

## S14 Dans Mountain Generation Interconnection

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

### **Network Impacts**

The Queue S14 project was studied as a 70 MW (14 MW of capacity) injection at Carlos – Ridgley 138 kV line. The project 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 project contributes 16 MW to cause the N33 (Afton ) – Albright 138 kV to increase from 94% to 102% of its emergency rating (201 MVA) for the tower contingency outage of Homer City – Quemahon 230 kV and Seward – S11 115 kV. This overload can be corrected by reconductoring approximately 6.3 miles with 954 ACSR or equivalent and upgrading terminal equipment at Albright substation.

#### **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. Contribution of 8 MW further overloads the Albright – Ruthbelle 138 kV line from 123% to 127% of its emergency rating (176 MVA) for the **tower** outage of Brandon 138 kV Bus; 106 Junction 138 kV bus; NEC Tap 138 kV bus; Necessity 138 kV bus; Texas Eastern 5 138 kV bus; Northern Union Tap 1 138 kV Bus; and Northern Union 61 138 kV Bus DCTL (Cont Id. 31).  
The first project to cause this overload is P58. Other projects which contribute to this overload are: Q34,Q55,R22
2. Contribution of 8 MW further overloads the Ruthbelle – Cheat Lake 138 kV line from 120% to 125% of its emergency rating (176 MVA) for the **tower** outage of Brandon 138 kV Bus; 106 Junction 138 kV bus; NEC Tap 138 kV bus; Necessity 138 kV bus; Texas Eastern 5 138 kV bus; Northern Union Tap 1 138 kV Bus; and Northern Union 61 138 kV Bus DCTL (Cont Id. 31).

The first project to cause this overload is Q34. Other projects which contribute to this overload are: Q55,R22

3. Contribution of 8 MW further overloads the Cheat Lake – Lake Lynn 138 kV line from 114% to 119% of its emergency rating (176 MVA) for the **tower** outage of Brandon 138 kV Bus; 106 Junction 138 kV bus; NEC Tap 138 kV bus; Necessity 138 kV bus; Texas Eastern 5 138 kV bus; Northern Union Tap 1 138 kV Bus; and Northern Union 61 138 kV Bus DCTL (Cont Id. 31).

The first project to cause this overload is Q55. Other projects which contribute to this overload are: R22

4. Contribution of 5 MW further overloads the Q34 (Garrett) – Somerset 115 kV line from 128% to 131% of its emergency rating (159 MVA) for the **tower** outage of Brighton – Kempton 500 kV Lines (Ckt 1 and 2); Kemptown – Conastone 500 kV line; and Kemptown – Doubs 500 kV Line DCTL (Cont Id. 19).

The first project to cause this overload is Q34. Other projects which contribute to this overload are: Q55

### **New System Reinforcements**

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

Reconductor the N33 (Afton) – Albright 138 kV circuit with 6.3 miles of 954 ACSR or equivalent.

### **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)*

5. Reconductor the Albright – Ruthbelle 138 kV line with 1.46 miles of 954 ACSR or equivalent and upgrade terminal equipment at Albright.
6. Reconductor the Ruthbelle – Cheat Lake 138 kV line with 18.25 miles of 954 ACSR or equivalent.
7. Reconductor the Cheat Lake – Lake Lynn 138 kV line with 2 miles of 954 ACSR or equivalent and upgrade terminal equipment.
8. The Q34 -Somerset 115 kV Circuit was identified as requiring an upgrade to mitigate reliability criteria violations. This overload would require the replacement/upgrade of 3 disconnect switches at the Somerset substation.

### **Short Circuit**

No overdutied breakers were identified.