

#Q20 Holtwood 140 MW
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 Q20 project was studied as a **140 MW Capacity injection into the Face Rock 69kV** switchyard for summer peak conditions in 2011. Network impact results were as follows:

Local System Impacts

No problems were identified for summer peak conditions.

Generator Deliverability (single contingency)

No problems were identified for summer peak conditions.

Multiple Facility Contingency (Double Circuit Towerlines)

For the contingency loss of either the North or South bus at Face Rock switchyard, Face Rock bus sections will overload to greater than 100% of rated amperes.

Face Rock 69 kV Switchyard Modifications. Replace North and South bus conductors as well as the bay tap conductors at an estimated cost of **\$182,614**. Estimated Construction time is **18 months**.

Short Circuit Analysis

PPL System short circuit Impacts:

Face Rock 69 kV fault duty;

3 Φ , Symm @ 69kV:

- Face Rock => 18,650 A

Phase-to-ground duties @ 69kV:

- Face Rock => 18,210 A

As a result, four breakers at Face Rock will be overdutied.

<u>Breaker</u>	<u>Position</u>	<u>Fault/Service Ratio</u>	
		<u>Prior to Q20</u>	<u>With Q20</u>
1B	Manor #16 North	0.950	1.235
1C	697 South	0.874	1.108
6B	Span 695 North	0.874	1.108
6C	FF # 1 - South	0.920	1.166

\$499,526 Face Rock 69 kV Switchyard Modifications

BG&E System short circuit impacts:

The addition of project Q20 causes the short circuit interrupting requirement of Waugh Chapel 230KV breaker 2340 and Windy Edge 115KV breaker 110516 to exceed their existing rating. The cost of replacement for Waugh Chapel 230KV breaker 2340 is **\$325,000** and for Windy Edge 115KV breaker 110516 is **\$260,000**.

Stability Analysis

Will be performed for the Impact Study

Contribution to Previously Identified System Reinforcements

None

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