

# South Carolina Regional Transmission Planning

## Stakeholder Meeting

Teams Meeting

October 18, 2023 10:00 AM

## Purpose and Goals for Today's Meeting

- Overview of the Regional and Interregional Planning Process
- Review and Discuss the Initial Results of the Stakeholder Selected Economic Power Transfer Sensitivities

# SCRTP Regional and Public Policy Planning

- Biennial Process (currently in year 1, Meeting #4)
- Restarts in 4<sup>th</sup> quarter of even years
- Regional Projects – Proposed, Evaluation and Selection
  - Must be submitted by January 15 of odd years
  - None received in current Regional Planning cycle

## When proposals are submitted:

- Transmission Providers will review requests for cost allocation submitted by Qualified Developers
- Stakeholders may submit comments on all requests for cost allocation
- Transmission Providers and Stakeholders may discuss requests for cost allocation
- Transmission Providers will post all comments on the SCRTP website

# SCRTP Regional Plan



## Planning Studies

- Reliability Studies
- **Economic Studies**
- Public Policy Studies

# SCRTP Interregional Process

- Interregional process includes SCRTP and SERTP (Southeastern Regional Transmission Planning)
- Includes requirement to:
  - Coordinate Regional and Local Plans
  - Exchange data, power flow base cases and transmission expansion plans
  - Joint Evaluation of Proposed Inter-regional Projects
  - Cost Allocation Methodology for selected Inter-regional Projects
- September 20, 2022 – Joint SCRTP/SERTP Meeting (Teams)
  - Local and Regional Plans for near the seams were reviewed for both SCRTP and SERTP
  - Transmission Providers will consider if more cost effective or efficient joint/inter-regional alternatives are available as compared to individual and separate Regional Plans – none proposed
- September 6, 2023 – Joint SCRTP/SERTP Meeting (Teams)
  - Reviewed data exchange processes for latest base cases and expansion plans used by SCRTP and SERTP members.

# Economic Transmission Planning Studies

Edward Chapman/  
Emily Morgan

# 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 PowerGem's TARA 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 LTWG models were used for the systems external to DESC and SCPSA as a starting point for the study case.
- The study cases include detailed internal models for DESC and SCPSA. The study cases include new transmission additions currently planned to be in-service for the given year



## 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.

# 2023 Economic Planning Scenarios

## *Selected by Stakeholders During the May 31, 2023 Meeting*

#	Source	Sink	Amount (MW)	Year	Study Conditions	Study Request
1	SOCO	DESC	1300	2028/29	Winter	Southern Alliance for Clean Energy (SACE)
2	SOCO	DESC	950	2028/29	Winter	SACE
3	MISO	DESC	950	2032/33	Winter	SACE
4	DEP	DESC	950	2032/33	Winter	SACE
5	PJM	DESC	950	2028/29	Winter	SACE

# Power Flow Base Cases

- 2023 LTWG Series PSSE Models with DESC and SCPSA Internal Model Updates
  - 2028/29 Winter
  - 2033/34 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**  
**2028/29 Winter**  
**SOCO – DESC 1300 MW**

# Preliminary Results – DESC

## SOCO – DESC 1300 MW

### 2028/29 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Okatie – Yemassee 230kV	107%	128%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Jasper – Yemassee 230kV	DESC1 & SCPSA1
Jasper – Yemassee 230kV	103%	125%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Okatie – Yemassee 230kV	DESC1 & SCPSA1
Okatie – McIntosh 115kV Tie	99%	124%	Loss of Purrysburg (SC) – McIntosh (SOCO) 230kV #1 & #2 Ties	DESC1
Jasper – Purrysburg 230kV #1 / #2 Tie	97%	123%	Loss of all Jasper Units and Jasper – Purrysburg 230kV #2 / #1 Tie	DESC1
Graniteville #2 – Sand Bar Ferry 115kV SOCO Tie	78%	102%	Loss of Toolebeck – South Augusta 230kV SOCO Tie and SRS – Vogtle 230kV SOCO Tie	DESC1 & DESC2
Canadys – Church Creek 230kV	88%	101%	Loss of Canadys – Faber Place 230kV and Church Creek – Ritter 230kV	DESC2

