

South Carolina Regional Transmission Planning

Stakeholder Meeting

WebEx

September 25, 2019 10:00 – 12:00







Purpose and Goals for Today's Meeting

• Review and Discuss the Initial Results of the Stakeholder Selected Economic Power Transfer Sensitivities







Economic Transmission Planning Studies

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Study Methodology

- Linear transfer analysis using PowerGem's TARA Software. Analysis includes single contingencies of SERC while monitoring the DESC's and Santee Cooper's internal Transmission Systems.
- A Thermal and Voltage analysis using PTI's PSS/E and/or PowerWorld Simulator Software. This analysis of DESC's and Santee Cooper's internal transmission systems included single contingencies, double contingencies and selected bus outages with and without the simulated transfer in effect. However, this analysis is not a complete testing of NERC TPL standards.







Case Development

- The most current MMWG models were used for the systems external to DESC and SCPSA as a starting point for the study case.
- The study case(s) include the detailed internal models for DESC and SCPSA. The study case(s) include new transmission additions currently planned to be in-service for the given year (i.e. in-service by winter 2020 for 2020W case).







Case Development

- DESC and SCPSA have coordinated interchange which includes all confirmed long term firm transmission reservations with roll-over rights applicable to the study year.
- The coordinated cases were used to build base cases.
- Base cases were used to build transfer cases.







Study Results

- DESC and SCPSA have reported results based on thermal loading and voltage violations in accordance with their planning criteria.
- 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.







2019 Economic Planning Scenarios Selected by Stakeholders During the June 13, 2019 Meeting

#	Source	Sink	Amount (MW)	Year	Study Conditions	Study Request
1	SOCO	DESC	500	2020	Summer	DESC PM
2	DEC	SCPSA	500	2020	Summer	SCPSA PM
3	SOCO	SCPSA	800	2020	Summer	SCPSA PM
4	DEC	SCPSA	500	2023/24	Winter	SCPSA PM
5	SOCO	SCPSA	1000	2023/24	Winter	SCPSA PM







Power Flow Base Cases

- 2018 LTWG Series PSSE Models with DESC and SCPSA 2019 Internal Model Updates
 - 2020 Summer
 - 2023/24 Winter







Preliminary Result Components

- The following information is preliminary and subject to change pursuant to additional analyses.
- The following information does not represent a commitment to proceed with the recommended enhancements nor implies that the recommended enhancements could be implemented by the study dates.
- These potential solutions only address constraints identified within the respective areas that comprise the SCRTP. Balancing Areas external to the SCRTP were not monitored, which could result in additional limitations and required system enhancements.







Scenario 1

2020 Summer SOCO – DESC 300 MW







Preliminary Results – DESC

SOCO – DESC 300 MW

2020 Summer Study

Constrained Facility	% Base Loading	% Study Loading	Contingency	Project
*None Identified				







Preliminary Results – DESC SOCO – DESC 300 MW

2020 Summer Study

Project	Description	Cost (2019\$)	Duration (Months)
	*None Identified	N/A	N/A
	TOTAL (2019\$) \$0	







Preliminary Results – SCPSA

SOCO – DESC 300 MW

2020 Summer Study

Constrained Facility	% Base Loading	% Study Loading	Contingency	Project
*None Identified				







Preliminary Results – SCPSA

SOCO – DESC 300 MW

2020 Summer Study

Project	Description		Cost (2019\$)	Duration (Months)
*None Identified			N/A	N/A
		TOTAL (2019\$)	\$0	







<u>Scenario 2</u>

2020 Summer DEC – SCPSA 500 MW







Preliminary Results – DESC

DEC – SCPSA 500 MW

2020 Summer Study

Constrained Facility	% Base Loading	% Study Loading	Contingency	Project
*None Identified				







Preliminary Results – DESC DEC – SCPSA 500 MW

2020 Summer Study

Project	Description		Cost (2019\$)	Duration (Months)
*None Identified			N/A	N/A
		TOTAL (2019\$)	\$0	







Preliminary Results – SCPSA

DEC – SCPSA 500 MW

2020 Summer Study

Constrained Facility	% Base Loading	% Study Loading	Contingency	Project
*None Identified				







Preliminary Results – SCPSA

DEC – SCPSA 500 MW

2020 Summer Study

Project	Description		Cost (2019\$)	Duration (Months)
*None Identified			N/A	N/A
		TOTAL (2019\$)	\$0	







Scenario 3

2020 Summer SOCO – SCPSA 800 MW







Preliminary Results – DESC

SOCO – SCPSA 800 MW

2020 Summer Study

	% Ba Loadi	% Stu Loadi		
Constrained Facility	ng	ıdy ng	Contingency	Project
Graniteville 230/115kV #1 / #2 Transformer	84%	103%	Graniteville 230/115kV #2 / #1 Transformer and SRS – Vogtle 230kV SOCO Tie	SG1 & SG2*
Graniteville #2 230/115kV Transformer	98%	103%	Loss of Graniteville 230/115kV #1 and #2 Transformers	SG1 & SG2*
Ritter – Yemassee 230kV	86%	102%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Yemassee – Yemassee 230kV SC Tie	SG1 & SG2*
Canadys – Yemassee 230kV	84%	108%	Loss of Mateeba (SC) – Yemassee (SC) 230kV and Ritter – Yemassee 230kV	SG1 & SG2*

*Will <u>not</u> need to perform SG1 <u>or</u> SG2 if transfer is reduced to 250MW.







