

#U3-002 Mullin-Greentown Tap 138kV
Generation Interconnection

This analysis was completed to assess the reliability impact for the new generation interconnecting to the PJM system as a capacity resource.

Local AEP Impacts

The impact of the proposed generating facility on the AEP System was assessed for adherence with applicable reliability criteria. AEP planning criteria require that the transmission system meet single contingency performance criteria in accordance with the AEP FERC Form 715. Therefore, this set of criteria was used to assess the impact of the proposed facility on the AEP System. The results are summarized below.

Normal System – Capacity Output (2013 Summer Conditions)

- No problems identified.

Single Contingency – Capacity Output (2013 Summer Conditions)

- No problems identified.

Multiple Contingency – Full Output (2013 Summer Conditions)

- No problems identified.

Short Circuit Analysis

- No problems identified.

Stability Analysis

- Stability studies were not performed as part of this Feasibility Study and are not normally performed as part of a Facility Study effort. The stability assessments are part of the System Impact Study. Based upon the results of this future System Impact Study, the extent of system upgrades could change and the associated costs could be significantly different.

Local/Network Upgrades

- None required

Contributions to Previously Identified Local/Network Overloadss

None

Contribution to Previously identified Local Network Upgrades

None

Additional Limitations of Concern – Full Output

- AEP Alexandria – Mullin¹ 34.5 kV line is overloaded to 112% (25.8 MVA) of its emergency rating for an outage of the AEP Deer Creek – Fisher Body – U3-002 138 kV line. Without the addition of U3-002 Project, the same facilities are loaded to 72% (16.6 MVA) of emergency rating.

Reactive Requirements

PJM requires a power factor correction to 95% lead/lag at the point of interconnection for wind generating facilities. It is expected that BP Alternative Energy will adhere to this standard.

Network Impacts

The queue project U3-002 was studied as a 200MW (26 MW capacity) injection into the AEP system tapping Mullin-Greentown Tap 138 kV line. U3-002 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 identified.

Multiple Facility Contingency

(Double Circuit Tower Line, Line with Failed Breaker and Bus Fault contingencies for the full energy output)

No problems identified

Short Circuit

(Summary form of Cost allocation for breakers will be inserted here if any)

No problems identified.

Contribution to Previously Identified Overloads

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

¹ The affected facility may appear in additional contingencies that are not mentioned.

No problems identified except for the local network problems identified above.

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)

(Summary form of Cost allocation for transmission lines and transformers will be inserted here if any)

None

MISO Impacts

Any impacts on the MISO transmission system will be identified in the Impact