



**Economic Transmission Planning Study
for the
South Carolina Regional Transmission Planning (SCRTP)
Stakeholder Group**

**Scenario: 500 MW Transfer from SCE&G to
Duke, 2020 Summer**

**Prepared by
SCE&G Transmission Planning
and Santee Cooper Transmission Planning**

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Scenario: 500 MW Transfer from SCE&G to Duke Economic Transmission Planning Study

GENERAL DISCUSSION

This study was conducted to determine the ability of the SCE&G and Santee Cooper transmission systems to transfer for 500 MW from SCE&G to Duke Energy for expected 2020 summer conditions.

SCE&G Transmission Planning and Santee Cooper Transmission Planning have studied the requested transfer and conducted a comparative analysis of the SCE&G and Santee Cooper transmission systems without the requested transfer and then with the requested transfer. This report discusses the differences between these two analyses.

STUDY METHODOLOGY

The base case model used in this study was the 2020 Summer Peak case created by the SERC Long-term Study Group (LTSG) during the 2009 model development process. For the transfer case, the request was to study a 500 MW transfer from the SCEG area to the Duke area. SCE&G modeled 500 MW of available generation to make the transfer.

In accordance with the requirements of NERC Standards FAC-012-1 and FAC-013-1, the transfer capability in this study was developed consistent with Transfer Capability Methodology as documented in the SERC LTSG Procedure Manual.

Two types of studies performed:

- The first analysis in this study was a linear transfer analysis using PTI's MUST Software. This analysis included single contingencies in SERC while monitoring SCE&G and Santee Cooper transmission systems.
- The second analysis in this study was a thermal and voltage analysis using PTI's PSS/E Power Flow Software and PowerWorld Simulator Software. This analysis of SCE&G and Santee Cooper internal transmission systems included single contingencies, double contingencies and select bus outages with and without the simulated 500 MW transfer in effect. However, this analysis is not a complete testing of NERC TPL standards. It does not include all required TPL events nor does it include dynamic stability analyses.

In these analyses, overloaded facilities that had a low response to the requested transfer were excluded; and problems or issues identified that are local area in nature were also excluded.

STUDY RESULTS

From the linear analysis the following transmission facilities limit the transfer.

For SCE&G:

Scenario	Transfer Limit	Constrained Facility	Contingencies
SCEG – Duke 500 MW	100	White Rock (SCEG)-Bush River Yellow (DUKE) 115 kV	Bush River (DUKE)-VCS Sub 2 (SCEG) 230 kV

For Santee Cooper:

No Santee Cooper facilities were a limit to the linear transfer analysis.

From the thermal and voltage analysis the following transmission facilities exceeded their thermal or voltage limits:

For SCE&G:

Scenario	Constrained Facility	Percent Loading	Percent Increase	Contingencies
SCEG-DUKE 500 MW	White Rock (SCEG)-Bush River Yellow (DUKE) 115 kV	117.07	19.3	Bush River (DUKE)-VCS Sub 2 (SCEG) 230 kV
SCEG-DUKE 500 MW	Georgia Pacific Tap (SCEG)-Bush River Red (DUKE) 115 kV	108.47	15	Bush River (DUKE)-VCS Sub 2 (SCEG) 230 kV
				Newport (DUKE)-VCS Sub1 Bus1 (SCEG) 230 kV

For Santee Cooper:

No Santee Cooper facilities exceeded their thermal or voltage limits for the thermal and voltage analysis.

CONCLUSIONS

Based on the results of this study for the time period studied and the assumptions made, for a single contingency in the of Bush River (DUKE)-VC Summer Sub 2 (SCE&G) 230 kV tie line the White Rock (SCE&G)-Bush River Yellow (DUKE) 115 kV tie line is above its thermal rating at the 500 MW transfer level.

For a double contingency of the Bush River (DUKE)-VC Summer Sub 2 (SCE&G) 230 kV tie line and the Newport (DUKE)-VC Summer Sub 1 Bus1 (SCE&G) 230 kV tie line, the Georgia Pacific Tap (SCE&G)-Bush River Red (DUKE) 115 kV tie line is above its thermal rating at the 500 MW transfer level.

Note that all of the facilities above are tie lines between the SCE&G system and the Duke system.

RECOMMENDATIONS, COST ESTIMATES AND SCHEDULES

Providing any recommendations to alleviate the constrained tie lines between SCE&G and Duke would require a joint study between the two companies to determine the best solution, cost estimates and schedule.

DRAFT

Attachment “A”

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South Carolina Regional Transmission Planning
Economic Transmission Study Submittal Form

Please email completed form to: cyoung@scana.com

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Economic Scenario #2:

Source Area:	SCEG
Sink Area:	DUKE
Transfer (MW):	500
Study Year:	2020
Study Conditions:	Summer Peak
Other Information:	N/A
Benefits of Study and Other Comments:	Will provide analysis of flows between SCEG and adjacent systems for the time period furthest into the future based on the available 2009 MMWG Series Base Cases (listed in presentation at SCRTP Meeting on 11/11/09).