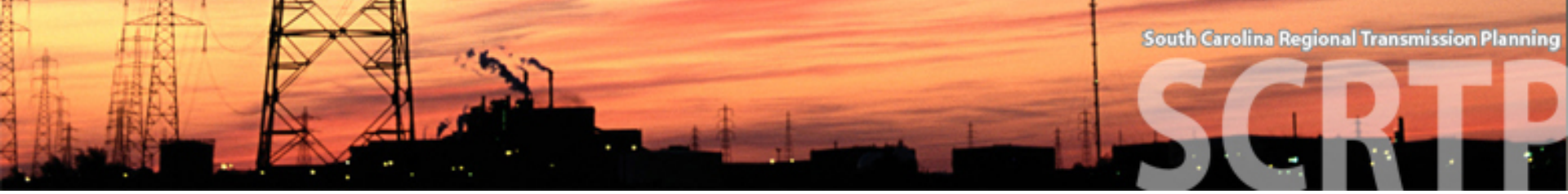


South Carolina Regional Transmission Planning

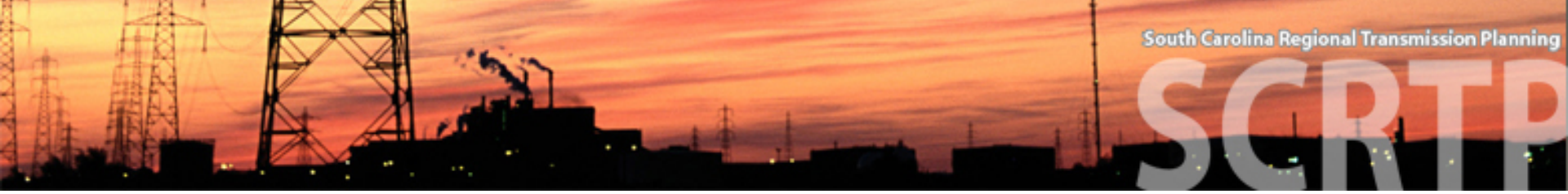
Stakeholder Meeting

Web Conference

May 26, 2021 2:00 PM – 4:00 PM

Dominion Energy®

santee cooper

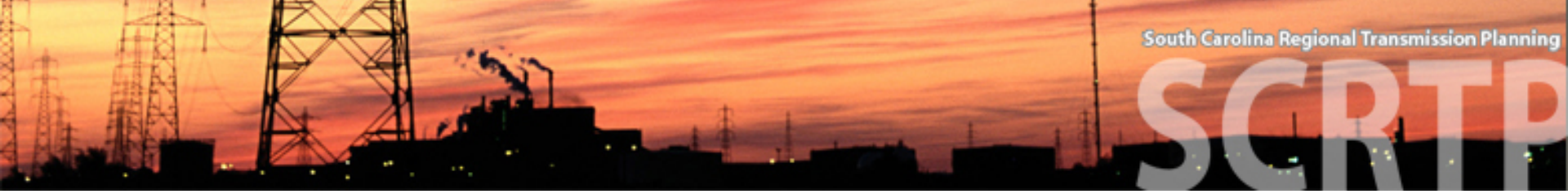


Purpose and Goals for Today's Meeting

- Review Stakeholder Member Voting criteria
- Select new Stakeholder Voting Members
- Review Economic Power Transfer Study Principles
- Identify Economic Power Transfer Sensitivities to be Studied
- Review Multi-Party Assessment Studies

Dominion Energy®

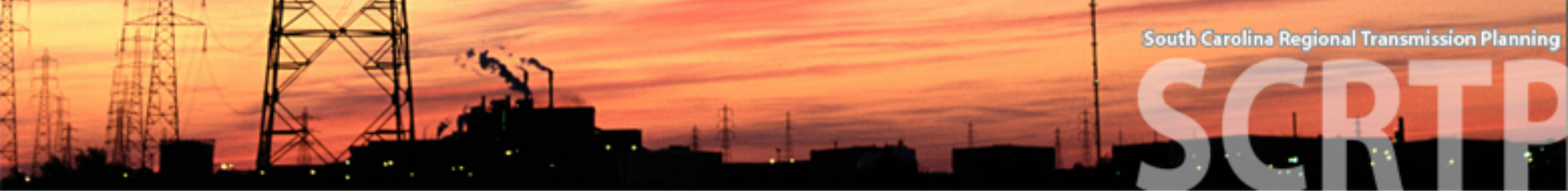
santee cooper



Elect SCRTP Stakeholder Group Voting Members

Dominion Energy®

santee cooper

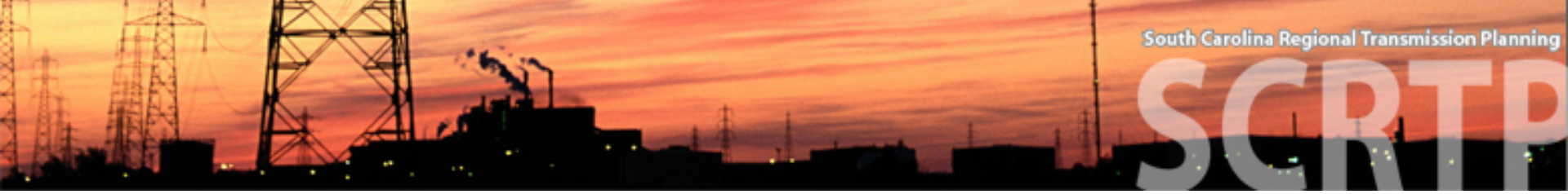


Stakeholder Group Sectors

- Transmission Owners/Operators
- Transmission Service Customers (PTP and Network)
- Cooperatives
- Municipals
- Marketers
- Generation Owners/Developers
- ISO/RTO
- State Regulatory Representatives (non-voting)

Dominion Energy®

santee cooper



Key Features of Stakeholder Group

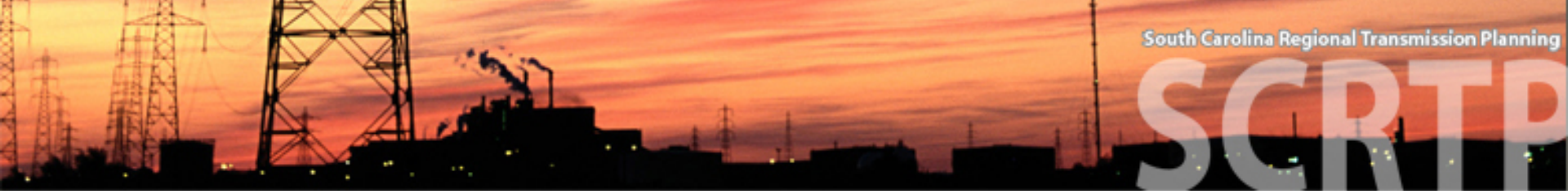
- Stakeholder participants determine sector affiliation
- Each sector will have two voting members
- One vote per member
- Majority Rule
- Voting members determined by sector members
- Each company will have one voting member in the stakeholder group
- Stakeholder meetings are open to non-stakeholder members
- Stakeholder group will identify and request economic transfers to be studied (if more than five requested, stakeholders will vote to select the top five)
- Stakeholder group can change the number and timing of meetings with agreement by SCPSA and DESC

