

SCE&G Input Into the 2008 VACAR Drought Study

The purpose of this study is to assess the potential impact of drought conditions on the operations of the systems within VACAR during the upcoming spring and summer seasons.

Case and Scenario Definition

Utilizing the most recent SERC NTSG OASIS Support Study base cases for the 2008 spring and 2008 summer seasons, a base case and two drought cases were developed as follows:

- Base Case – Normal generation dispatch with no drought impacts.
- Expected Drought Case – Projected generation dispatch with expected drought impacts.
- Moderate Drought Case – Projected generation dispatch with potential constrained operation of hydro and thermal units due to moderate drought conditions.

Three scenarios were analyzed to assess the impact of imports into the VACAR sub-region to replace the drought impacted generation reductions. Scenario 1 simulated power transfers to replace drought impacted generation transitioning from Base Case conditions to Expected conditions. Scenario 2 simulated power transfers to replace additional drought impacted generation transitioning from Expected conditions to Moderate conditions. Scenario 3 simulated power transfers to replace additional drought impacted generation transitioning from Moderate conditions to Severe conditions.

For each scenario, the replacement power was imported from each of the five different areas listed below:

- MISO/CommEd: MISO control areas, Commonwealth Edison
- PJM West: Allegheny, AEP, Dayton, Duquesne
- PJM Mid-Atlantic: historic PJM
- TVA
- Southern Company

Procedure

Siemens PTI PSS/E version 30.2 was used to create the three study base cases for 2008 Spring and Summer as outlined above.

Siemens PTI MUST version 8.3 was used to run FCITC Analysis on each drought study base case. Typical monitored element, contingency element, and subsystem MUST input files were used for this analysis. All replacement power for the FCITC analysis was imported from each of the five different control areas or combinations of control areas described above. Load was scaled in the exporting area(s) to allow the generation to be available for export to VACAR.

Limiting constraints with Transfer Distribution Factors (TDFs) greater than or equal to 3 percent are discussed in the report below. The results were reviewed by all VACAR member companies and invalid results were removed.

2008 Spring

South Carolina Electric & Gas

Generation reductions to simulate the three Drought Scenarios included Fossil, Hydro and Pumped Storage units.

Expected Scenario – No generation changes were made to the base case to build the Expected Case; therefore no additional imports were required for South Carolina Electric & Gas Company (SCEG) in this scenario. No limiting facilities or outage facilities were found in SCEG's system for imports into VACAR from any of the five exporting areas.

Moderate Scenario – Hydro generation was reduced by 19 MW from the Expected Case to represent a Moderate Scenario simulation. No limiting facilities or outage facilities were found in SCEG's system for imports into VACAR from any of the five exporting areas.

Severe Scenario – Fossil generation was reduced by 150 MW and Pumped Storage was reduced by 228 MW from the Moderate Case to represent the Severe Scenario simulation. No limiting facilities or outage facilities were found in SCEG's system for imports into VACAR from any of the five exporting areas.

2008 Summer

South Carolina Electric & Gas

Generation reductions to simulate the three Drought Scenarios included Fossil, Hydro and Pumped Storage units. A new transfer of 420 MW from Columbia Energy Center (an IPP in SCEG's system) to Duke was included in the base case for all reserved timeframes. This is a new transmission service and will be included in all of SCEG's models except for cases built for the April and May timeframe.

Expected Scenario – No generation changes were made to the base case to build the Expected Case; therefore no additional imports were required for South Carolina Electric & Gas Company (SCEG) in this scenario. No limiting facilities or outage facilities were found in SCEG's system for imports into VACAR from any of the five exporting areas.

Moderate Scenario – Hydro generation was reduced by 79 MW from the Expected Case to represent a Moderate Scenario simulation. No limiting facilities or outage facilities were found in SCEG's system for imports into VACAR from any of the five exporting areas.

Severe Scenario – Fossil generation was reduced by 312 MW and Pumped Storage was reduced by 544 MW from the Moderate Case to represent the Severe Scenario simulation. No limiting facilities or outage facilities were found in SCEG's system for imports into VACAR from any of the five exporting areas.

Appendix A

VACAR Drought Study Assumptions						
	2008 Spring			2008 Summer		
Company	Expected	Moderate	Severe	Expected	Moderate	Severe
SCEG	0	19	378	0	79	856