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

Potential network impacts for the injection of 867 MW into the Oyster Creek 230 kV substation were evaluated for summer peak conditions in 2004. This study was a re-evaluation of the feasibility study and was completed **with** the existing nuclear unit at Oyster Creek modeled. The original feasibility study was completed without the existing nuclear unit modeled.

A summary of the results follow:

Normal System

· Normal overload on both Oyster Creek - Manitou 230 kV circuits. The new generator contributes 410 MW to each overloaded 230 kV circuit.

Single Contingency (MAAC Criteria IIA)

· Contingency overload on Raritan River - Kilmer - Lake Nelson I 230 kV for outage of Raritan River - Gillette W 230 kV. The new generator contributes 150 MW to the overload.

Double Contingency (MAAC Criteria IIC)

· Contingency overload on Manitou - Whitings 230 kV and Whitings - Van Hiseville Tap 230 kV for Larrabee - Lakewood and Larrabee - Manitou 230 kV tower line outage. The new generator contributes 700 MW to the overload.
· Contingency overload on Larrabee - Lakewood - Leisure Village - Manitou 230 kV for a line fault on the Larrabee - Leisure Village - Manitou "K" 230 kV circuit with a stuck breaker at Manitou resulting in the loss of the Manitou - Whitings 230 kV circuit. The new generator contributes 750 MW to the overload.
· Contingency overload on Raritan River - Kilmer - Lake Nelson I 230 kV and Middlesex - Lake Nelson 230 kV for a line fault on the Raritan River - Gillette W 230 kV circuit with a stuck breaker at Raritan River 230 kV resulting in the loss of the Raritan River 230/115 kV transformer.

Short Circuit Analysis

· No breakers were identified as being overdutied.

System Reinforcements

The system will require extensive network upgrades in order to accommodate the additional 867 MW injection at Oyster Creek 230 kV. The following reinforcements will eliminate all overload conditions.
1) Upgrade the Raritan River-Kilmer I 230 kV line to bundled 2-1590 ACSR conductor: $14 million.

2) Upgrade the Kilmer I-Lake Nelson 230 kV line to bundled 2-1033 ACSR conductor: $6 million.
3) Upgrade the Middlesex-Lake Nelson 230 kV line to bundled 2-1033 ACSR conductor: $9 million.
4) Build a new 230 kV circuit between Oyster Creek and Manitou 230 kV. Cost = $19 million.
5) Build a new 230 kV circuit between Manitou and Larrabee 230 kV. Cost = $24 million.

Total cost estimate = $72 million.

Due to the significant cost of the bulk reinforcements that would be required to interconnect this new generator, impacts on the JCP&L underlying 34.5 kV system were not identified. Any identified problems are not expected to materially alter the order of magnitude cost estimates provided in this feasibility study.