

**#S72 – Robison Park-RPMone 345kV**  
**Generation Interconnection**

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

**Local 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 criterion was used to assess the impact of the proposed facility on the AEP System. The Heartland project was studied as a 300 MW net capacity consistent with the interconnection application. The results are summarized below.

**Normal System (2012 Summer Conditions)**

- No problems identified.

**Single Contingency (2012 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 Upgrades**

None

**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 Heartland will adhere to this standard.

## **Network Impacts**

The Queue S72 Project was studied as a 300 MW (60 MW Capacity) injection at the Robison Park–RP Mone 345 kV line. Project S72 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 only for the full energy output. Stuck breaker and bus fault contingencies will be performed for the Impact Study)*

1. The Convoy–East Lima 345 kV line is overloaded from 83% to 113% of its emergency rating (1022 MVA) for tower outage of the Allen–Robison Park 345 kV line and the Robison Park – R60 345 kV line. This project contributes approximately 299 MW to cause the thermal violation.
2. The R60C – Robison Park 345 kV line is overloaded from 88% to 108% of its emergency rating (1022 MVA) for tower outage of the Desoto-Keystone 345 kV the Desoto– Sorenson 345 kV lines which also isolates the Desoto – Tanner 345 kV line on a dead bus at Desoto. This project contributes approximately 195 MW to cause the thermal violation.

### **Short Circuit**

No transmission circuit breakers 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)*

None.

## **New System Reinforcements**

*(Upgrades required to mitigate reliability criteria violations, i.e. “Network Impacts”, initially caused by the addition of this project generation)*

The AEP construction scope for the local/network upgrades:

1. The overload on the Convoy-East Lima 345kV circuit can be mitigated by replacing risers at Convoy Station on the Robison Park and East Lima circuits.

Estimated Cost (2007 Dollars)\*: **\$150,000**

2. The Robison Park-R60C 345kV circuit overload can be mitigated by replacing risers at Robison Park Station on the Convoy circuit.

Estimated Cost (2007 Dollars)\*: **\$100,000**

\*The estimates are preliminary in nature, as they were determined without the benefit of detailed engineering studies. Final estimates will require an on-site review and coordination to determine final construction requirements. It will take approximately one year after obtaining the authorization to construct the facilities as outlined above.

### **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

### **MISO Impacts**

Any impacts the S72 project has on facilities in the MISO service territory will be identified in the Impact Study report.