Dominion Energy®

santee cooper

Previous Stakeholder Group Members

- Cooperatives
  - John Boyt, Central Electric
  - Bob Beadle, NCEMC
- Municipals
  - Wade Holmes, Orangeburg DPU
  - Alan Loveless, City of Georgetown
- Network and PTP Transmission Customers
  - J. W. Smith, Southeastern Power Administration
  - Vacant



Previous Stakeholder Group Members

- Generation Owners / Developers
  - Tim Daniels, Hudson Energy Development LLC
  - Vacant
- Marketers
  - Eddie Folsom, DESC Power Marketing
  - Glenda Horne, Santee Cooper Power Marketing
- Transmission Owners
  - Bob Pierce, Duke Energy Carolinas
  - Kerry Sibley, Georgia Transmission

Dominion Energy®

santee cooper

Previous Stakeholder Group Members

- ISO/RTP
  - Vacant
  - Vacant

2021 Stakeholder Group Voting Member Nominations

- Cooperatives

  Kale Ford, Central Electric

- Municipals

  James Alford, Orangeburg DPU

- Network and PTP Transmission Customers

  Samuel Loggins, Southeastern Power Administration

Dominion Energy®

santee cooper

2021 Stakeholder Group Voting Member Nominations

- Generation Owners / Developers

- Marketers

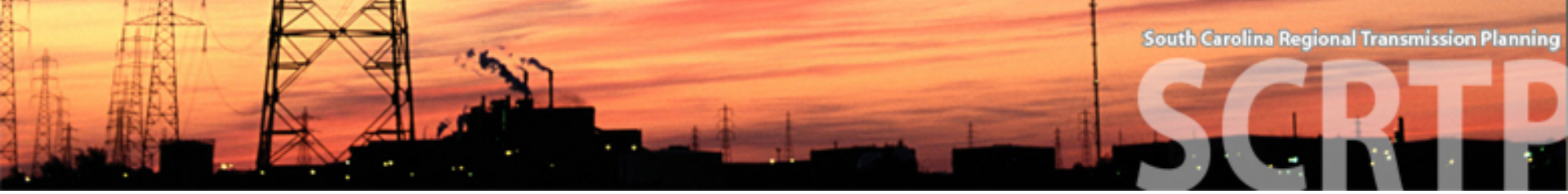
  Eddie Folsom, DESC Power Marketing

  Colby Bruner, Santee Cooper Power Marketing

- Transmission Owners

Dominion Energy®

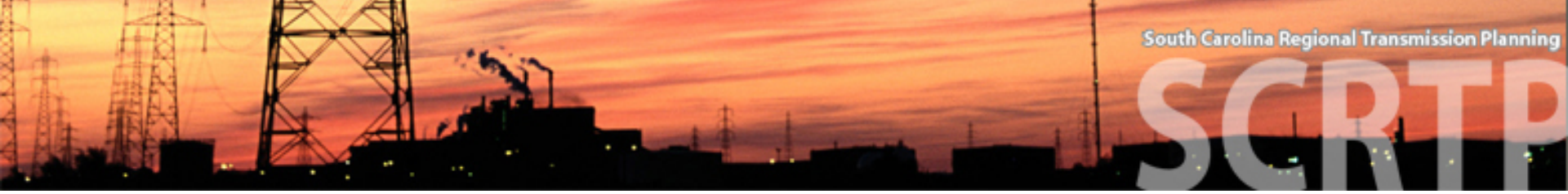
santee cooper



Stakeholder Breakout Session to Select Voting Representatives

Dominion Energy®

santee cooper

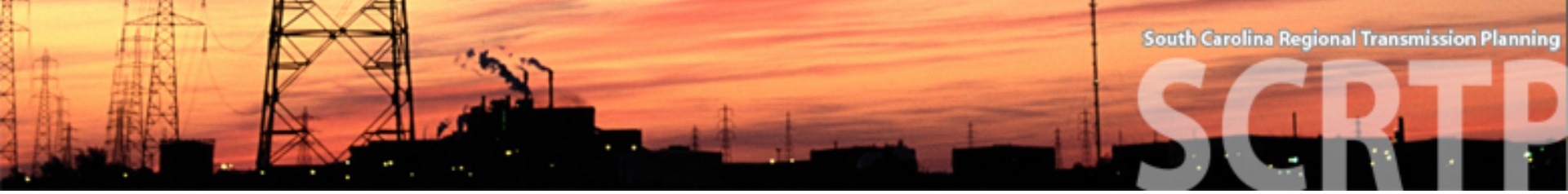


Economic Transmission Planning
Power Transfer Sensitivities

Scott Parker

Dominion Energy®

santee cooper



Economic Transmission Planning Principles

The purpose of Order 890's Economic Transmission Planning Principle is to:

- ensure that customers may request studies that evaluate potential upgrades or other investments that could reduce congestion or integrate new resources and loads on an aggregated or regional basis
- allow customers, not the transmission provider, to identify those portions of the transmission system where they have encountered transmission problems due to congestion or whether they believe upgrades and other investments may be necessary to reduce congestion and to integrate new resources

Dominion Energy®

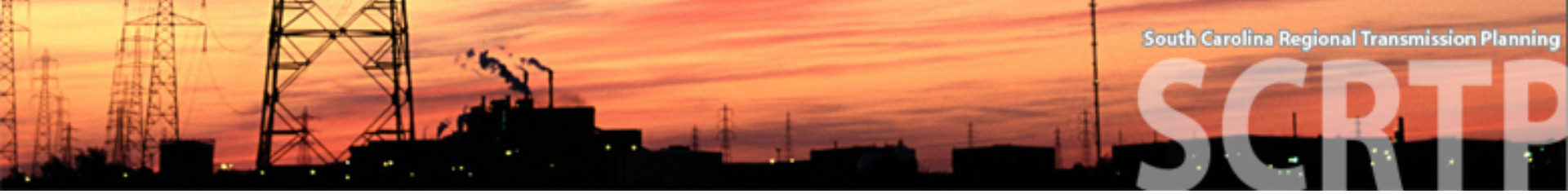
santee cooper

Economic Transmission Planning Principles

(continued)

