Southeastern Regional TRANSMISSION PLANNING

SERTP – 4th Quarter Meeting

Annual Transmission Planning Summit & Assumptions Input Meeting

December 12th, 2019

MEAG Power Headquarters

Atlanta, GA

Original Posted: 12/2/2019

Updated Posted: 12/17/2019

Process Information

- The SERTP process is a transmission planning process.
- Please contact the respective transmission provider for questions related to real-time operations or Open Access Transmission Tariff (OATT) transmission service.
- SERTP Website Address:
  - www.southeasternrtp.com

Agenda

- **Economic Planning Studies**
  - Final Results
- **Ten (10) Year Regional Transmission Plan**
  - Planning Horizon 2020-2029
- **2020 Preliminary Modeling Input Assumptions**
  - Planning Horizon 2021-2030
- **SERTP Regional Transmission Analyses**
- **Miscellaneous Updates**
- **Upcoming 2020 SERTP Process**

SERTP

Economic Planning Studies

Economic Planning Studies

Economic Planning Studies Process

- Economic Planning Studies were chosen by the Regional Planning Stakeholder Group “RPSG” in March at the 2019 SERTP 1st Quarter Meeting.

- Key study criteria, methodologies, and input assumptions were finalized in May.

- These studies represent analyses of hypothetical scenarios requested by the stakeholders and **do not** represent an actual transmission need or commitment to build.

Economic Planning Studies

Economic Planning Studies Process

- **SERTP Sponsors identify the transmission requirements needed to move large amounts of power above and beyond existing long-term, firm transmission service commitments**
  - Analysis are consistent with NERC standards and company-specific planning criteria

- **Models used to perform the analysis incorporate the load forecasts and resource decisions as provided by LSEs**
  - Power flow models are made available to stakeholders to perform additional screens or analysis

Economic Planning Studies

Economic Planning Studies

- **Southern BAA to Santee Cooper Border**
  - 500 MW (2020 Summer Peak)
- **Duke Energy Carolinas to Santee Cooper Border**
  - 500 MW (2020 Summer Peak)
- **Southern BAA to Santee Cooper Border**
  - 800 MW (2020 Summer Peak)
- **Duke Energy Carolinas to Santee Cooper Border**
  - 500 MW (2024 Winter Peak)
- **Southern BAA to Santee Cooper Border**
  - 1000 MW (2024 Winter Peak)

Economic Planning Studies

Power Flow Cases Utilized

- **Study Years:**
  - 2020 and 2024

- **Load Flow Cases:**
  - 2019 Series Version 2 SERTP Regional Models
  - Summer Peak and Winter Peak

Economic Planning Studies

Final Report Components

- **The SERTP reported, at a minimum, results on elements of 115 kV and greater:**
  - Thermal loadings greater than 90% for facilities that are negatively (+5% ~ Significant Constraints) impacted by the proposed transfers
  - Voltages appropriate to each participating transmission owner's planning criteria
  - Overloaded facilities that had a low response to the requested transfer were excluded and issues identified that are local in nature were also excluded

- **For each economic planning study request, the results of that study include:**

1. Limit(s) to the transfer
2. Potential transmission enhancement(s) to address the limit(s)
3. Planning-level cost estimates and in-service dates for the selected transmission enhancement(s)

Economic Planning Studies

Process Information

- The following information depicts potential enhancements for the proposed transfer levels above and beyond existing, firm commitments. Therefore, this 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 (2020 or 2024).

- These potential solutions only address constraints identified within the SERTP Sponsors' areas that are associated with the proposed transfers. Other Balancing Areas were not monitored which could result in additional limitations and required system enhancements.

Economic Planning Studies

Economic Planning Studies

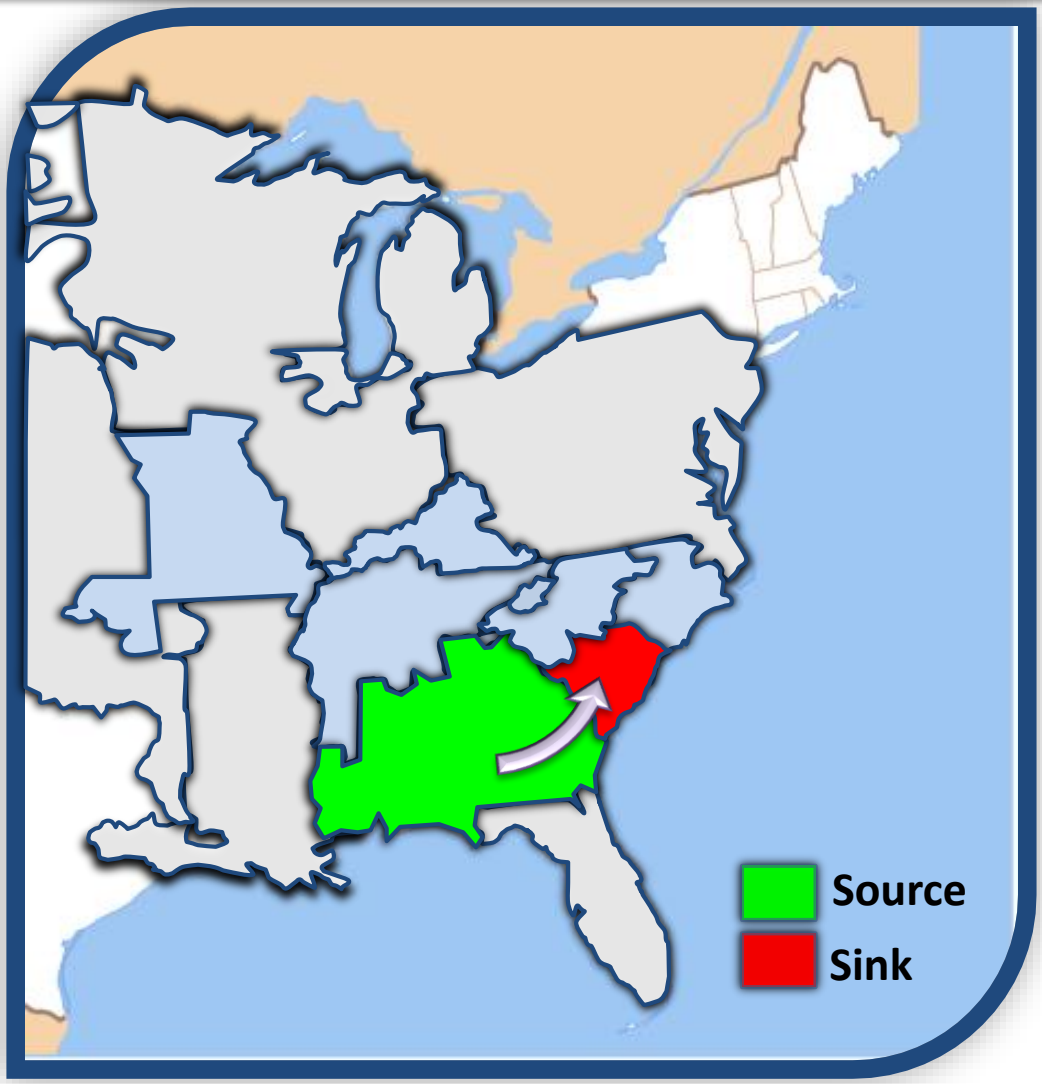
Southern BAA to Santee Cooper Border
500 MW

Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

Study Assumptions

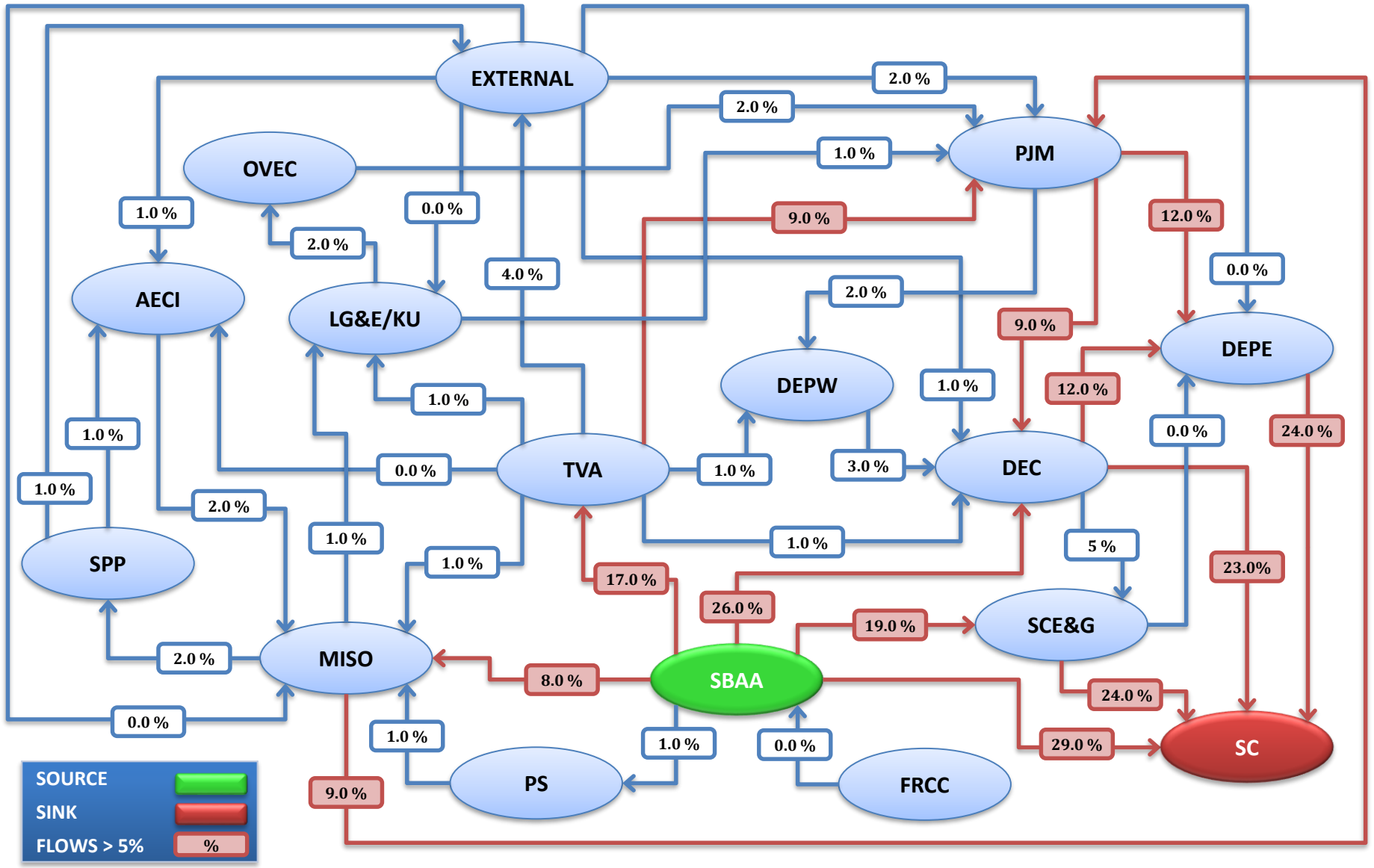
- **Source:** Generation within Southern BAA
- **Sink:** Uniform generation scale within Santee Cooper
- **Transfer Type:** Generation to Generation
- **Year:** 2020
- **Load Level:** Summer Peak



Southeastern Regional
TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

Transfer Flow Diagram (% of Total Transfer)



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

Transmission System Impacts

- **Transmission System Impacts Identified:**
  - Significant constraints were identified in the following SERTP Balancing Authority Areas:
    - DEC

- **Potential Transmission Enhancements Identified:**
  - (DEC) Two (2) 100 kV Transmission Line Upgrades

SERTP TOTAL ($2019) = $11,000,000

Southern BAA to Santee Cooper – 500 MW

Significant Constraints Identified – *DEC*

Table 1: Significant Constraints - DEC

Potential Enhancement	Limiting Element	Rating (MVA)	Thermal Loadings (%)	
			Without Request	With Request
P1	Bush River Tie – Saluda Hydro 100 kV T.L.	79	101.5	107.4
P2	Laurens Tie – Bush River Tie 100 kV T.L.	65	93.9	100.1