Preliminary Results – DESC SOCO – SCPSA 800 MW 2020 Summer Study

Project	Description	Cost (2019\$)	Duration (Months)
SG1	Rebuild Graniteville – Stevens Creek 115kV and SOCO 115kV line(s) as a double circuit to establish Graniteville – Evans 230kV SOCO Tie (\approx 15 DESC miles, \approx 7 SOCO miles).	\$26,000,000	24-36
SG2	Rebuild Canadys – SRS 230kV as a double circuit to double the rating of the existing Canadys – SRS 230kV and add an additional Canadys – SRS 230kV line. (\approx 58 miles).	\$89,000,000	66-72
	TOTAL (2019\$)	\$115,000,000	66-72





SG1 - Rebuild Graniteville – Stevens Creek 115kV and SOCO 115kV line(s)



SG2 - Rebuild Canadys – SRS 230kV



South Carolina Regional Transmission Planning



Preliminary Results – SCPSA

SOCO – SCPSA 800 MW

2020 Summer Study

Constrained Facility	%Base Loading	%Study Loading	Contingency	Project
Yemassee (SCPSA) – Yemassee (DESC) 230kV	86%	100 %	Bluffton - Purrysburg 230kV & Ritter - Yemassee 230kV	1
Purrysburg – Bluffton 230kV	93%	106%	Jasper - Yemassee 230kV #1 & Jasper - Yemassee 230kV #2 (DESC)	2







Preliminary Results – SCPSA SOCO – SCPSA 800 MW

2020 Summer Study

Project	Description		Cost (2019\$)	Duration (Months)
1	Replace Switches at Yemassee 230kV Switching Station		\$86,000	12
2	Replace Breaker and Switches at Bluffton 230-115 kV Substation		\$245,000	12
		TOTAL (2019\$)	\$331,000	12







Scenario 4

2023-2024 Winter DEC – SCPSA 500 MW







Preliminary Results – DESC

DEC – SCPSA 500 MW 2023-2024 Winter Study

	% Ba Loadi	% Stu Loadi		
Constrained Facility	ise	ıdy İng	Contingency	Project
Town Creek – South Augusta 230kV SOCO Tie	N/A	104%	Loss of Vogtle (SOCO) – West McIntosh (SOCO) 500kV and SRS – Vogtle 230kV SOCO Tie	SG1
Graniteville #2 – Sand Bar Ferry 115kV SOCO Tie	N/A	122%	Loss of Town Creek – South Augusta 230kV SOCO Tie and SRS – Vogtle 230kV SOCO Tie	SG1
Barnwell – SRS 230kV	N/A	109%	Loss of Canadys – SRS 230kV and Urquhart – Graniteville 230kV	SG2
Ritter – Yemassee 230kV	N/A	109%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Yemassee – Yemassee 230kV SC Tie	SG3*

*Will not need to perform SG3 if SG1 and SG2 are implemented and DEC-SCPSA transfer is reduced to 300MW.







Preliminary Results – DESC DEC – SCPSA 500 MW 2023-2024 Winter Study

Project	Description	Cost (2019\$)	Duration (Months)
SG1	Rebuild Graniteville – Stevens Creek 115kV and SOCO 115kV line(s) as a double circuit to establish Graniteville – Evans 230kV SOCO Tie (\approx 15 DESC miles, \approx 7 SOCO miles).	\$26,000,000	24-36
SG2	Rebuild Canadys – SRS 230kV as a double circuit to double the rating of the existing Canadys – SRS 230kV and add an additional Canadys – SRS 230kV line. (\approx 58 miles).	\$89,000,000	66-72
SG3	Rebuild 115kV lines from Yemassee through Ritter and Church Creek to Faber Place as a double circuit, and convert existing 230kV as 115kV. This will quadruple the ratings of the 230kV equipment and at least double the ratings of the 115kV equipment in the path. (\approx 56 miles).	\$92,000,000	66-72
	TOTAL (2019\$)	\$207,000,000	66-72





SG3 - Rebuild 115kV lines from Yemassee through Ritter and Church Creek to Faber-Place





Preliminary Results – SCPSA

DEC – SCPSA 500 MW 2023-2024 Winter Study

Constrained Facility	%Base Loading	%Study Loading	Contingency	Project
Purrysburg – Bluffton 230kV	N/A	105%	Jasper - Yemassee 230kV #1 & Jasper - Yemassee 230kV #2 (DESC)	1







Preliminary Results – SCPSA DEC – SCPSA 500 MW

2023-2024 Winter Study

Project	Description		Cost (2019\$)	Duration (Months)
1	Replace Breaker and Switches at Bluffton 230-115 kV Substation		\$245,000	12
		TOTAL (2019\$)	\$245,000	12