- allow customers to request that the transmission provider study enhancements that could reduce such congestion or integrate new resources on an aggregated or regional basis without having to submit a specific request for service

This approach ensures that the economic studies required under this principle are focused on customer needs and concerns

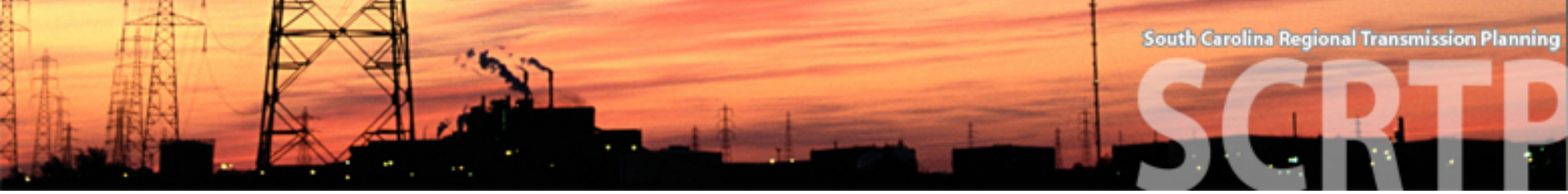


Economic Transmission Planning Sensitivity Selection

- All requested sensitivities will be considered except sensitivities that specify specific generation resources
- Up to 5 sensitivities will be identified for study
- If more than 5 are requested, Stakeholder voting members will vote to select the top five
- Sensitivities that are not selected by the voting process as one of the 5 studied sensitivities will be studied only if the requestor(s) pays for the additional study efforts

Dominion Energy®

santee cooper

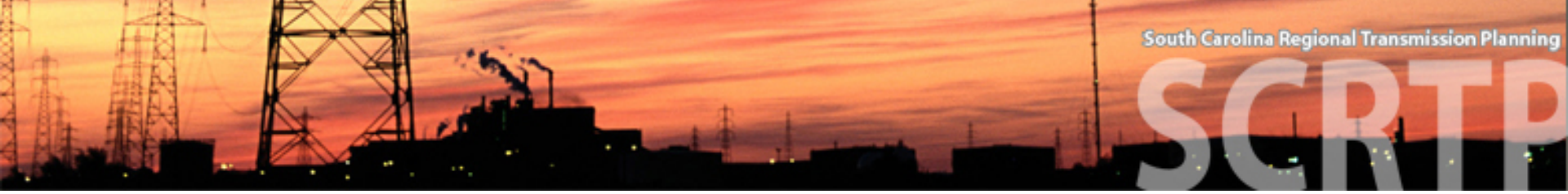


Economic Transmission Planning Sensitivity Selection

- SCRTP economic power transfer sensitivity studies will identify congestion and required improvements only inside the SCRTP footprint

Dominion Energy®

santee cooper

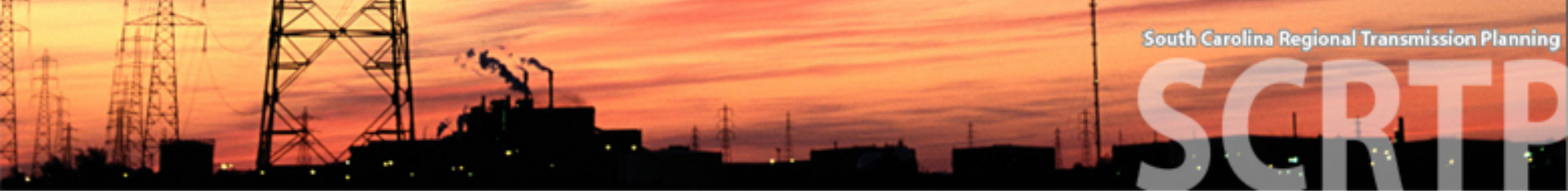


Recent Economic Study Results Overview

- Recent studies in this forum have indicated that high levels of transfers will impact the SCRTP transmission systems
- As the level of transfers increase, the network upgrades needed to address overloaded facilities also increase

Dominion Energy®

santee cooper



Big Picture: SCRTP Planning for a Net-Zero Future

- As the efforts to assess and plan for the retirement of the coal plants in the SCRTP footprint gains momentum, it is **critical** that the studies of the impact of these retirements, *particularly when the replacement power is sourced through off-system purchases*, be studied carefully in a coordinated manner to fully assess the impacts to the reliability of the SCRTP grid

Dominion Energy®

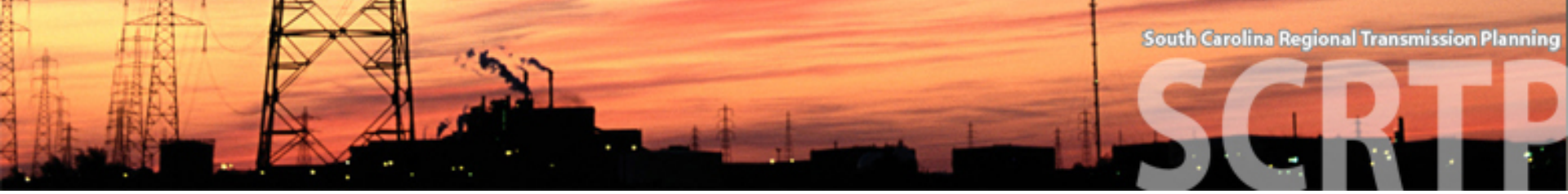
santee cooper

Economic Transmission Planning
Power Transfer Sensitivities

Sensitivities Selection

Previous Economic Planning Studies

Year	Source	Sink	Study Year	Transfer
2016	Southern Company	Santee Cooper	2017 Winter	500 MW
2016	Santee Cooper	GTC	2017 Summer	200 MW
2016	Santee Cooper	GTC	2017 Winter	200 MW
2016	Santee Cooper	CPLE (DEP)	2017 Winter	300 MW
2016	Southern Company	Santee Cooper/SCE&G	2020 Summer	500 MW
2017	Duke Energy Carolinas (DEC)	SCE&G	2021 Summer	300 MW
2017	Southern Company	SCE&G	2020 Summer	300 MW
2017	Southern Company	SCE&G	2021 Winter	300 MW
2018	Southern Company	Santee Cooper	2022 Summer	1000 MW
2018	Santee Cooper	Duke Energy Carolinas	2022 Summer	1000 MW
2018	Duke Energy Carolinas	Santee Cooper	2022 Summer	1000 MW



