#R61 – Collingwood-Hiple 345kV
Generation Interconnection

This analysis was completed to assess the reliability impact for a new 350 MW wind generator interconnecting to the PJM system as a 70 MW 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 performance criteria in accordance with the AEP FERC Form 715. Table 1 from that document is provided below for reference. These criteria were used to assess the impact of the proposed facility on the AEP System.

Table 1
AEP Transmission Planning Criteria
(Steady State System Performance)

Transmission System Condition	Maximum Facility Loading (Rating)	Minimum Bus Voltage	
		EHV	138 kV
All facilities in service	Normal	95%	95%
One facility out of service	Emergency (1) Normal (2) Emergency (3)	90%	92%
Two facilities out of service	Emergency	90%	92%

(1) Operational planning criteria before operating procedure implemented.
(2) Facility planning criteria (EHV facilities).
(3) Facility planning criteria (138 kV facilities).

Additional generation projects have also been proposed in the region. The status of many of these projects is unknown at this time. Therefore, this Feasibility Study only addresses the impact of the #R61 generation on the system as projected in 2009. The nearby higher queued PJM Project #R60, being a companion project, was also assumed in service. The effect of other IPP projects on the #R61 connection will be addressed in the System Impact Study as needed. Additionally, stability studies were also 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.

Network Impacts

The #R61 project was studied as a 350 MW (70 MW of Capacity) interconnection at the Collingwood – Hiple 345 kV line in the AEP system. Project #R61 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 were identified

Contribution to Previously Identified Overloads

No problems were identified

New System Reinforcements

None

Contribution to Previously Identified System Reinforcements

None

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. The Kammer 765/500 kV transformer is overloaded at 106% of its emergency rating (2094 MVA) for the outage of Kammer – South Canton 765 kV line (Cont. AEP380). The R61 project contributes approximately 34 MW to this overload.

   The replacement of the Kammer transformer is estimated to cost $18,000,000.

Coordination with MISO

Evaluation of whether the installation of this project impacts any facilities in the MISO system will be done in the Impact Study.