

**#P39 – Kewanee-Powerton 138kV
Generation Interconnection**

Option 1: Point of interconnection at the Camp Grove Wind Farm (Kewanee-Powerton 138 kV line 0321)

Network Impacts

Network Impacts

The #P39 project was studied as a 60 MW (12 MW of Capacity) increase to the Camp Grove proposed generation PJM Queue L05_CE22. Option 1 considers the injection at the point of interconnection of the Camp Grove Wind Farm (Kewanee-Powerton 138 kV line 0321). Project #P39 was evaluated for compliance with PJM reliability criteria for summer peak conditions in 2010. Potential network impacts were as follows:

- **Option 1: Kewanee-Powerton 138 kV line 0321:**

Generator Deliverability

No problems were identified.

Multiple Facility Contingency

No problems were identified.

Contribution to Previously Identified Overloads

1. Contribution of 5 MW to further overload the #O23-Dresden 345 kV line 1202 (formerly 0302) from 118% to 119% of its load-dump rating (1320 MVA) for the tower outage of 345kV lines 16101 (formerly 0301) & 97503 (formerly 0303). The overload was originally caused by the #O73 project.

New System Reinforcements

To be determined

Contribution to Previously Identified System Reinforcements

To be determined at the System Impact Study

Short Circuit

There were no overdutied circuit breakers due to #P39 Option 1 identified at this time. The short circuit study for #P39 considers overdutied breakers to be upgraded for projects ahead of #P39 in the PJM queue. If projects ahead of #P39 drop out, the short-circuit analysis will be repeated and #P39 may ultimately be responsible for breaker upgrades.

Potential Issues

Impacts on the MISO member transmission systems is 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.

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

1. Contribution of 13 MW to further overload the Rock Falls-#O09 138 kV line 13311 from 304% to 311% of its emergency rating (184 MVA) for the outage of 138kV line 15508. The violation was first caused by the #O09 project.
2. Contribution of 13 MW to further overload the Rock Falls-Nelson 138 kV line 15509 from 285% to 293% of its emergency rating (184 MVA) for the outage of 138kV line 15508. The violation was first caused by the #O09 project.
3. Contribution of 13 MW to further overload the Nelson-#O29 138 kV line 15508 from 208% to 213% of its emergency rating (265 MVA) for the outage of 138kV line 7411, which was originally caused by the #O29 project.
4. Contribution of 8 MW to further overload the Normandy-#O09 138 kV line 12511 (formerly 7411) from 113% to 116% of its normal rating (209 MVA). This violation was first caused by the #P37 project.
5. Contribution of 5 MW to further overload the LaSalle-#N15 138 kV line 0112 (formerly 6102) from 167% to 170% of its normal rating (209 MVA). The violation was first observed for contribution from the #P10 project.
6. Contribution of 5 MW to further overload the Wilton Center-#O51 345 kV line 11212 (formerly 8012) from 133% to 134% of its emergency rating (1232 MVA) for the outage of 345kV line 8014. The violation was first caused by the #O24 project.
7. The Powerton-Powerton JCT. B 138 kV line 1352 loads from 88% to 124% of its emergency rating (166 MVA) for outage of 138kV line 0321. The #P39 project contributes approximately 60 MW to cause this violation.
8. Contribution of 9 MW to further overload the Nelson to Nelson Red Tap portion of 138kV line 15508 from 113% to 116% of its emergency rating (280 MVA) for outage of 138kV line 7411. The violation was first caused by the #P37 project.
9. Contribution of 3 MW to further overload the Mazon-J375 138 kV line 1205 from 105% to 107% of its emergency rating (225 MVA) for outage of the LaSalle TR81. The violation was first caused by the #P11 project.

10. Contribution of 4 MW to further overload the #O51-Pontiac 345 kV line 8012 from 105% to 106% of its emergency rating (1234 MVA) for the outage of 345kV line 8014. The overload was first caused by the #O24 project.
11. Contribution of 3 MW to further overload the Dresden-J339 138 kV line 1205 from 104% to 105% of its emergency rating (265 MVA) for loss of the LaSalle TR81. The violation was first caused by the #P11 project.

Option 2: Point of interconnection at the Kewanee-Edwards 138 kV line 7423.

Network Impacts

Network Impacts

The #P39 project was studied as a 60 MW (12 MW of Capacity) increase to the Camp Grove proposed generation PJM Queue L05_CE22. Option 2 considers the point of interconnection to be the Kewanee-Edwards 138 kV line 7423. Project #P39 was evaluated for compliance with PJM reliability criteria for summer peak conditions in 2010. Potential network impacts were as follows:

- **Option 2: Kewanee-Edwards 138 kV line 7423:**

Generator Deliverability

No problems were identified.

Multiple Facility Contingency

No problems were identified.

Contribution to Previously Identified Overloads

1. Contribution of 11 MW to further overload the #O23-Dresden 345 kV line 1202 (formerly 0302) from 118% to 119% of its load-dump rating (1320 MVA) for the tower outage of 345kV lines 16101 (formerly 0301) & 97503 (formerly 0303). The overload was originally caused by the #O73 project.

New System Reinforcements

To be determined

Contribution to Previously Identified System Reinforcements

To be determined at the System Impact Study

Short Circuit

There were no overdutied circuit breakers due to #P39 Option 2 identified at this time. The short circuit study for #P39 considers overdutied breakers to be upgraded for projects ahead of #P39 in the PJM queue. If projects ahead of #P39 drop out, the short-circuit analysis will be repeated and #P39 may ultimately be responsible for breaker upgrades.

Potential Issues

Impacts on the MISO member transmission systems is 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.

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

1. Contribution of 9 MW to further overload the Rock Falls-#O09 138 kV line 13311 from 304% to 309% of its emergency rating (184 MVA) for the outage of 138kV line 15508. The violation was first caused by the #O09 project.
2. Contribution of 9 MW to further overload the Rock Falls-Nelson 138 kV line 15509 from 285% to 291% of its emergency rating (184 MVA) for the outage of 138kV line 15508. The violation was first caused by the #O09 project.
3. Contribution of 9 MW to further overload the Nelson-#O29 138 kV line 15508 from 208% to 212% of its emergency rating (265 MVA) for the outage of 138kV line 7411, which was originally caused by the #O29 project.
4. Contribution of 5 MW to further overload the Normandy-#O09 138 kV line 12511 (formerly 7411) from 113% to 117% of its normal rating (209 MVA). This violation was first caused by the #P37 project.
5. Contribution of 6 MW to further overload the Nelson to Nelson Red Tap portion of 138kV line 15508 from 112% to 116% of its emergency rating (280 MVA) for the outage of 138kV line 7411. The violation was first caused by the #P37 project.