Previous Economic Planning Studies

Year	Source	Sink	Study Year	Transfer
2019	SOCO	DESC	2020 Summer	500 MW
2019	DEC	SCPSA	2020 Summer	500 MW
2019	SOCO	SCPSA	2020 Summer	800 MW
2019	DEC	SCPSA	2023/24 Winter	500 MW
2019	SOCO	SCPSA	2023/24 Winter	1000 MW
2020	SOCO	SCPSA	2026/27 Winter	300 MW
2020	SOCO	SCPSA	2026/27 Winter	600 MW
2020	SOCO	SCPSA	2026/27 Winter	900 MW
2020	SOCO	SCPSA	2027 Summer	300 MW
2020	SOCO	SCPSA	2027 Summer	600 MW

Dominion Energy®

santee cooper

Transmission Planning Base Cases
2020 MMWG and SERC Series

2021 Spring Light Load
2021 Summer Peak
2021/22 Winter Peak
2022 Spring Light Load
2022 Summer Peak
2022/23 Winter Peak

2025 Spring Light Load
2025 Summer Peak
2025 Summer Shoulder
2025/26 Winter Peak
2030 Summer Peak
2030/31 Winter Peak

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #1: 500 MW Transfer from DUK to SC 2028S	
Source Area:	DUK
Sink Area:	SC
Transfer (MW):	500
Study Year:	2028
Study Conditions:	Summer
Other Information:	Gen to Gen transfer – Winyah gen down
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Dominion Energy®

santee cooper

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #2: 500 MW Transfer from DUK to SC 2028W	
Source Area:	DUK
Sink Area:	SC
Transfer (MW):	500
Study Year:	2028/29
Study Conditions:	Winter
Other Information:	Gen to Gen transfer – Winyah gen down
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Dominion Energy®

santee cooper

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #3: 500 MW Transfer from SOCO to SC 2028S	
Source Area:	SOCO
Sink Area:	SC
Transfer (MW):	500
Study Year:	2028
Study Conditions:	Summer
Other Information:	Gen to Gen transfer – Winyah gen down
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #4: 500 MW Transfer from SOCO to SC 2028W	
Source Area:	SOCO
Sink Area:	SC
Transfer (MW):	500
Study Year:	2028/29
Study Conditions:	Winter
Other Information:	Gen to Gen transfer – Winyah gen down
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Dominion Energy®

santee cooper

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #5: 750 MW Transfer from DUK to SC 2028S	
Source Area:	DUK
Sink Area:	SC
Transfer (MW):	750
Study Year:	2028
Study Conditions:	Summer
Other Information:	Gen to Gen transfer – Winyah gen down
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #6: 750 MW Transfer from DUK to SC 2028W	
Source Area:	DUK
Sink Area:	SC
Transfer (MW):	750
Study Year:	2028/29
Study Conditions:	Winter
Other Information:	Gen to Gen transfer – Winyah gen down
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #7: 750 MW Transfer from SOCO to SC 2026W	
Source Area:	SOCO
Sink Area:	SC
Transfer (MW):	750
Study Year:	2026/27
Study Conditions:	Winter
Other Information:	Gen to Gen transfer – Winyah gen down
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Dominion Energy®

santee cooper

Economic Transmission Planning Sensitivity Selection

Economic Sensitivity #7:	
Source Area:	
Sink Area:	
Transfer (MW):	
Study Year:	
Study Conditions:	
Other Information:	
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

Economic Transmission Planning Sensitivity Selection

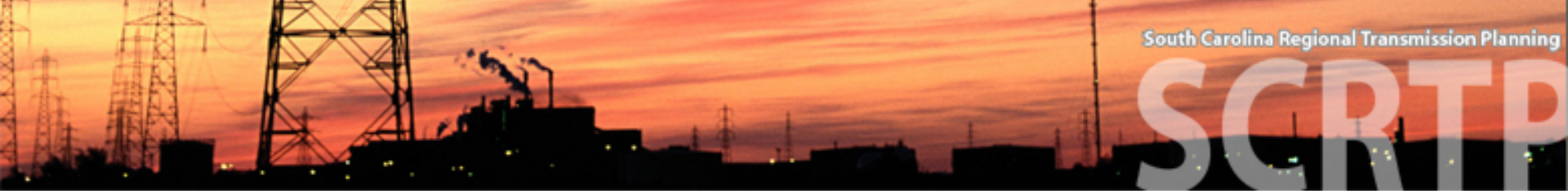
Economic Sensitivity #8:	
Source Area:	
Sink Area:	
Transfer (MW):	
Study Year:	
Study Conditions:	
Other Information:	
Benefits of Study and Other Comments:	Market Transfer Analysis Limitations

2021 Economic Planning Proposed Scenarios

#	Source	Sink	Amount (MW)	Year	Study Conditions	Requestor
1	DUK	SC	750	2028	Summer	Santee Cooper PM
2	DUK	SC	750	2028/29	Winter	Santee Cooper PM
3	SOCO	SC	750	2028	Summer	Santee Cooper PM
4	SOCO	SC	750	2028/29	Winter	Santee Cooper PM
5	SOCO	SC	750	2026/27	Winter	Santee Cooper PM
6						
7						
8						

Dominion Energy®

santee cooper



2021 Economic Planning Scenarios

Selected by Stakeholders During the May 26, 2021 Meeting

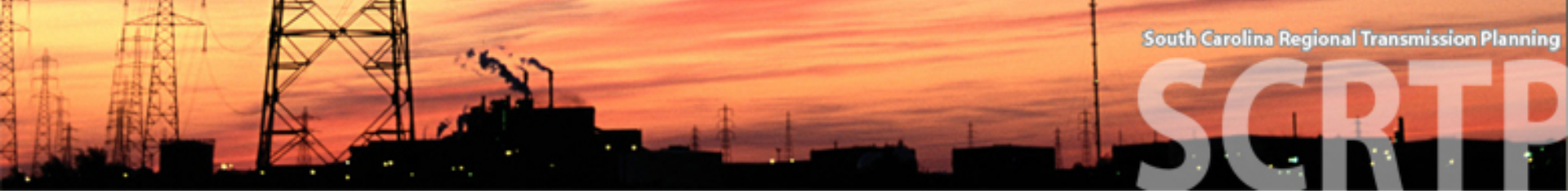
#	Source	Sink	Amount (MW)	Year	Study Conditions
1	DUK	SC	750	2028	Summer
2	DUK	SC	750	2028/29	Winter
3	SOCO	SC	750	2028	Summer
4	SOCO	SC	750	2028/29	Winter
5	SOCO	SC	750	2026/27	Winter

