



South Carolina Regional Transmission Planning

Stakeholder Meeting

Webex

March 5, 2019





Purpose and Goals for Today's Meeting

- Review and Discuss Key Assumptions and Data for the Next Planning Cycle
- Regional Transmission Planning Activities
- Review and Discuss Major Transmission Expansion Plans
- Reliability Assessments and Multi-Party Studies
- Economic Transfer Study Requests



Key Assumptions and Data for the Next Planning Cycle

SCE&G – Scott Parker





Modeling Assumptions and Data

Dispersed Substation Load Forecast

- Summer/Winter Peak, Off-Peak and Seasonal Load Levels
- Resource Planning provides 10 Year system load forecasts
- Transmission Planning creates dispersed substation load forecasts



Load Forecast Process

Resource Planning Input

- Develop 10 year projected forecast based on:
 - 10 year historical load summer and winter loads
 - Load factors by customer class
 - Considers weather, personal income, population growth, economic conditions, load management, energy efficiency, etc
 - Applies regression analysis to historical data to develop models
 - Applies forecasted growth rates to develop future projections



SCE&G 10 Year Load Forecast

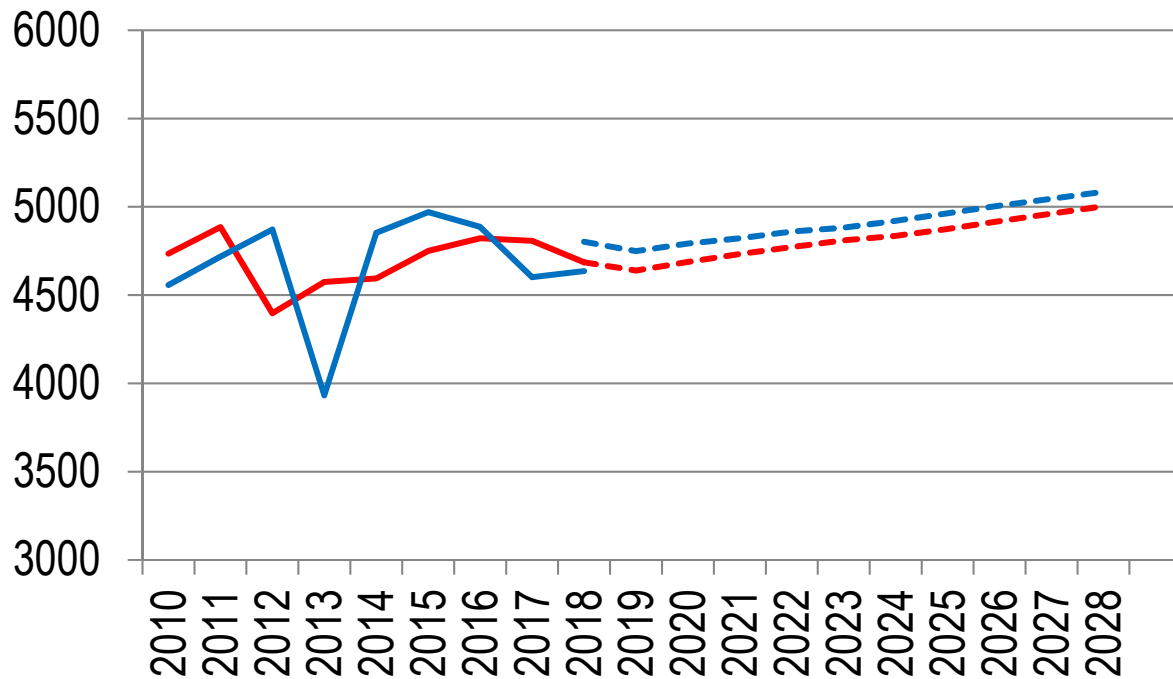
	<u>Summer</u>		<u>Winter</u>
2018	4,686 MW	2018/2019	4,802 MW
2019	4,639 MW	2019/2020	4,749 MW
2020	4,688 MW	2020/2021	4,792 MW
2021	4,733 MW	2021/2022	4,822 MW
2022	4,772 MW	2022/2023	4,860 MW
2023	4,810 MW	2023/2024	4,882 MW
2024	4,835 MW	2024/2025	4,921 MW
2025	4,874 MW	2025/2026	4,963 MW
2026	4,919 MW	2026/2027	5,007 MW
2027	4,961 MW	2027/2028	5,046 MW





Load Forecast Process

Resource Planning Input



— Historical Summer Peak — Historical Winter Peak - - - Projected Summer Peak - - - Projected Winter Peak





Load Forecast Process

Transmission Planning Input

- Obtain summer and winter snapshot meter data from most recent seasons and adjust for load switching
- Develop 10 year projected forecast based on:
 - 10 year historical loading
 - Feedback from Distribution Planning, Local Managers, Large Industrial Group and Transmission Services Manager
- Wholesale loads are modeled as provided by the customer
- Dispersed forecasted load points are integrated into Corporate forecasted load



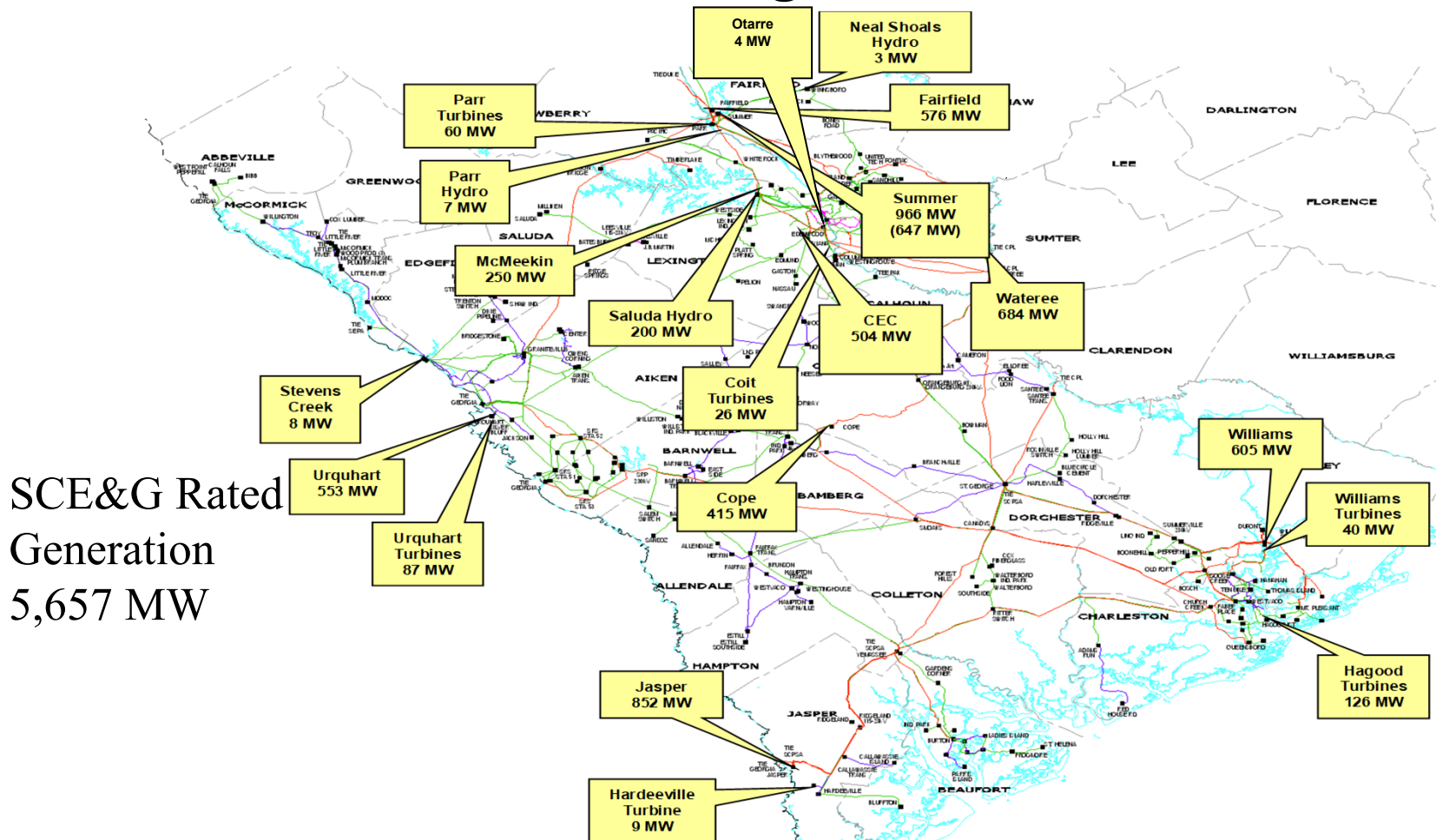
Modeling Assumptions and Data

Generation

- Annual generator ratings used
- Input from Generation Expansion Plan – Reductions/Additions
- Input from Generation Maintenance Schedule
- Generators dispatched economically
- Merchant Generators included, modeled at contracted output



Existing Generation

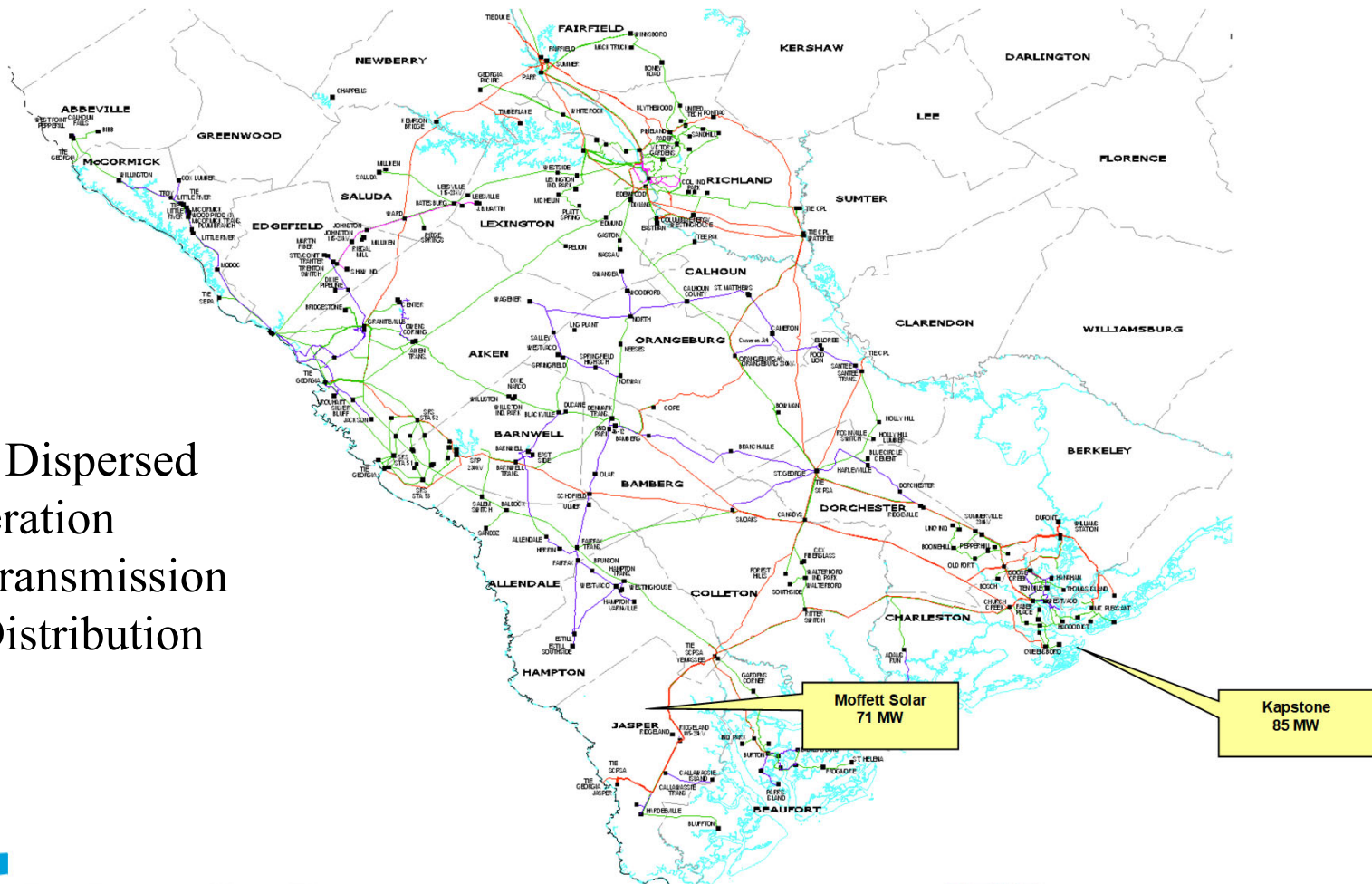


SCE&G Rated
Generation
5,657 MW



Merchant Generation

Additional Dispersed
Solar Generation
120 MW Transmission
152 MW Distribution

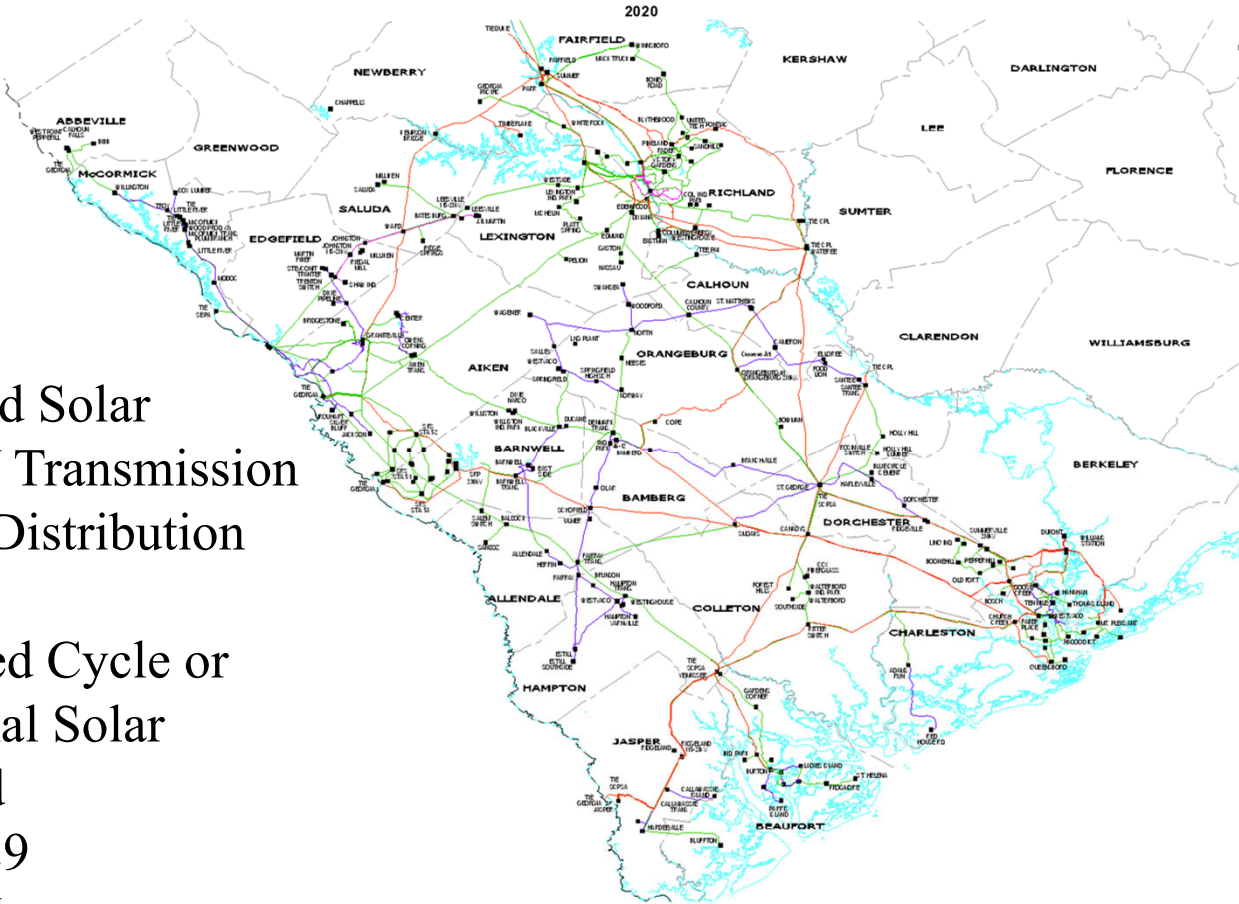




Future Generation Additions

Dispersed Solar
590 MW Transmission
34 MW Distribution

Combined Cycle or
Additional Solar
Not sited
Year 2029
540 MW





Modeling Assumptions and Data

Transmission Network

- Input from Transmission Plan
- Neighboring Transmission Systems Modeled



Modeling Assumptions and Data

Planned Transmission Facilities

02/28/2019

South Carolina Electric & Gas Planned Transmission Facilities	
Planned Project	Tentative Completion Date
Urquhart - Graniteville 115 kV Rebuild as Double Circuit	May-19
Hugh Leatherman 115 kV Tap: Construct	May-19
Fairfax-Salem Sw Station 115kV: Reconductor to 1272 ACSR	May-19
Faber Place - Charlotte St 115 kV Rebuild	Jun-19
Thomas Island - Jack Primus 115 kV Line: Acquire R/W & Construct	Aug-19
Church Creek-Faber Place 230kV & 115kV: Rebuild the Ashley River Crossing	Dec-19
Burton - St Helena Island 115 kV Goundline Remediation	Dec-19
Pepperhill - Summerville 230 kV Construct	May-20
Lake Murray - Michelin 115 kV: Pull new wire on existing structure / Rebuild as Double Circuit	May-20
Williams Street - Park Street 115 kV: Construct	May-20
Cope - Denmark 115 kV: Upgrade to 1272 ACSR from Denmark Sub to Str. 68	May-20
Urquhart - Graniteville - South Augusta 230/115 kV Tielines	Jun-20
Burton - Yemassee 115 kV #2 Line Rebuild as Double Circuit	Jun-20
Lake Murray-Harbison 115 kV Rebuild & Saluda Hydro - Denny Terrace 115 kV Construct	Oct-20
Coit - Gills Creek 115 kV Line: Construct	Dec-20
Bluffton - (SCPSA) Bluffton 115 kV Tie Line Construct	Dec-20
Canadys 230 kV: Add Back-to-Back Bus Tie Breakers	Dec-20
Emory 230 kV Distribution Sub: Construct	May-21
Canadys - Ritter 115 kV: Rebuild as 230/115 kV Double Circuit	May-22
Union Pier 115-13.8 kV Sub: Tap Construct	Dec-24





Modeling Assumptions and Data

System Interchange

- Firm scheduled transfers included
- Coordinated with Neighbors





Santee Cooper Transmission Planning Models Key Assumptions and Data

Weijian Cong





Major Model Components

- Load Demand Forecast
- Transmission Network
- Generation Resources
- Actual System Operations





Demand Forecast

- Authority Retail: based on economic model and weather adjusted
- Authority Industrial: contracts with industrial customers
- Central Electric Power Cooperative, Inc.: load forecast provided by Central
- Cities of Bamberg and Georgetown (municipal)



Load Data Development

Transmission Planning

- Assign power factors based on historical data
- Utilizes load forecast from Authority, and Central to develop the Summer and Winter Peak, off-Peak and Seasonal load for 10 years planning horizon



Transmission Network

Models include:

- Existing transmission system and committed projects
- Neighboring transmission system representations
- All facilities assumed to be available unless notified otherwise
- Normal operating status (in-service or out-of-service) of facilities is represented



Transmission Network

- Uniform rating methodology is applied to transmission facilities
- Base case models are updated annually prior to annual transmission assessment
- Study models may be updated as needed prior to any study
- Neighboring and Regional system network from the latest MMWG models are used



Committed Transmission Facilities

Pine Level-Allen 115 kV Line #2	04/23/2019
Bluffton 230 kV series bus tie breaker installation	12/01/2019
Sandy Run 230-115 kV Substation	12/15/2019
Pomaria-Sandy Run 230 kV Line	12/15/2019
Add Bucksville 230-115 kV Transformer #2	12/31/2019
Bluffton-Market Place #2 115 kV Line Phase I	6/1/2020
Sandy Run-Orangeburg 230 kV Line	12/15/2020
Rebuild N. Charleston-Goose Creek 115 kV Line Section	12/1/2021
Wassamassaw 230-115 kV Substation	12/01/2021
Wassamassaw-Pringletown 115 kV Line #1	12/01/2021
John's Island (SC)-Queensboro (SCEG) 115 kV Line	12/31/2021
Red Bluff -Nixons Crossroads #1 115 kV Line	6/1/2023
Georgetown - Arcadia 115 kV Line	6/1/2025





Generation Resources

Existing Transmission Connected Generation

Cross Units 1- 4

Winyah Units 1- 4

Hilton Head Turbines 1-3

Myrtle Beach Turbines 1-5

Jefferies Hydro 1, 2, 3, 4, 6

Allendale (Merchant)

Dorchester (Merchant)

