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 - 402MW Injection at Shelocta

Potential network impacts for the injection of 402 MW into the Shelocta 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 the results follows:

A) Normal Conditions

· Normal overload on Summit - Wilmore Junction 115 kV. The new generator increases the flow on this 115 kV circuit by about 5 MVA.

B) Single Contingency

· No problems were identified.

C) Tower Line Contingency

· Contingency overload on Hilltop - Hillclay Junction 115 kV for the outage of the Homer City - Quemahoning 230 kV and Seward - Tower 51 115 kV tower line outage. The new generator increases the flow on this 115 kV circuit by about 10 MVA.

D) Short Circuit Analysis

· The transformer #4 230 kV circuit breaker at Keystone will exceed its interrupting capability after installation of the generation at Shelocta and will need to be replaced.

The cost estimates to upgrade the Summit - Wilmore Junction and the Hilltop - Hillclay Junction 115 kV circuits are $0.1 million each and involves replacement of terminal equipment on each circuit. Installation can be completed to meet the project service date.

Replacement of the 230 kV breaker is estimated to cost $350,000. Installation can be completed to meet the project service date.

The new generator at Shelocta increases loading on the Saxton-Shade Gap-Three Springs 115 kV circuit and the Lewistown 230/115 kV transformers. Presently, the loading on these facilities is controlled by a set of operating procedures. Addition of the generation reduces the time frame in which the operating procedure is valid. A proposed solution is a reconductor of the Saxton-Three Springs 115 kV line, approximate cost $8.7 million: reconductor of the Three Springs-Shade Gap 115 kV line, approximate cost $3.1 million; and addition of a third Lewistown 230/115 kV transformer, approximate cost $4.1 million. The cost of advancing these projects would be assigned to the new generation