#T105 – Latham-Pontiac I 345kV
Generation Interconnection

Network Impacts

The #T105 project was studied as a 350MW (70MW capacity) injection at TSS 93 Loretto 345kV substation (#O51) in the ComEd area on the Pontiac Midpoint to Wilton Center 345 kV line. Project #T105 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 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

(#T105 contributes to the following contingency overloads, i.e. "Network Impacts", identified for earlier generation or transmission interconnection projects in the PJM Queue)

None.

Potential Overloads

At 70MW Capacity, the contribution of approximately 48.6MW overloads the TSS 93 Loretto (#O51) to Wilton Center 345kV line #11212 from 100.42% to 104.21% of its emergency rating (1280MVA) for the outage of the Dresden to #R78 345kV line #1214. This overload can be relieved by reconductoring 38.1 miles of 2-1277.2 kcmil ACAR conductor to meet or exceed a minimum thermal capacity of 1350MVA SE(2259A). Since this overload is so close to the 100% threshold, it will be reviewed during the System Impact Study. 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 $**32,000,000** (PJM Network Upgrade #N**1609**).

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 Requirement for Low Voltage Ride Through
(Summary of the VAR requirements based upon the results of the dynamic studies)

To be determined in the System Impact Study. The 345kV transmission right-of-way area that this project is connecting to has existing stability limitations. It is possible that the interconnection of this additional generation will require additional upgrades (possibly significant upgrades such as new 345kV transmission lines) in order to meet the stability criteria. A detailed stability study of this area will need to be performed during 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)

None

Potential Issues

System Planning Operating Guide SPOG: 1-3-A addresses stability and multiple line outages at Station 21 Kincaid and SPOG: 1-3-B addresses stability and multiple line outages at Station 3 Powerton. The T105 generation will require a review of these SPOGs and may impact stability. This will be reviewed as part of 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.

Note: Only the most severely overloaded conditions are listed below. There is no guarantee of full delivery of energy for this project by fixing only the conditions listed in this section. With a Transmission Interconnection Request, a subsequent analysis will be performed which shall study all overload conditions associated with the overloaded element(s) identified.

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

1. Contribution of approximately 180.5 MW further overloads the Pontiac Midpoint to Odell (TSS 108 #O24) 345kV line #8014 from 100.5% to 110.9% of its emergency rating (1739MVA) for the outage of the TSS 93 Loretto (#O51) to Wilton Center 345kV line #11212.

2. Contribution of approximately 180.5 MW further overloads the Odell (TSS 108 #O24) to #R78 345kV line #18814 from 110.8% to 121.2% of its emergency rating (1739MVA) for the outage of the TSS 93 Loretto (#O51) to Wilton Center 345kV line #11212.

3. Contribution of approximately 243.2 MW further overloads the TSS 93 Loretto (#O51) to Wilton Center 345kV line #11212 from 144.1% to 160.9% of its emergency rating (1440MVA) for the outage of the Dresden to #R78 345kV line #1214.

4. Contribution of approximately 180.5 MW further overloads the Dresden to #R78 345kV line #1214 from 121.1% to 131.5% of its emergency rating (1739MVA) for the outage of the TSS 93 Loretto (#O51) to Wilton Center 345kV line #11212.