U1-065 Middle 69kV
Generation Interconnection

General

The Interconnection Customer (IC), has proposed a 20 MW upgrade to their existing Middle combustion turbine generating facility located in Rio Grande, New Jersey. The projected in service date of the upgrade is May 2009. The project was evaluated for compliance with reliability criteria for summer peak conditions in 2012.

Point of Interconnection: The U1-065 Point of Interconnection is the Atlantic City Electric's (ACE) transmission system at the Middle 69 kV substation. U1-065 was studied as a 20 MW injection into the Middle substation.

Direct Connection Requirements

Transmission Owner Scope of Direct Connection Work

No additional Direct Connection facilities are required.

Interconnection Customer Scope of Direct Connection Work

The developer has assumed full responsibility for design and construction of all facilities associated with the U1-065 generating station and the 69 kV direct connection line on the Interconnection Customer side of the POI.

Protective relaying and metering design and installation must comply with Atlantic City Electric's 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 contingencies only for the **full energy** output. Stuck breaker and bus fault contingencies will be performed for the System Impact Study)*

None

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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)*

1. The SCULL#2-MILL #2 138kV (AE) line loads from 149.26% to 151.54% (DC power flow) of its emergency rating (268 MVA) for the single line contingency outage (U_queue_reinforcement_47). This project contributes approximately 6.1 MW to the thermal violation.

2. The BLE-SCULL#2 138kV (AE) line loads from 136.41% to 138.39% (DC power flow) of its emergency rating (307 MVA) for the single line contingency outage (U_queue_reinforcement_47). This project contributes approximately 6.1 MW to the thermal violation.

3. The BLE-SCULL#1 138kV (AE) line loads from 134.76% to 136.76% (DC power flow) of its emergency rating (292 MVA) for the single line contingency outage (U_queue_reinforcement_48). This project contributes approximately 5.8 MW to the thermal violation.

4. The SCULL#1-MILL #1 138kV (AE) line loads from 134.68% to 136.85% (DC power flow) of its emergency rating (268 MVA) for the single line contingency outage (U_queue_reinforcement_48). This project contributes approximately 5.8 MW to the thermal violation.

5. The MILL #1-LEWIS #1 138kV (AE) line loads from 134.55% to 136.73% (DC power flow) of its emergency rating (268 MVA) for the single line contingency outage (U_queue_reinforcement_48). This project contributes approximately 5.8 MW to the thermal violation.

6. The MILL #2-LEWIS #2 138kV (AE) line loads from 122.24% to 124.68% (DC power flow) of its emergency rating (215 MVA) for the single line contingency outage (U_queue_reinforcement_47). This project contributes approximately 5.2 MW to the thermal violation.

7. The BLE-MIDDLE TAP 138 kV (AE) line section loads to 173% of its emergency rating (219 MVA) for the outage of the Orchard-S122 Tap 230 kV line. This project contributes 8 MW to the contingency facility loading.

8. The ORCHARD-S122 Tap 230 kV (AE) line loads to 126% of its emergency rating (805 MVA) for the outage of the Dennis-Corson 138 kV line. This project contributes 6 MW to the contingency facility loading.

9. The CORSON-MERION 138 kV (AE) line loads to 125% of its emergency rating (219 MVA) for the outage of the Orchard-S122 Tap 230 kV line. This project contributes 5 MW to the contingency facility loading.

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Short Circuit

Not required.

Stability and Reactive Power Requirements

Will be performed during the Queue U1-065 System Impact Study.

Steady State Voltage Requirements

Will be performed during the Queue U1-065 System Impact Study.

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 System Impact Study)

1. To mitigate the SCULL #2-MILL #2 138kV (AE) line overload would require the rebuild and reconductor of the line section with a larger conductor. The estimated cost to perform this work is **$4,800,000** and will take **30 months** to complete from the time "Notice to Proceed" is given after the ISA and CSA are executed. This is also the reinforcement for item #2 under "Contribution to Previously Identified System Reinforcements."

2. To mitigate the BLE-SCULL#2 138kV (AE) line overload would require the rebuild and reconductor of the line section with a larger conductor. The estimated cost to perform this work is **$2,000,000** and will take **30 months** to complete from the time "Notice to Proceed" is given after the ISA and CSA are executed.

3. To mitigate the BLE-SCULL#1 138kV (AE) line overloads would require the rebuild and reconductor of the line section with a larger conductor. The estimated cost to perform this work is **$2,000,000** and will take **30 months** to complete from the time "Notice to Proceed" is given after the ISA and CSA are executed.

4. To mitigate the #1 MILL-SCULL 138 kV (AE) line overload would require the rebuild and reconductor of the line section with a larger conductor. The estimated cost to perform this work is **$4,800,000** and will take **30 months** to complete from the time "Notice to Proceed" is given after the ISA and CSA are executed.

5. To mitigate the #1 LEWIS-MILL 138 kV (AE) line overload would require the rebuild and reconductor of the line section with a larger conductor. The estimated cost to perform this work

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is **$4,700,000** and will take **30 months** to complete from the time “Notice to Proceed” is given after the ISA and CSA are executed.

6. To mitigate the #2 MILL-LEWIS 138 kV (AE) line overload would require the rebuild and reconductor of the line section with a larger conductor. The estimated cost to perform this work is **$4,800,000** and will take **30 months** to complete from the time “Notice to Proceed” is given after the ISA and CSA are executed.

7. To mitigate the BLE-MIDDLE TAP 138kV (AE) line overload would require the circuit to be reconductored with an ACSS conductor. The estimated cost to perform this work is **$3,000,000** and will take **30 months** to complete from the time “Notice to Proceed” is given after the ISA and CSA are executed.

8. To mitigate to ORCHARD-S122 230kV (AE) line overload would require the reconductor of the line with an ACSS conductor. The estimated cost to perform this work is **$4,000,000** and will take **30 months** to complete from the time "Notice to Proceed" is given after the ISA and CSA are executed.

9. To mitigate the MERION-CORSON 1 138kV (AE) line overload would require the reconductor of a section of the line with an ACSS conductor. The estimated cost to perform this work is **$2,400,000** and will take **30 months** to complete from the time "Notice to Proceed" is given after the ISA and CSA are executed.

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