Generation Interconnections

This analysis was completed to assess the potential reliability impact for a new generator interconnecting to the PJM system as a Capacity Resource.

Network Impacts - 550 MW Injection

Network impacts for the injection of 550 MW into the Burches Hill 230 kV Bus were evaluated for 2004 summer peak conditions. Based on the power flow analysis performed the following network impacts were identified:

NETWORK VIOLATIONS

Normal System

· No worst case overloads.
Facility overloads were identified, but a greater overload for those facilities occurred for a contingency condition reported below.

Single Contingency

- No worst case overloads.
  Facility overloads were identified, but a greater overload for those facilities occurred for other contingency conditions reported below.

Double Circuit Tower Circuit Outages (MAAC Criteria IIC)

- 114% overload on the Oak Grove - Burtonsville (23045) 230 kV circuit for the double circuit tower line outage involving the Chalk Point - Bowie (23044) 230 kV circuit and the Oak Grove - Burtonsville (23042) 230 kV circuit. The project contributes approximately 96 MW to the overloaded facility whose rating is 730 MVA. The cost to reinforce this facility is **$17,000,000**. The time required to construct this reinforcement is **36-48 months**.

- 110% overload on the Oak Grove - Burtonsville (23042) 230 kV circuit for the double circuit tower line outage involving the Chalk Point - Bowie (23043) 230 kV circuit and the Oak Grove - Burtonsville (23045) 230 kV circuit. The project contributes approximately 96 MW to the overloaded facility whose rating is 730 MVA. The cost to reinforce this facility is **$17,000,000**. The time required to construct this reinforcement is **36-48 months**.

Note: The #C4 project reduces the loading of the #C3 to Talbert (23085 and 23086) 230 kV circuits by approximately 73 MW each for the double circuit tower line outages in which B16 generation is tripped.

SHORT CIRCUIT ANALYSIS

- All of the eight Oak Grove 230 kV circuit breakers on the Oak Grove - Ritchie 230 kV circuits are overdutied with fault currents between 51 kA and 53 kA versus a 50 kA interrupting rating. The cost to replace these circuit breakers with new 63 kA circuit breakers is **$4,800,000**. The time required to replace these breakers is **18 months**.

- The fault duty for the Chalk Point 230 kV circuit breakers and the remaining Oak Grove 230 kV circuit breakers was found to be close to their interrupting ratings. The circuit breaker interrupting ratings at Chalk Point and Oak Grove are approximately 62 kA and 50 kA respectively.

STABILITY ANALYSIS

Not performed. Stability analysis will be performed during the Impact Study for this project.