J.S. Rainey Power Block 1
Combined Cycle

J.S. Rainey 2A, 2B CTs

J.S. Rainey 3-5 CTs

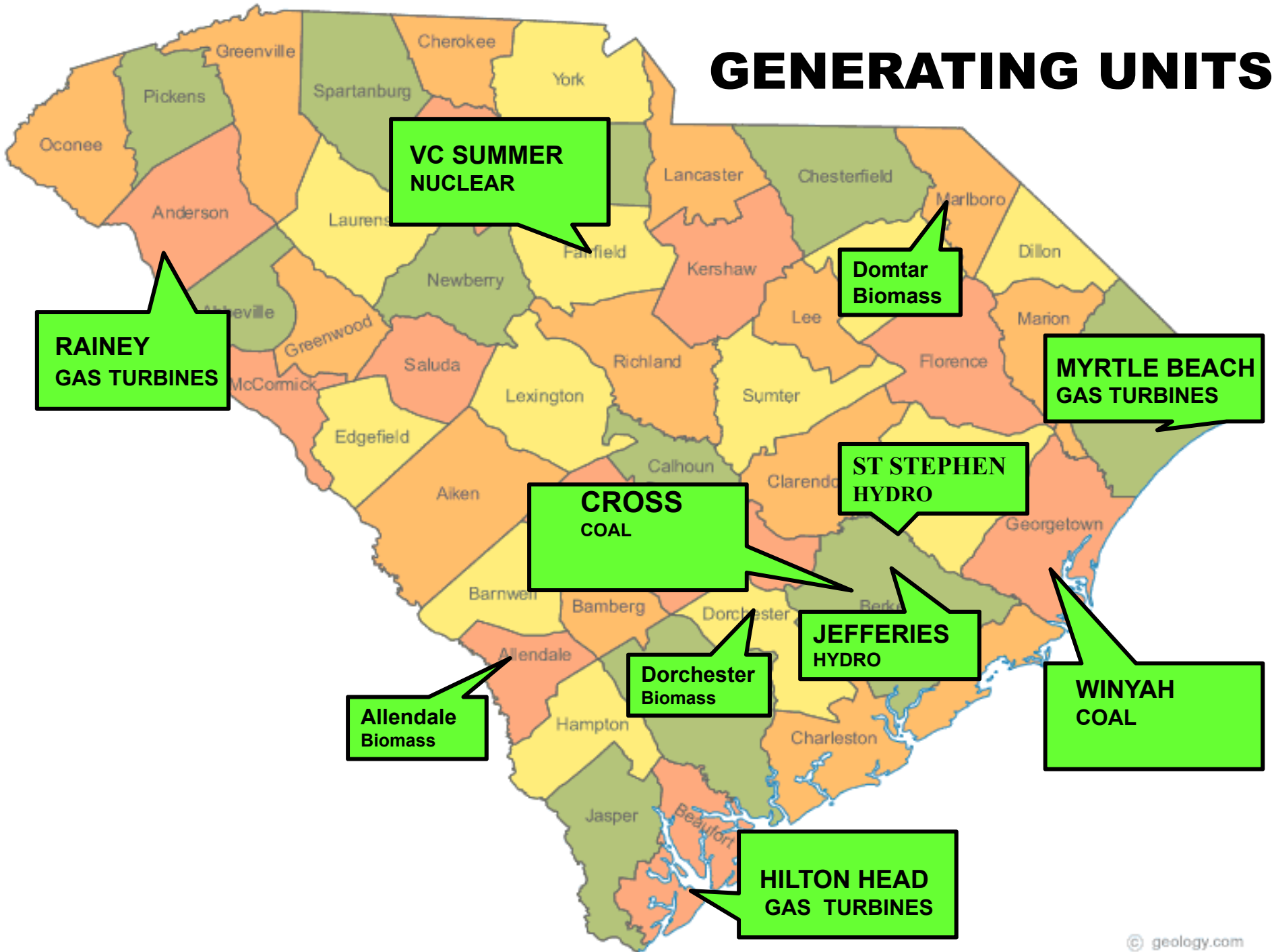
Spillway Hydro

St. Stephen Hydro 1-3

V.C. Summer #1

Domtar (Merchant)

GENERATING UNITS





Resources Assumptions and Data

- Generation data is verified with Generation Department
- Seasonal models account for unit maintenance outages, known at the time, based on planned maintenance schedules
- Confirmed firm transmission service reservations
- SEPA allocations and other contracted purchases

Economic dispatch order is used for generator dispatch in base cases



Santee Cooper Planning Models

Data and Assumptions

Questions?



SCRTP Regional and Inter-regional Processes

Scott Parker





SCRTTP Regional and Public Policy Planning

- Biennial Process (currently in year 1, Meeting #1-2)
- Restarts in 4th 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

During this meeting:

- Transmission Providers present the Local and Regional Transmission Plans
- Stakeholders discuss those Plans
- If submitted by stakeholders, Transmission Providers announce which Transmission Needs driven by Public Policy Requirements will have transmission solutions evaluated



Current Transmission Expansion Plans



Andy Underwood





Disclaimer

- The projects described in these presentations represent the current transmission plans within the SCRTP footprint.
- The expansion plan is continuously reviewed and may change due to changes in key data and assumptions.
- This presentation does not represent a commitment to build.



South Carolina Regional Transmission Planning

SCRTD



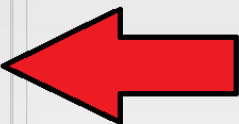
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Keyword

- NAESB Home Page
- ▢ Standards of Conduct
- ▢ Performance Metrics
- ▢ Business Practices, Waivers, and Exemptions
- ▢ ATC Information
- ▢ Currently Effective OATT
- ▢ Designated Network Resources
- ▢ SCE&G Planning and Assessment Documents
- ▢ **Planned Transmission Facilities (as of 10/11/2019)**
- ▢ AFC and OATT Studies
- ▢ Transmission Outage Schedule
- ▢ Annual Transmission Planning and Evaluation Report
- ▢ Hurricane Michael Outages
- ▢ Archived Transmission Planning Documents
- ▢ SCRTD Economic Transmission Planning Documents
- ▢ Generator Interconnection Information
- ▢ Informational Postings
- ▢ Links
- ▢ SCEG News Archive
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- ▢ Transmission Rates
- ▢ Historical ACE Data
- ▢ Contact Information



Production Node Login

Welcome to the SCE&G OASIS

SCE&G is becoming



News and Announcements

January 15, 2019: Pursuant to Section 205 of the Federal Power Act and Part 35 of the Regulations of the Federal Energy Regulatory Commission, South Carolina Electric & Gas Company ("SCE&G") filed a Notice of Cancellation to cancel a "Service Agreement for Network Integration Transmission Service," including two supplements, between SCE&G and the Southeast Power Administration under SCE&G's open access transmission tariff.

The filing can be found in the pending filings folder.

January 15, 2019: Pursuant to Section 205 of the Federal Power Act and Part 35 of the Regulations of the Federal Energy Regulatory Commission, South Carolina Electric & Gas Company ("SCE&G") filed an updated non-conforming Service Agreement for Network Integration Transmission Service between SCE&G and the Southeastern Power Administration under SCE&G's open access transmission tariff.

The filing can be found in the pending filings folder.

December 5, 2018: Pursuant to Section 205 of the Federal Power Act and Part 35 of the Regulations of the Federal Energy Regulatory Commission ("FERC"), South Carolina Electric & Gas Company ("SCE&G") filed a Notice of Cancellation to cancel a Wholesale Service Agreement between SCE&G and the McCormick Commission of Public Works under SCE&G's Whole Electric Tariff.

The filing can be found in the pending filings folder.

December 5, 2018: Pursuant to Section 205 of the Federal Power Act and Part 35 of the Regulations of the Federal Energy Regulatory Commission, South Carolina Electric & Gas Company ("SCE&G") hereby submits for filing an executed non-conforming Service Agreement for Network Integration Transmission Service between SCE&G and the McCormick Commission of Public Works under SCE&G's open access transmission tariff.

Back

SCE&G Planned Transmission Facilities



South Carolina Electric & Gas Planned Transmission Facilities

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Hugh Leatherman 115 kV Tap: Construct	May-19
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Photograph by Chris



santee cooper ALL RIGHTS RESERVED.



Urquhart – Graniteville 115kV Line: Rebuild existing 115kV SPDC B1272

Project Description

Rebuild current Urquhart – Graniteville 115 kV line to 230 kV SPDC B1272 ACSR construction in order to upgrade the Urquhart – Graniteville #2 230 kV line. The Urquhart – Graniteville 115 kV line will be torn down and replaced with SPDC lines consisting of Urquhart – Graniteville #2 230 kV line & a portion of the new Graniteville #2 – South Augusta 230 kV Tie line.

Project Need

Load growth in the Aiken area requires additional transmission capacity. This project is required to meet NERC TPL standards and SCE&G's Internal Planning Criteria.

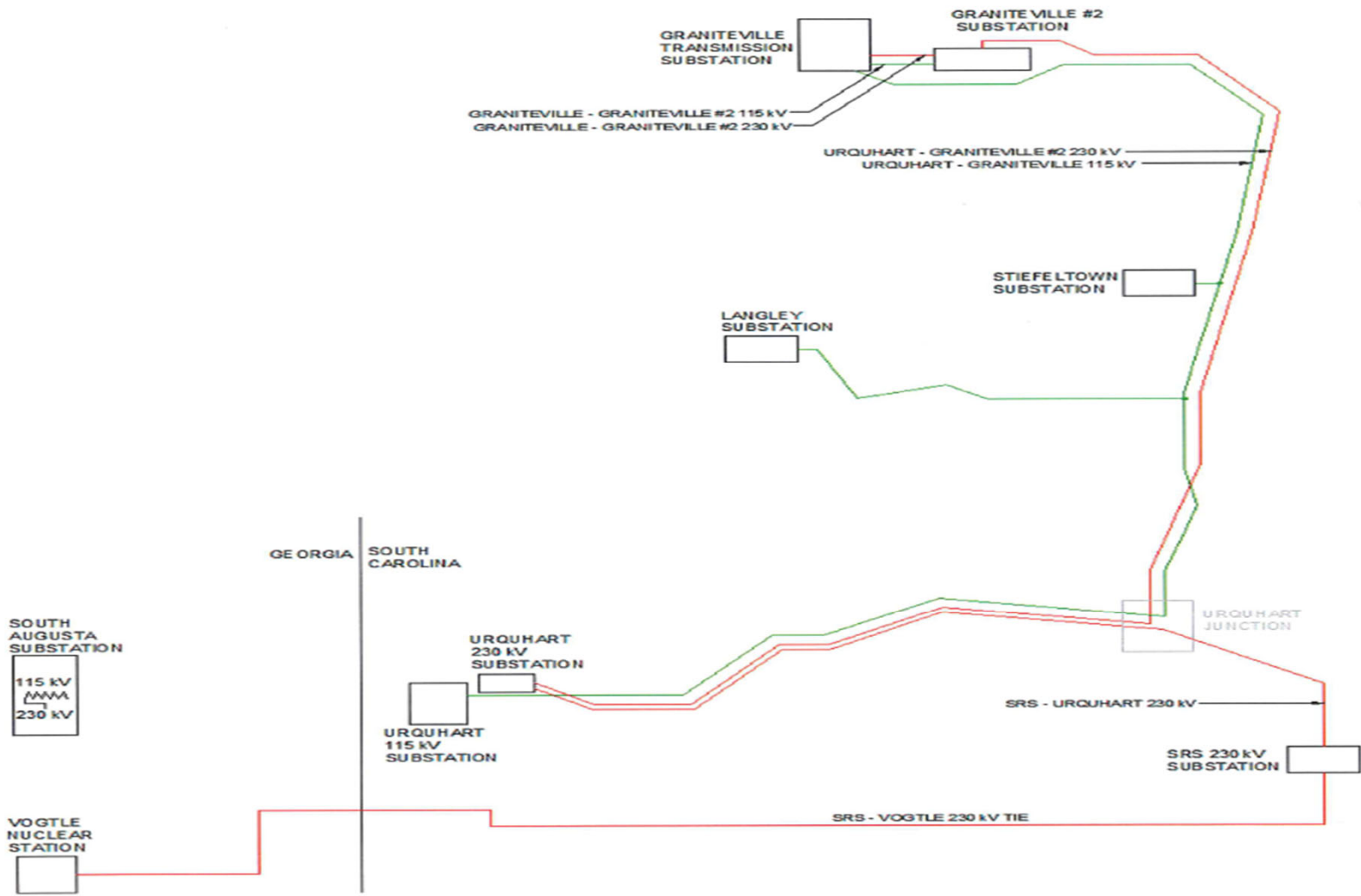
Project Status

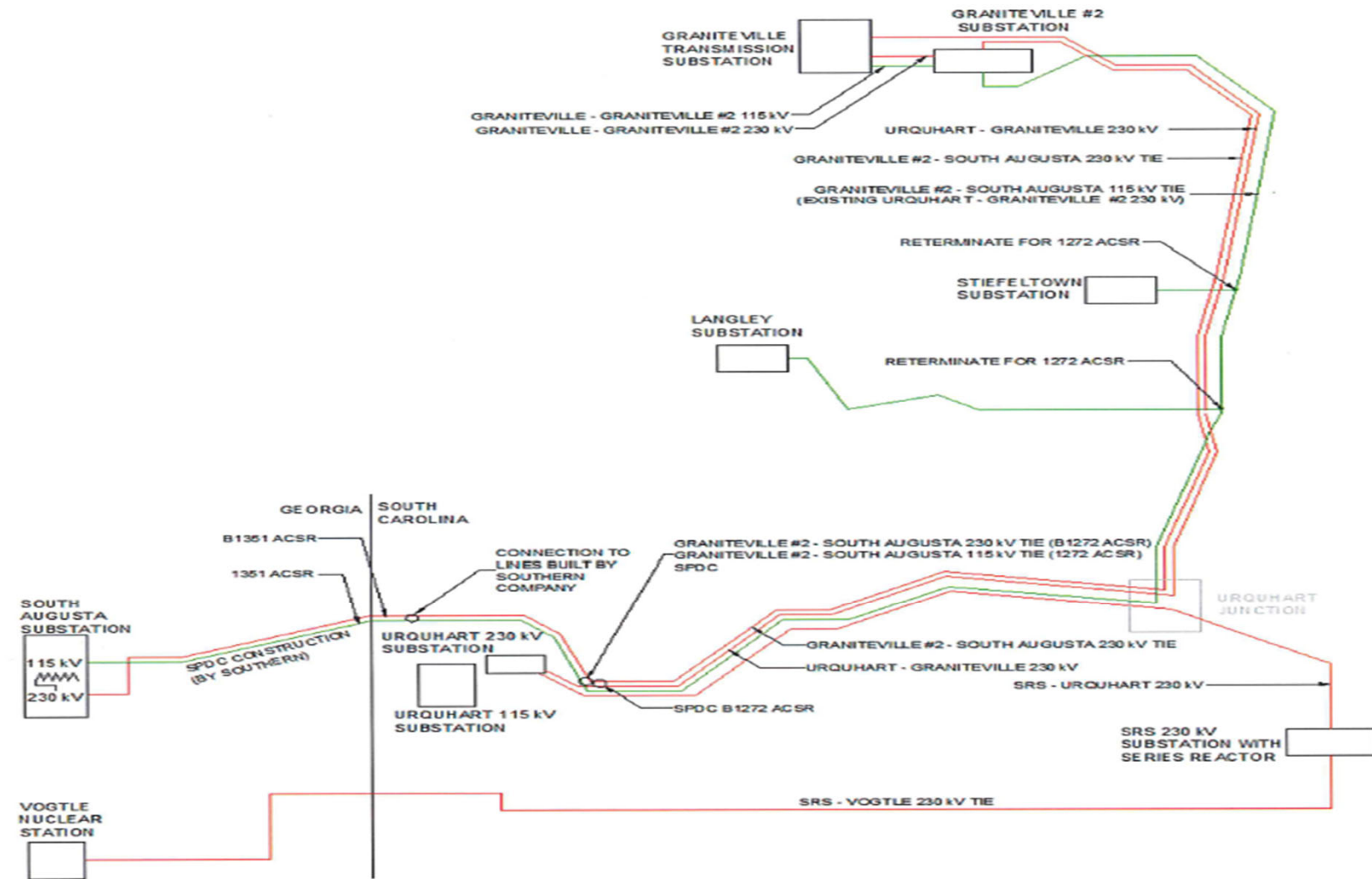
In Progress

Planned In-Service Date

May 2019









Hugh Leatherman 115 kV Tap: Construct

Project Description

Construct a new 115 kV tap line from the Charlotte Street – Faber Place 115 kV line to the new Hugh Leatherman substation with 1272 ACSR conductor. Route will be determined by the siting study that is currently underway. Route assumed to be approximately 1.6 miles.

Project Need

Electric Service Contract

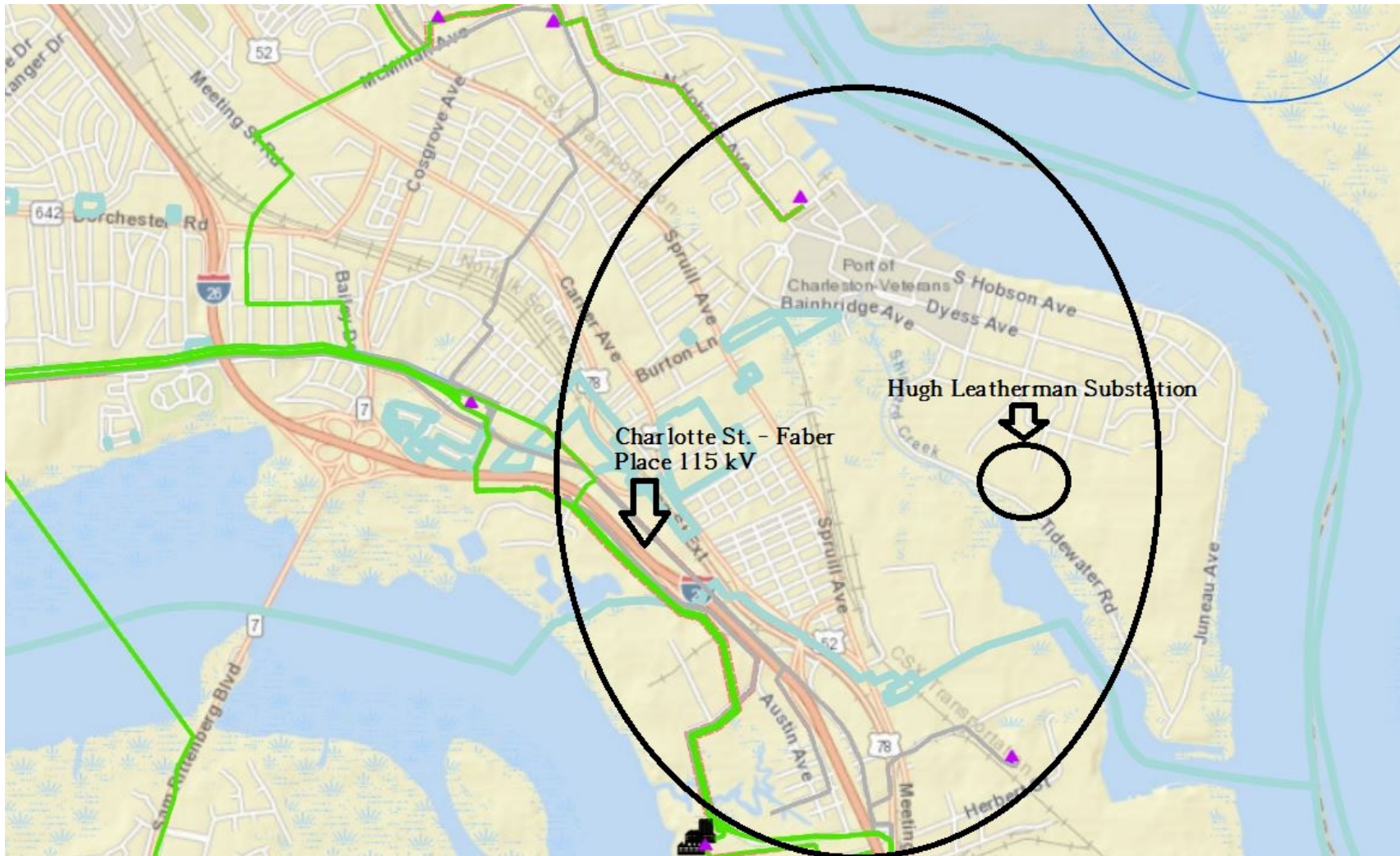
Project Status

Planned

Planned In-Service Date

May 2019







Fairfax – Salem Switching Station 115 kV: Reconductor to 1272 ACSR

Project Description

Replace structures and reconductor Fairfax – Salem Switching Station 115 kV line from 336 ACSR to 1272 ACSR.