\*DESC has Op Guides to reduce some base case overloads that would not be relied on in transfer cases

\*\*Potentially overloaded or heavily 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 – DESC

## SOCO – DESC 1300 MW 2028/29 Winter Study

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
DESC1	Create a Jasper East 230kV Switching Station with 2 Ties to McIntosh (SOCO). Create a Jasper East – Ritter 230kV line. New R/W needed from Jasper – Yemassee but then connect with already planned future Ritter – Yemassee 230kV line at Yemassee.	\$135,710,000	96
DESC2	Rebuild Church Creek - Ritter 115kV as 230/230 with B-1272 ACSR AND construct Pepperhill - Ritter 230kV	\$127,315,000	56
TOTAL (2023\$)		\$263,025,000	96



# Preliminary Results – SCPSA

## SOCO – DESC 1300 MW

### 2028/29 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Purrysburg – McIntosh #1/2 230kV Line	94%	116%	Loss of Purrysburg – McIntosh #1/2 230 kV Line & Loss of all Jasper Units	DESC1, SCPSA1
Briggs Road – Clarks Hill (Thurmond) 115kV Line	95%	117%	Loss of Toolebeck – South Augusta 230kV SOCO Tie & SRS – Vogtle 230kV SOCO Tie	SCPSA2

# Preliminary Results – SCPSA

## SOCO – DESC 1300 MW

### 2028/29 Winter Study

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
SCPSA1	Construct a 230 kV line from the Varnville 230-115 kV Substation to the Purrysburg 230-115 kV Substation by obtaining new right of way and utilizing existing where possible.	\$197,014,000	77 months
SCPSA2	Upgrade limiting elements on Briggs Road – Clarks Hill (Thurmond) 115kV Line	\$149,600	35 months
TOTAL (2023\$)		\$197,163,600	77 months

**Scenario 2**  
**2028/29 Winter**  
**SOCO – DESC 950 MW**

# Preliminary Results – DESC

## SOCO – DESC 950 MW

### 2028/29 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Okatie – Yemassee 230kV	107%	123%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Jasper – Yemassee 230kV	DESC1 & SCPSA1
Jasper – Yemassee 230kV	103%	120%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Okatie – Yemassee 230kV	DESC1 & SCPSA1
Okatie – McIntosh 115kV Tie	99%	118%	Loss of Purrysburg (SC) – McIntosh (SOCO) 230kV #1 & #2 Ties	DESC1
Jasper – Purrysburg 230kV #1 / #2 Tie	97%	117%	Loss of all Jasper Units and Jasper – Purrysburg 230kV #2 / #1 Tie	DESC1
Canadys – Church Creek 230kV	88%	101%	Loss of Canadys – Faber Place 230kV and Church Creek – Ritter 230kV	DESC2

\*DESC has Op Guides to reduce some base case overloads that would not be relied on in transfer cases

\*\*Potentially overloaded or heavily 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 – DESC

## SOCO – DESC 950 MW

### 2028/29 Winter Study

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
DESC1	Create a Jasper East 230kV Switching Station with 2 Ties to McIntosh (SOCO). Create a Jasper East – Ritter 230kV line. New R/W needed from Jasper – Yemassee but then connect with already planned future Ritter – Yemassee 230kV line at Yemassee.	\$135,710,000	96
DESC2	Rebuild Church Creek - Ritter 115kV as 230/230 with B-1272 ACSR AND construct Pepperhill - Ritter 230kV	\$127,315,000	56
TOTAL (2023\$)		\$263,025,000	96

# Preliminary Results – SCPSA

## SOCO – DESC 950 MW

### 2028/29 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Purrysburg – McIntosh #1/2 230kV Line	94%	111%	Loss of Purrysburg – McIntosh #1/2 230 kV Line & Loss of all Jasper Units	DESC1, SCPSA1
Briggs Road – Clarks Hill (Thurmond) 115kV Line	95%	111%	Loss of Toolebeck – South Augusta 230kV SOCO Tie & SRS – Vogtle 230kV SOCO Tie	SCPSA2

