Generation Interconnection

This analysis was completed to assess the reliability impact for a new generator interconnecting to the PJM system as a capacity resource.

Network Impacts -300 MW Injection into the Sewaren 230kV substation (G15)

Network Impacts

Potential network impacts for the injection of an additional 300 MW into the existing Sewaren 230kV substation was evaluated for summer peak conditions in 2005.

Generator Deliverability

1) The Sewaren 230/138kV transformer is contingency overloaded at 105% of the emergency rating (454 MVA) for the outage of the Sewaren – Pierson Ave – Deans 230kV circuit. The G15 project contributes approximately 85MW to the loading on this circuit.

2) The Sewaren 230/138kV transformer is contingency overloaded at 105% of the emergency rating (454 MVA) for the outage of the Brunswick - Deans 230kV circuit. The G15 project contributes approximately 68MW to the loading on this circuit.

3) The Lafayette Rd – Metuchen "V" 138kV circuit is contingency overloaded at 103% of the emergency rating (309 MVA) for the outage of the Brunswick - Deans 230kV circuit. The G15 project contributes approximately 31MW to the loading on this circuit.

4) The Linden – Minue St. – Pierson Ave. – Deans 230kV circuit is contingency overloaded at 105% of the emergency rating (873 MVA) for the outage of the Linden – Tosco 230kV circuit. The G15 project contributes approximately 73MW to the loading on this circuit.

5) The Fanwood – New Dover 138 kV circuit is overloaded at 105% of the normal rating (304 MVA), when the second 230/138 kV transformer is added at Sewaren. The G15 project contributes approximately 21 MW to the loading on this circuit.

Multiple Facility Contingency – Tower Line Outages (MAAC Criteria IIC)

- No identified problems.

Short Circuit

- No identified problems.

New System Reinforcements

The following reinforcements will eliminate all identified problems.

- Install a second 230/138kV transformer at Sewaren substation.
- Re-conductor the Lafayette Rd. – Metuchen 138kV circuit.
- Re-conductor the New Dover - Fanwood 138 kV circuit.
- Re-conductor the Linden - Minue St. - Pierson Ave. - Deans 230 kV circuit.

The total cost for these reinforcements is estimated at $30 million with a 5 year lead time for completion.

Contribution to Previously Identified System Reinforcements

The new generator will be allocated a percentage of the costs for the following previously identified network reinforcements:

1) Re-conductor the Linden - Warinanco - Aldene 230 kV circuit at a cost of $15.5 million. Estimated four years to completion.

2) Re-conductor the Edison - Devils Brook 138 kV circuit at a cost of $3.5 million. Estimated 2 years to completion.

3) Upgrade the Brunswick - Edison 138 kV circuit by replacing two disconnect switches and a wave trap at the Brunswick terminal and two disconnect switches at the Edison terminal to increase the line rating to 412 MVA normal and 488 MVA emergency. The cost is estimated at $.5 million. Estimated two years to completion

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4) Re-conductor the Sewaren - Woodbridge - New Dover "O" 138 kV circuit to provide a new line rating of 412 MVA normal and 488 MVA emergency. The cost is estimated at $3 million. Estimated two years to completion.

5) Re-conductor the Sewaren - Woodbridge - Lafayette Road "V" 138 kV circuit to provide a new line rating of 412 MVA normal and 488 MVA emergency. The cost is estimated at $1.8 million. Estimated two years to completion.

6) Re-conductor the Deans - Brunswick 230 kV circuit to provide a new line rating of 876 MVA normal and 1080 MVA emergency. The cost is estimated at $4 million. Estimated two years to completion.

7) Install a 3.5% reactor at Aldene substation at an estimated cost of $2.5 million. Estimated two years to completion.

Cost allocation percentages are not provided as part of the Feasibility Study analysis, however, cost allocation will be provided in the Impact Study report.

Several projects in the Northern New Jersey area have recently withdrawn. The withdrawal of these projects may have an impact on these results. Any system network changes will be captured during the impact study.