

## **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 - 600 MW Capacity Injection**

The system, as planned, was evaluated for compliance with reliability criteria. The M28 Elwood – Dresden 345 kV project was studied as a 600 MW Capacity Resource interconnection. The results are summarized below.

#### **Generator Deliverability – (Single Contingency)**

A potential (95% and greater) contingency overload to Dresden TR01 was found. This will be evaluated further during the project's Impact Study, if the project continues in the PJM generator interconnection process.

The loading on Dresden “Blue” 345-138 kV transformer TR01 was found to be very marginal, approximately 95% of the transformer 480 MVA emergency rating, for several contingencies;

- (1) Loss of Dresden “Red” 345-138 kV transformer TR83,
- (2) Loss of circuit 1221, or
- (3) Loss of circuit 14321.

TR01 has an emergency rating of 480 MVA and the addition of Queue M28 generation causes an increase of 60 MW to the contingency loading.

#### **Second Contingency**

No problems identified.

#### **Multiple Facility Contingency – Tower Line Outages**

No problems identified.

#### **Short Circuit Analysis**

Not required for existing generation project with an existing Interconnection Agreement.

#### **Stability Analysis**

Will be completed for Impact Study.

#### **New System Reinforcement Requirements**

The potential upgrade to fix the Dresden TR 81 loading is to add two 345 kV circuit breakers at Dresden and cut line 93505 (Tazewell - Kendall Co.) into Dresden. This involves extending the Red bus to add bus 13, adding bus tie 11-13, and adding bus tie 14-15 to an existing position. Tazewell would be connected to bus 13 at Dresden, and Kendall would be connected to bus 6. Line 2311 (Collins - Dresden) would be moved from bus 6 to bus 15. Approximately 0.2 miles of new 345 kV overhead construction would need to be completed. This project results in additional outlets out at Dresden, which relieves TR 81 contingency loading. Note that due to space restrictions it is not economically feasible to install additional transformers at Dresden, however replacement of transformer TR81 with a larger unit may be a cost competitive alternative. The estimated cost of the upgrade is **\$5 million**. Estimated construction time is 18-24 mos.

#### **Contribution to Previously Identified System Reinforcement Requirements**

None.