# 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 - 450 MW Injection**

Network impacts for the injection of 450 MW into two Morgantown-Talbert/Oak Grove 230 kV circuits were evaluated for 2004 summer peak conditions. Several generation scenarios were studied to bracket expected system conditions for 2004. At this time it is judged that no transmission network upgrades will be required for the injection of 450 MW's of new generation at this location.

Based on the analysis performed, a 450 MW injection into the Morgantown-Talbert/Oak Grove 230 kV circuits results in the following:

· Contributes to normal loading of the two Oak Grove - Burtonsville 230 kV circuits. The flow on these circuits increased by approximately 70 MVA each, but remained below their normal rating.

· Contributes to increased normal loading on the two 230 kV circuits from the proposed "New Generation Substation" to Talbert/Oak Grove. The flow on these circuits increased but remained below their normal rating.

· Contributes substantially to single contingency loading on the one Oak Grove-Burtonsville 230 kV circuit for the outage of other Oak Grove- Burtonsville 230 kV circuit. The flow increased to approximately 650 MVA but remained below the circuit's emergency rating of 730 MVA.

· Contributes to single contingency loading on the one "New Generation Substation"-Talbert-Burches Hill/Oak Grove 230 kV circuit for the outage of the other "New Generation Substation"-Talbert-Burches Hill/Oak Grove 230 kV circuit. The flow on the "New Generation Substation"-Talbert portion of the circuit increased to approximately 480 MVA but remained below the circuit's emergency rating of 692 MVA.

· Contributes substantially to contingency overloads on the remaining Oak Grove-Burtonsville 230 kV circuit for the outage of one DCTL (Double-Circuit Transmission Line) between Oak Grove and Burtonsville substations. The flow in this case increased to 725 MVA but remained just below the circuit's emergency rating of 730 MVA.

· Contributes substantially to contingency overloads on the "New Generation Substation"-Talbert-Burches Hill/Oak Grove 230 kV circuit for the outage of one DCTL between the "New generation Substation" and Talbert substations. The flow on the "New

Generation Substation"-Talbert portion of the circuit increased to 575 MVA but remained below the circuit's emergency rating of 692 MVA.

A Short Circuit analysis was performed to evaluate the increase of circuit breaker fault duties due to the injection of 450 MW's of generation into the Morgantown-Talbert/Oak Grove 230 kV circuits. The fault duty of Chalk Point generating station and Oak Grove substation breakers increased close to their limits. The fault duty at Chalk Point is approximately 60,500 amperes which is slightly below the 63,000 ampere short circuit interrupting rating of the Chalk Point circuit breakers. The fault duty at Oak Grove substation is approximately 45,000 amperes versus a 50,000 ampere short circuit interrupting rating of the Oak Grove circuit breakers. Although higher than present levels, the fault duties remained below the present circuit breaker interrupting capabilities and, as such, no circuit breaker replacements are required.