# Preliminary Results – SCPSA

## SOCO – DESC 950 MW

### 2028/29 Winter Study

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
SCPSA1	Construct a 230 kV line from the Varnville 230-115 kV Substation to the Purrysburg 230-115 kV Substation by obtaining new right of way and utilizing existing where possible.	\$197,014,000	77 months
SCPSA2	Upgrade limiting elements on Briggs Road – Clarks Hill (Thurmond) 115kV Line	\$149,600	35 months
TOTAL (2023\$)		\$197,163,600	77 months

**Scenario 3**  
**2032/33 Winter**  
**MISO – DESC 950 MW**



# Preliminary Results – DESC

## MISO – DESC 950 MW 2032/33 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Okatie – Yemassee 230kV	98%	113%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Jasper – Yemassee 230kV	DESC1
Jasper – Yemassee 230kV	95%	111%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Okatie – Yemassee 230kV	DESC1
Okatie – McIntosh 115kV Tie	93%	111%	Loss of Purrysburg (SC) – McIntosh (SOCO) 230kV #1 & #2 Ties	DESC1
Jasper – Purrysburg 230kV #1 / #2 Tie	90%	109%	Loss of all Jasper Units and Jasper – Purrysburg 230kV #2 / #1 Tie	DESC1
Canadys – Church Creek 230kV	91%	104%	Loss of Canadys – Faber Place 230kV and Church Creek – Ritter 230kV	DESC2

\*DESC has Op Guides to reduce some base case overloads that would not be relied on in transfer cases

\*\*Potentially overloaded or heavily 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 – DESC

## MISO – DESC 950 MW 2032/33 Winter Study

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
DESC1	Create a Jasper East 230kV Switching Station with 2 Ties to McIntosh (SOCO). Create a Jasper East – Ritter 230kV line. New R/W needed from Jasper – Yemassee but then connect with already planned future Ritter – Yemassee 230kV line at Yemassee.	\$135,710,000	96
DESC2	Rebuild Church Creek - Ritter 115kV as 230/230 with B-1272 ACSR AND construct Pepperhill - Ritter 230kV	\$127,315,000	56
TOTAL (2023\$)		\$263,025,000	96

# Preliminary Results – SCPSA

**MISO – DESC 950 MW**

**2032/33 Winter Study**

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Purrysburg – McIntosh #1/2 230 kV Line	84%	100%	Loss of Purrysburg – McIntosh #1/2 230 kV Line & Loss of all Jasper Units	DESC1

# Preliminary Results – SCPSA

**MISO – DESC 950 MW  
2032/33 Winter Study**

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
	No Santee Cooper project required		

**Scenario 4**  
**2032/33 Winter**  
**DEP – DESC 950 MW**

# Preliminary Results – DESC

## DEP – DESC 950 MW 2032/33 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Okatie – Yemassee 230kV	98%	107%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Jasper – Yemassee 230kV	DESC1
Jasper – Yemassee 230kV	95%	104%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Okatie – Yemassee 230kV	DESC1
Okatie – McIntosh 115kV Tie	93%	104%	Loss of Purrysburg (SC) – McIntosh (SOCO) 230kV #1 & #2 Ties	DESC1
Canadys – Church Creek 230kV	91%	102%	Loss of Canadys – Faber Place 230kV and Church Creek – Ritter 230kV	DESC2
Jasper – Purrysburg 230kV #1 / #2 Tie	90%	100%	Loss of all Jasper Units and Jasper – Purrysburg 230kV #2 / #1 Tie	DESC1

# Preliminary Results – DESC

## DEP – DESC 950 MW 2032/33 Winter Study

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
DESC1	Create a Jasper East 230kV Switching Station with 2 Ties to McIntosh (SOCO). Create a Jasper East – Ritter 230kV line. New R/W needed from Jasper – Yemassee but then connect with already planned future Ritter – Yemassee 230kV line at Yemassee.	\$135,710,000	96
DESC2	Rebuild Church Creek - Ritter 115kV as 230/230 with B-1272 ACSR AND construct Pepperhill - Ritter 230kV	\$127,315,000	56
TOTAL (2023\$)		\$263,025,000	96

\*DESC has Op Guides to reduce some base case overloads that would not be relied on in transfer cases

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# Preliminary Results – SCPSA