Dominion Energy®

santee cooper

Multi-Party Studies

Jake Biddix



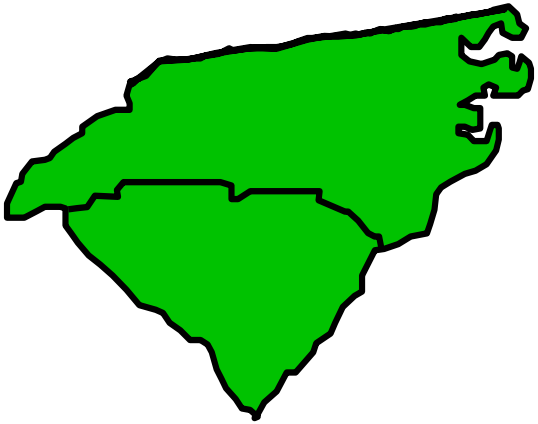
Multi-Party Assessments

- Carolina Transmission Coordination Arrangement (CTCA)
- SERC Reliability Corporation (SERC)
- Eastern Interconnection Planning Collaborative (EIPC)
- Eastern Interconnection Reliability Assessment Group (ERAG)

Dominion Energy®

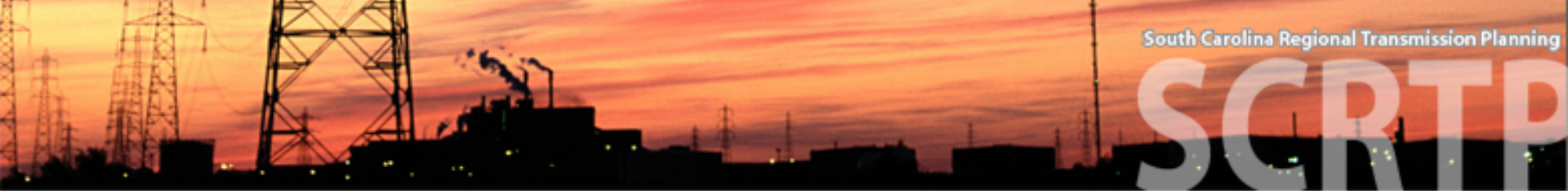
santee cooper

CTCA Future Year Assessments



Dominion Energy®

santee cooper



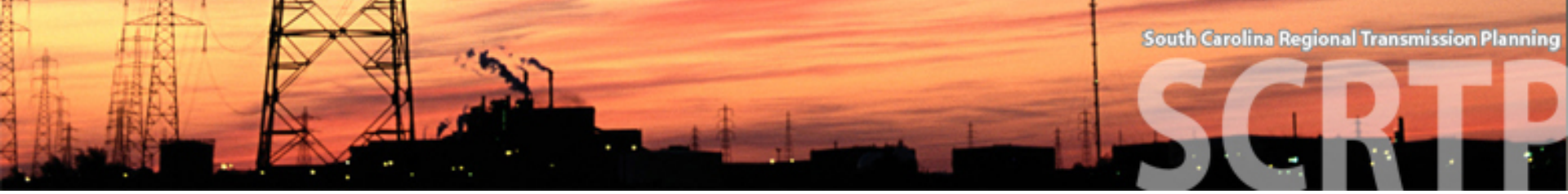
CTCA Purpose

- Collection of agreements developed concurrently by the Principals, Planning Representatives, and Operating Representatives of multiple two-party Interchange Agreements

- Establishes a forum for coordinating certain transmission planning assessment and operating activities among the specific parties associated with the CTCA

Dominion Energy®

santee cooper

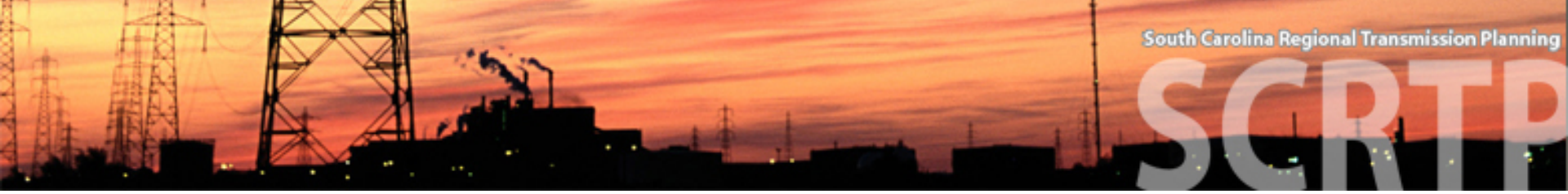


CTCA Power Flow Study Group

- Duke Energy Carolinas (“Duke”)
- Duke Energy Progress (“Progress”)
- Dominion Energy South Carolina (“DESC”)
- South Carolina Public Service Authority (“SCPSA”)

Dominion Energy®

santee cooper

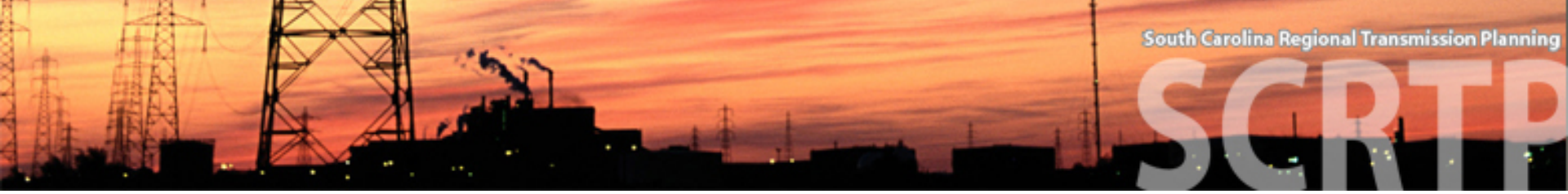


CTCA Studies

- Assess the existing transmission expansion plans of Duke, Progress, DESC, and SCPSA to ensure that the plans are simultaneously feasible.
- Identify any potential joint solutions that are more efficient or cost-effective than individual company plans, which also improve the simultaneous feasibility of the Participant companies' transmission expansion plans.
- The Power Flow Study Group ("PFSG") , performs the technical analysis outlined in this study scope under the guidance and direction of the Planning Committee ("PC").

