#P16 - Bath County 500 kV (340 MW)

Generation Interconnection

Network Impacts

Network Impacts

The **#P16 project was studied as an injection of 340 MW into Bath County 500kV substation.** Project #P16 was evaluated for compliance with reliability criteria for summer peak conditions in 2010. Potential network impacts were as follows:

Generator Deliverability

A. The Lexington – Dooms 500 kV circuit is overloaded at around 100% of its maximum continuous rating (2598 MVA) for the outage of the line 548. The P16 project contributes approximately 197 MW to the contingency facility loading.

Dominion Assessment Results

Dominion Virginia Power performed contingency analysis using their criteria to maximize generation output in the local area to determine possible overloads (maximize generation in the local area and then run studies with and without P16.). Dominion uses a 94% facility loading value as a trigger point for relieving specific transmission facilities through upgrades or new installations. The results of these studies indicated the following:

A. The Dooms – Crozet1 230 kV circuit is overloaded at around 98.6% of its maximum continuous rating (587 MVA) for the outage of the line 553. The P16 project contributes approximately 42 MW to the contingency facility loading.

B. The Dooms – Crozet2 230 kV circuit is overloaded at around 94.5% of its maximum continuous rating (569 MVA) for the outage of the line 553. The P16 project contributes approximately 42 MW to the contingency facility loading.

Multiple Facility Contingency

No problem identified.

Contribution to Previously Identified Overloads

None

New System Reinforcements *(see Generator Deliverability and Dominion Assessment Results sections above)*

1. Identified overload: Lexington – Dooms 500 kV circuit.

   Proposed solution: Replace wave traps at both terminals.
   Preliminary cost estimate: $300,000.
   Estimated time for construction: 12 – 15 months (after ISA executed).

2. Identified overload: Dooms – Crozet1 230 kV circuit.

   Proposed solution: The "preliminary" solution is to re-conductor these respective line segments and replace line switches.
   Preliminary cost estimate: $ 2,700,000.
   Estimated time for construction: 30-36 months (after ISA executed).

3. Identified overload: Dooms – Crozet2 230 kV circuit.

   Proposed solution: The "Preliminary" solution is to re-conductor these respective line segments and replace line switches.
   Preliminary cost estimate: $ 2,700,000
   Estimated time for construction: 30-36 months (after ISA executed).

Contribution to Previously Identified System Reinforcements
None

Short Circuit
No problem identified.