



# 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 -9 MW Increased Injection into the Lakewood 230kV substation

### **Network Impacts**

Potential network impacts for the addition of 9 MW of generation at the Lakewood 230 kV substation were evaluated for summer peak conditions in 2004.

The system, as planned, was evaluated for compliance with reliability criteria. The results are summarized below.

#### **Normal System**

- No identified problems

#### **Single Contingency (MAAC Criteria IIA)**

- No identified problems

#### **Multiple Facility Contingency (MAAC Criteria IIB)**

- The Raritan River - Kilmer I1023 230 kV line will be above 103% of its emergency rating for a line fault on the Raritan River - Kilmer W1037 230 kV line with a stuck breaker at Raritan River resulting in the outage of the Raritan River 230/115 kV transformer.
- Contingency overload on the Cedar Bridge-Leisure Village 34.5 kV circuit and the Manitou-Lakehurst 34.5 kV circuit for the Leisure Village-Larrabee, Lakewood-Larrabee 230 kV tower line outage. These two contingency overloads occur when evaluating the generation connected to the Lakewood 230 kV substation without connecting the second Manitou-Larrabee circuit.

#### **Short Circuit Analysis**

- No identified problems

## **System Reinforcements**

The multiple facility contingency overload described above, overload of the Raritan River-Kilmer I line for a fault on the Raritan River-Kilmer W line with a stuck breaker at Raritan River resulting in the outage of the Raritan River 230/115 kV transformer, can be alleviated by increasing the rating on the overloaded line. This can be accomplished by replacing the wave trap on the Raritan River terminal of the line, which is the limiting facility. Replacement of the wave trap is estimated to cost \$60,000 and take 9 months to complete.

The overloads on the 34.5 kV lines will be alleviated by the expansion of the Lakewood 230 kV substation to include two terminations for the K2011 Manitou-Larrabee line. The cost for increasing the substation is \$1.7 million as opposed to \$6.5 million estimated to reconductor the two 34.5 kV lines.

This project may be allocated a portion of the cost for the above described network enhancements.