Queue R59
Nelson – Lee County Energy Center 345kV
Feasibility Study Report

Network Impacts

The #R59 project was studied as a 160 MW (32 MW of capacity) injection into the Lee County 345 kV substation in the ComEd territory (same location as #P36). Project #R59 was evaluated for compliance with reliability criteria for summer peak conditions in 2011. 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 System Impact Study)

No problems were identified.

Short Circuit

(Summary of impacted circuit breakers)

To be completed in the System Impact Study.

Contribution to Previously Identified Overloads

(#R59 contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

1. Contribution of 7 MW further overloads the station equipment in series with the bus tie 2-3 circuit breaker at TSS 113 Waterman from 177% to 179% of its applicable load dump rating (265 MVA) for the Walton Road (#P20) to Electric Junction and Plano to Electric Junction 345 kV tower line outage (#18402 & #16703). Projects prior to #R16 and #R33, #R54 & #R55 contribute to this overload. The System Impact Study for this project will define the cost allocation, if any, for this generation project. Rough estimates to eliminate the overload are around $1 million.
2. Contribution of 48 MW further overloads the Walton Road (#P20) to Electric Junction 345 kV line #18402 from 108% to 111% of its applicable load dump rating (1572 MVA) for the Cherry Valley to Silver Lake 345 kV line and Cherry Valley to Glidden 138 kV line tower outage (#15616 & #15627). This overload was first caused by the #R33 project with additional contributions from projects

#R54 & #R55. The System Impact Study for this project will define the cost allocation, if any, for this generation project. Rough estimates to eliminate the overload are around $7.2 million.

Potential Overloads

1. The Nelson - Walton Road (#P20) 345 kV line #15502 is loaded from 96% to 99.43% of its applicable load dump rating (1572 MVA) for the Cherry Valley to Silver Lake 345 kV line and Cherry Valley to Glidden 138 kV line tower outage (#15616 & #15627). This project contributes approximately 48 MW to cause the thermal violation. The System Impact Study for this project will define the cost allocation, if any, for this generation project. Rough estimates to eliminate the overload are around $1.4 million.

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 System Impact Study)

To be determined in the System Impact Study

Potential Issues

The #R59 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 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 System 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, no violations were identified.