Dominion Energy®

santee cooper



CTCA Studies
2021 PFSG work activities

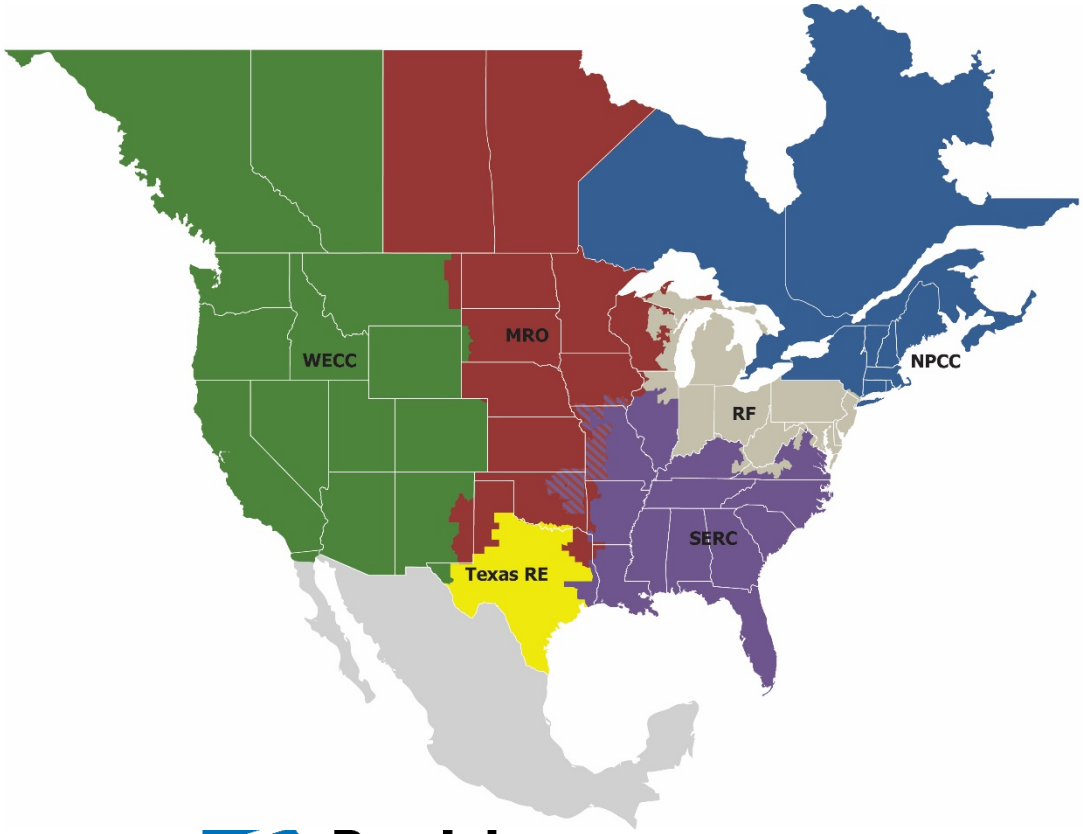
- 2021 TPL 001 Transmission Assessment Coordination
  - PFSG coordinates power flow cases, study files in 1st quarter 2021
  - Coordinated cases to be used during TPL screenings
  - Results to be shared among members later in 2021 (Fall/Winter)

- Coordination of cases ensures that neighboring utilities are using the most up-to-date models and study files for their assessment

Dominion Energy®

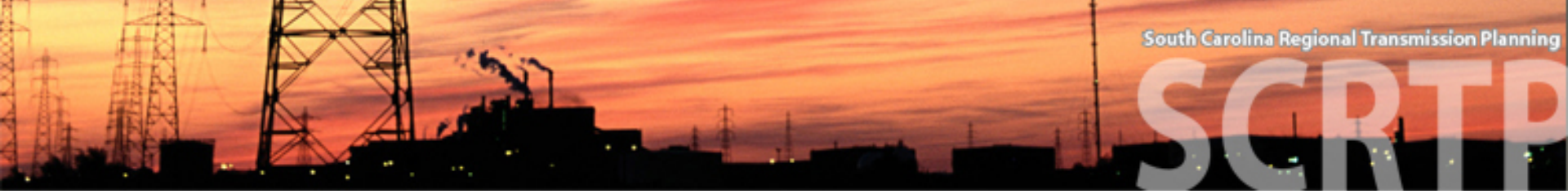
santee cooper

SERC Future Year Assessments
Long Term Working Group (LTWG)



Dominion Energy®

santee cooper

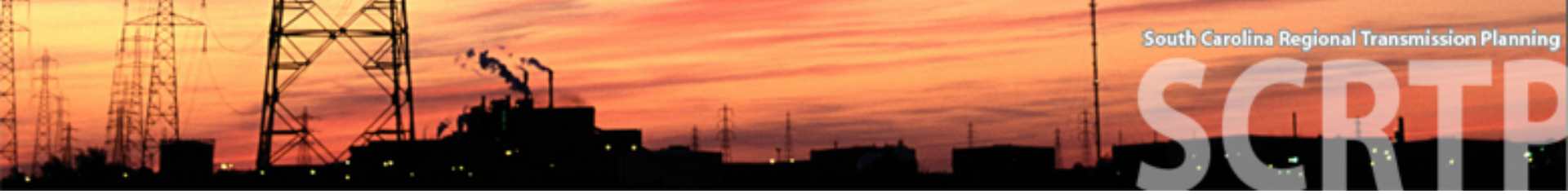


SERC LTWG Study
Purpose

- Analyze the performance of the members' transmission systems and identify limits to power transfers occurring non-simultaneously among the SERC members.
- Evaluate the performance of bulk power supply facilities under both normal and contingency conditions for future years.
- Focus on the evaluation of sub-regional and company-to-company transfer capability.