Project Need

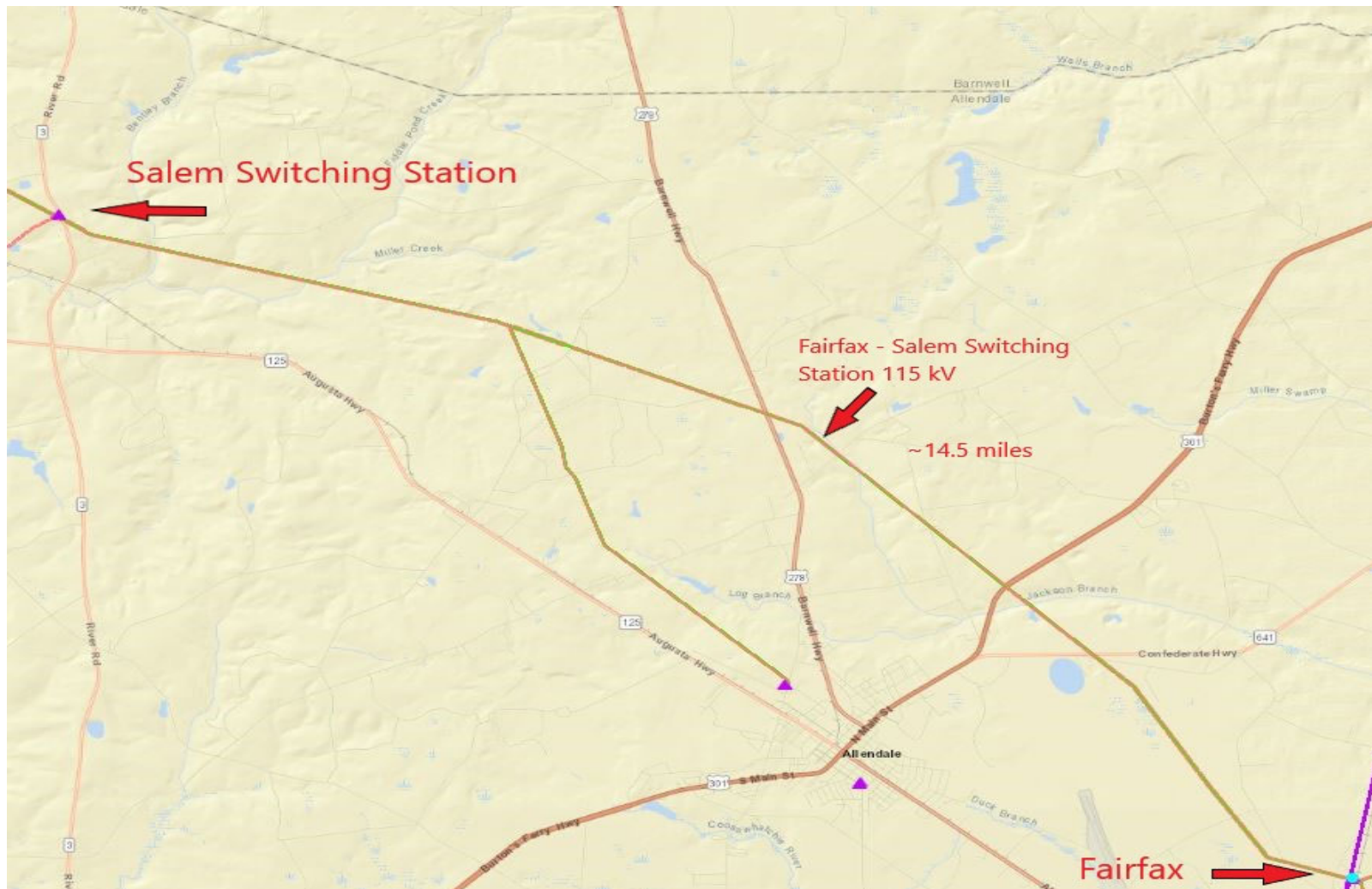
System growth in the area requires additional transmission capacity. This project is required to meet NERC TPL standards and SCE&G's Internal Planning Criteria.

Project Status

In Progress

Planned In-Service Date

May 2019





Faber Place – Charlotte Street 115 kV Line Upgrade

Project Description

Upgrade the Faber Place to Hagood Junction section of the Faber Place – Charlotte Street 115 kV line to 1272 ACSR or equivalent capacity conductor.

Project Need

System load growth in the Charleston area requires additional 115 kV transmission capacity.

Project Status

In Progress

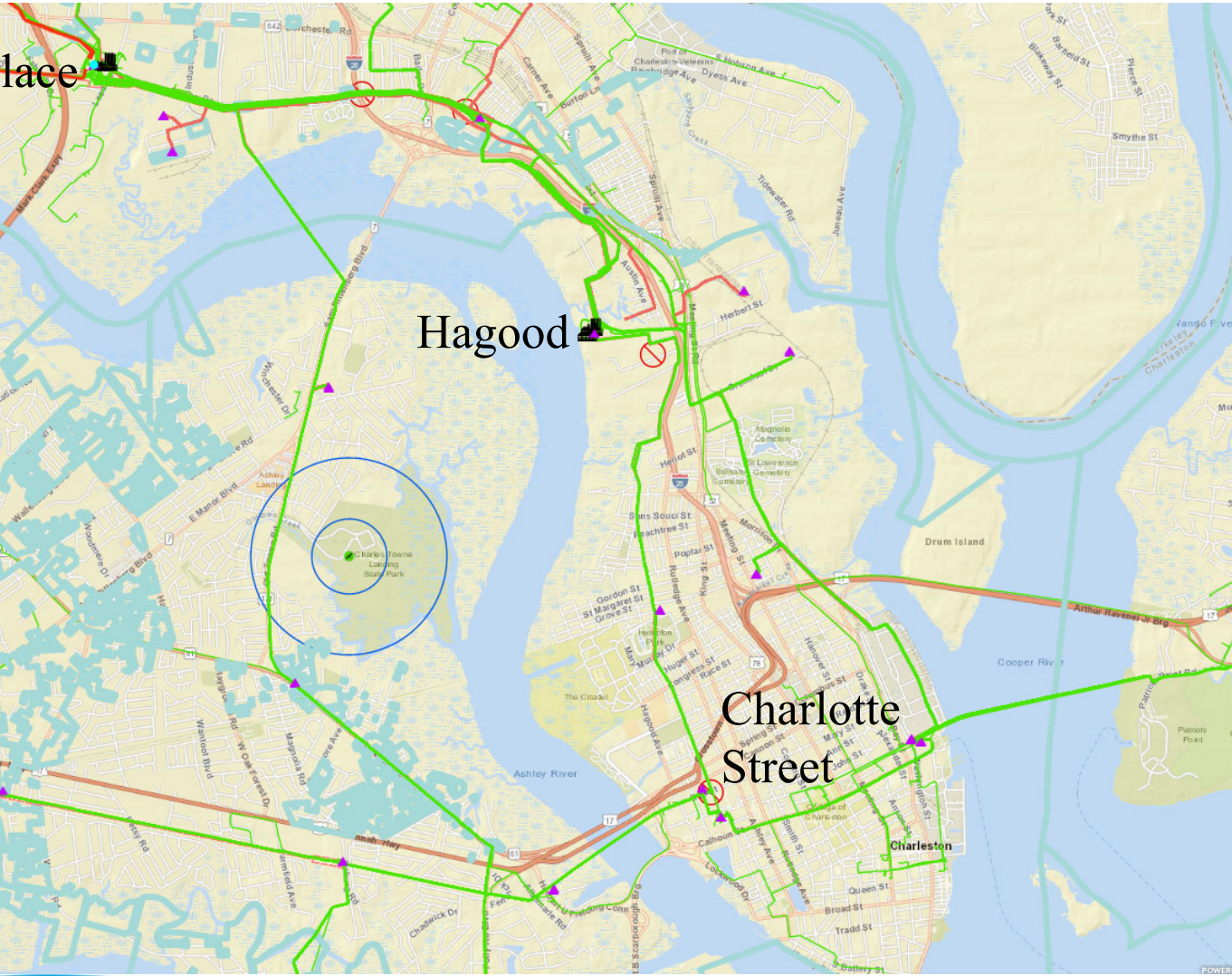
Planned In-Service Date

June 2019





Faber Place





Thomas Island – Jack Primus 115 kV Line: Construct

Project Description

Construct a new 115 kV line from the Thomas Island substation to the new Jack Primus substation with 1272 ACSR conductor. Total line length approximately 4 miles.

Project Need

System load growth in the Thomas Island area requires additional transmission capacity.

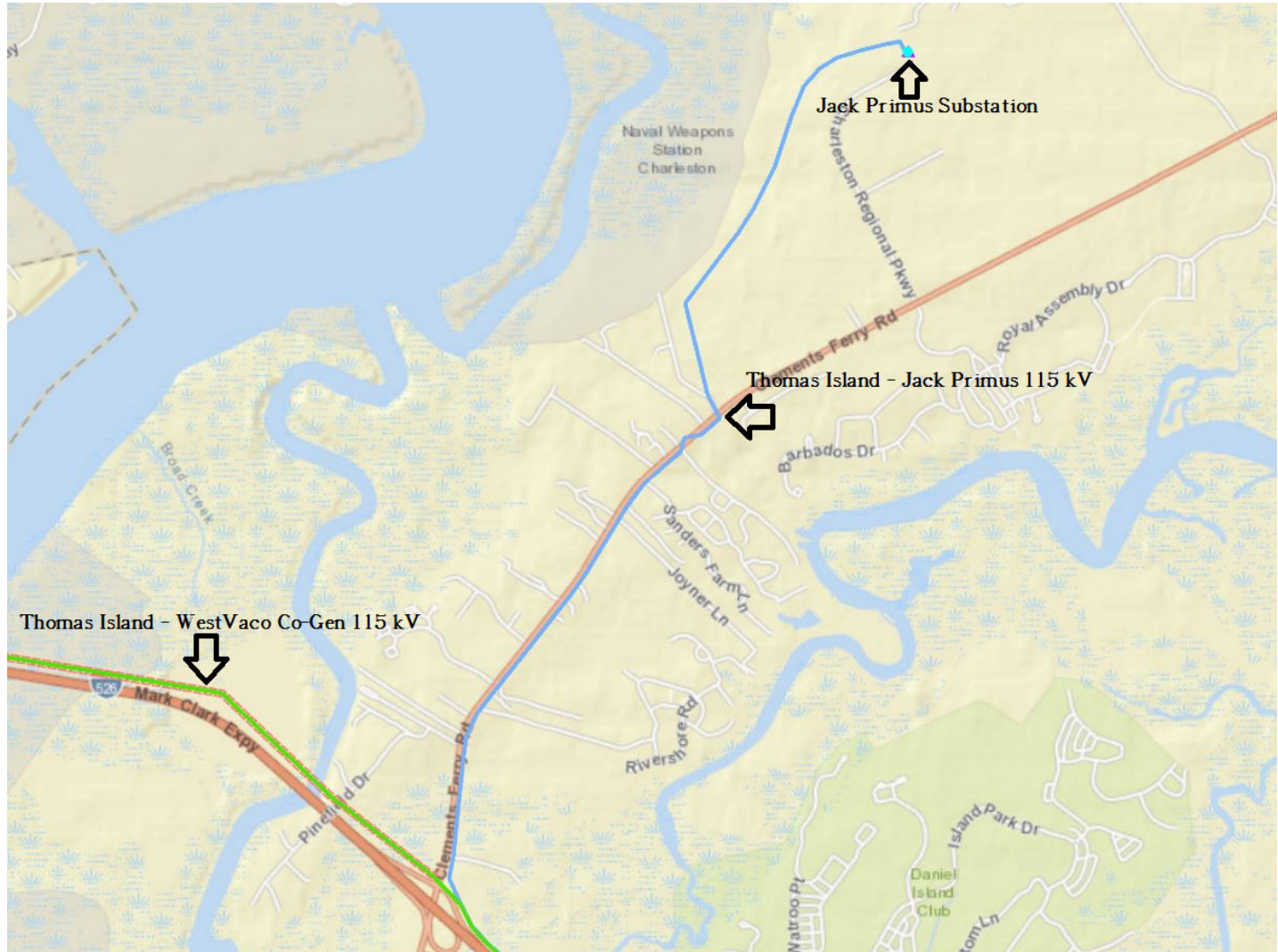
Project Status

Planned

Planned In-Service Date

August 2019







Church Creek – Faber Place 230 kV & 115 kV Lines: Rebuild Ashley River Crossing

Project Description

Rebuild the Church Creek – Faber Place 230 kV and 115 kV section of lines at the Ashley River crossing, consisting of four spans which will be rebuilt to SPDC steel pole construction.

Project Need

Structures are in need of replacement. Wood poles will be replaced with steel pole construction.

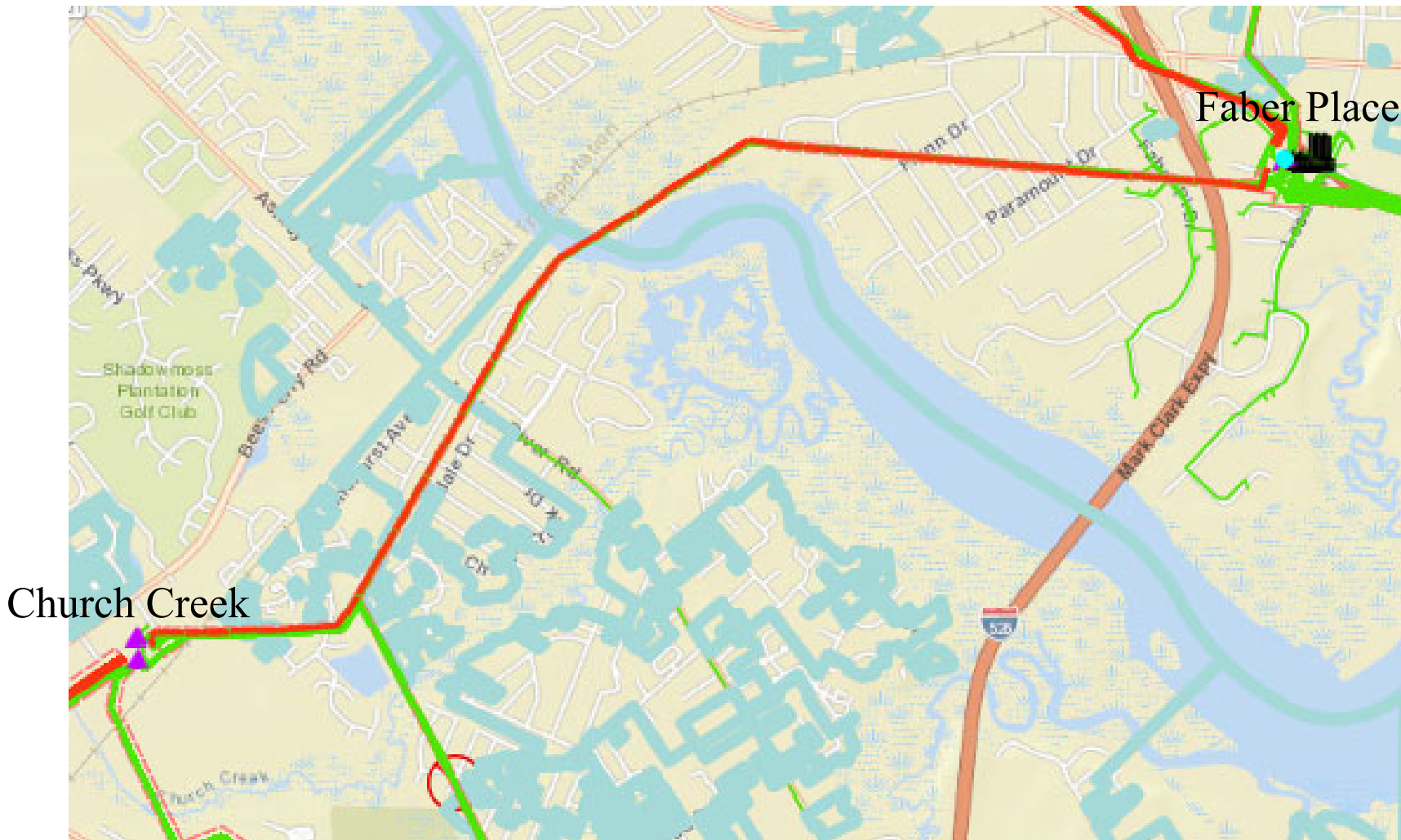
Project Status

Planned

Planned In-Service Date

December 2019







Burton – St. Helena Island 115 kV Groundline Remediation

Project Description

Replace 19 structures along the Burton – St. Helena Island 115 kV line.

Project Need

19 structures need to be replaced for maintenance and reliability.

Project Status

In Progress

Planned In-Service Date

December 2019



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I d f l o w l h v



Pepperhill – Summerville 230 kV: Construct

Project Description

Construct a new 230 kV line from Pepperhill to Summerville SPDC with B1272 ACSR. The existing Williams – Canadys 230 kV line will be re-terminated to Pepperhill and Faber Place to create Canadys – Faber Place 230 kV line and Williams – Pepperhill 230 kV line.

Project Need

System load growth in the low country requires additional transmission capacity. This project is required to meet NERC TPL standards and SCE&G's Internal Planning Criteria.

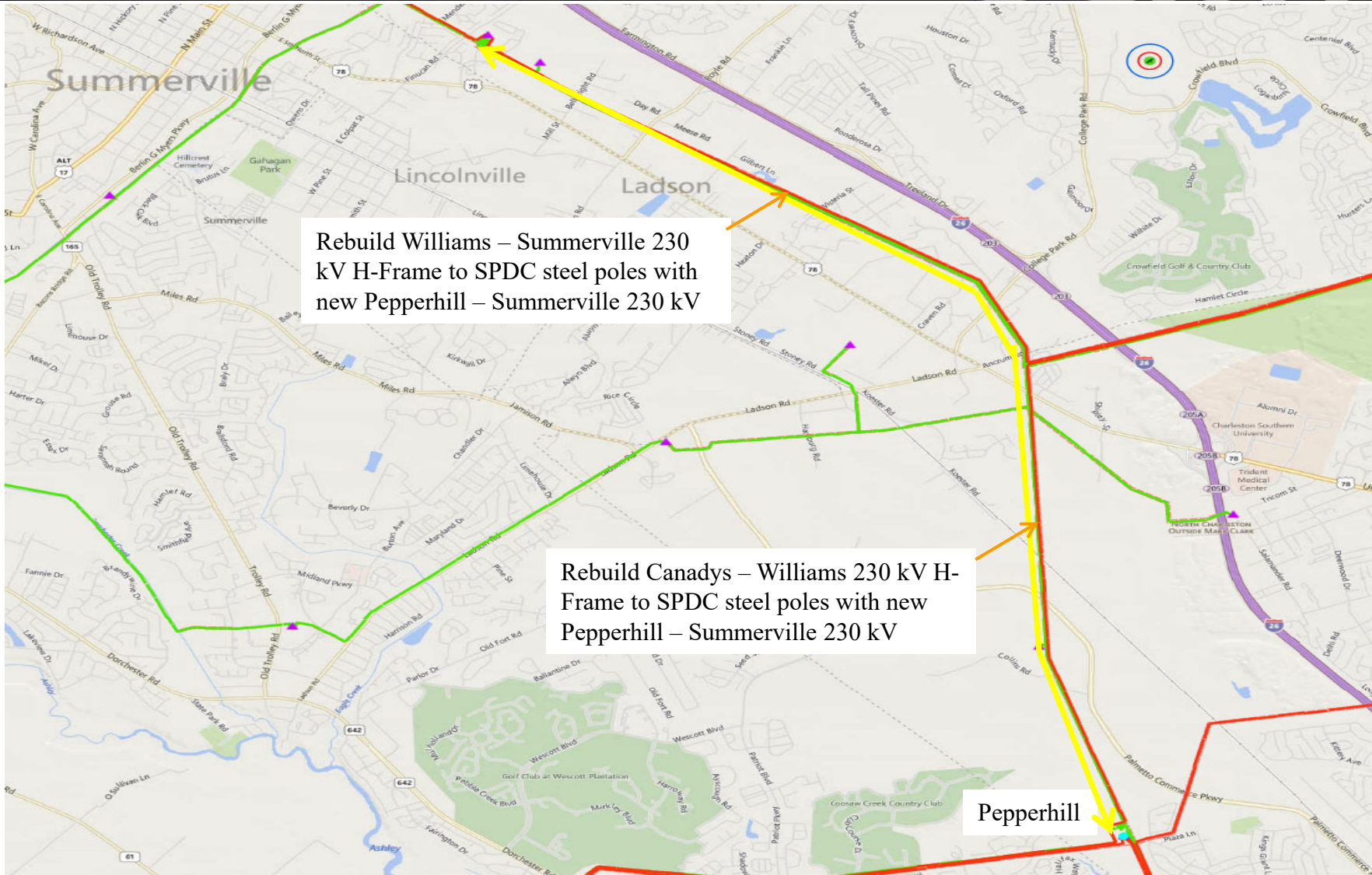
Project Status

Planned

Planned In-Service Date

May 2020





Rebuild Williams – Summerville 230 kV H-Frame to SPDC steel poles with new Pepperhill – Summerville 230 kV

Rebuild Canadys – Williams 230 kV H-Frame to SPDC steel poles with new Pepperhill – Summerville 230 kV

Pepperhill



Lake Murray -Michelin 115 kV Line: String 1272 ACSR on existing structures, construct SPDC 1272 ACSR elsewhere

Project Description

A new circuit of 1272 ACSR wire from Lake Murray - Lexington Jct. Conductor will be installed on the available side of the Lake Murray - Gilbert 115 kV structures which were designed to be double circuit when it was originally built. Rebuild 115 kV SPDC from Lexington Junction to Lexington Industrial Park to accommodate the Lake Murray - Michelin 115 kV and Lexington Junction - Lexington Industrial Park 115 kV. Upgrade Lexington Junction - Michelin conductor to 1272 ACSR.

Project Need

System growth in the Lexington and Red Bank areas requires additional 115 kV capacity and an additional transmission path to increase reliability. This project is required to meet NERC TPL standards and SCE&G's Internal Planning Criteria.

