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 - 765MW Injection at Erie West 345kV

Potential network impacts for the injection of 765 MW into the Erie West 345 kV substations were evaluated for summer peak conditions in 2004. Several generation scenarios were studied in an attempt to bracket expected system conditions in 2004.

Based on this analysis, a 765 MW injection at the Erie West 345 kV substation would result in the need for a new Erie South 345/230 kV transformer and a new Erie South 230/115 kV transformer and additional breakers at Erie South to assure that each new transformer would not be outaged by loss of any parallel transformer. The cost estimate for the Erie South 345/230 kV transformer is $8.5 million and for the 230/115 kV is $4.1 million. The costs include the installation of the additional circuit breakers at Erie South. The lead-time for installation of both transformers is two years.

A summary of the results follow:

A) Normal Conditions

· No problems were identified.

B) Single Contingency

· Results in contingency overload on Erie South 345/230 kV for the outage of the Erie West - Ashtabula 345 kV circuit and the Erie West 345/115 kV transformer.

· Results in contingency overload on one Erie South 230/115 kV transformer for the outage of the parallel transformer.

C) Tower Line Contingency

· No problems were identified.

D) Short Circuit Analysis

· The fault duty was evaluated at all substations that had a greater than 5% increase in fault current due to a 765 MW generator at the Erie West 345 kV substation. The fault duty was below all circuit breaker interrupting capabilities and, as such, no circuit breaker replacements would be expected due to this new generation.

The ability of a new generator at Erie West to operate at non-peak periods would likely be severely restricted by the operation of the pumped hydro station at Seneca. It should be noted that Seneca is geographically located within PJM but is controlled by First Energy. Reinforcements to eliminate the operating restrictions were not evaluated as part of the feasibility study.