Generation Interconnection

This analysis was completed to assess the reliability impact for a new generator interconnecting to the PJM system as a capacity resource.

Network Impacts -800 MW Injection at Oyster Creek 230kV

Potential network impacts for the injection of 800 MW into the Oyster Creek 230 kV substation were evaluated for summer peak conditions in 2004.

A summary of the results follows:

Normal System

- Normal overload on the Larrabee – Lakewood 230 kV circuit. The new generator contributes 285 MW to the overload.

Single Contingency (MAAC Criteria IIA)

- Contingency overload on the Larrabee – Leisure Village K – Manitou 230 kV circuit for an outage of Larrabee – Lakewood 230 kV. The new generator contributes 290 MW to the overload.

- Contingency overload on the Raritan River – Kilmer I – Lake Nelson – Middlesex 230 kV circuit for a fault on the Raritan River – Gillette W 230 kV circuit. The new generator contributes 150 MW to the overload.

Multiple Facility Contingency (MAAC Criteria IIC)

- Contingency overload on the Larrabee – Lakewood – Leisure Village U – Manitou 230 kV circuit for a line fault on the Larrabee – Leisure Village K – Manitou 230 kV circuit with a stuck breaker at Manitou resulting in the loss of the Manitou – Whitings 230 kV circuit. The new generator contributes 690 MW to the overload.

- Contingency overload on Manitou – Oyster Creek 230 kV Circuit 2 for a fault on Oyster Creek – Manitou 230 kV Circuit 1 with a stuck breaker at Oyster Creek resulting in the loss of the Oyster Creek – Sands Point 230 kV circuit. The new generator contributes 770 MW to the overload.

- Contingency overload on the Manitou – Whitings 230 kV and Whitings – Van Hiseville Tap 230 kV circuits for an outage of the Leisure Village – Manitou 230 kV tower line. The new generator contributes 660 MW to the overloads.

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 800 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: estimated cost $14 million.

2. Upgrade the Kilmer I – Lake Nelson 230 kV line to bundled 2-1033 ACSR conductor: estimated cost $6 million.

3. Upgrade the Middlesex – Lake Nelson 230 kV line to bundled 2-1033 ACSR conductor: estimated cost $9 million.
4. Build a new 230 kV circuit between Oyster Creek and Manitou 230 kV: estimated cost $19 million.

5. Build a new 230 kV tower line between Manitou and Larrabee 230 kV: estimated cost $35 million.

Total estimated cost for the transmission system upgrades is $83 million, and it is estimated that the transmission upgrades described in items 1, 2 & 3 above will take 5 years to complete and items 4 & 5 will take 4 years to complete.

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.