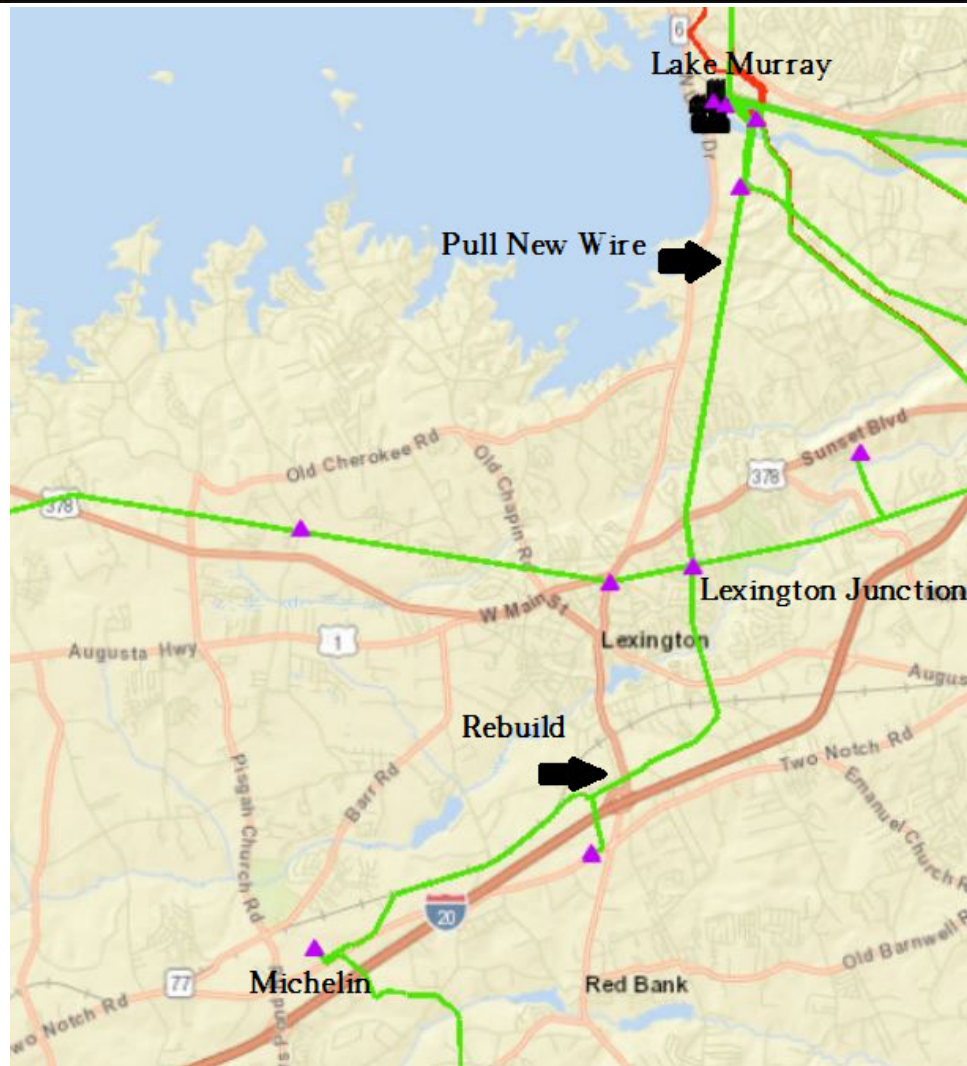
Project Status

Planned

Planned In-Service Date

May 2020







Williams Street – Park Street 115 kV: Construct

Project Description

Design and install a 115 kV line between Williams Street and Park Street substations.

Project Need

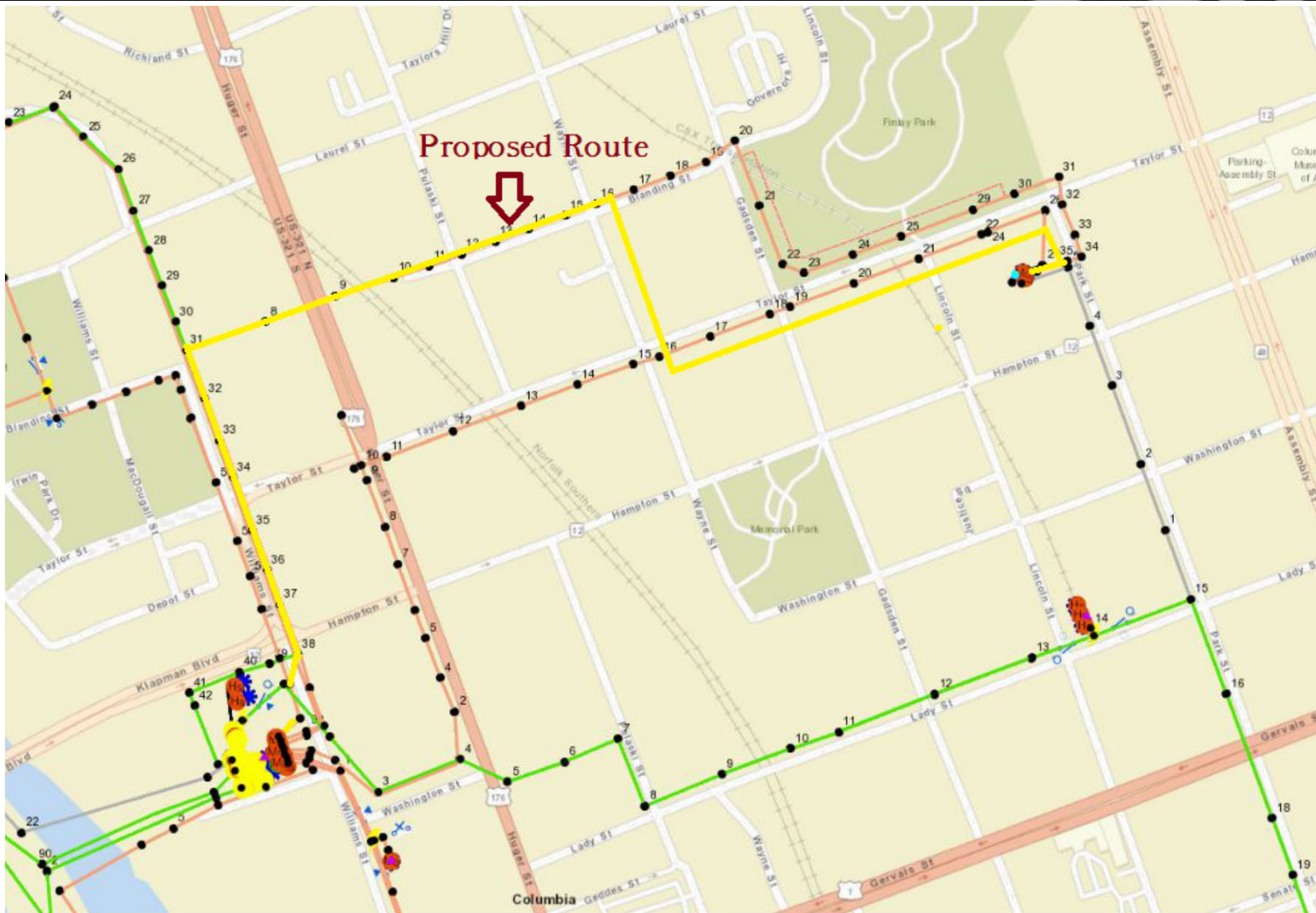
System load growth in the downtown Columbia area requires additional transmission capacity.

Project Status

Planned

Planned In-Service Date

5/1/2020





Cope – Denmark 115 kV: Upgrade to 1272 from Denmark Str. 68

Project Description

Upgrade the approximately 5.56 mile section of 477 ACSR conductor with 1272 ACSR conductor.

Project Need

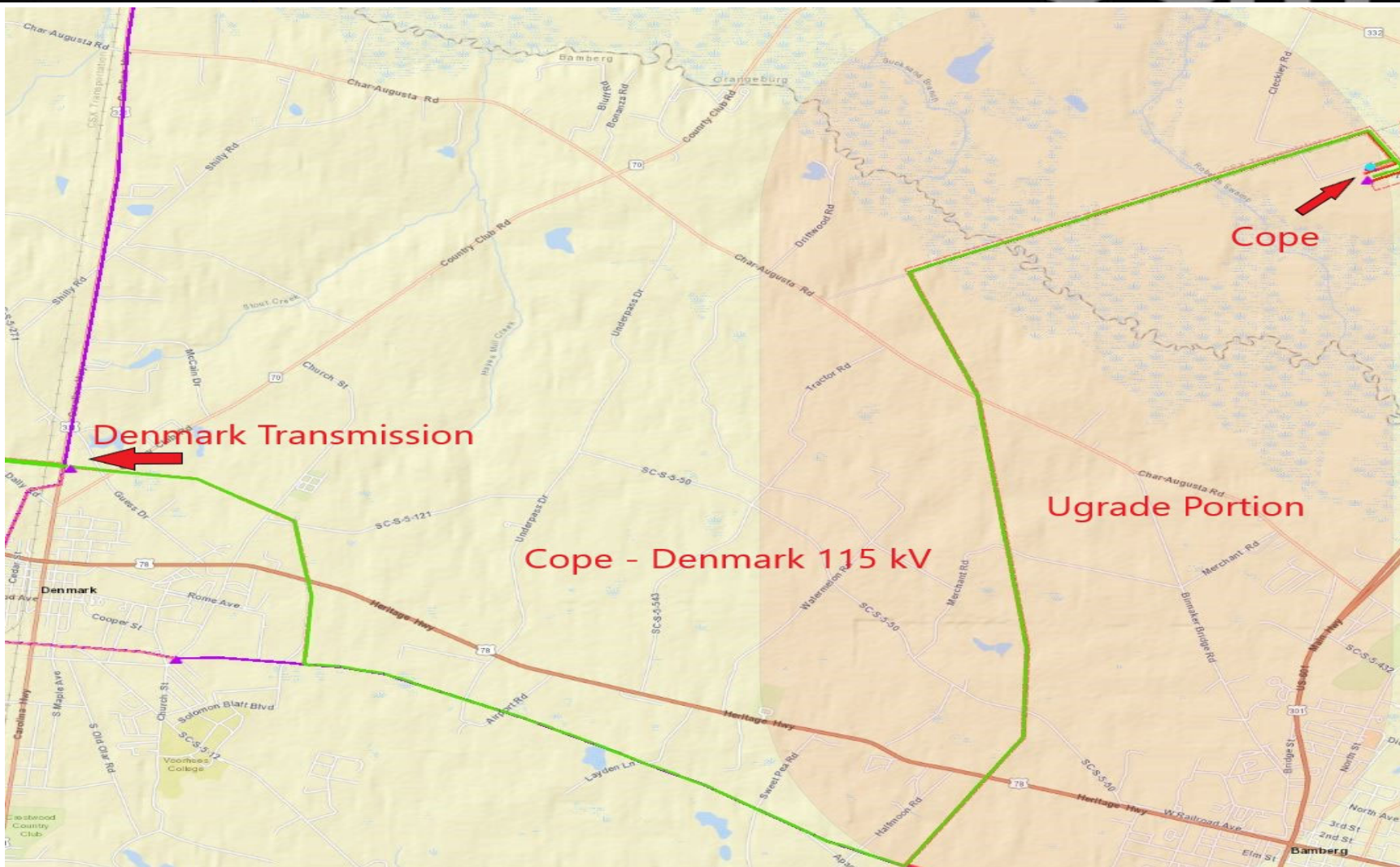
This project is required to meet NERC TPL standards and SCE&G's Internal Planning Criteria.

Project Status

In Progress

Planned In-Service Date

May 2020





Graniteville #2- South Augusta 230 kV Tieline: Construct

Project Description

Rebuild current Urquhart – Graniteville 115 kV line to 230 kV SPDC B1272 ACSR construction in order to create the Graniteville #2 – South Augusta 230 kV SCE&G/SOCO Tieline. The existing Urquhart – Graniteville #2 230 kV line will be converted to 115 kV and re-connected to the newly built South Augusta 115 kV SOCO line to create the Graniteville #2 – South Augusta 115 kV tieline.

Project Need

Load growth in the Aiken area requires additional transmission capacity. Constructing a new 230 kV line from South Augusta to Graniteville will provide an additional source needed during contingencies and increase the transfer capability between SCE&G and Southern Company. Project unloads a highly loaded transmission line on the SCE&G/Southern interface and several internal SCE&G lines. This project is required to meet NERC TPL standards and SCE&G's Internal Planning Criteria.

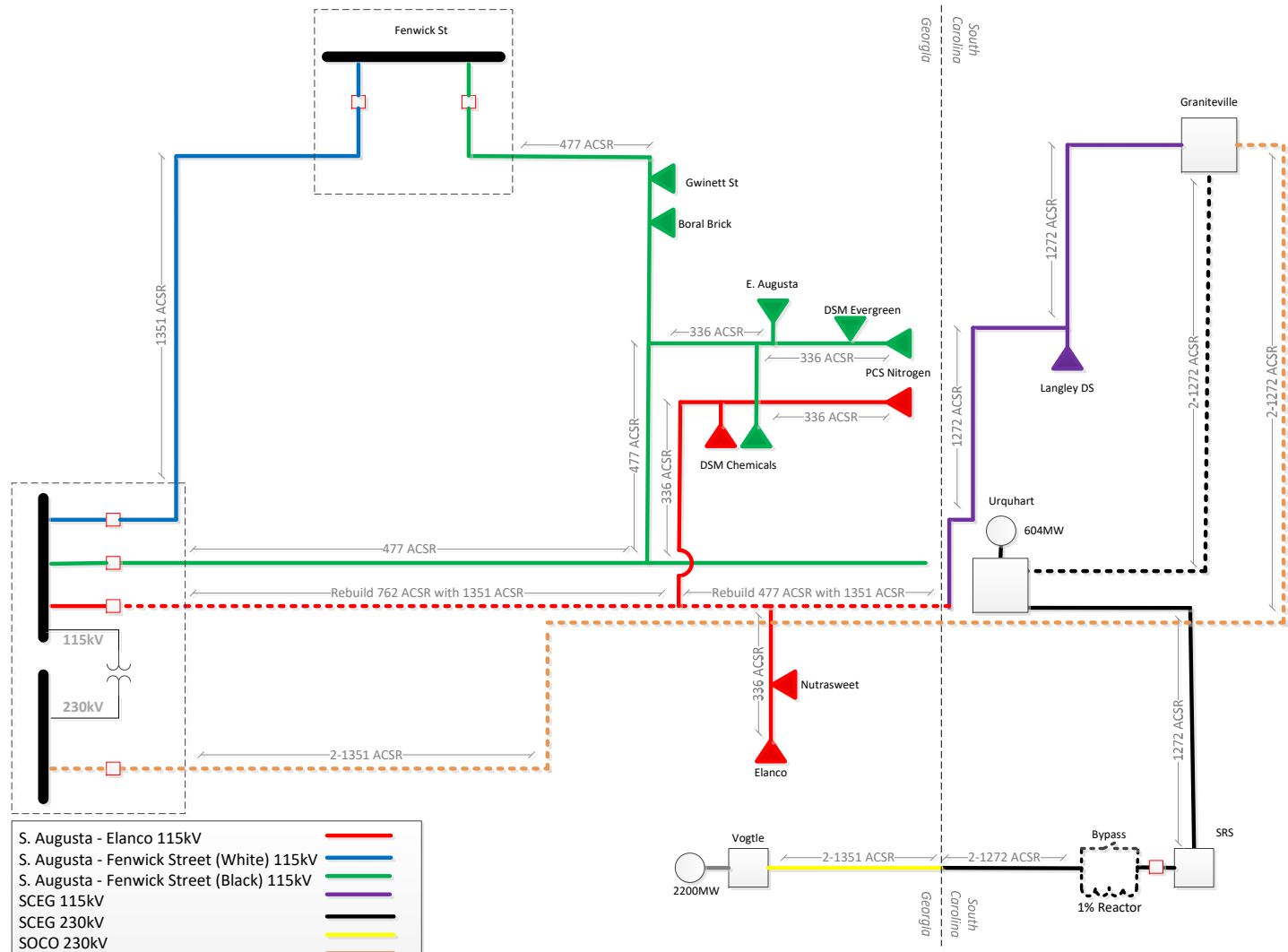
Project Status

In Progress

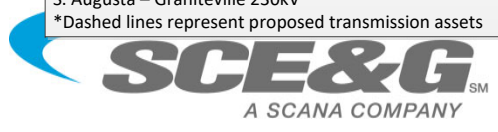
Planned In-Service Date

June 2020





- S. Augusta - Elanco 115kV
 - S. Augusta - Fenwick Street (White) 115kV
 - S. Augusta - Fenwick Street (Black) 115kV
 - SCEG 115kV
 - SCEG 230kV
 - SOCO 230kV
 - S. Augusta - Graniteville 230kV
- *Dashed lines represent proposed transmission assets





Burton-Yemassee 115 kV #2 Line Rebuild SPDC B795 ACSR

Project Description

Burton-Yemassee 115 kV Line #2: Rebuild 115 kV SPDC using B795 ACSR (line length 21.24 miles).

Project Need

System load growth in the Burton area requires additional transmission capacity from the Yemassee 230/115 kV substation and added transmission path to increase reliability.

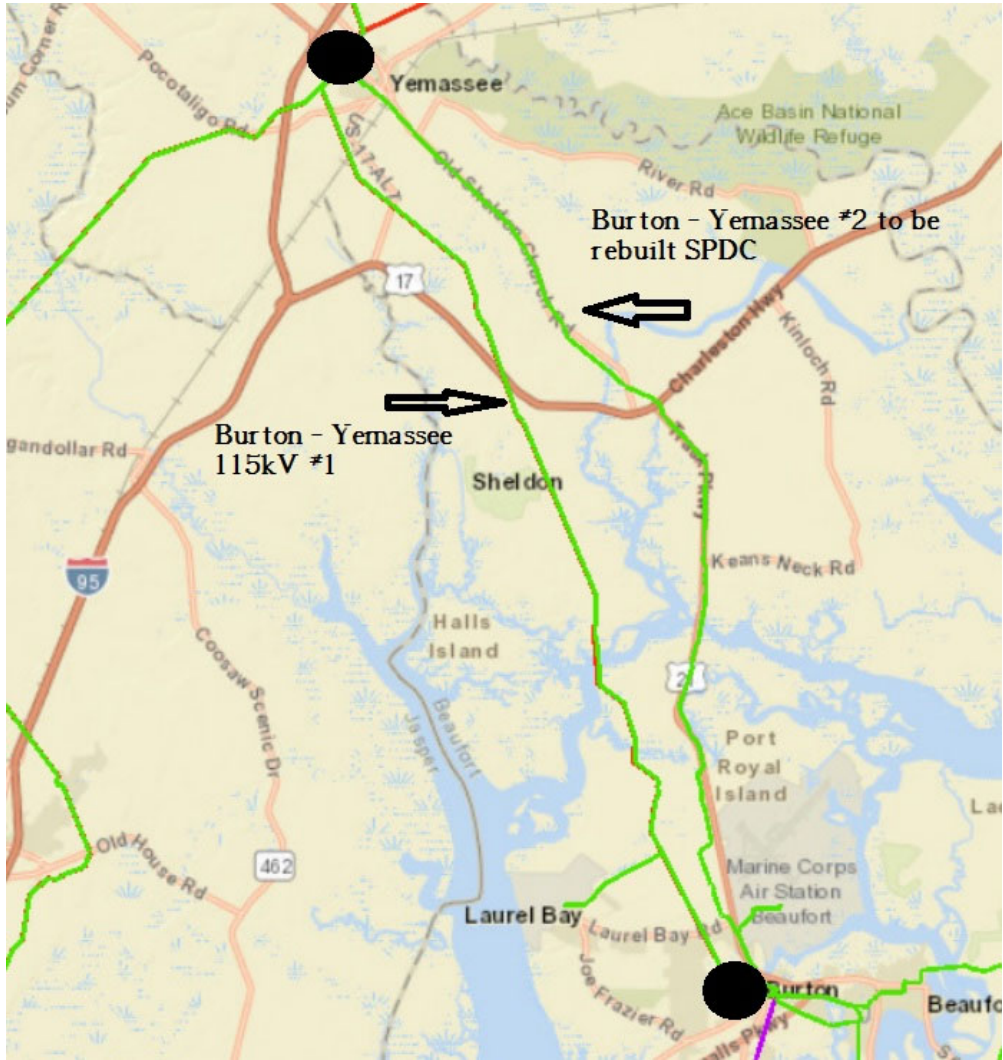
Project Status

In Progress

Planned In-Service Date

6/30/2020







Lake Murray – Harbison 115 kV: Re-terminate Saluda Hydro – Harbison and rebuild SPDC

Project Description

Re-terminate the Saluda Hydro – Harbison 115 kV line to Lake Murray substation in preparation for the SPDC rebuild of the Lake Murray – Harbison 115 kV which will add an additional line to create Saluda Hydro – Denny Terrace 115 kV line.

Project Need

System growth in the Irmo, Harbison, Piney Woods Road, and Kingswood areas requires additional 115 kV capacity and transmission path to increase reliability.