Dominion Energy®

santee cooper



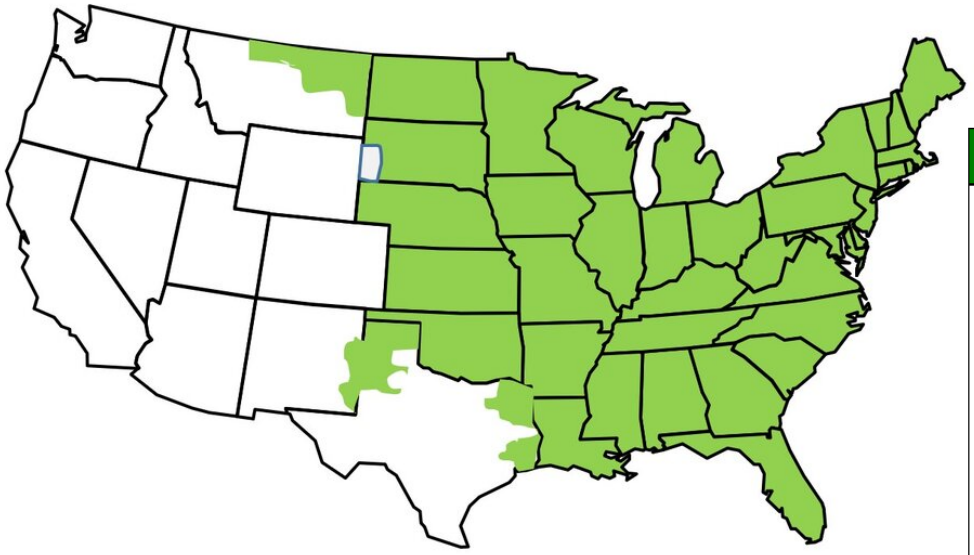
SERC Long Term Working Group
2021 Work Schedule

- Data Bank Update kickoff began in January 2021
- Power flow cases scheduled to be finalized on June 4, 2021
- Future Assessment Study Case: 2026 Summer Peak Load
- Study to be completed by LTWG - June thru October
- Final Report in December

Dominion Energy®

santee cooper

Eastern Interconnection Planning Collaborative (EIPC) Assessments

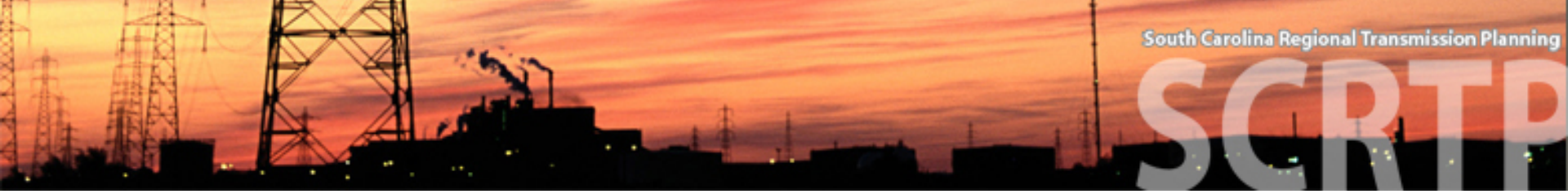


PLANNING AUTHORITIES

- ASSOCIATED ELECTRIC COOPERATIVE
- CUBE HYDRO CAROLINAS
- DOMINION ENERGY SOUTH CAROLINA
- DUKE ENERGY - CAROLINAS
- DUKE ENERGY - FLORIDA
- DUKE ENERGY - PROGRESS
- FLORIDA POWER & LIGHT
- GEORGIA TRANSMISSION CORPORATION
- ISO - NEW ENGLAND
- LGE/KU (LOUISVILLE/KENTUCKY UTILITIES)
- MIDCONTINENT ISO
- MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA
- NEW YORK ISO
- PJM INTERCONNECTION
- POWERSOUTH ENERGY COOPERATIVE
- SANTEE COOPER
- SOUTHERN COMPANY
- SOUTHWEST POWER POOL
- TENNESSEE VALLEY AUTHORITY

Dominion Energy®

santee cooper

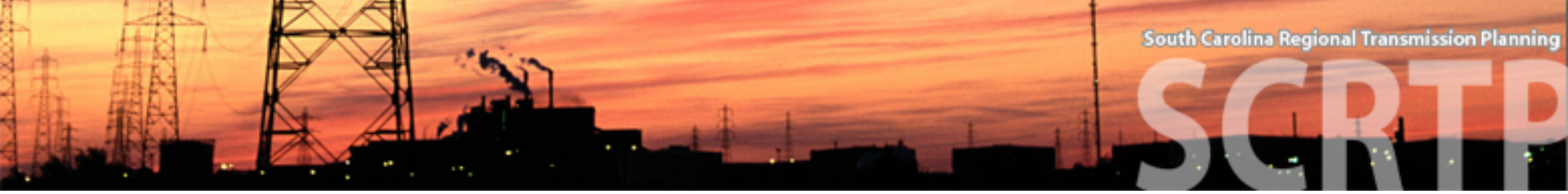


EIPC Purpose

- Established to facilitate the coordination of existing Planning Authorities transmission plans, conduct reliability analyses of the combined Eastern Interconnection, and conduct studies to support state, provincial, regional, or federal public policy decision-making.

Dominion Energy®

santee cooper

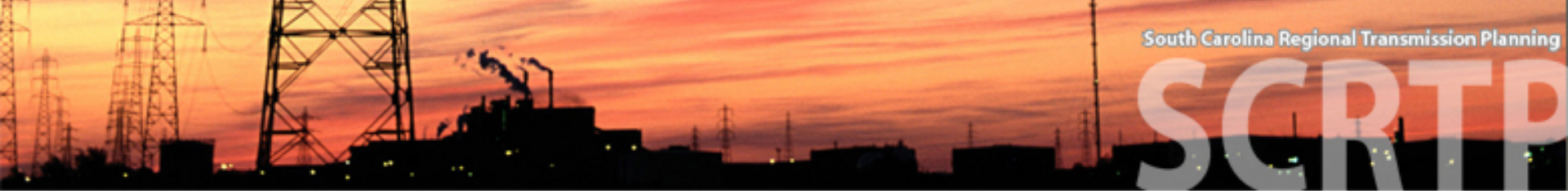


EIPC Transmission Analysis Working Group (TAWG) 2021 Study Efforts

- Steady-State network models assembly and verification
- Perform “High Renewables” steady state analysis
  - Participating companies provide case updates to create a study case that has all known Renewable projects that may be online into a future peak case for analysis
- Compile Analysis into Report

