.92 MWC) solar powered generating facility consisting of three (3) photovoltaic arrays. The facility will be located at the Ocean Township Landfill in Waretown, New Jersey. V2-014 was studied as a 5.06 MW injection into the Atlantic City Electric's distribution system at the Cedar #7 12.9 kV substation and was evaluated for compliance with reliability criteria for summer peak conditions in 2013. The planned in-service date is December 31, 2009.

Point of Interconnection

V2-014 will interconnect with the Atlantic City Electric 12kV distribution system via a tap of the NJ 1323 circuit (See Attachment 1 for simple single line).

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

To be provided with TO's results.

Interconnection Customer Scope of Direct Connection Work

The Interconnection Customer assumes full responsibility for design and construction of all facilities associated with the V2-014 generating station and the 12kV direct connection line on the IC side of the POI. Site preparation including grading and an access road, as necessary, is assumed to be by the developer. Route selection, line design, right-of-way acquisition and construction of lines will be entirely the responsibility of the IC.

The IC will be required to install metering and telemetry equipment to provide revenue metering and real-time telemetry data to PJM. The requirements for this equipment are listed in Appendix 2, Section 8 of Attachment O to the PJM Tariff, as well as PJM Manuals 01 and 14D. Protective relaying and metering design and installation must comply with Atlantic City Electric Applicable

Standards.

Network Impacts

Potential network impacts are 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, Line with Failed 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

Short Circuit

Not required.

New System Reinforcements

(Upgrades required to mitigate reliability criteria violations, i.e. “Network Impacts,” initially caused by the addition of this project’s generation)

None

Contribution to Previously Identified System Reinforcements

(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project.

None

Stability Analysis

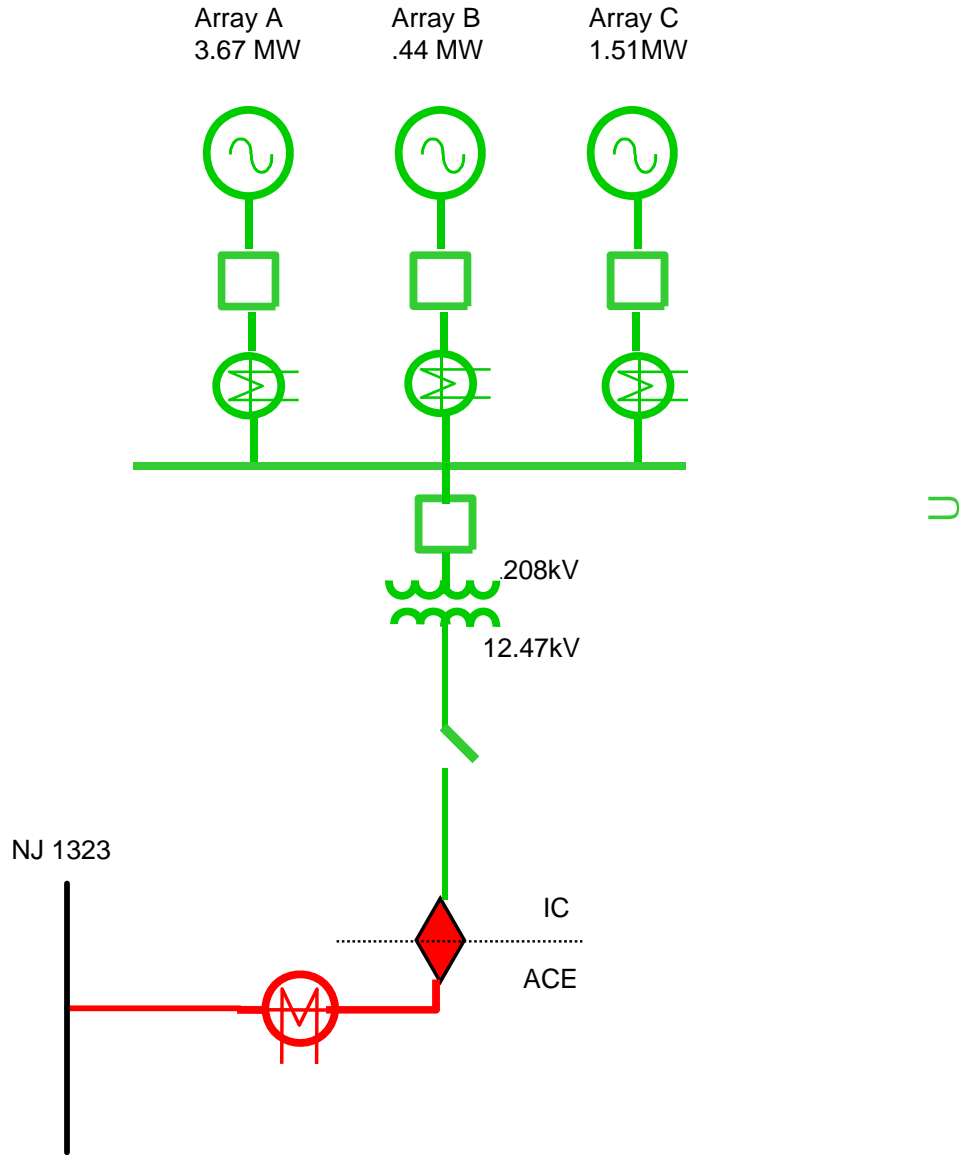
Not required.


Potential Congestion due to Local Energy Deliverability

(PJM also studied the delivery of the energy portion of the surrounding generation. Any potential 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 Transmission Interconnection Request. Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full deliverability for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which analyzes all overload conditions associated with the identified overloaded element(s). As a result of the aggregate energy resources in the area, the following violations were identified:

None.

Attachment 1
V2-014



 Point of Interconnection