#N47 – Beryl 138kV

Generation Interconnection

Network Impacts

The **#N47 project was studied as a total injection of 135 MW (27 MW of capacity)** at two different points of the system. Option #1 considers the injection into a tap of the Albright-Black Oak 138 kV circuit. Option #2 considers the injection into a tap of the Albright-Parr Run 138 kV circuit. Project #N47 was evaluated for compliance with reliability criteria for summer peak conditions in 2008. Potential network impacts were as follows:

Option #1 Results

Generator Deliverability

No problems were identified *

Multiple Facility Contingency – Tower Line Outages

No problems were identified

Contribution to Previously Identified Overloads

None

New System Reinforcements

- Add a second Black Oak 500/138 kV autotransformer.
- Reconductor the Loughs Lane-Parsons-Williams 138 kV circuit.

Contribution to Previously Identified System Reinforcements

None

Short Circuit

No required breaker replacements were identified.

* 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 #N47 project will contribute to the costs associated with the network upgrades for the Parsons -- William 138 kV circuit, as it contributes approximately 7 MW to the contingency overloaded facility

2. The #N47 project will contribute to the costs associated with the network upgrades for the Loughs Lane – parsons 138 kV circuit, as it contributes approximately 7 MW to the contingency overloaded facility

3. The Westvaco – N47 Tap 138 kV circuit is overloaded to 122% of its emergency rating (219 MVA) for the outage of the Hatfield – Black Oak 500 kV circuit. The #N47 project contributes approximately 83 MW to the contingency overloaded facility

4. The Black Oak – Westvaco 138 kV circuit is overloaded to 114% of it emergency rating (219 MVA) for the outage of the Hatfield – Black Oak 500 kV circuit. The #N47 project contributes approximately 83 MW to the contingency overloaded facility.

AP also completed an analysis for the energy portion of these units and identified additional potential problems:

- A number of other 138 kV circuits in the area may impose additional operating restrictions. In most cases, these circuits would be expected to result in minimal re-dispatch requirements.

Option #2 Results

Generator Deliverability
No problems were identified *

Multiple Facility Contingency – Tower Line Outages
No problems were identified

Contribution to Previously Identified Overloads
None

New System Reinforcements
- Add a second Black Oak 500/138 kV autotransformer.
- Reconductor the Loughs Lane-Parsons-Williams 138 kV circuit.

Contribution to Previously Identified System Reinforcements
To be determined

Short Circuit
No required breaker replacements were identified.

* 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 #N47 project will contribute to the costs associated with the network upgrades for the Parsons -- William 138 kV circuit, as it contributes approximately 10 MW to the contingency overloaded facility

2. The #N47 project will contribute to the costs associated with the network upgrades for the Loughs Lane – parsons 138 kV circuit, as it contributes approximately 10 MW to the contingency overloaded facility

AP also completed an analysis for the energy portion of these units and identified additional potential problems:

- A number of other 138 kV circuits in the area may impose additional operating restrictions. In most cases, these circuits would be expected to result in minimal re-dispatch requirements.