

**#T125 – Latham-Pontiac I 345kV
Generation Interconnection**

Network Impacts

The #T125 project was studied as a 200 MW Energy (40 MW Capacity) injection into the Pontiac to Blue Mound 345 kV line #8002. This project will terminate into the existing Blue Mound TSS 178 substation. Project #T125 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

(#T125 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 approximately 18.3 MW further overloads the Pontiac Midpoint to Loretto (TSS 93 #O51) 345kV line #8012 from 102.42% to 103.9% of its emergency rating (1234MVA) for the outage of the Dresden to #R78 Tap 345 kV line #1214. Prior projects in the queue contributing to this overload include #S28 and #T124. See # 1 under Contribution to Previously Identified System Reinforcements for estimated cost.
2. Contribution of approximately 18.3 MW further overloads the Loretto (TSS 93 #O51) to Wilton Center 345kV line #11212 from 105.65% to 107.1% of its emergency rating (1280MVA) for the outage of the Dresden to #R78 Tap 345 kV line #1214. Prior projects in the queue contributing to this overload include #T105 and #T124. See # 2 under Contribution to Previously Identified System Reinforcements for estimated cost.

Steady-State Voltage Requirements

(Summary of the 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.

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)

1. A preliminary investigation of the Pontiac Mid-Point to Loretto (TSS 93 #O51) overload has concluded that an 11.3 mile long 345kV line (#8012) needs to be reconductored to resolve the overload concerns. The cost of reconductoring has been estimated at **\$9,000,000**. See # 1 under Contribution to Previously Identified Overloads for the overload values associated with this project.
2. A preliminary investigation of the Loretto (TSS 93 #O51) to Wilton Center overload has concluded that a 38.1 mile long 345kV line (#11212) needs to be reconductored to resolve the overload concerns. The cost of reconductoring has been estimated at **\$30,300,000**. See # 2 under Contribution to Previously Identified Overloads for the overload values associated with this project.

The Impact Study will define the cost allocation for these projects. Any alternate solutions to resolve the line overloads will be investigated during this study.

Potential Issues

System Planning Operating Guide SPOG: 1-3-A addresses stability and multiple line outages at Station 21 Kincaid. The T125 generation will require a review of this SPOG and may impact stability. This will be reviewed as part of a 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 12 MW overloads the Dresden 345/138kV transformer #T83 from 99.4% to 101.6% of its emergency rating (480MVA) for the outage of the Dresden to Elwood Red 345kV line #1222.
2. Contribution of approximately 32.2 MW overloads the Dresden to Electric Junction Red 345kV line #1223 from 100.1% to 102.2% of its emergency rating (1530MVA) for the outage of the Dresden to Elwood Red 345 kV line #1222.
3. Contribution of approximately 91.7 MW further overloads the Pontiac Mid-Point to Loretto (TSS 93 #O51) 345 kV line #8012 from 158.8% to 166.2% of its emergency rating (1234MVA) for the outage of the Odell (TSS 188 #O24) to #R78 Tap 345 kV line #18814.
4. Contribution of approximately 91.7 MW further overloads the Pontiac Mid-Point to Odell (TSS 188 #O24) 345 kV line #8014 from 116.2% to 121.5% of its emergency rating (1739MVA) for the outage of the Loretto (TSS 93 #O51) to Wilton Center 345 kV line #11212.
5. Contribution of approximately 91.7 MW further overloads the Odell (TSS 188 #O24) to #R78 Tap 345 kV line #18814 from 126.5% to 131.7% of its emergency rating (1739MVA) for the outage of the Loretto (TSS 93 #O51)to Wilton Center 345 kV line #11212.
6. Contribution of approximately 91.7 MW further overloads the Loretto (TSS 93 #O51) to Wilton Center 345 kV line #11212 from 188.2% to 195.3% of its emergency rating (1280 MVA) for the outage of the #R78 Tap to Dresden 345 kV line #1214.
7. Contribution of approximately 91.7 MW further overloads the #R78 Tap to Dresden 345 kV line #1214 from 136.8% to 142.1% of its emergency rating (1739MVA) for the outage of the Loretto (TSS 93 #O51) to Wilton Center 345 kV line #11212.