Southern BAA to Santee Cooper – 500 MW

Potential Enhancements Identified – *DEC*

Table 2: Potential Enhancements - DEC

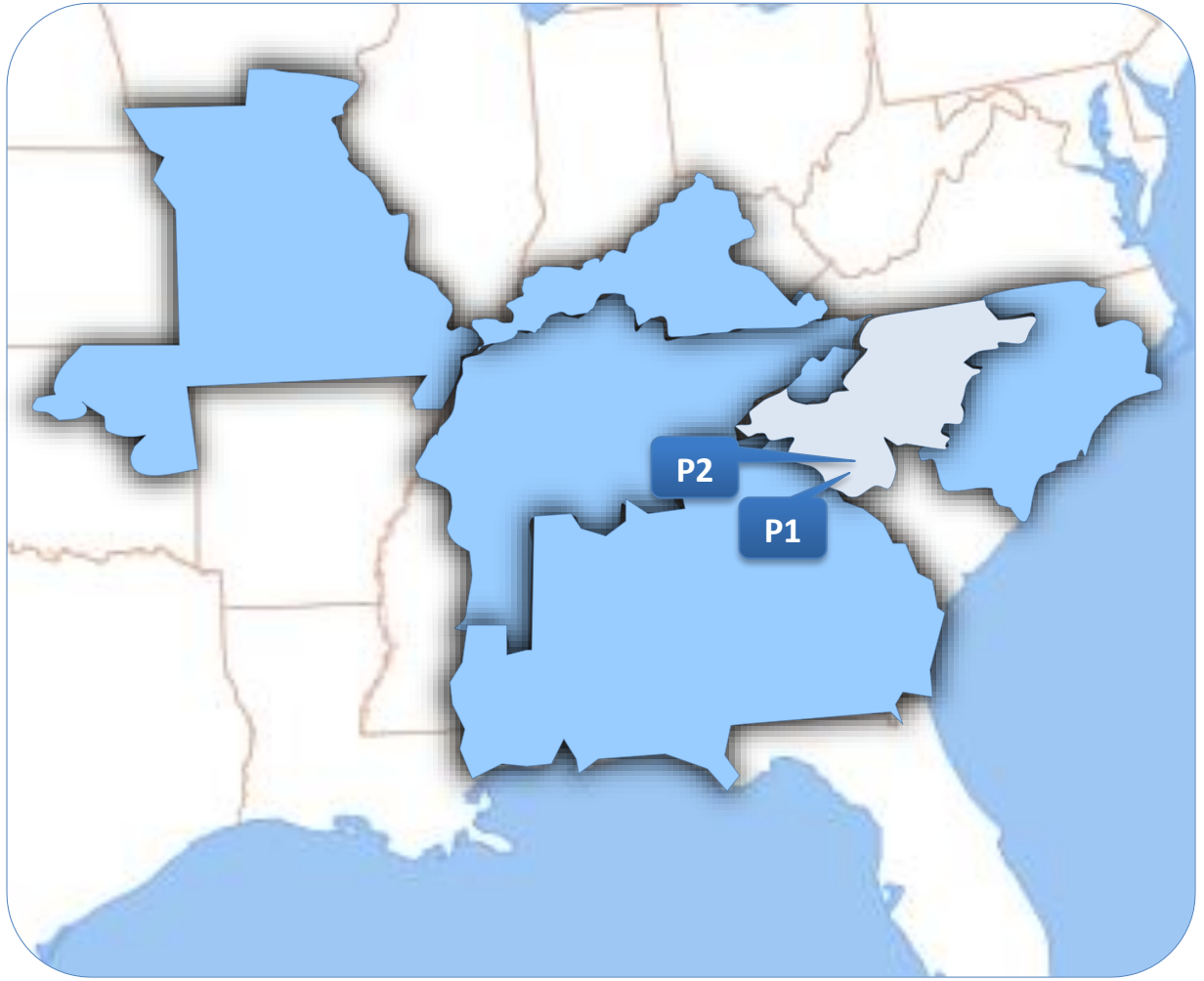
Item	Potential Enhancement	Planning Level Cost Estimate
P1	**Bush River Tie – Saluda Hydro 100kV double circuit** T.L. • Rebuild the 2.7 miles of Bush River Tie – Saluda Hydro 100 kV double circuit transmission line with 954 ACSR conductors rated to 120˚C	**$4,900,000**
P2	**Laurens Tie – Bush River Tie 100kV double circuit T.L.** • Rebuild approximately 2.8 miles of Laurens Tie – Bush River Tie 100 kV double circuit transmission line with 954 ACSR conductors rated to 120˚C.	**$5,100,000**
DEC TOTAL ($2019)		**$ 11,000,000**(1)

(1) Total planning level cost estimate does not include the cost of projects that are included in SERTP Sponsors' expansion plans and are scheduled to be completed by June 1st of the study year. The studied transfer depends on these projects being in-service, and the cost to support the study transfer could be greater than the total shown above if any of these projects are delayed or cancelled.

Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

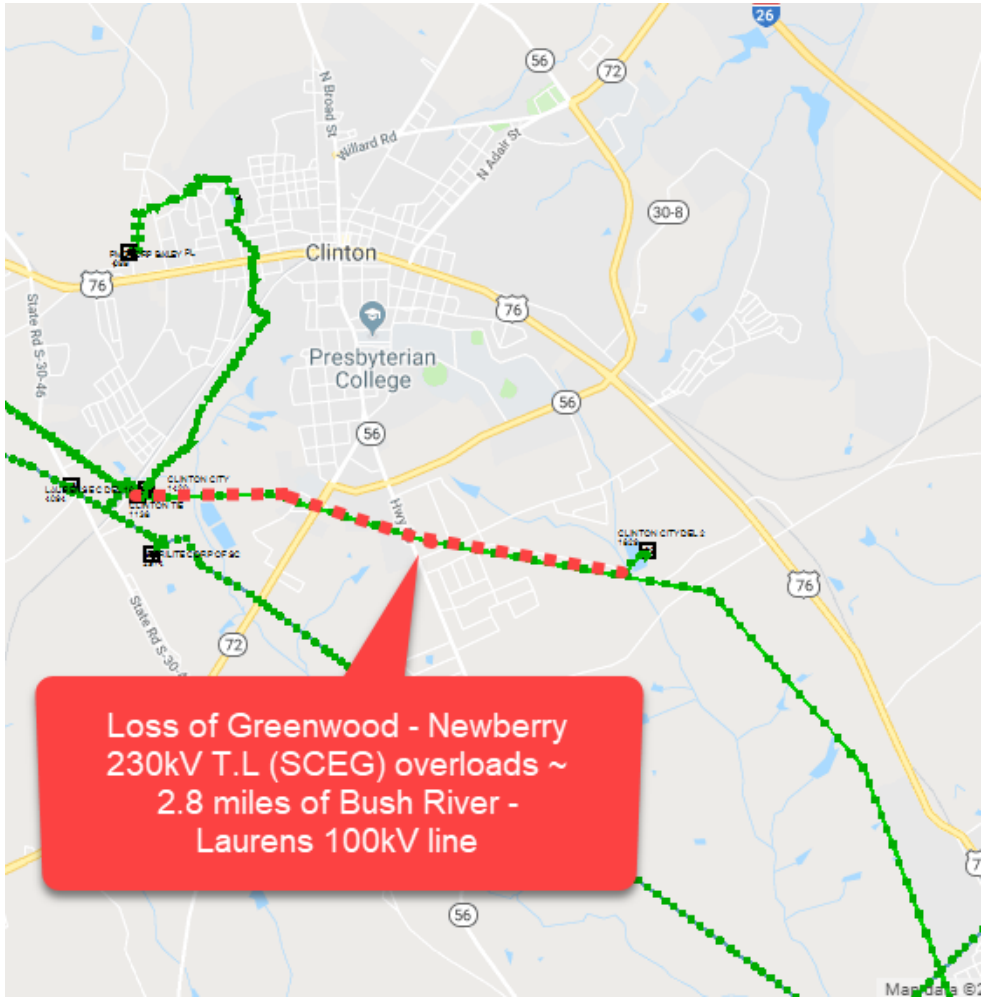
Potential Enhancement Locations – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