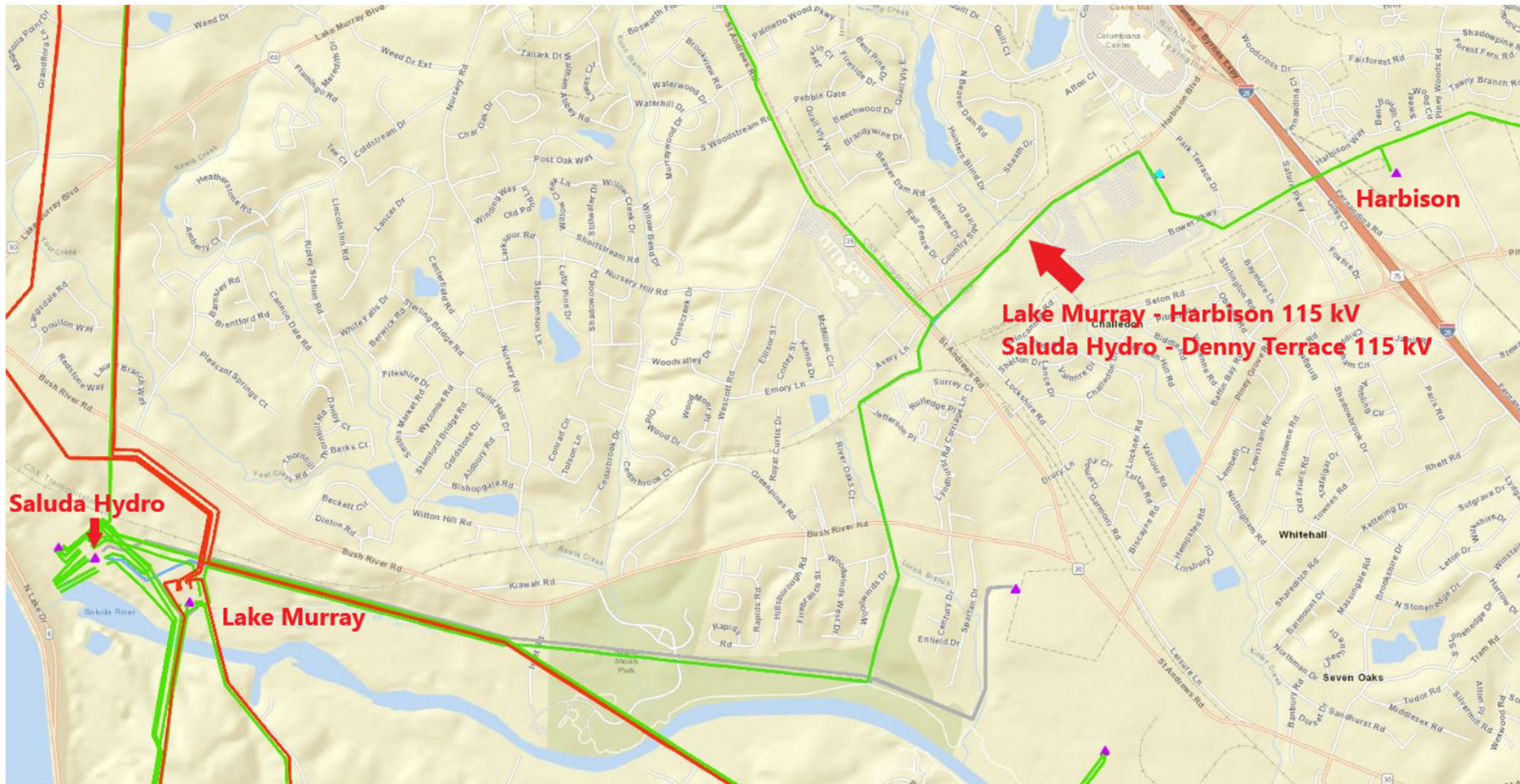
Project Status

In Progress

Planned In-Service Date

October 2020







Coit – Gills Creek 115 kV Line: Construct

Project Description

Construct a new 115 kV tie line from Coit substation to the Gills Creek substation.

Project Need

System growth in the Eastern Columbia and Garners Ferry areas requires additional 115 kV capacity and transmission path to increase reliability.

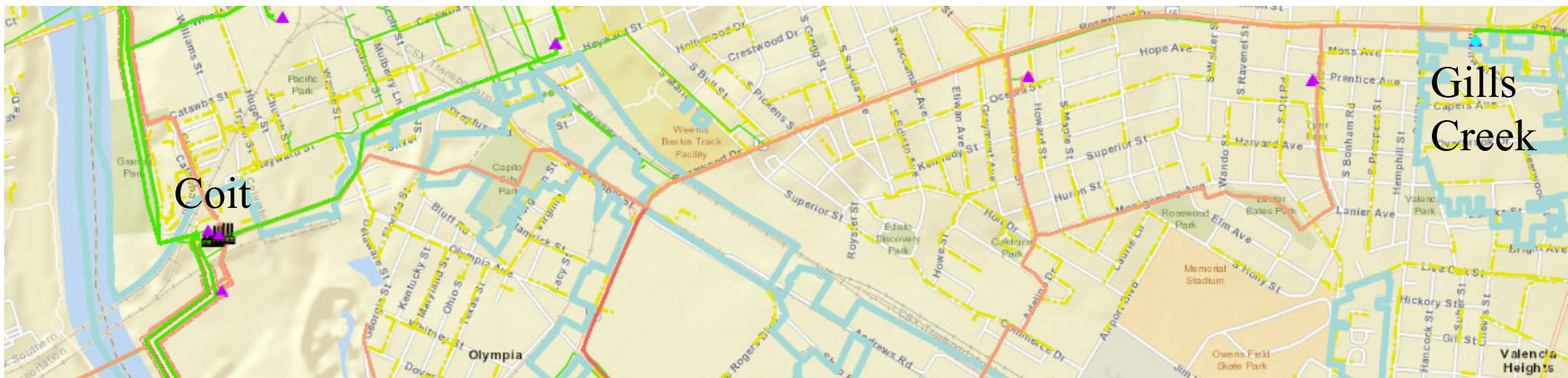
Project Status

Planned

Planned In-Service Date

December 2020







Bluffton – Santee 115 kV Tie Line Construct

Project Description

Construct a new 115 kV tie line from SCE&G Bluffton substation to SCPSA Bluffton substation. Total line length will be approximately 1.5 miles.

Project Need

This line is needed to reduce outage durations for planned outages and emergency situations for SCE&G’s Bluffton, Hardeeville and Pritchardville substations.

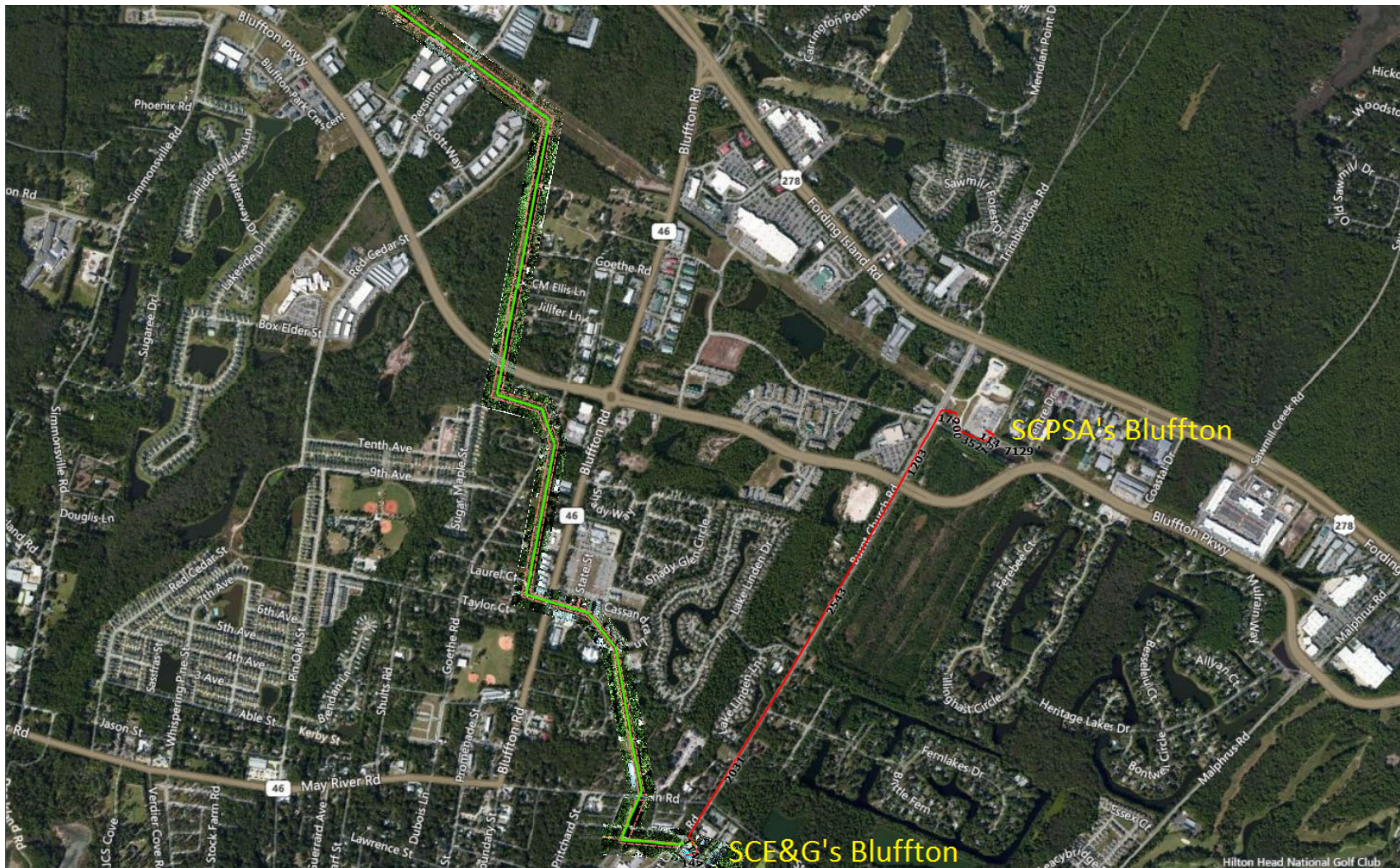
Project Status

Planned

Planned In-Service Date

December 2020







Canadys 230 kV: Add Back-Back Bus Tie Breakers

Project Description

Upgrade the 230kV bus from single 1272 ACSR to bundled 1272 ACSR. Install back to back 230 kV bus tie breakers and re-terminate existing lines into substation.

Project Need

The 230 kV bus upgrades are required for additional load growth in the southern portion of the SCE&G system, and back-to-back bus tie breakers are required for system reliability improvements.

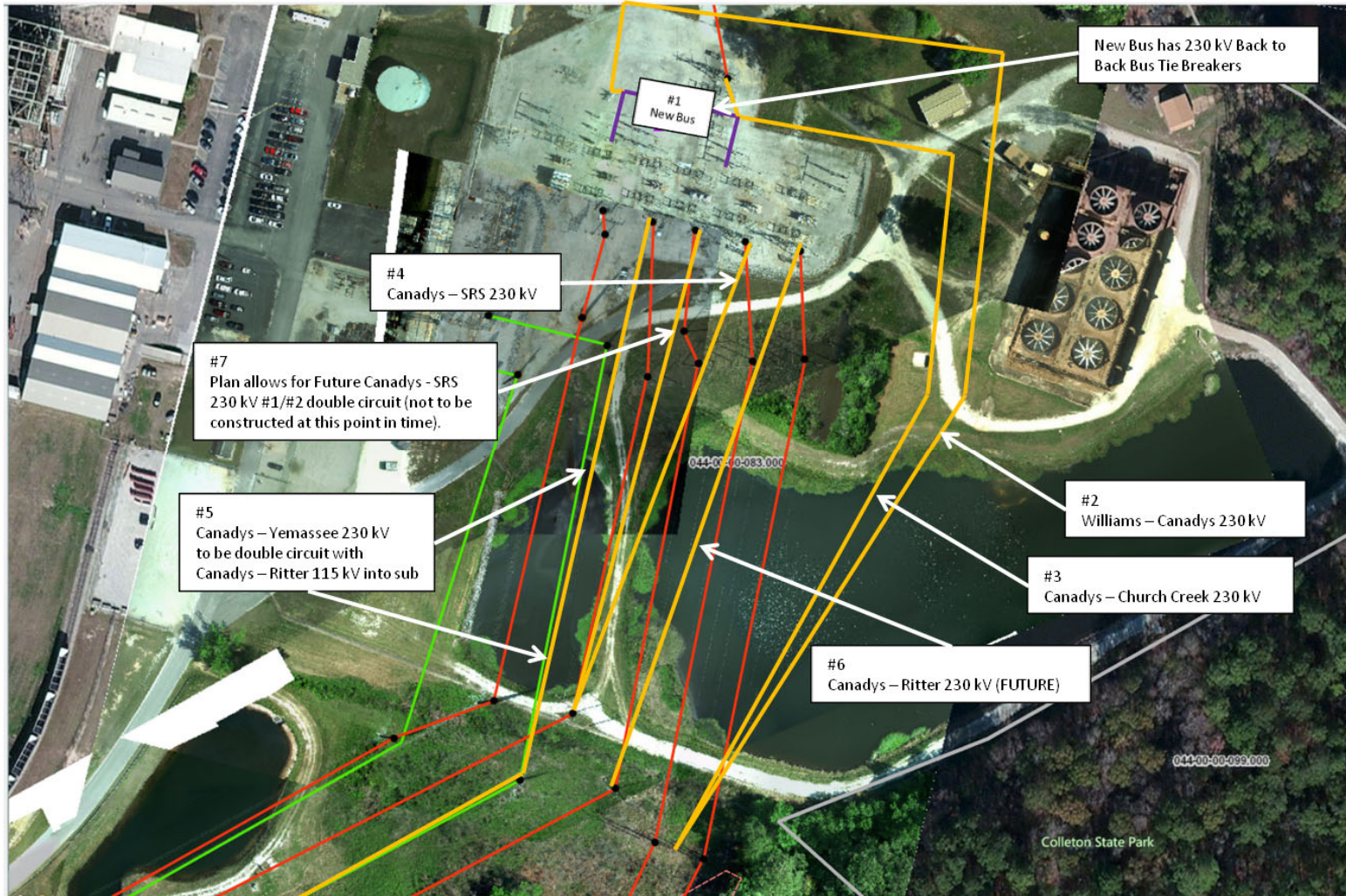
Project Status

Planned

Planned In-Service Date

December 2020







Emory 230kV Distribution Sub : Tap Construct

Project Description

Tap the VCS2 – Ward 230 kV line for the Emory 230 kV Distribution Substation.

Project Need

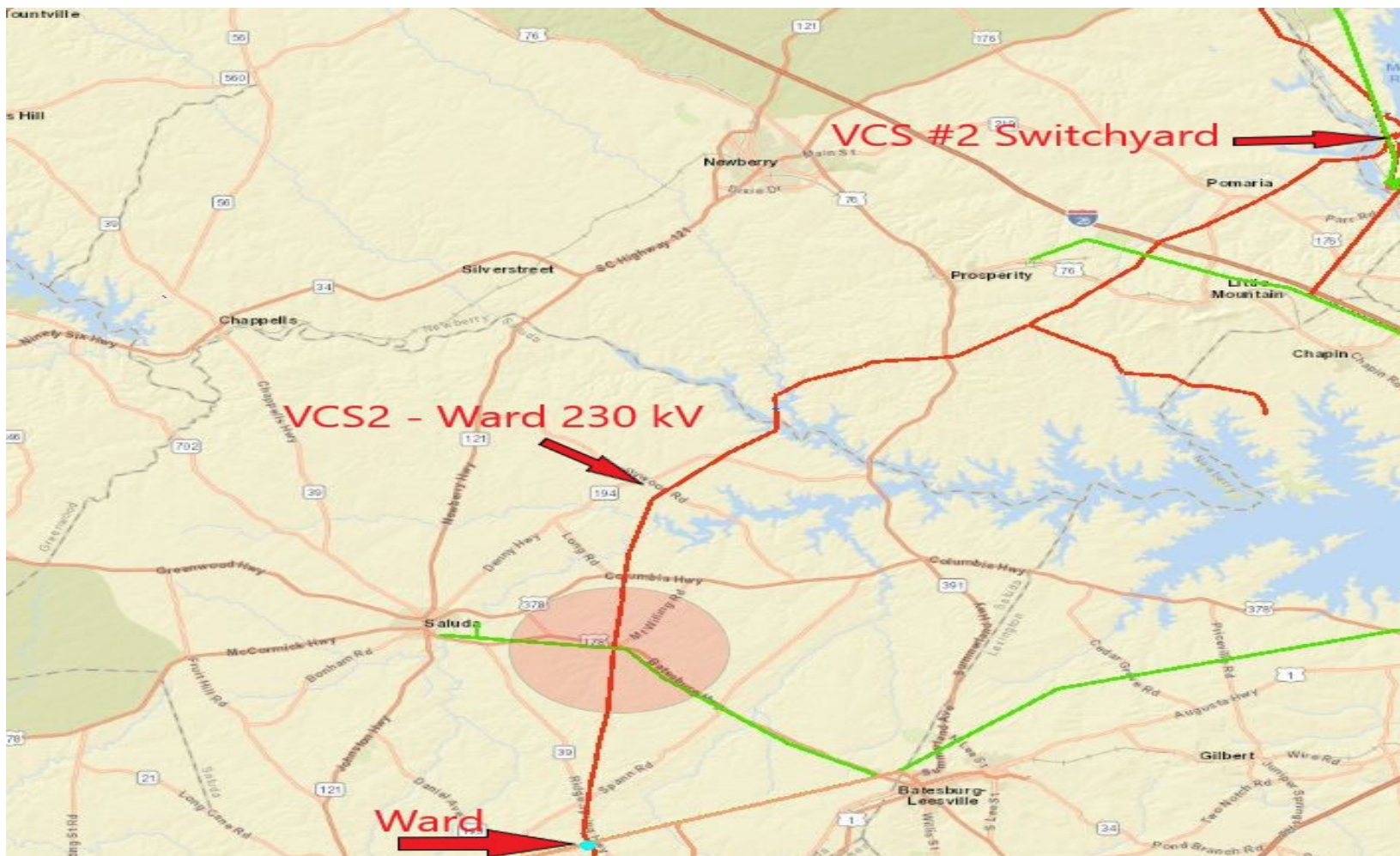
Load growth in the area requires additional distribution capacity.

Project Status

Planned

Planned In-Service Date

May 2021





Canadys – Ritter 115 kV: Rebuild existing 115kV as 230/115 kV SPDC B1272

Project Description

Construct a new 230 kV line from Canadys to Ritter SPDC with B1272 ACSR by rebuilding the existing 115 kV line in this corridor.

Project Need

System load growth in the low country requires additional transmission capacity. This project is required to meet NERC TPL standards and SCE&G's Internal Planning Criteria.

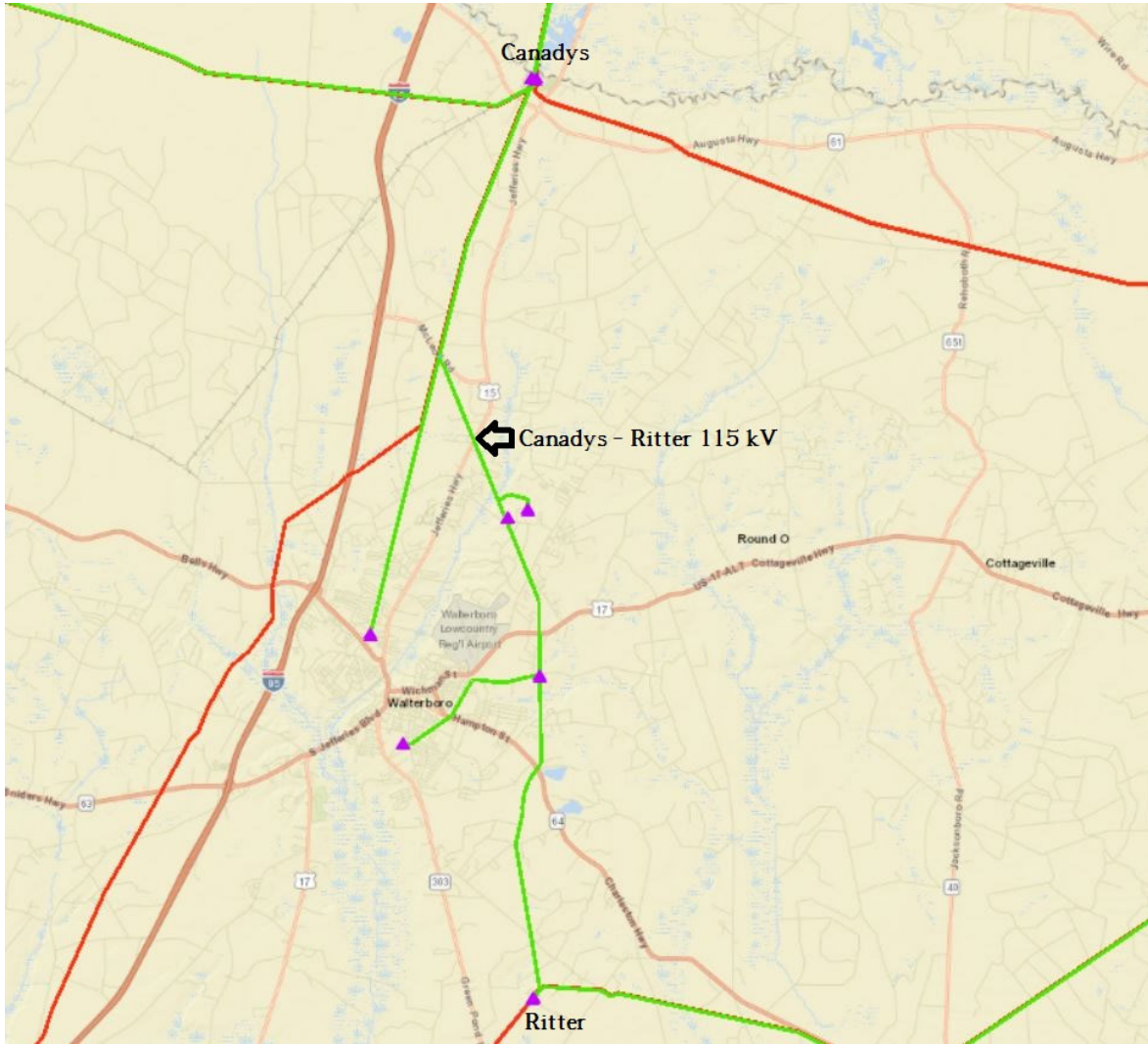
Project Status

Planned

Planned In-Service Date

May 2022







Union Pier 115 – 13.8 kV Sub : Tap Construct

Project Description

Construct a 115-13.8kv substation approximately 0.7 mile South of Charlotte Street Substation near Bay Street.

