

# **Queue S53**

## **Lee County Energy Center 345kV**

### **Feasibility Study Report**

#### **Network Impacts**

The #S53 project was studied as a 20 MW (4 MW Capacity) injection into the Lee County 345 kV substation (TSS 937) in the ComEd territory (same location as #P36 and #R59). Project #S53 was evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts were as follows:

#### **Generator Deliverability**

*(Single or N-1 contingencies for the Capacity portion only of the interconnection)*

No problems were identified.

#### **Multiple Facility Contingency**

*(Double Circuit Tower Line contingencies only were studied for the full energy output. The contingencies of Line with Failed Breaker and Bus Fault will be performed for the Impact Study)*

No problems were identified.

#### **Short Circuit**

*(Summary of impacted circuit breakers)*

To be determined in the System Impact Study

#### **Contribution to Previously Identified Overloads**

*(#S53 contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)*

None

#### **Steady-State Voltage Requirements**

*(Summary of VAR requirements based upon the results of the steady-state voltage studies.)*

To be determined in the System Impact Study

#### **Stability and Reactive Power Requirements for Low Voltage Ride Through**

*(Summary of VAR requirements based upon the results of the dynamic studies.)*

To be determined in the System Impact Study

### **New System Reinforcements**

*(Upgrades required to mitigate reliability criteria violations, i.e. Network Impacts, initially caused by the addition of this project generation)*

None

### **Contribution to Previously Identified System Reinforcements**

*(Overloads initially caused by prior Queue positions with additional contribution to overloading by this project. This project may have a % allocation cost responsibility which will be calculated and reported for the Impact Study)*

To be determined in the System Impact Study

### **Potential Issues**

The #S53 project may impact stability schemes at Lee County and/or Byron stations due to the interconnection into Lee County station. There are significant stability limitations in this area that may require major transmission system upgrades including the construction of new 345kV lines to resolve. Stability studies will be performed during the System Impact Study.

**Impacts on the MISO member transmission systems are not included in this analysis, but they will be included in the Impact Study, which may reveal upgrades needed in the MISO system not identified in this Feasibility Study.**

### **Delivery of Energy Portion of Interconnection Request**

PJM also studied the delivery of the energy portion of this interconnection request. Any problems identified below are likely to result in operational restrictions to the project under study. The developer can proceed with network upgrades to eliminate the operational restriction at their discretion by submitting a Merchant Transmission Interconnection request.

As a result of the aggregate energy resources in the area, the following violations were identified:

1. Contribution of 6 MW further overloads the Nelson to Walton Road (#P20) 345kV line from 132.9% to 133.4% of its emergency rating (1234 MVA) for the outage of Cherry Valley to Silver Lake 345 kV line #15616.

2. Contribution of 6 MW further overloads the Walton Road (#P20) to Electric Junction 345 kV line from 148.2% to 148.7% of its emergency rating (1234 MVA) for the outage of Cherry Valley to Silver Lake 345 kV line #15616.