Dominion Energy®

santee cooper



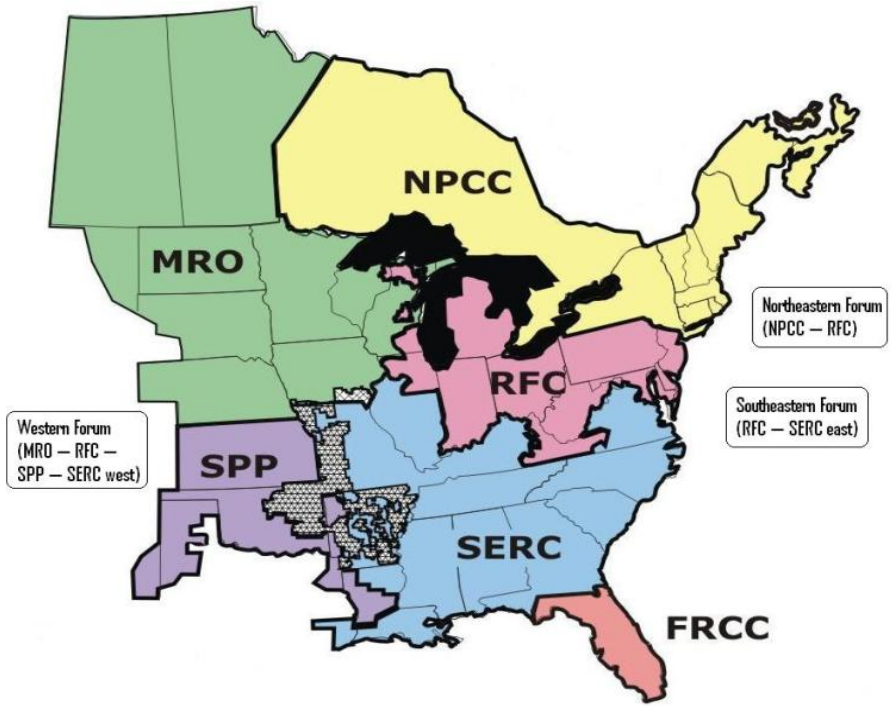
EIPC TAWG 2020-2021 Work Schedule

- Case Development: February-March 2020
  - 2028 summer and 2028/29 winter peak cases and high renewable cases completed
- AC analysis for model verification completed
- Final Analysis (in progress)
- Compile Analysis into Report (in progress)

Dominion Energy®

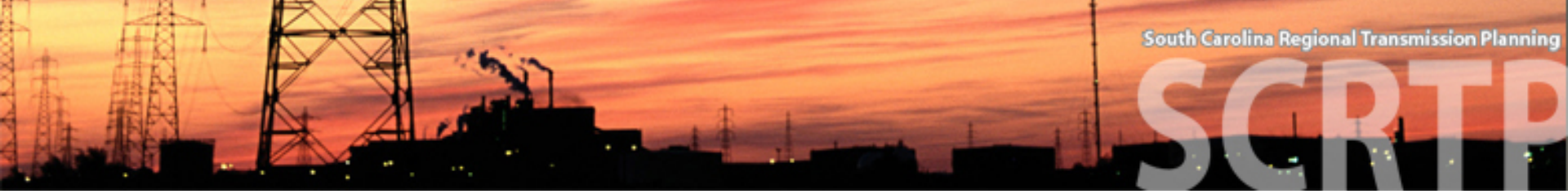
santee cooper

Eastern Reliability Assessment Group (ERAG)



Dominion Energy®

santee cooper



ERAG MMWG

The Multiregional Modeling Working Group (MMWG) is responsible for developing a library of solved power flow models and associated dynamics simulation models of the Eastern Interconnection.

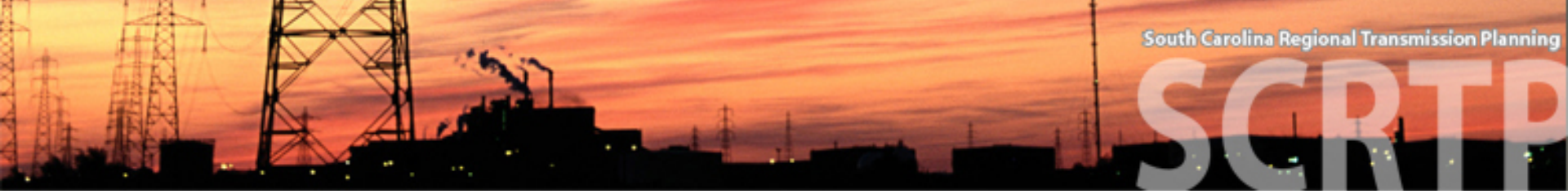
The models are for use by the Regions and their member systems in planning future performance and evaluating current operating conditions of the interconnected bulk electric systems.

Dominion Energy®

santee cooper

ERAG MMWG 2021 activity

- Steady State Model Updates – August - September
- Final Steady State base cases to be approved September - October
- Dynamic Models to be updated November 2021 - January 2022

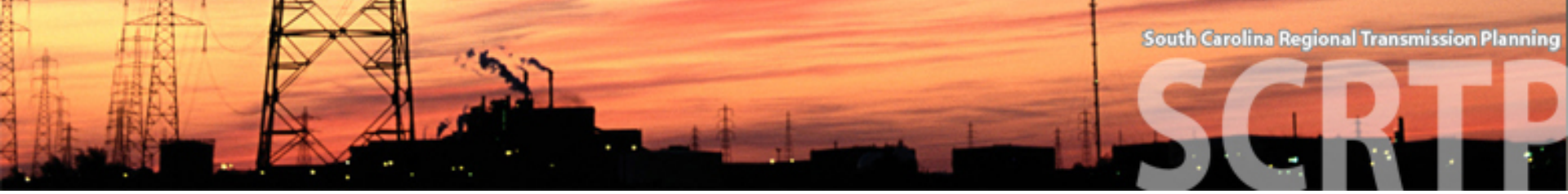


Multi-Party Studies

Questions?

Dominion Energy®

santee cooper

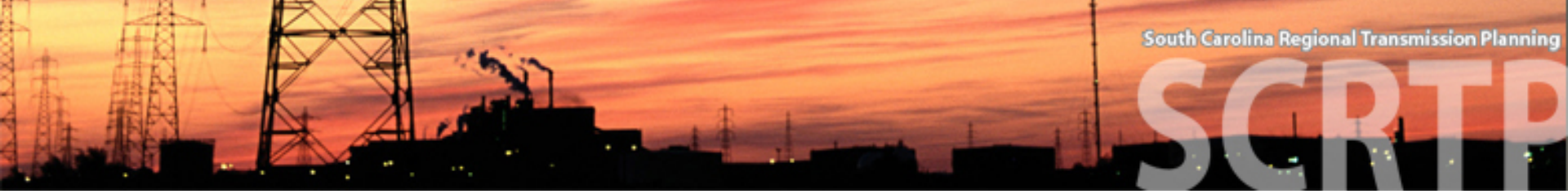


Next SCRTP Meeting

- Review and discuss the initial results of the Economic Transfer Studies
- SCRTP Email Distribution List will be notified of meeting announcement
- Register online

Dominion Energy®

santee cooper



South Carolina Regional Transmission Planning

Stakeholder Meeting

Web Conference

May 26, 2021 2:00 – 4:00 pm

Dominion Energy®

santee cooper