Project Need

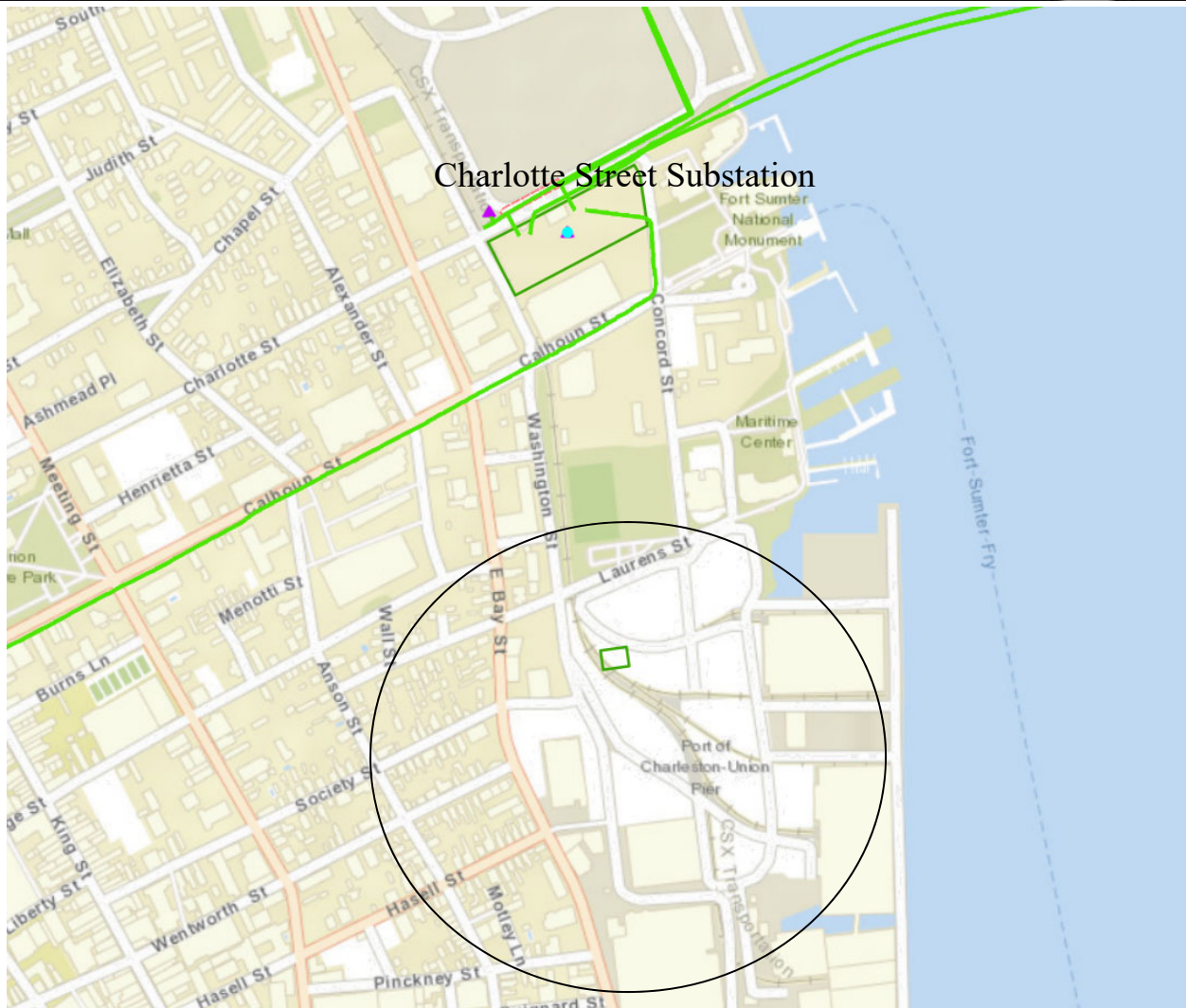
Load growth in the Charleston area requires additional transmission capacity.

Project Status

Planned

Planned In-Service Date

December 2024





Questions?





Santee Cooper Major Transmission Expansion Plans

Weijian Cong





Transmission Network Completed Projects

- Bucksville-Myrtle Beach 115 kV Line 05/2018
- Perry Rd - Myrtle Beach 115 kV line #3 06/2018
- John's Island (SC) – Church Creek/Ritter (SCEG) 115 kV Line 11/2018





Transmission Network Active Projects

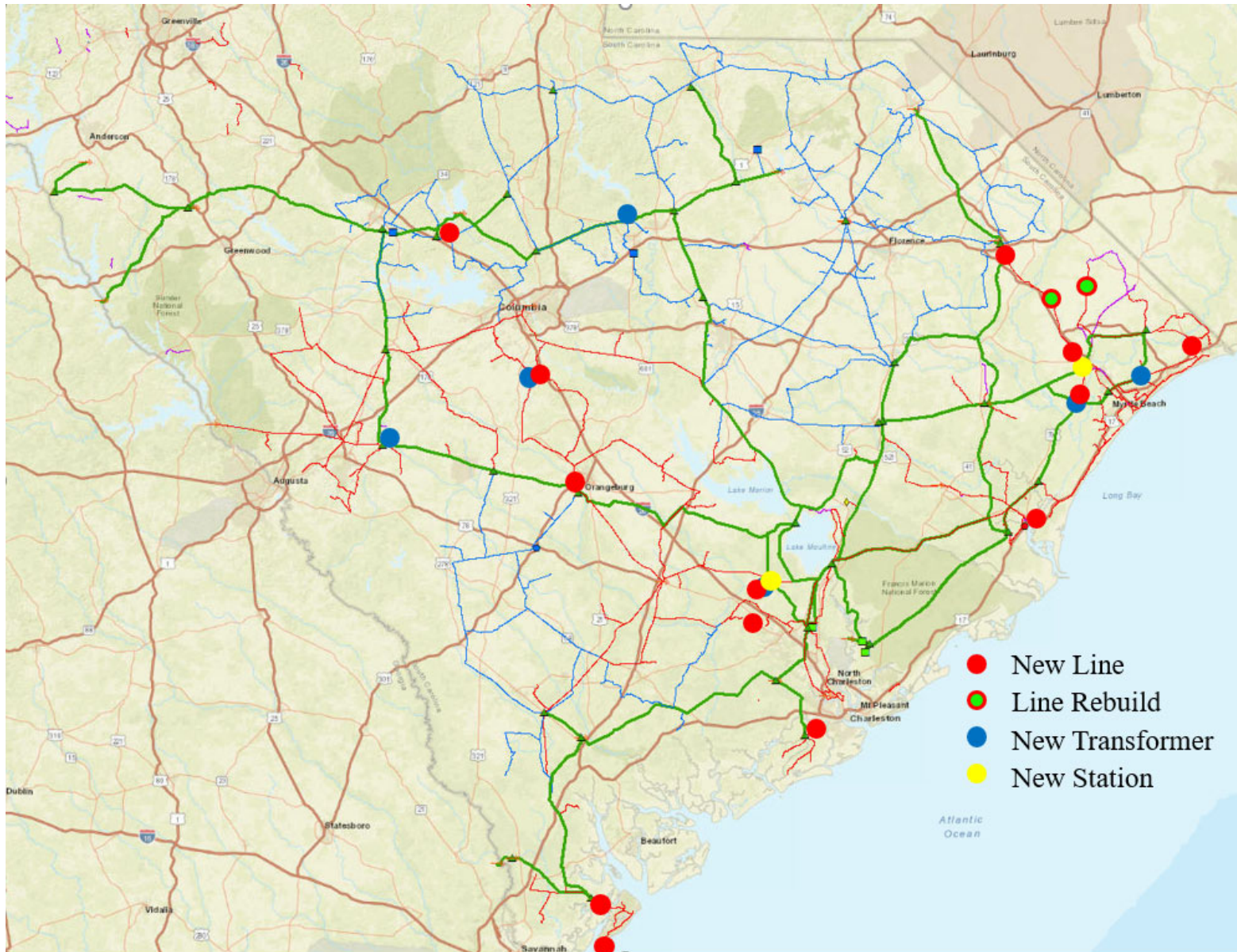
Pine Level-Allen 115 kV Line #2	04/2019
Sandy Run 230-115 kV Substation	12/2019
Pomaria-Sandy Run 230 kV Line	12/2019
Bluffton 230 kV series bus tie breaker	12/2019
Bluffton-Market Place #2 115 kV Line Phase I	6/2020
Sandy Run-Orangeburg 230 kV Line	12/2020
Rebuild N. Charleston-Goose Creek 115 kV Line Section	12/2021
Wassamassaw 230-115 kV Substation	12/2021
Wassamassaw-Pringletown 115 kV Line #1	12/2021
John's Island (SC)-Queensboro (SCEG) 115 kV Line	12/2021
Red Bluff -Nixons Crossroads #1 115 kV Line	6/2023
Georgetown - Arcadia 115 kV Line	6/2025



Active and Planned Projects

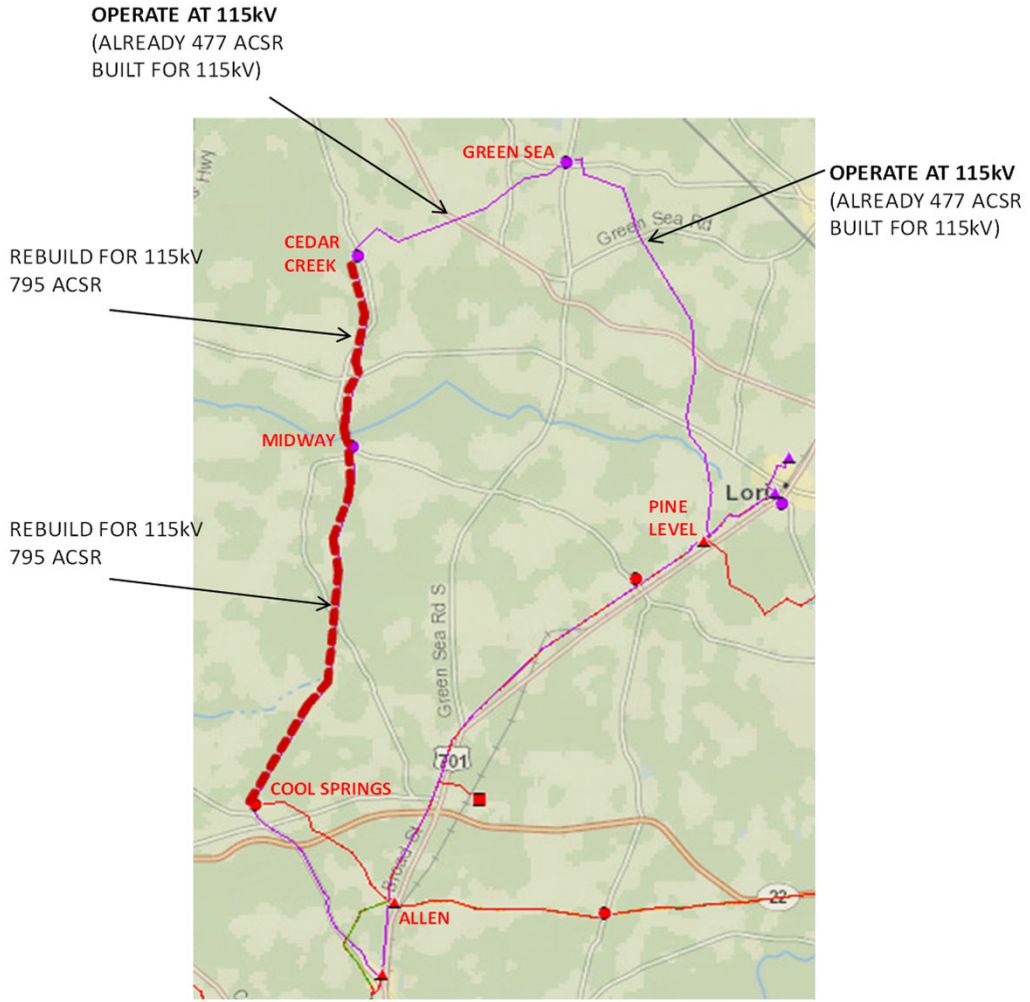
South Carolina Regional Transmission Planning

SCRTP



Allen – Pine Level #2 115 kV

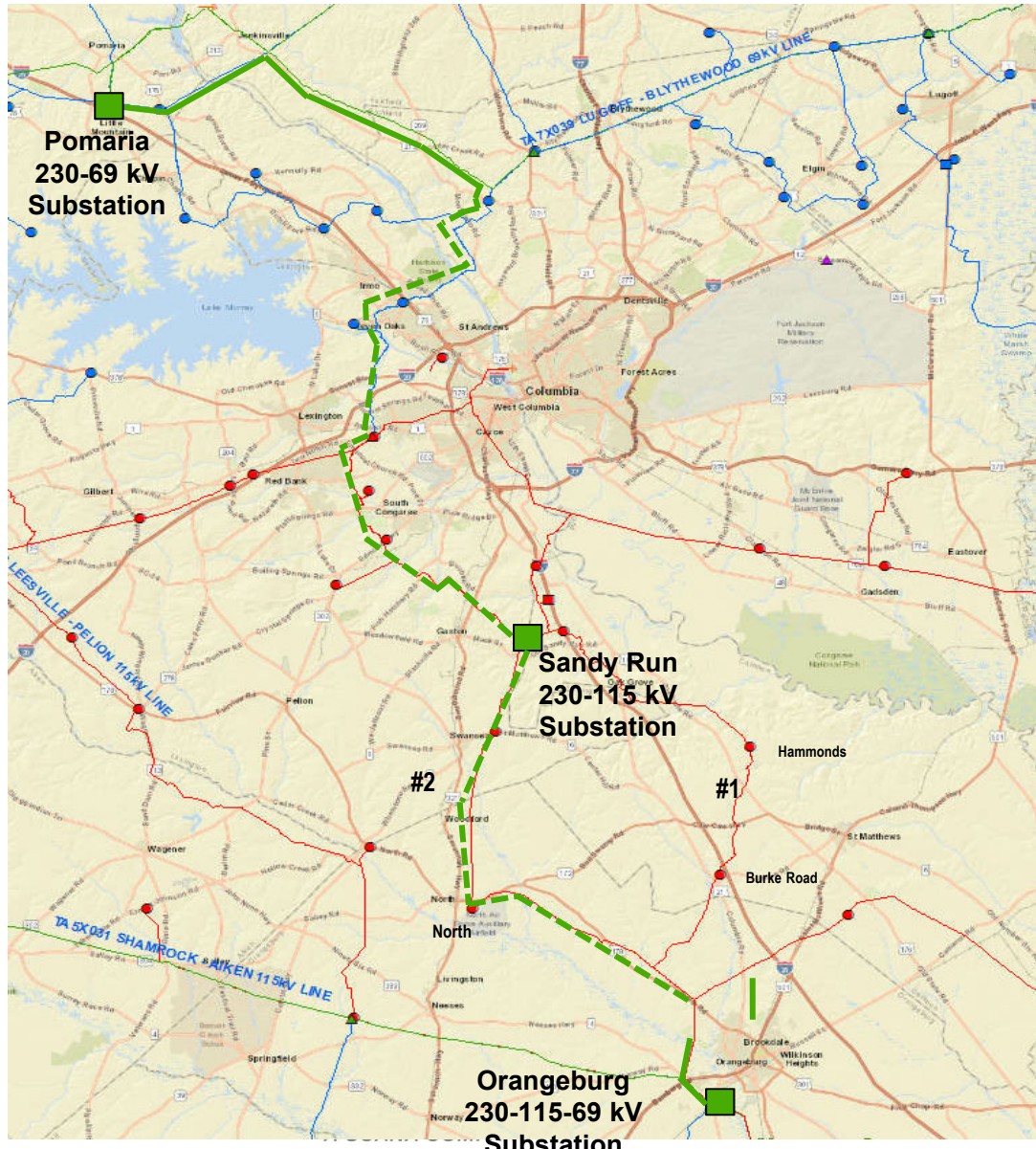
South Carolina Regional Transmission Planning
SCRTD
4/2019



- 115 kV line sections construction complete in 2018
- Green Sea conversion to be complete in early 2019
- 115 kV line is planned to be operated as a network line

Pomaria – Orangeburg 230 kV Line

12/2020



Pomaria - Sandy Run Line
12/2019

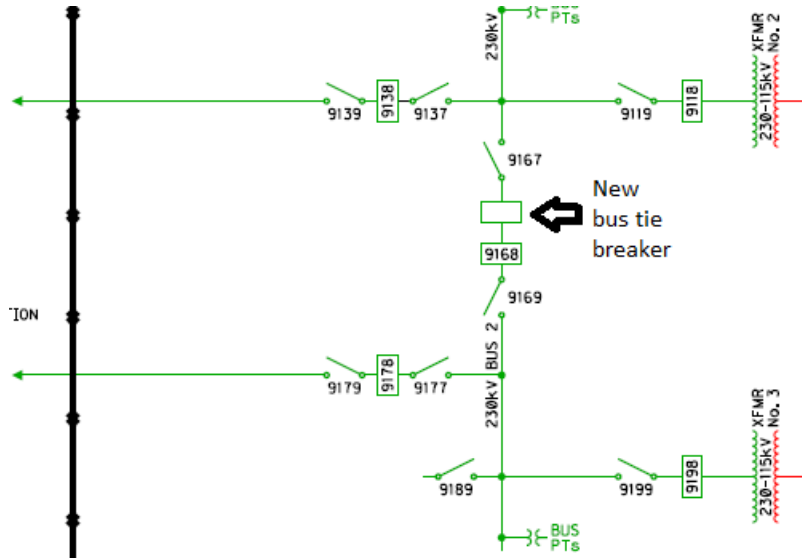
Sandy Run Substation
12/2019

Sandy Run - Orangeburg Line
12/2020

- Transmission reliability
- Columbia area contingency concerns
- Support in Sandy Run and Columbia area

Bluffton 230 kV series bus tie breaker

12/2019



- Contingency concerns in Bluffton/Hilton Head Island area
- Increase reliability to customers in the area
- Improve reliability to transmission system in the area

