#R33 – Nelson 345kV
Generation Interconnection

Network Impacts

The #R33 project proposes to have 600 MW as a Capacity resource at the Nelson generating facility. Project #R33 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 for the full energy output. Line with Failed Breaker and Bus Fault contingencies will be performed for the Impact Study)

1. The Walton Road (#P20) to Electric Junction 345 kV line #18402 is loaded from 92% to 105% 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 204 MW to cause this thermal violation

Short Circuit
(Summary of impacted circuit breakers)

To be completed in the System Impact Study.

Contribution to Previously Identified Overloads
(#R33 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 27 MW further overloads the Herman Road (Tower Road/#Q57) to West DeKalb Tap portion of 138 kV line #11323 from 156% to 165% of its applicable load dump rating (316 MVA) for the Walton Road (#P20) to Electric Junction 345 kV and Plano to Electric Junction 345 kV tower line outage (#18402 & #16703). The Impact Study for this project will define the cost allocation, if any, for this generation project. Rough estimates to eliminate the overload by rebuilding 5.1 miles of 138kV line 11323 are around $9.9 million.
2. Contribution of 27 MW further overloads the Waterman to West DeKalb Tap portion of 138 kV line #11323 from 160% to 169% of its applicable load dump

rating (298 MVA) for the Walton Road (#P20) to Electric Junction and Plano to Electric Junction 345 kV tower line outage (#18402 & #16703). The Impact Study for this project will define the cost allocation, if any, for this generation project. Rough estimates to eliminate the overload by rebuilding 3.8 miles of 138kV line 11323 are around $7.3 million.

3. Contribution of 31 MW further overloads the station equipment in series with the bus tie 2-3 circuit breaker at TSS 113 Waterman from 160% to 172% 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). The Impact Study for this project will define the cost allocation, if any, for this generation project. Rough estimates to eliminate the overload are around $0.65 million.
4. Contribution of 9 MW further overloads the ComEd-owned Castleton Road (#P39) to the AmerenCILCO-owned Edwards Station 138 kV line #99523 from 113% to 119% of its applicable load dump rating (164 MVA) for the Kewanee - Hennepin - Streator and Crescent Ridge - Oglesby - Mazon 138 kV tower line outage (#6101 & #7713). The necessary reinforcements and associated cost estimates will be available at the Impact Study phase for this project. The present line rating is limited by equipment at the AmerenCILCO-owned Edwards Station operated by MISO.

Stability and Reactive Power Requirements

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)

1. The overload of the ComEd-owned Walton Road (#P20) to Electric Junction 345 kV line #18402 can be relieved by removing the sag limitation on approximately 13.5 miles of line #18402 between Electric Junction and Tower #454. The conductor used in this portion of line is 2338 kcmil ACAR. The estimate for reconductoring 13.5 miles of line 18402 between Electric Junction and Tower 454 is $7.210million

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 #R33 project may impact stability schemes at Quad Cities, Lee County, and/or Byron stations due to the interconnection into Nelson TSS 155.

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.