Significant Constraint (P1) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

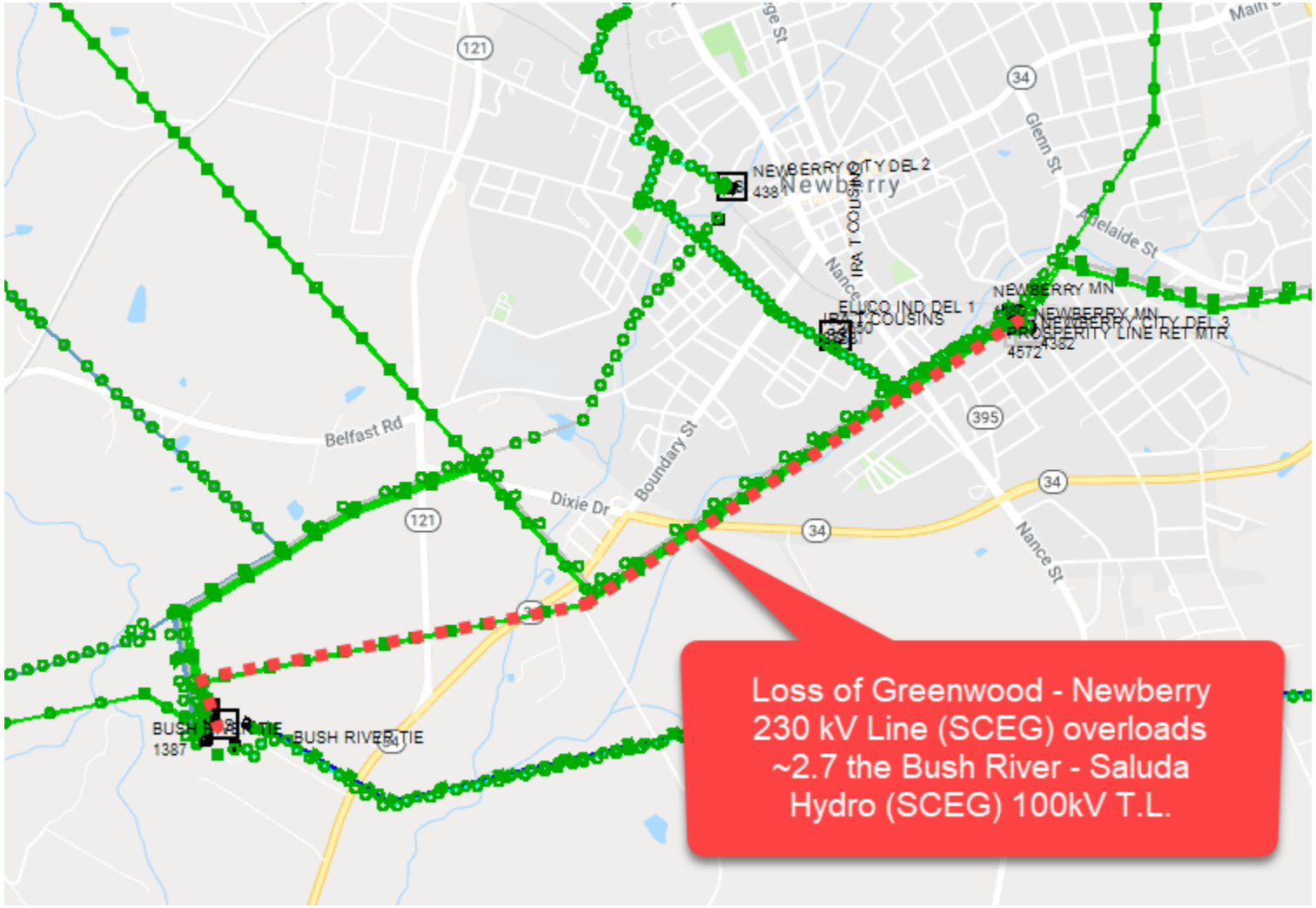
Southern BAA to Santee Cooper – 500 MW

Potential Enhancement (P1) – *DEC*

Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

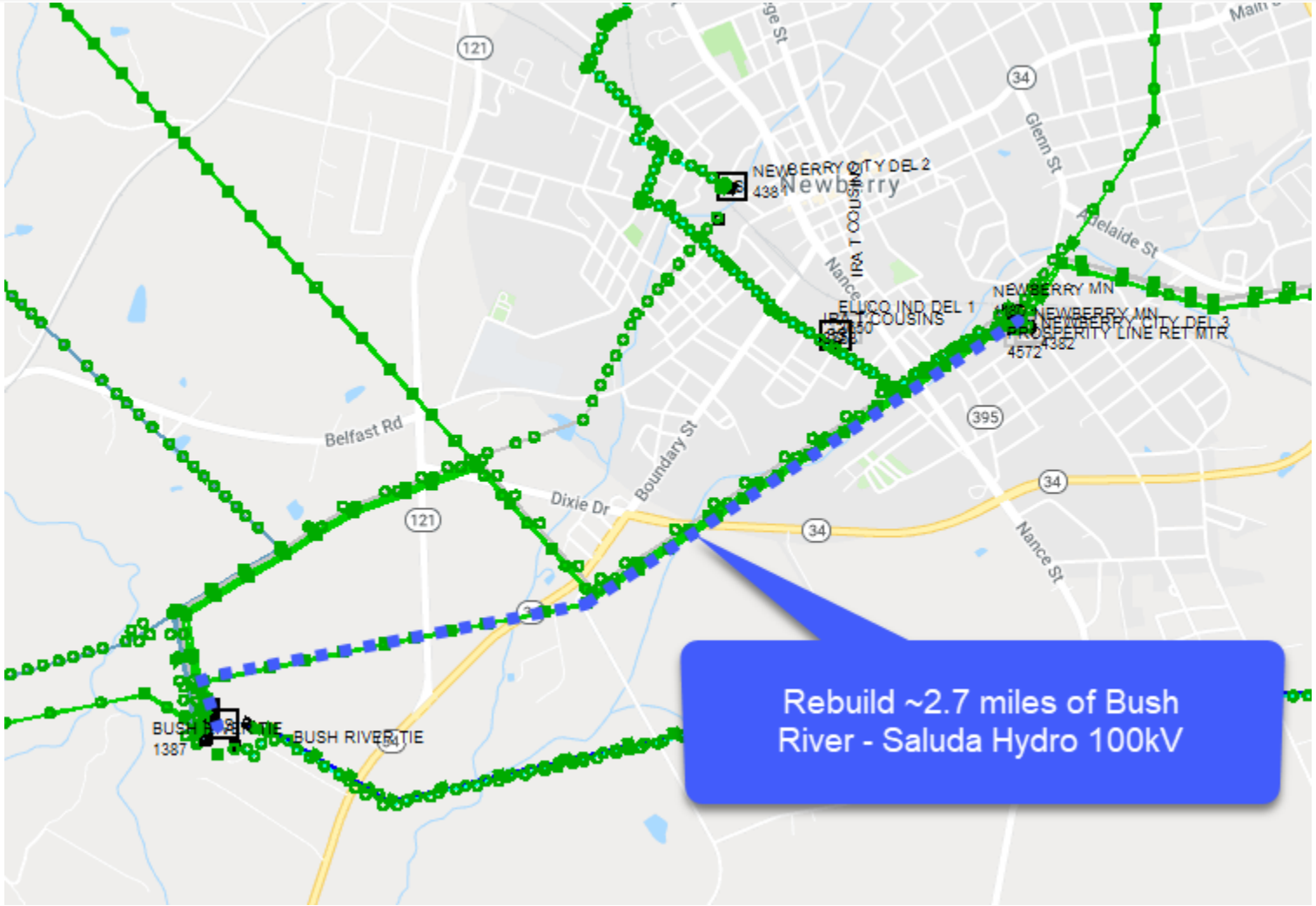
Significant Constraint (P2) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

Potential Enhancement (P2) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 500 MW

Transmission System Impacts – *SERTP*

Table 3: Transmission System Impacts - SERTP

Balancing Authority	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$11,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
PowerSouth (PS)	$0
Southern (SBAA)	$0
Tennessee Valley Authority (TVA)	$0
SERTP TOTAL ($2019)	**$11,000,000**

Economic Planning Studies

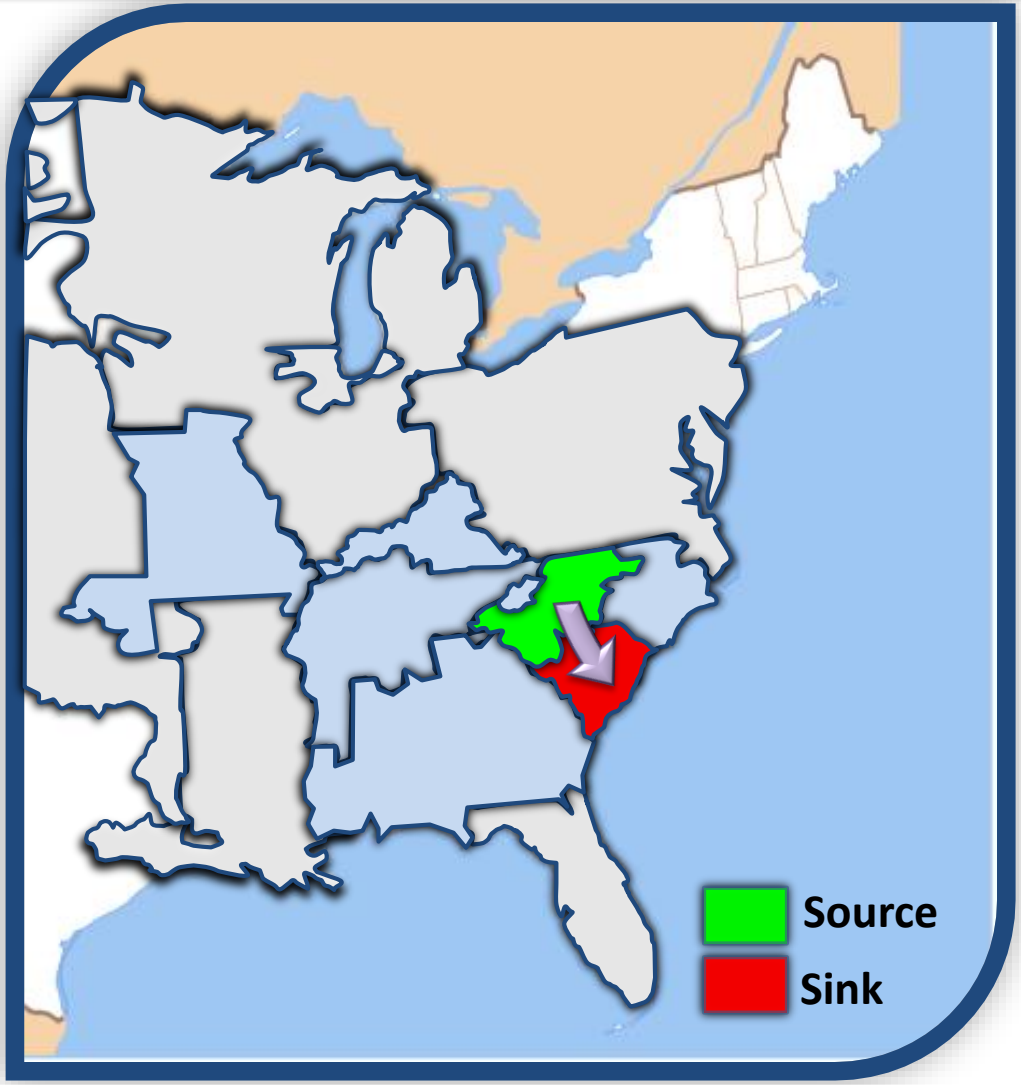
Duke Energy Carolinas to Santee Cooper Border 500 MW

Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Study Assumptions

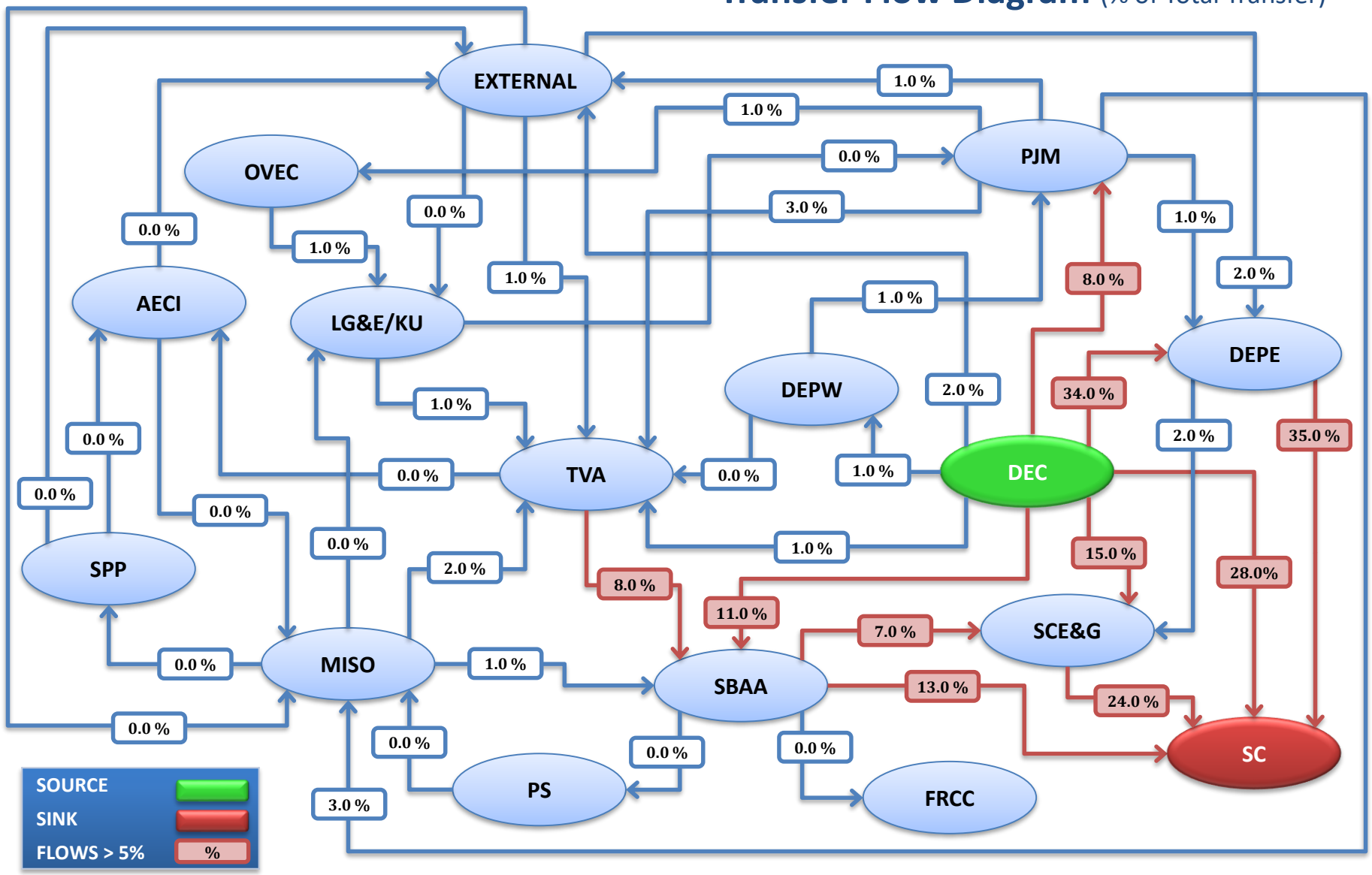
- **Source:** Generation within Duke Energy Carolinas
- **Sink:** Uniform generation scale within Santee Cooper
- **Transfer Type:** Generation to Generation
- **Year:** 2020
- **Load Level:** Summer Peak



Southeastern Regional
TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Transfer Flow Diagram (% of Total Transfer)



Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Transmission System Impacts – *SERTP*

- **Transmission System Impacts Identified:**
  - Significant constraints were identified in the following SERTP Balancing Authority Areas:
    - ***DEC***

