PJM Generator Interconnection S97& S98 South Anna 230-kV Feasibility & System Impact Study

Confidential

General

The Queue S97 and S98 Projects were studied as an increase of 40 MW to the existing South Anna 230 kV substation. Projects S97 and S98 were evaluated for compliance with reliability criteria for summer peak conditions in 2012. Potential network impacts are provided in the Network Impacts section below.

Dominion's Planning Criteria requires that the transmission system must be capable of importing and exporting power in excess of existing scheduled transfers between utilities. The system must be capable of handling this incremental transfer with any single facility (first contingency) out of service and not exceed the maximum continuous rating of any remaining facility. Any new facility that is connected to the transmission system should not significantly decrement First Contingency Incremental Transfer Capability (FCITC) for transfers between utilities. Also Dominion's Planning Criteria requires that no facility be loaded to more than 94% of its emergency rating for an outage. For this same outage voltages can not be less than 93% of nominal with the exception of 500 kV voltages where it is desired to maintain a minimum of 101% of nominal voltage for an outage. A complete listing of Dominion's Planning Criteria along with interconnection requirements can be found in Dominion's Facility Connection Document which is publicly available on the Dominion Web Site.

Dominion used a 2012 RTEP case for the generation feasibility study. This case was supplied to Dominion on August 16, 2007 by PJM. Dominion modified this case to include all higher order Queue generation requests including proposed network facilities associated with these projects. This included the following Queue requests being modeled: P8 – 600 MW, P9 – 91 MW, P16 340 MW, P38 - 625 MW, Q65 - 1594, R19-340 MW, R31 – 8 MW, R63 – 19 MW, S50 – 18 MW, S52-600 MW and S74 through S96 projects. Generation was scaled down proportional throughout the PJM System, including the Dominion System, to accommodate this increase in generation.

Network Impacts

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)

No problems were identified.

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)

No problems were identified.

New System Reinforcements
(Upgrades required to mitigate reliability criteria violations, i.e. "Network Impacts", initially caused by the addition of this project generation)

None.

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)

None.

Short Circuit

Not required.

Stability Analysis

Not required.

Dominion Facility Connection Requirements

The results of the FCITC Studies under import and export conditions indicate the following.

Import Study Results

Imports			
Area	**Summer 2012**	**Summer 2012 with S97-S98**	**Limiting Element**
AEP	2000+	2000+	NA
APS	2000+	2000+	NA
CPL	2000+	2000+	NA
PJM	2000+	2000+	NA

Export Study Results

Exports			
Area	**Summer 2012**	**Summer 2012 with S97-S98**	**Limiting Element**
AEP	2000+	2000+	NA
APS	2000+	2000+	NA
CPL	1770	1648	Halifax – Person (CP&L)
PJM	1462	1443	Pleasant View – Dickerson(PEPCO)

The Pleasant View – Dickerson 230 kV line is a 2012 RTEP deficiency and PJM is working to develop a solution. In summary, the results of these studies indicate that the proposed facility is not adversely impacting FCITC's on the Dominion System.