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 - 440 MW Injection

The following Network Impacts are for attachment of a 440MW generating station to the Eddystone - MacDade (220-46 line) 230kV circuit.

During normal operation, with all transmission facilities in-service, power flow simulation indicates that all voltages can be adjusted within an acceptable range. However, there is a thermal overload of 220-44 line (Master - N. Phila.) under certain system conditions. The power flow on that line is 483 MVA, which exceeds the normal rating of 472 MVA. Power flow on this path is responsive to transfers from Whitpain 500/230 kV transformers to the Richmond - Camden 230 kV circuit into New Jersey. Flows on the Master - N. Phila. 230 kV circuit can be controlled to some extent by dispatching generation or making other system adjustments. A more extensive evaluation of the need to upgrade this facility will be performed during the Impact Study. If necessary, upgrade of this facility is estimated at $8M and projected to take 24 months. Other generator projects in Generator Interconnection Request Queue A also have an impact on this facility.

Single-contingency and towerline outage analyses for the addition of the new generator resulted in no voltage criteria violations or thermal overloads in excess of 4 hour emergency ratings.

Since some of the circuit breakers in the nearby substations are within 20% of their rated fault interrupting capability certain circuit breaker interrupting ratings may be exceeded as a result of multiple generator installations investigated in Queue A of the PJM Generator Interconnection Requests. These breakers are located at Chichester (230kV & 138kV), Eddystone (230kV & 138kV) and Island Road (230kV & 69kV) substations. A more extensive short circuit analysis will be performed during the System Impact Study for Queue A generator interconnection requests.