DEP – DESC 950 MW

2032/33 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Purrysburg – McIntosh #1/2 230 kV Line	84%	94%	Loss of Purrysburg – McIntosh #1/2 230 kV Line & Loss of all Jasper Units	DESC1



# Preliminary Results – SCPSA

**DEP – DESC 950 MW  
2032/33 Winter Study**

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
	No Santee Cooper project required		

**Scenario 5**  
**2028/29 Winter**  
**PJM – DESC 950 MW**

# Preliminary Results – DESC

## PJM – DESC 950 MW 2028/29 Winter Study

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Okatie – Yemassee 230kV	107%	119%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Jasper – Yemassee 230kV	DESC1
Jasper – Yemassee 230kV	103%	116%	Loss of Bluffton (SC) – Purrysburg (SC) 230kV and Okatie – Yemassee 230kV	DESC1
Okatie – McIntosh 115kV Tie	99%	N/A	Loss of Purrysburg (SC) – McIntosh (SOCO) 230kV #1 & #2 Ties	DESC1
Jasper – Purrysburg 230kV #1 / #2 Tie	97%	112%	Loss of all Jasper Units and Jasper – Purrysburg 230kV #2 / #1 Tie	DESC1
Canadys – Church Creek 230kV	88%	100%	Loss of Canadys – Faber Place 230kV and Church Creek – Ritter 230kV	DESC2

\*DESC has Op Guides to reduce some base case overloads that would not be relied on in transfer cases

\*\*Potentially overloaded or heavily 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 – DESC

## PJM – DESC 950 MW 2028/29 Winter Study

Project	Description	Cost (2023\$)	Duration (Months)
DESC1	Create a Jasper East 230kV Switching Station with 2 Ties to McIntosh (SOCO). Create a Jasper East – Ritter 230kV line. New R/W needed from Jasper – Yemassee but then connect with already planned future Ritter – Yemassee 230kV line at Yemassee.	\$135,710,000	96
DESC2	Rebuild Church Creek - Ritter 115kV as 230/230 with B-1272 ACSR AND construct Pepperhill - Ritter 230kV	\$127,315,000	56
TOTAL (2023\$)		\$263,025,000	96

# Preliminary Results – SCPSA

**PJM – DESC 950 MW**

**2028/29 Winter Study**

<b>Constrained Facility</b>	<b>% Base Loading</b>	<b>% Study Loading</b>	<b>Contingency</b>	<b>Project</b>
Purrysburg – McIntosh #1/2 230 kV Line	94%	106%	Loss of Purrysburg – McIntosh #1/2 230 kV Line & Loss of all Jasper Units	DESC1

# Preliminary Results – SCPSA

**PJM – DESC 950 MW  
2028/29 Winter Study**

<b>Project</b>	<b>Description</b>	<b>Cost (2023\$)</b>	<b>Duration (Months)</b>
	No Santee Cooper project required		

# 2023 Economic Planning Scenarios

## Linear Transfer Results – DESC & SCPSA

#	Source	Sink	MW	Year	FCITC LIMIT	LIMIT/CONTINGENCY
1	SOCO	DESC	1300	2028/29W	No Limit found	N/A
2	SOCO	DESC	950	2028/29W	No Limit found	N/A
3	MISO	DESC	950	2032/33W	No Limit found	N/A
4	DEP	DESC	950	2032/33W	No Limit found	N/A
5	PJM	DESC	950	2028/29W	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



<https://www.SCRTP.com/home>

Available Power Flow Base Cases

To apply for access to base cases you must complete the [CEII and Non-disclosure Agreement](#) and follow the instructions included in the form.

The following is a list of available Power Flow Base Cases:

**2015 Base Cases**

1. 2016 Spring Light Load
2. 2016 Summer Peak
3. 2016/17 Winter Peak
4. 2017 Spring Light Load
5. 2017 Summer Shoulder
6. 2017 Summer Peak
7. 2017/18 Winter Peak
8. 2021 Spring Light Load
9. 2021 Summer Peak
10. 2021/22 Winter Peak
11. 2026 Summer Peak
12. 2026/27 Winter Peak

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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 \(PDF\)](#)

**register now**

[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

# South Carolina Regional Transmission Planning

## Stakeholder Meeting

Teams Meeting

October 18, 2023 10:00 AM