Queue R65
Dixon – Cherry Valley 138kV
Feasibility Study Report

Network Impacts

The #R65 project was studied as a 100 MW (20 MW of capacity) injection into the Dixon – Cherry Valley 138 kV line #15621 between Dixon and the proposed #O68 project (approximately 1.6 miles from #O68) in the ComEd territory. Project #R65 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

(#R65 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 12 MW further overloads the Herman Road (Tower Road/#Q57) to West DeKalb Tap portion of 138 kV line #11323 from 167% to 170% 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). This overload was caused by projects prior to the R-queue with additional contributions from projects #R33 & #R54. 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 $6.5 million.

2. Contribution of 12 MW further overloads the Waterman to West DeKalb Tap portion of 138 kV line #11323 from 171% to 175% 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). This overload was caused by projects prior to the R-queue with additional contributions from projects #R33 & #R54. 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 $4.8 million.

3. Contribution of 22 MW further overloads the Walton Road (#P20) to Electric Junction 345 kV line #18402 from 113% to 115% 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, #R59 & R64. 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 $7.2 million.

4. Contribution of 22 MW further overloads the Nelson to Walton Road (#P20) 345 kV line #15502 from 102% to 103% of its applicable load dump rating (1572 MVA) for the Cherry Valley to Silver Lake 345 kV line and Cherry Valley to Waterman 138 kV line tower outage (#15616 & #15627). This overload was first caused by the #R64 project. 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 $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

During certain maintenance outages the #R65 project will be required to be taken off line. For example, during a maintenance outage of bus 1 at Cherry Valley, a single contingency of 138kV line #10721 from Dixon to #R65 would island the wind generation at #R65, #O68 and #R54 into the load at Stillman Valley. The typical duration of a maintenance outage on the ComEd system is one week.

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 Interconnection Customer 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 10 MW further overloads the Herman Road (Tower Road/#Q57) to West DeKalb Tap portion of 138 kV line #11323 from 220% to 224% of its normal rating (209 MVA). This overload was caused by projects prior to the R-queue with additional contributions from projects #R33 & #R54.

2. Contribution of 100 MW further overloads the #R65 to Dixon 138 kV line #10721 from 110% to 165% of its emergency rating (182 MVA) for the outage of the #R54 to Stillman Valley Tap portion of 138 kV line #15621. This overload was first caused by the #R54 project.

3. Contribution of 6 MW further overloads the ComEd-owned station equipment in series with the bus tie circuit breaker 1-2 at TSS 113 Waterman from 121% to 124% of its emergency rating (215 MVA) for the outage of the Waterman to Sandwich 138 kV line #11301. This overload was caused by projects prior to the R-queue with additional contributions from projects #R33 & #R54.

4. Contribution of 22 MW further overloads the ComEd-owned Nelson to Nelson Tap portion of 138 kV line #15508 from 117% to 125% of its emergency rating (280 MVA) for the outage of Rock Falls to Schauff Road 138 kV line #13311. This overload was caused by projects prior to the R-queue with additional contributions from projects #R29 & #R54.