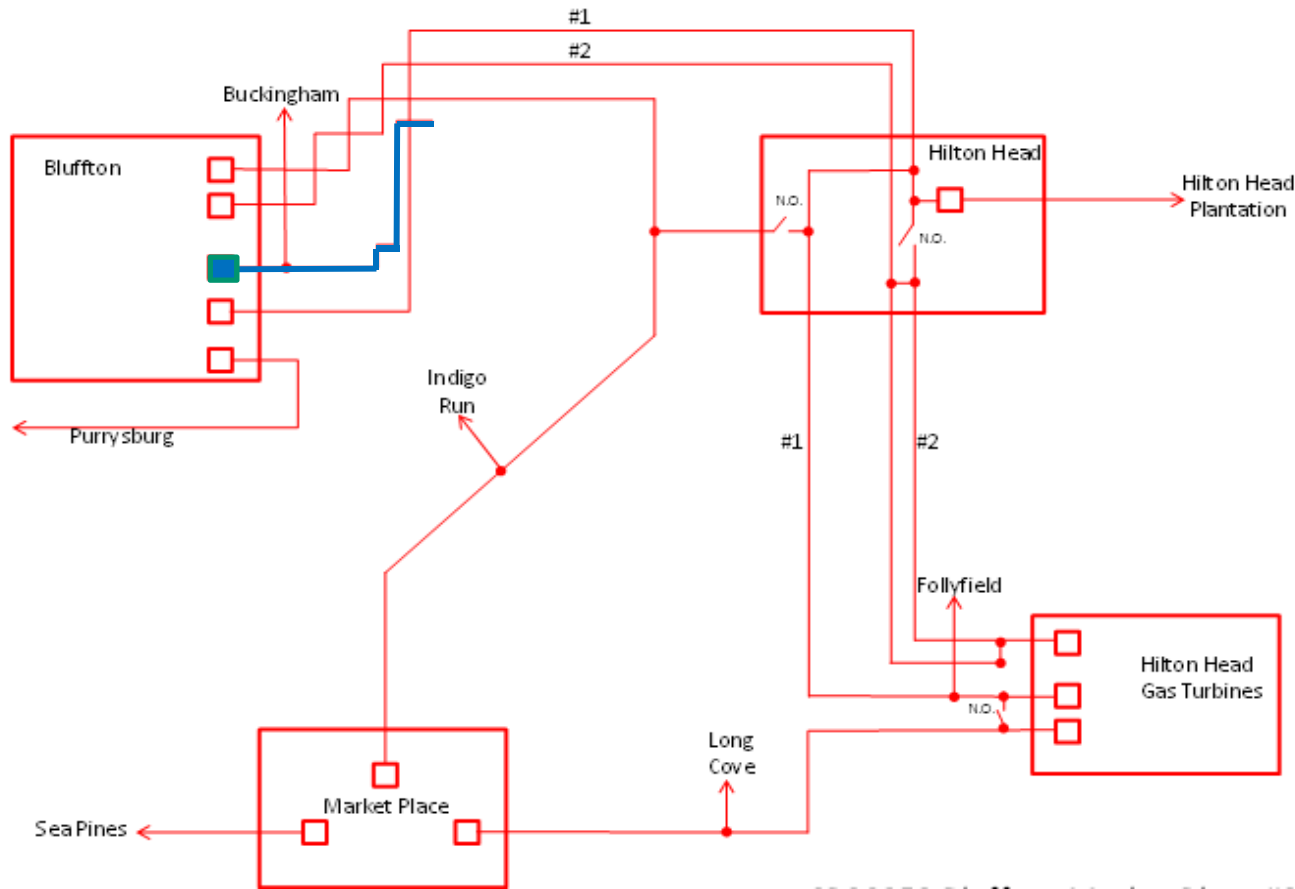
Bluffton-Market Place 115 kV Line #2



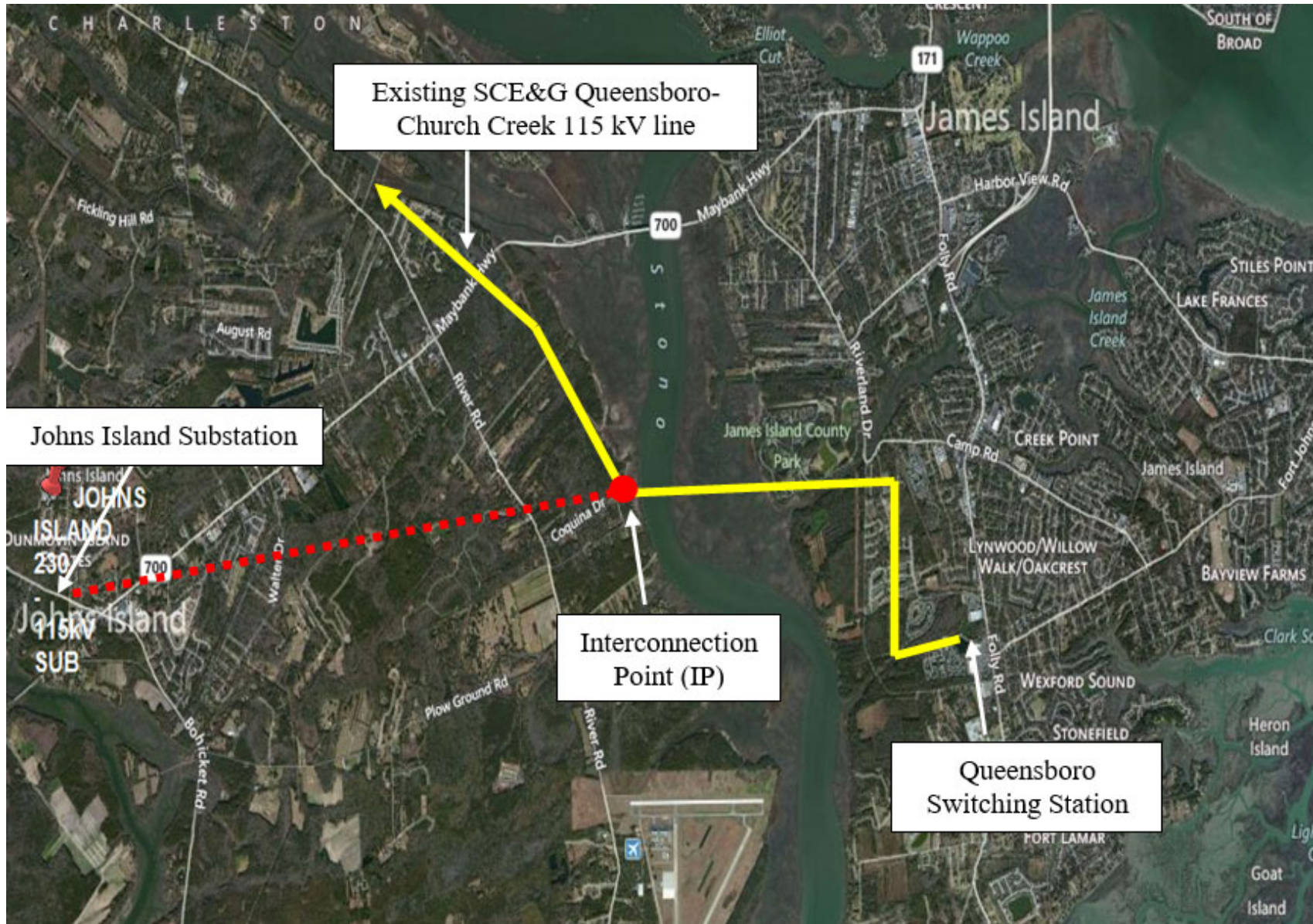
Phase I
2019

Phase II
2027

Bluffton-Market Place #2 115 kV phase I Bluffton-Buckingham section 6/2020

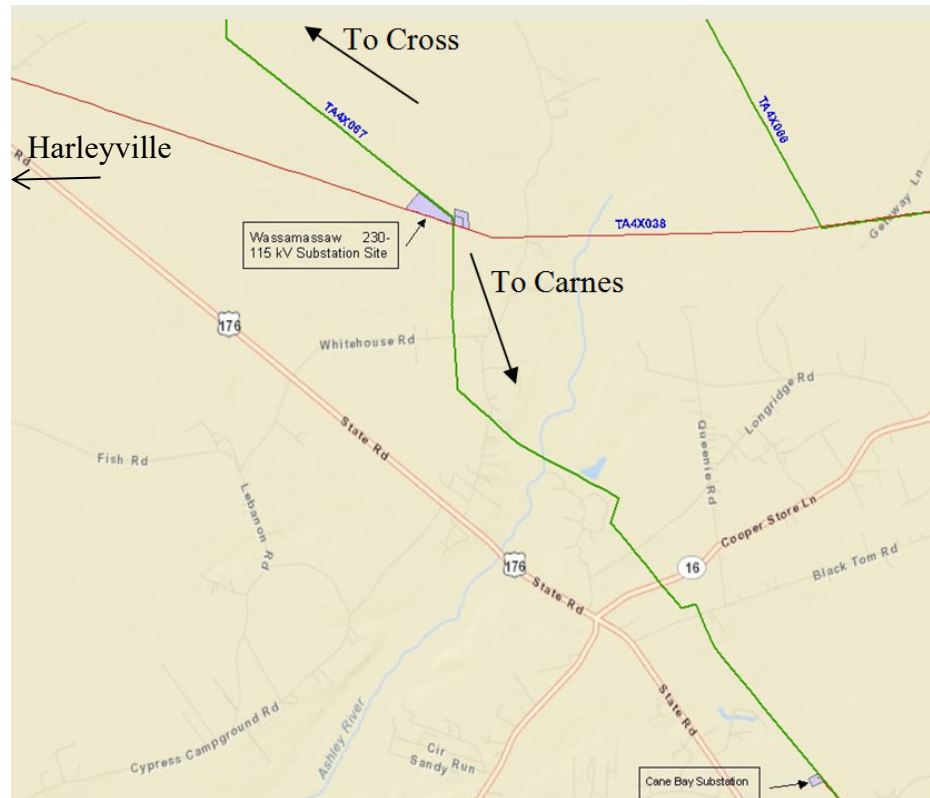


SCPSA-SCE&G Johns Island-Queensboro 115 kV 12/2021



Wassamassaw 230-115 kV Substation & Wassamassaw-Pringleton 115 kV line

6/1/2021

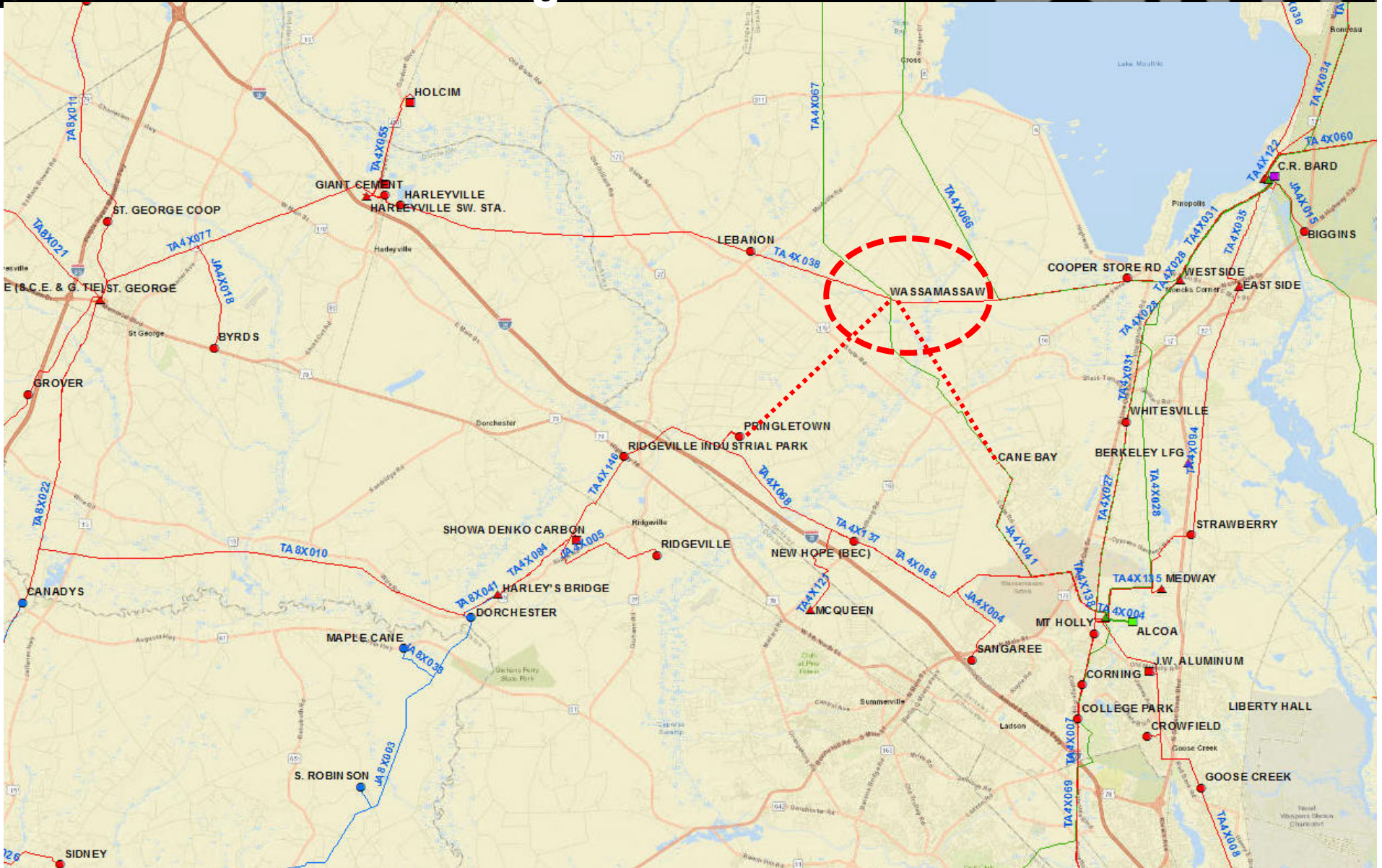


Wassamassaw 230-115 kV substation – significant load growth in the area



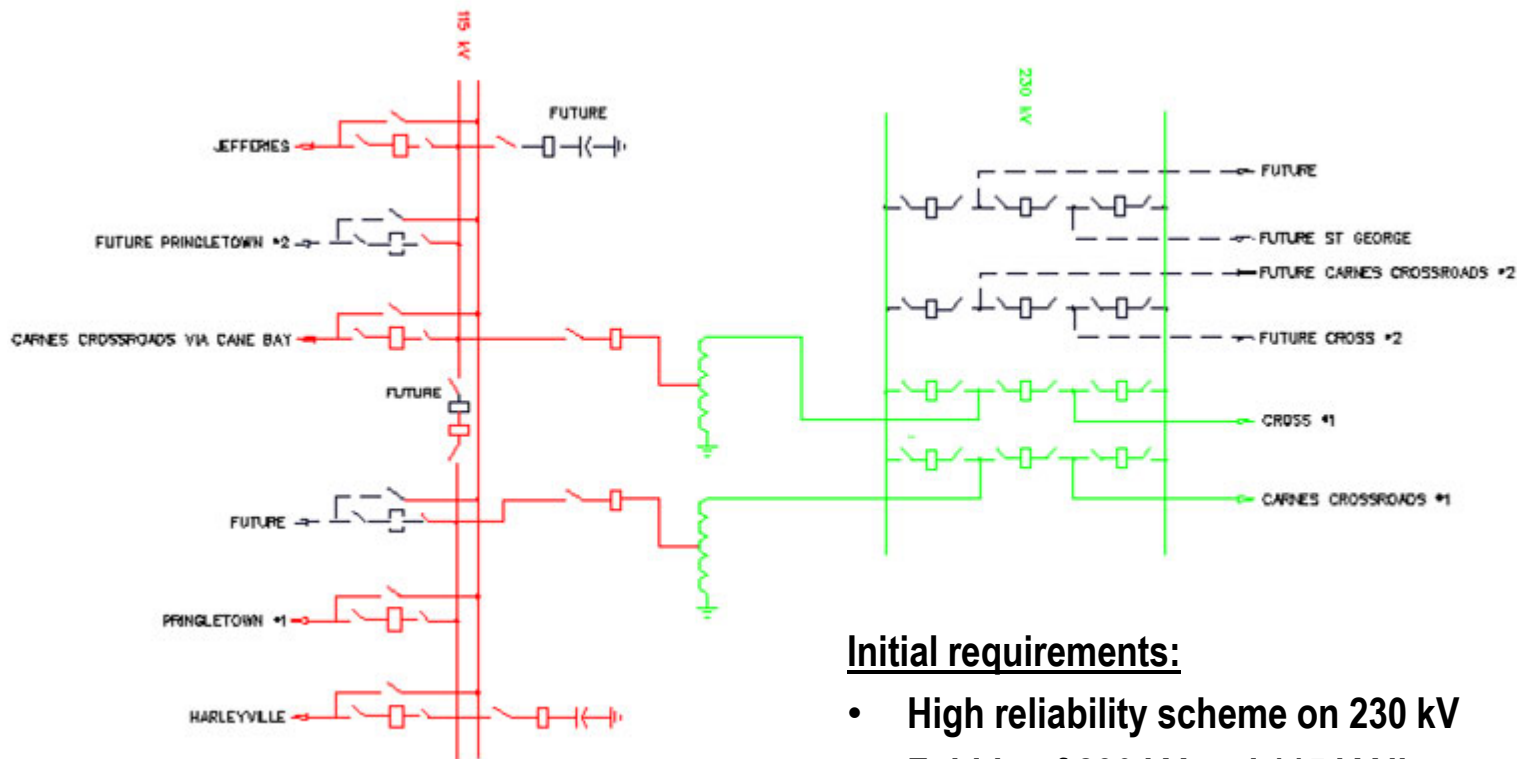
Wassamassaw 230-115 kV Substation & Wassamassaw-Pringleton 115 kV line

6/1/2021



Wassamassaw 230-115 kV Substation & Wassamassaw-Pringletown 115 kV line

6/1/2021

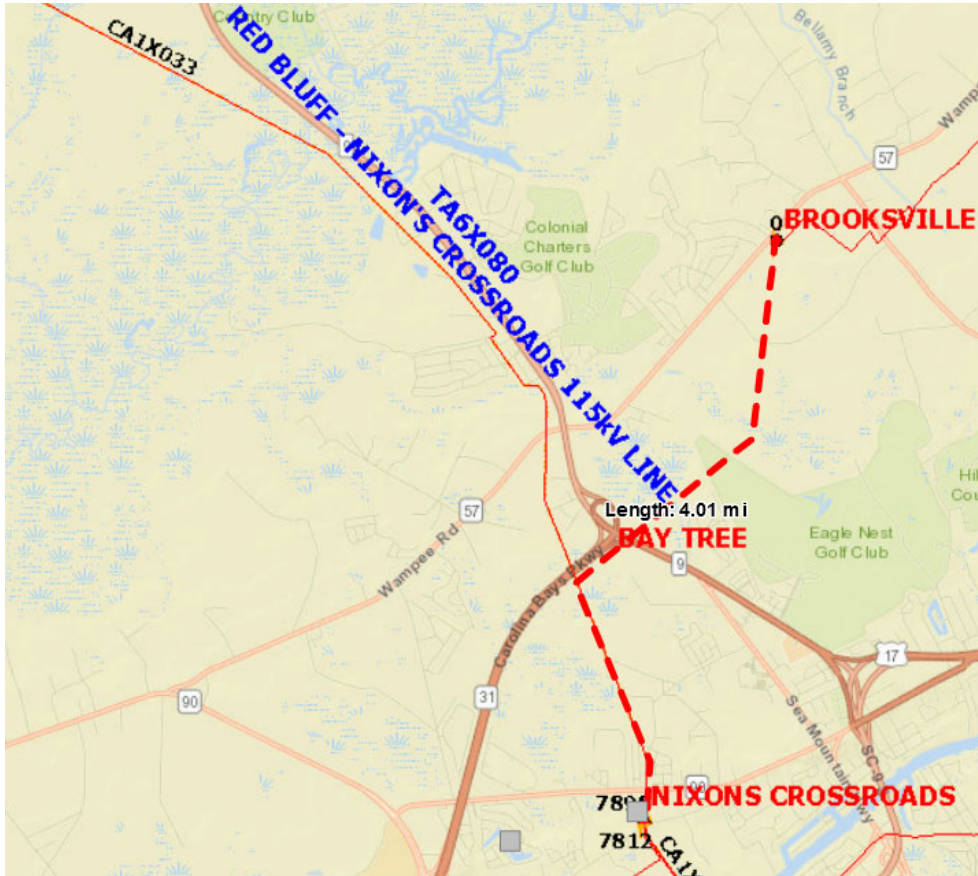


Initial requirements:

- High reliability scheme on 230 kV
- Fold-in of 230 kV and 115 kV lines
- Two 250 MVA transformers
- Pringletown - Wassamassaw #1 line
- Carnes - Wassamassaw 115 kV (via Cane Bay)

Red Bluff-Nixons Crossroads #1 115 kV Line

6/2023

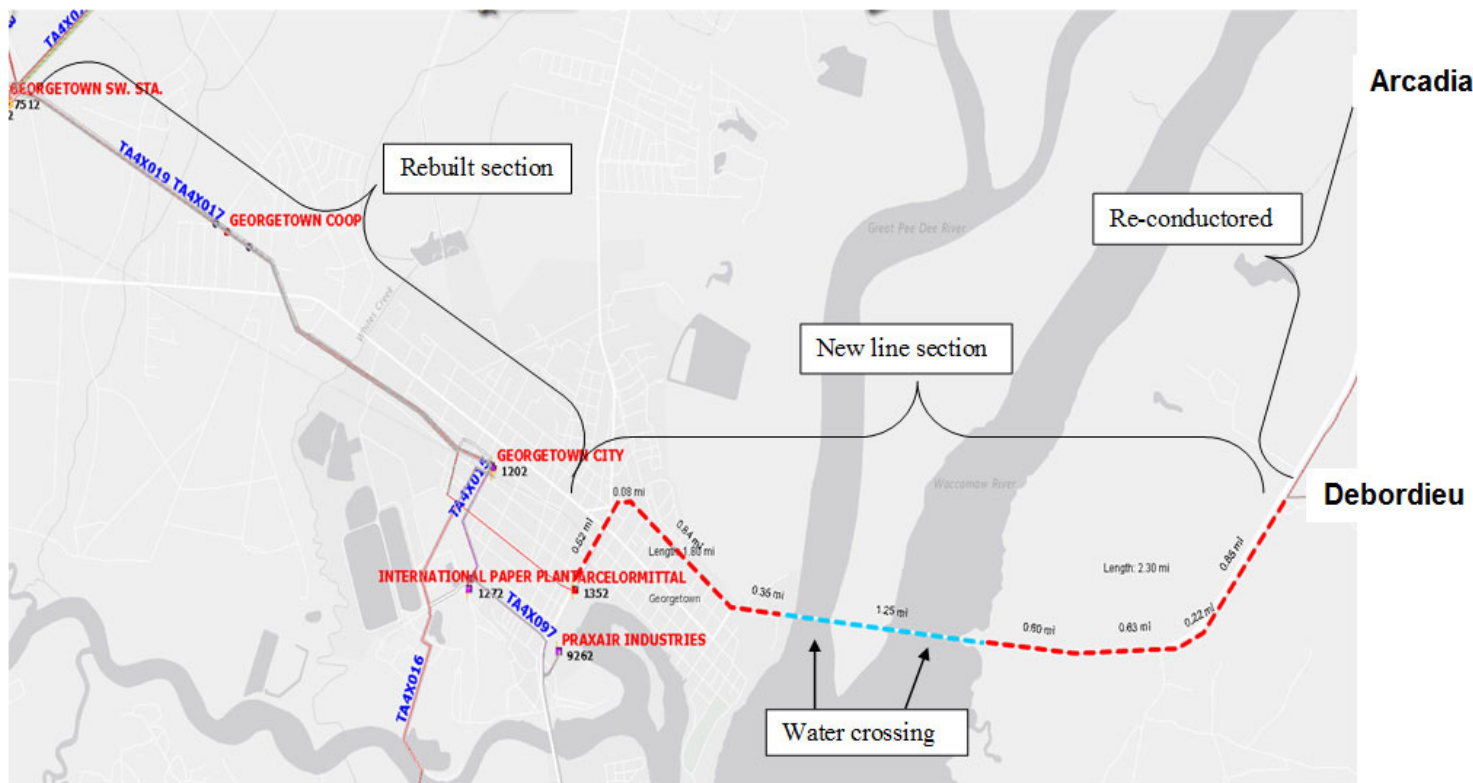


- Improves transmission network reliability for the area
- Allows Brooksville and Little River fed from alternate source
- Increases network flexibility
- Construction:
 - Rebuild existing Nixons-RB 115 kV line as double circuits
 - Install new line terminal at Nixons Crossroads
 - Coordination of Bay Tree work

