Generation Interconnections

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

Network Impacts - 100 MW Injection at Gilbert

Potential network impacts for the injection of 100 MW into the Gilbert 230 kV substation were evaluated for summer peak conditions in 2004. Several generation scenarios were studied in an attempt to bracket expected system conditions in 2004. A summary of results follows:

A) Normal Conditions

· No problems

B) Single Contingency

· Contingency overload on Buxmont - Hosensack 230 kV for outage of Elroy - Hosensack 500 kV. The generation at Gilbert contributes approximately 15 MVA to the circuit loading.

· Contingency overload on Portland - Kittatinny 230 kV for outage of Portland - Greystone 230 kV. The new generation at Gilbert contributes 10 MVA to the circuit loading.

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C) Tower Line Contingency

· No problems

D) Short Circuit Analysis

· The fault duty was evaluated at all bulk power substations that had a greater than 5% increase in fault current due to a 100 MW generator at the Gilbert 230 kV substation. The fault duty was below all circuit breaker interrupting capabilities.

The rating of the Portland - Kittatinny line can be increased sufficiently by upgrading from a 140 degree conductor rating to 160 degree conductor rating and by upgrading terminal equipment on the line. This will require replacing two towers at a cost of $600,000. Upgrade the current transformer at Portland from 1500/5 to 2000/5 at a cost of $5000 and replace a 1600 amp disconnect switch at Kittatinny with a 2000 amp switch at a cost of $50,000. This work can be completed within two years.

The rating of the Buxmont - Hosensack line can be increased sufficiently by replacing current transformers, wave traps and modifying secondary circuits on the line terminals. Estimated cost for the installation is $100,000 and can be completed within two years.

It should be noted that the flows on the northern Jersey Central Power & Light transmission system are directly impacted by connection of new generation on either side of the system. Due to the number of generation interconnection requests that impact the northern Jersey Central system, it is not reasonable at this time to suggest what, if any, transmission reinforcements will finally be required. The northern Jersey Central transmission system will be extensively evaluated in the development of the Regional Transmission Expansion Plan.