



# 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 - 485MW Injection at Juniata

Potential network impacts for the injection of 485 MW on the Juniata-Cumberland 230kV transmission line 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, the 485 MW injection contributes to a normal and contingency overload on the Brunner - West Hempfield 230kV circuit.

### Normal Conditions

- Normal overload on Brunner - West Hempfield 230kV. The new generation on the Juniata-Cumberland 230kV increases the flow on this circuit by approximately 41 MVA.

### Single Contingency

- Contingency overload on Brunner - West Hempfield 230kV for the outage of the Brunner - South Manheim 230kV circuit. The new generator on the Juniata-Cumberland 230kV increases the flow for this contingency by approximately 45 MVA.
- Other outages cause lesser levels of overload on the Brunner-West Hempfield 230kV line.

### Tower Line Outages

- No system problems were identified.

### Short Circuit Analysis

- A short circuit analysis was completed for the connection of a 485 MW generator on the Juniata-Cumberland 230kV transmission line. Three 230kV breakers, 1 at Brunner and 2 at Middletown Junction, were identified as needing replacement. The approximate cost for the three replacements is \$1.1 million and should be completed in 12 to 18 months.

The flows on the Brunner - West Hempfield 230kV circuit are negatively impacted by several new generation projects. Due to the existing number of generation interconnection requests that impact these circuits, it is not reasonable at this time to completely develop what, if any, reinforcements will be required.

One possible solution that will be evaluated is the addition of a new 230kV transmission line from Brunner to South Akron, which alleviates some existing network problems and will provide capability to relieve the overloads listed above. The line will cost approximately \$52 million and take approximately six years to build. However, the Brunner area will be studied extensively during the next level of analysis. The impact of this resource will be evaluated, along with all others in the area, and any system reinforcements and associated costs will be specified at that time, if required.