Georgetown-Arcadia 115 kV Line 6/2025

South Carolina Regional Transmission Planning

SCRTP



- Contingency concerns in Georgetown/Campfield area
- Provide alternate 115 kV source for support
- Mitigates Arcadia-Campfield 115 kV cable failure (long lead-time for repair)



- Marion-Conway 230 kV Line 06/2026
- Conway 230 kV Switching Station 06/2026
- Bluffton-Market Place #2 115 kV Line 06/2027
- Bucksville-Conway 230 kV Line 07/2027



Conway 230 kV Switching Station

6/1/2026

Marion-Conway 230 kV line

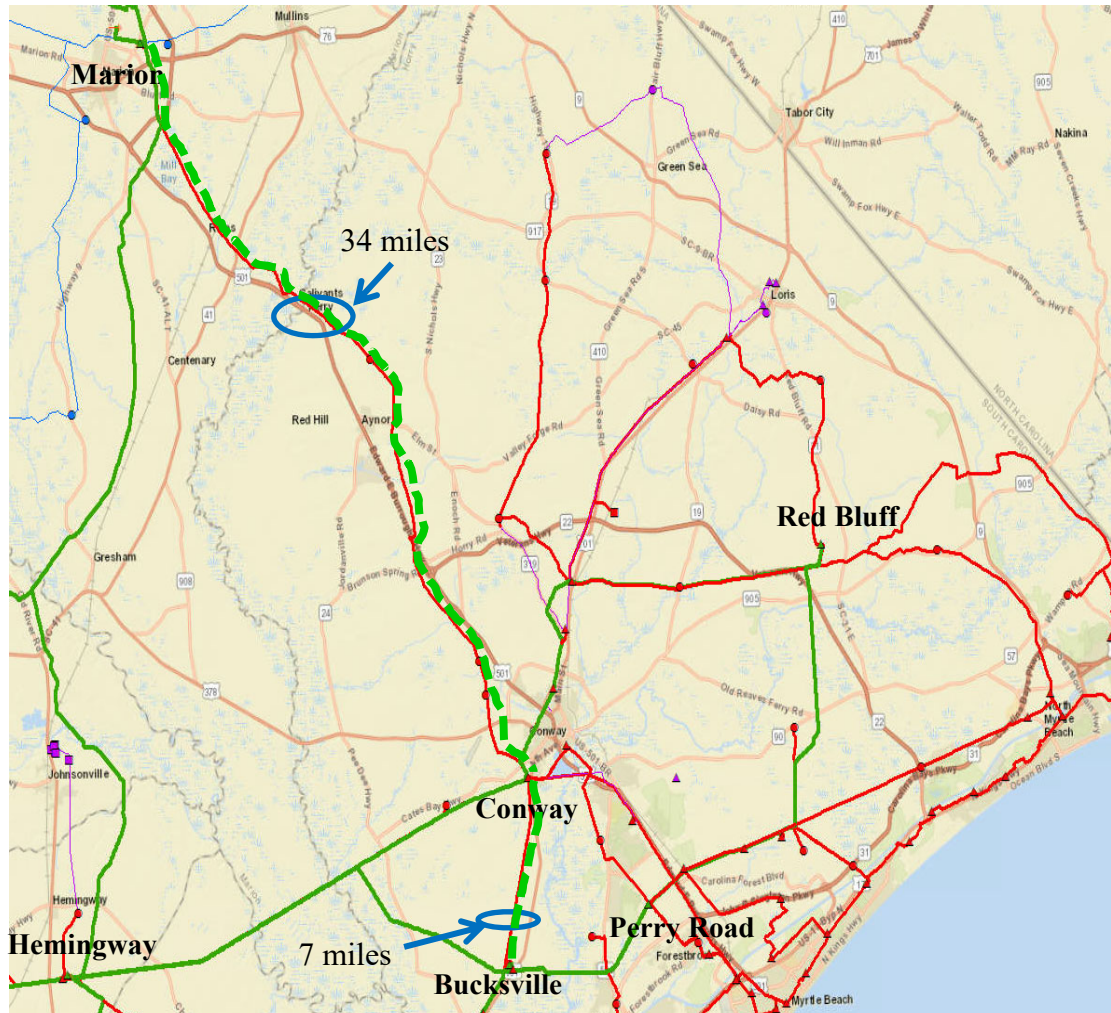
6/1/2026

Bucksville-Conway 230 kV line

7/1/2027

South Carolina Regional Transmission Planning

SC RTP



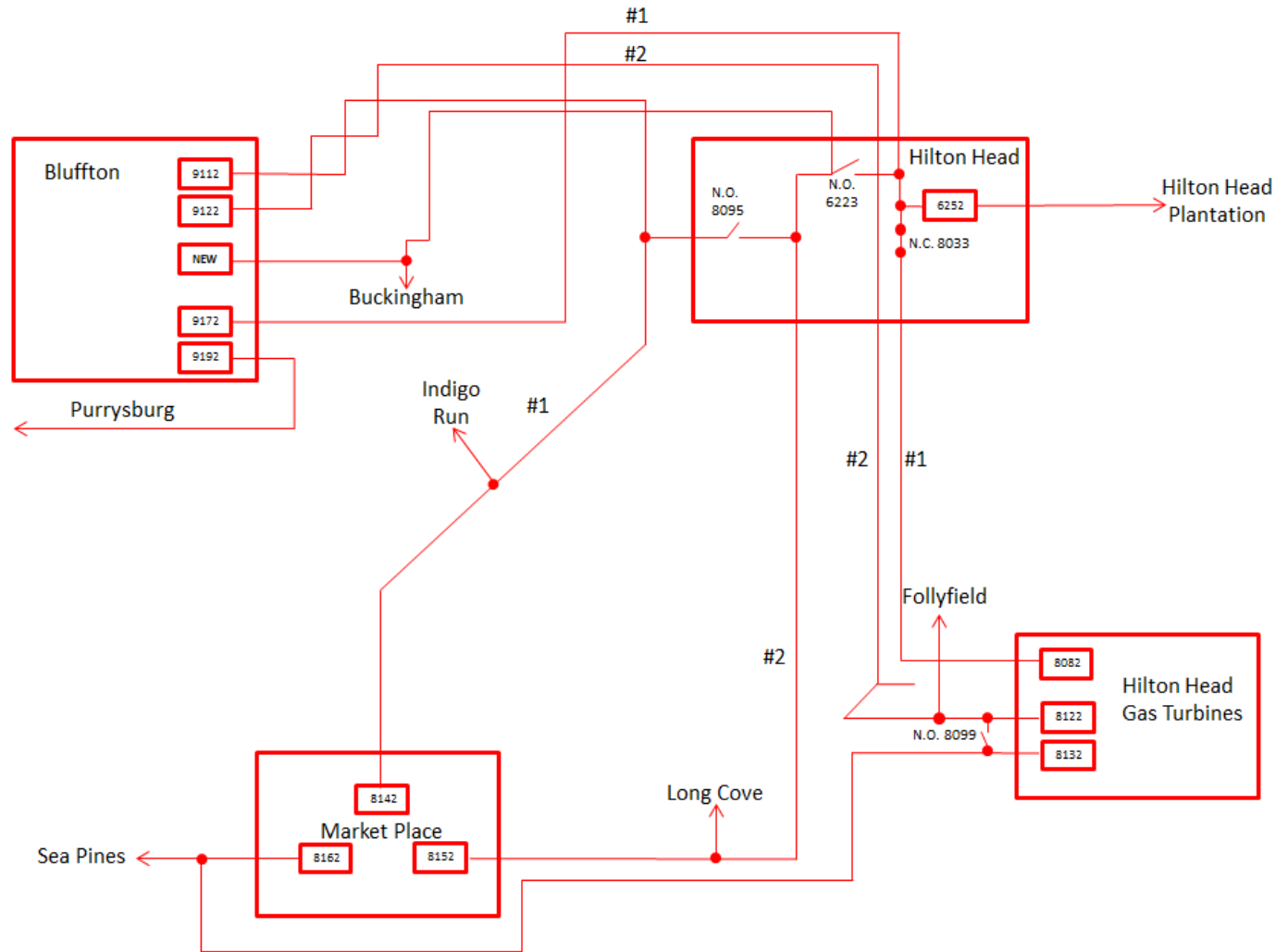
SCE&G
SM
A SCANA COMPANY

- Marion-Conway 230 line provides additional and alternate support for Northern Grand Strand
- Bucksville-Conway 230 line provides alternate source to Bucksville-Hemingway

 santee cooper

Bluffton-Market Place 115 kV Line #2: Phase II

6/1/2027





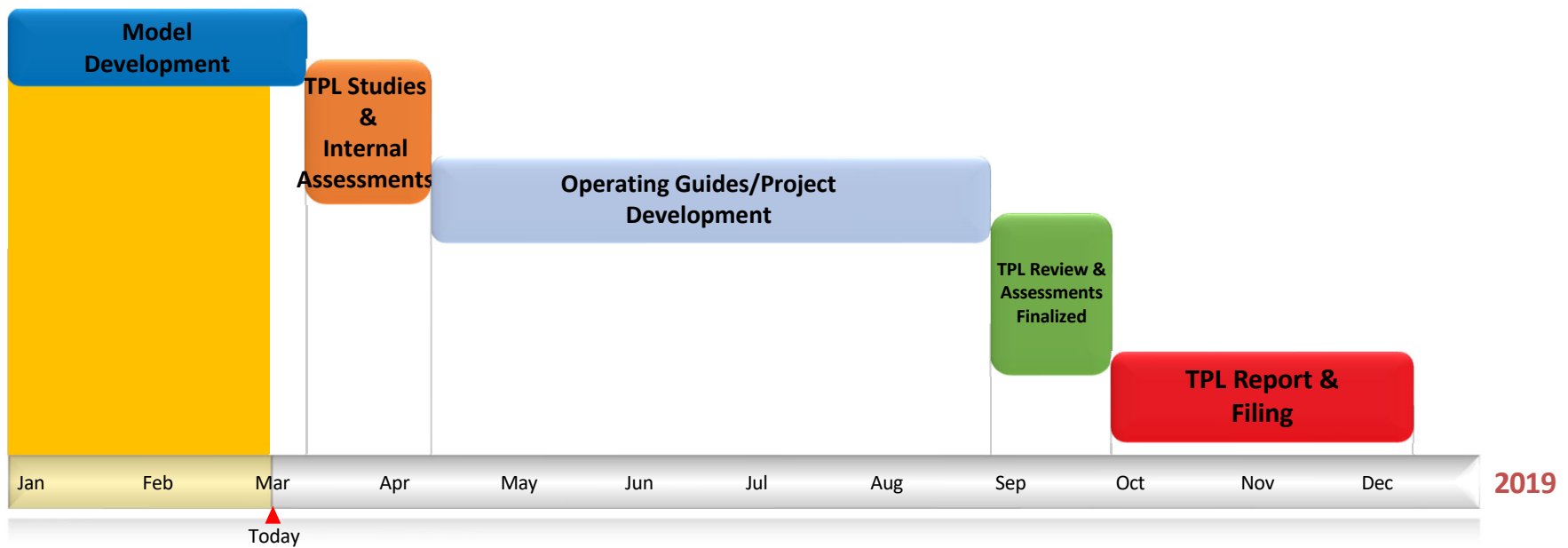
Santee Cooper Transmission Expansion Plans

Questions?





Reliability Transmission Planning Studies Timeline





Reliability Assessment and Multi-Party Studies

Jake Biddix





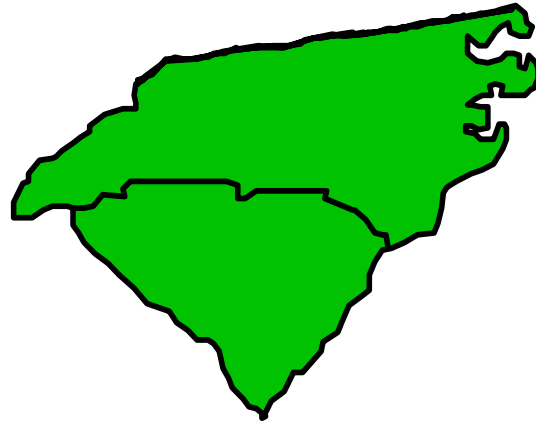
Multi-Party Assessments

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





CTCA Future Year Assessments





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**





CTCA Power Flow Study Group

- **Duke Energy Carolinas (“Duke”)**
- **Duke Energy Progress (“Progress”)**
- **South Carolina Electric & Gas (“SCEG”)**
- **South Carolina Public Service Authority (“SCPSA”)**





CTCA Studies

- Assess the existing transmission expansion plans of Duke, Progress, SCEG, 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").



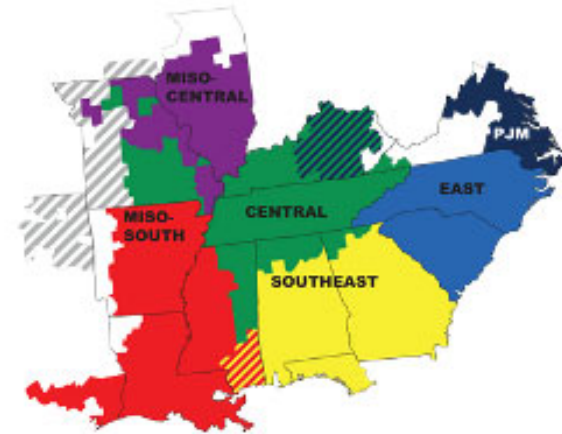
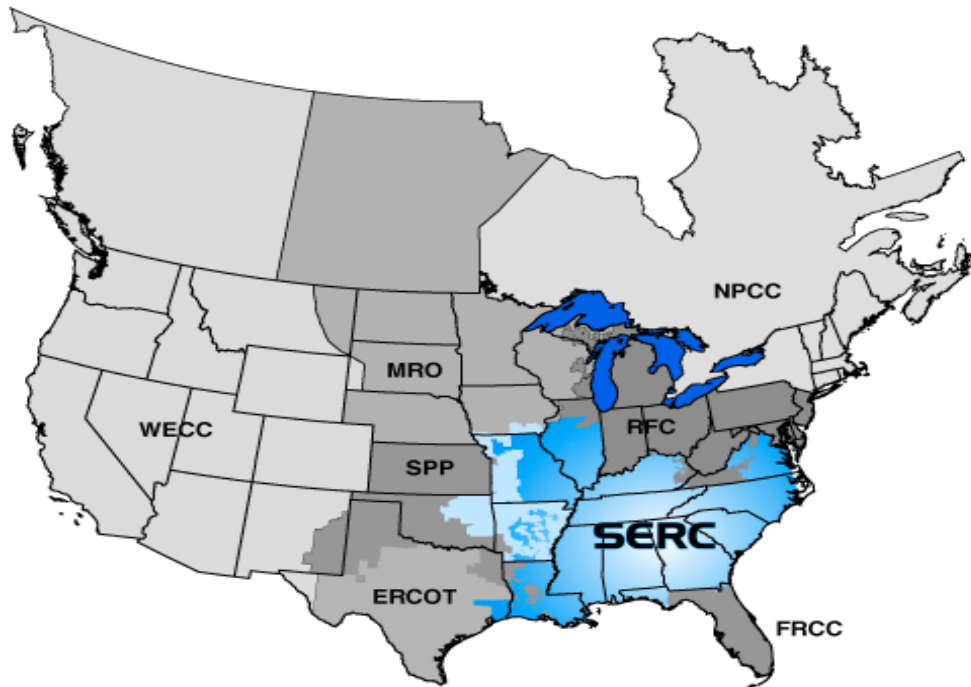
CTCA Studies

2019 PFSG Study

- 2019 TPL 001 Transmission Assessment Coordination
 - PFSG coordinates power flow cases, study files in 1st quarter 2019



SERC Future Year Assessments Long Term Working Group (LTWG)





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.



SERC Long Term Working Group 2019 Work Schedule

- LTWG Data Bank Update – June 5-6 Hosted by SCE&G
- Future Assessment Study Case: 2024 Summer Peak Load
- Study to be completed by LTWG June thru October
- Final Report in December



Eastern Interconnection Planning Collaborative (EIPC) Assessments





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.

PLANNING AUTHORITIES	
<ul style="list-style-type: none">• ASSOCIATED ELECTRIC COOPERATIVE• CUBE HYDRO CAROLINAS• DUKE ENERGY - CAROLINAS• DUKE ENERGY - FLORIDA• DUKE ENERGY - PROGRESS• LGE/KU (LOUISVILLE/KENTUCKY UTILITIES)• FLORIDA POWER & LIGHT• GEORGIA TRANSMISSION CORPORATION• ISO - NEW ENGLAND• JEA (JACKSONVILLE, FL)	<ul style="list-style-type: none">• MIDCONTINENT ISO• MUNICIPAL ELECTRIC AUTHORITY OF GEORGIA• NEW YORK ISO• PJM INTERCONNECTION• POWERSOUTH ENERGY COOPERATIVE• SOUTH CAROLINA ELECTRIC & GAS• SANTEE COOPER• SOUTHERN COMPANY• SOUTHWEST POWER POOL• TENNESSEE VALLEY AUTHORITY





EIPC Transmission Analysis Working Group (TAWG) 2019 Study Efforts

- Previously Steady-State Load Flow Working Group (SSLFWG)
- Steady-State network models assembly and verification
- Perform Transfer analysis and Steady-State analysis
- Compile Analyses into Report





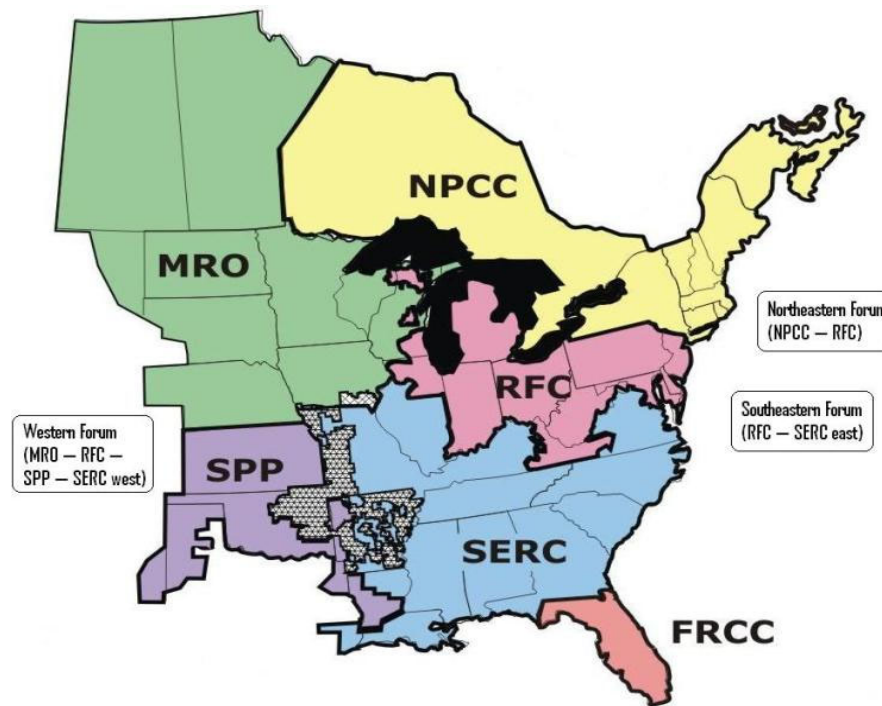
EIPC TAWG 2019 Work Schedule

- Case Development: February-March 2019
 - 2028 summer and 2028/29 winter peak
- AC analysis for model verification completed by April
- Linear Transfer and Steady State Analysis in April-May
- Compile Analyses into Report by June





Eastern Reliability Assessment Group (ERAG)





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.



ERAG MMWG 2019 activity

- There is no activities at this time
- Model update are expected to start in August–September



Reliability Assessment and Multi-Party Studies

Questions?



Next SCRTP Meeting

- Review initial study results of Reliability Transmission Planning Studies
- Stakeholders may identify local/regional transmission needs driven by Public Policy Requirements. These potential needs must be submitted for SCE&G's evaluation by July 15 of the second year of the planning cycle. See Section VI of Attachment K for additional information.
- Review and discuss Multi-Party Assessment Studies
- SCRTP Email Distribution List will be notified
- Register online





SCE&G is becoming



**Dominion
Energy[®]**





South Carolina Regional Transmission Planning

Stakeholder Meeting

Webex

March 5, 2019