<u>Scenario 5</u>

2023-2024 Winter SOCO – SCPSA 1000 MW







<u>Preliminary Results – DESC</u> SOCO – SCPSA 1000 MW

2023-2024 Winter Study

	% Ba Loadi	% Stu Loadi		
Constrained Facility	ing	ıdy İng	Contingency	Project
Town Creek – South Augusta 230kV SOCO Tie	N/A	112%	Loss of Vogtle (SOCO) – West McIntosh (SOCO) 500kV and SRS – Vogtle 230kV SOCO Tie	SG1
Graniteville #2 – Sand Bar Ferry 115kV SOCO Tie	N/A	132%	Loss of Town Creek – South Augusta 230kV SOCO Tie and SRS – Vogtle 230kV SOCO Tie	SG1
Barnwell – SRS 230kV	N/A	111%	Loss of Canadys - SRS 230kV and Urquhart - Graniteville 230kV	SG2
Ritter – Yemassee 230kV	N/A	115%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Yemassee – Yemassee 230kV SC Tie	SG3
Jasper – Yemassee 230kV #1 / #2	N/A	102%	Loss of Jasper – Yemassee 230kV #2 / #1 and Bluffton (SC) – Purrysburg (SC) 230kV	SG1 and SG2







Preliminary Results – DESC SOCO – SCPSA 1000 MW 2023-2024 Winter Study

Project	Description	Cost (2019\$)	Duration (Months)
SG1	Rebuild Graniteville – Stevens Creek 115kV and SOCO 115kV line(s) as a double circuit to establish Graniteville – Evans 230kV SOCO Tie (\approx 15 DESC miles, \approx 7 SOCO miles).	\$26,000,000	24-36
SG2	Rebuild Canadys – SRS 230kV as a double circuit to double the rating of the existing Canadys – SRS 230kV and add an additional Canadys – SRS 230kV line. (\approx 58 miles).	\$89,000,000	66-72
SG3	Rebuild 115kV lines from Yemassee through Ritter and Church Creek to Faber Place as a double circuit, and convert existing 230kV as 115kV. This will quadruple the ratings of the 230kV equipment and at least double the ratings of the 115kV equipment in the path. (\approx 56 miles).	\$92,000,000	66-72
	TOTAL (2019\$)	\$207,000,000	66-72







Preliminary Results – SCPSA

SOCO – SCPSA 1000 MW 2023-2024 Winter Study

Constrained Facility	%Base Loading	%Study Loading	Contingency	Project	
Purrysburg – Bluffton 230kV	N/A	101%	Jasper - Yemassee 230kV #1 & Jasper - Yemassee 230kV #2 (DESC)	1	

*Potentially overloaded or loaded facilities that had a low response to the requested transfer were excluded and problems or issues identified that are local area in nature were excluded







Preliminary Results – SCPSA SOCO – SCPSA 1000 MW 2023-2024 Winter Study

Project	Description		Cost (2019\$)	Duration (Months)
1	Replace Breaker and Switches at Bluffton 230-115 kV Substation		\$245,000	12
		TOTAL (2019\$)	\$245,000	12







2019 Economic Planning Scenarios Preliminary Results - SCPSA

#	Source	Sink	MW	Year	FCITC LIMIT	LIMIT/CONTINGENCY
1	SOCO	DESC	300	2020S	No Limit found	N/A
2	Duke	SCPSA	500	2020S	No Limit found	N/A
3	SOCO	SCPSA	800	2020S	No Limit found	N/A
4	Duke	SCPSA	500	2023/24W	No Limit found	N/A
5	SOCO	SCPSA	1000	2023/24W	No Limit Found	N/A







Report and Power Flow Case Access

- Draft reports will be provided to stakeholders
- Power Flow Starting Point Cases also available







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Welcome

The South Carolina Regional Transmission Planning (SCRTP) process was established by Dominion Energy South Carolina (Dominion Energy) and the South Carolina Public Service Authority (Santee Cooper) to meet the transmission planning requirements of FERC Order No. 890, 890-A and 890-B, orders designed to "prevent undue discrimination and preference in transmission service." The SCRTP process was expanded to meet the transmission planning requirements of FERC Order No. 1000, 1000-A, and 1000-B, orders that reform the Commission's electric transmission planning and cost allocation requirements for public utility transmission providers.

SCRTP provides information on:

- Activities of the SCRTP process
- · Order No. 890 (including subsequent rulings associated with Order No. 890)
- · Documents related to our compliance with Order No. 890

Events

The next meeting of the SCRTP Stakeholder Group will be held September 25, 2019. This will be a WebEx only meeting.

Meeting Announcement (PDF)

Meeting Archives

Order 1000 Filing:

- Order 1000 Transmittal Letter - 7/14/2014
- Attachment K Clean Order 1000 Revision -7/14/2014







Economic Transmission Planning Studies Initial Findings



Stakeholder Input, Comments and Questions







Next SCRTP Meeting

- Key assumptions and data used for modeling
- Reliability Planning process
- Review all major projects included in current Local Transmission Plans
- Review and discuss Multi-Party Assessment Studies
- SCRTP Email Distribution List will be notified
- Register online







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