#R49 – Haviland-Milan 138kV

Generation Interconnection

This analysis was completed to assess the reliability impact for a new 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 Horizon project was studied as a 150 MW net capacity consistent with the interconnection application. The results are summarized below.

Normal System (2009 Summer Conditions)

- No problems identified.

Single Contingency (2009 Summer Conditions)

- Outage of the Haviland - R49 Ohio West 138 kV circuit overloads the Tillman 138/34.5 kV transformer to 109% of its summer rating.

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 Feasibility 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

To maintain appropriate levels of reliability and mitigate the single contingency problems resulting from the additional generation identified in this study, the following system improvements are required:

- Replace 138/34.5 kV transformer at Tillman Station with a 30 MVA unit. Install high-side circuit switcher and associated equipment.
  Estimated Cost (2007 Dollars): **$1,000,000**

Total Local Upgrades Cost*: **$1,000,000**

*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.

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 Horizon will adhere to this standard.

Network Impacts

The #R49 project proposes a total of 150 MW (30 MW Capacity) at a tap of the Haviland-Milan 138 kV line. Project #R49 was evaluated for compliance with reliability criteria for summer peak conditions in 2011. Potential network impacts were as follows:

Generator Deliverability
No problems were identified

Multiple Facility Contingency
No problems were identified

Short Circuit
No problems identified

Contribution to Previously Identified Overloads

No problems were identified

New System Reinforcements

None

Contribution to Previously Identified System Reinforcements

None