- **Potential Transmission Enhancements Identified:**
  - (DEC) Two (2) 100 kV Transmission Line Upgrades

SERTP Total ($2019) = $11,000,000

Duke Energy Carolinas to Santee Cooper – 500 MW

Significant Constraints Identified – *DEC*

Table 4: Significant Constraints - DEC

Potential Enhancement	Limiting Element	Rating (MVA)	Thermal Loadings (%)	
			Without Request	With Request
P1	Bush River Tie – Saluda Hydro 100 kV T.L.	79	101.5	108
P2	Laurens Tie – Bush River Tie 100 kV T.L.	65	93.9	100.2

Duke Energy Carolinas to Santee Cooper – 500 MW

Potential Enhancements Identified – *DEC*

Table 5: Potential Enhancements - DEC

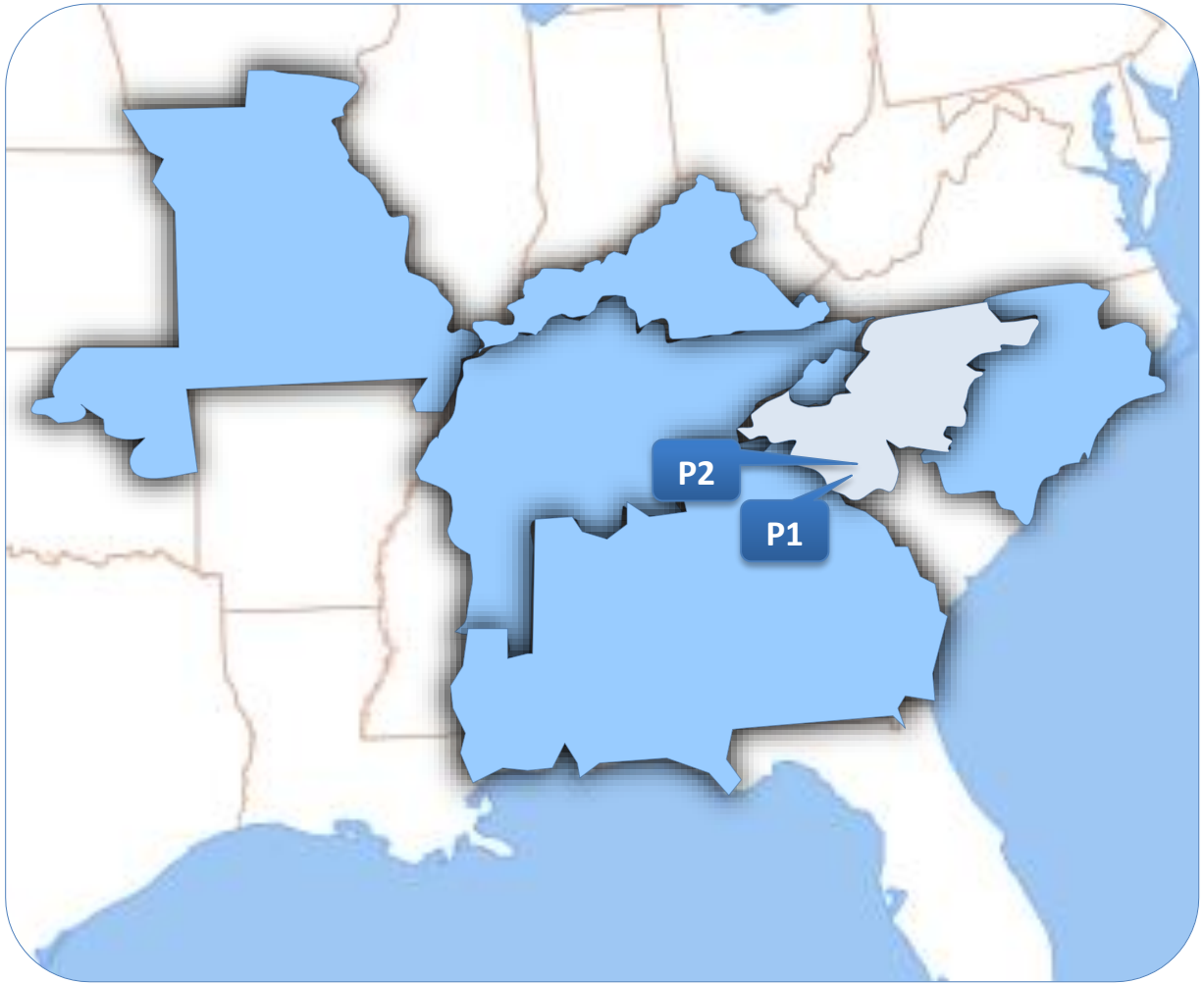
Item	Potential Enhancement	Planning Level Cost Estimate
P1	**Bush River Tie – Saluda Hydro 100 kV double circuit** T.L. • Rebuild the 2.7 miles of Bush River Tie – Saluda Hydro 100 kV double circuit transmission line with 954 ACSR conductors rated to 120˚C	**$4,900,000**
P2	**Laurens Tie – Bush River Tie 100 kV double circuit T.L.** • Rebuild approximately 2.8 miles of Laurens Tie – Bush River Tie 100 kV double circuit transmission line with 954 ACSR conductors rated to 120˚C.	**$5,100,000**
DEC TOTAL ($2019)		**$ 11,000,000**(1)

(1) Total planning level cost estimate does not include the cost of projects that are included in SERTP Sponsors' expansion plans and are scheduled to be completed by June 1st of the study year. The studied transfer depends on these projects being in-service, and the cost to support the study transfer could be greater than the total shown above if any of these projects are delayed or cancelled.

Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

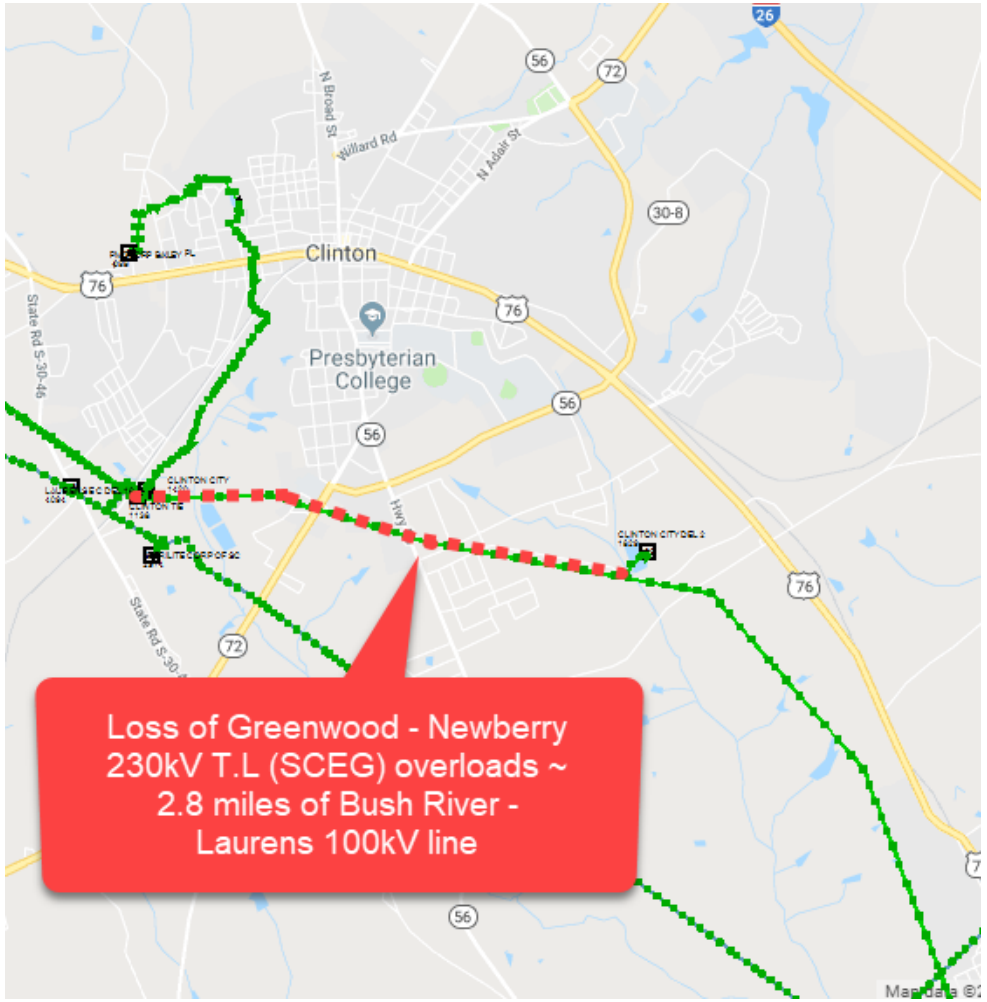
Potential Enhancement Locations – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

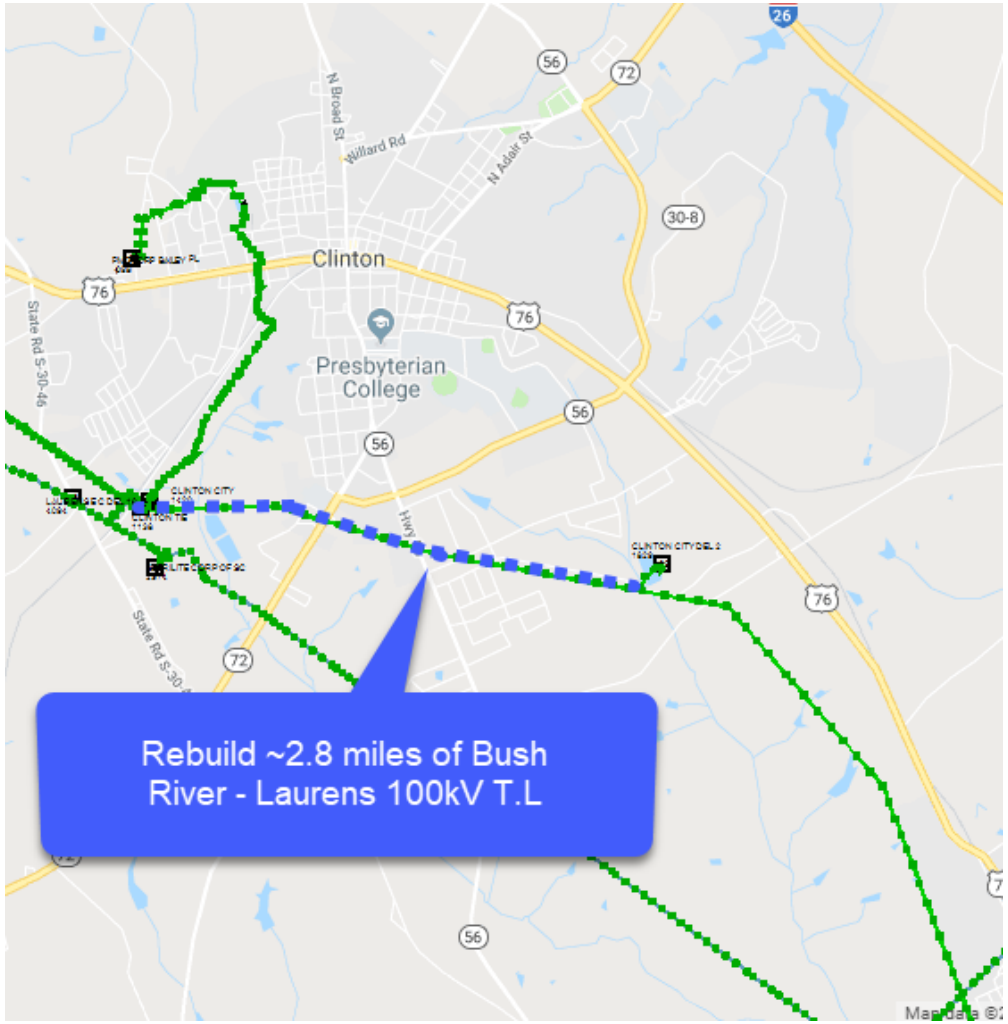
Significant Constraint (P1) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

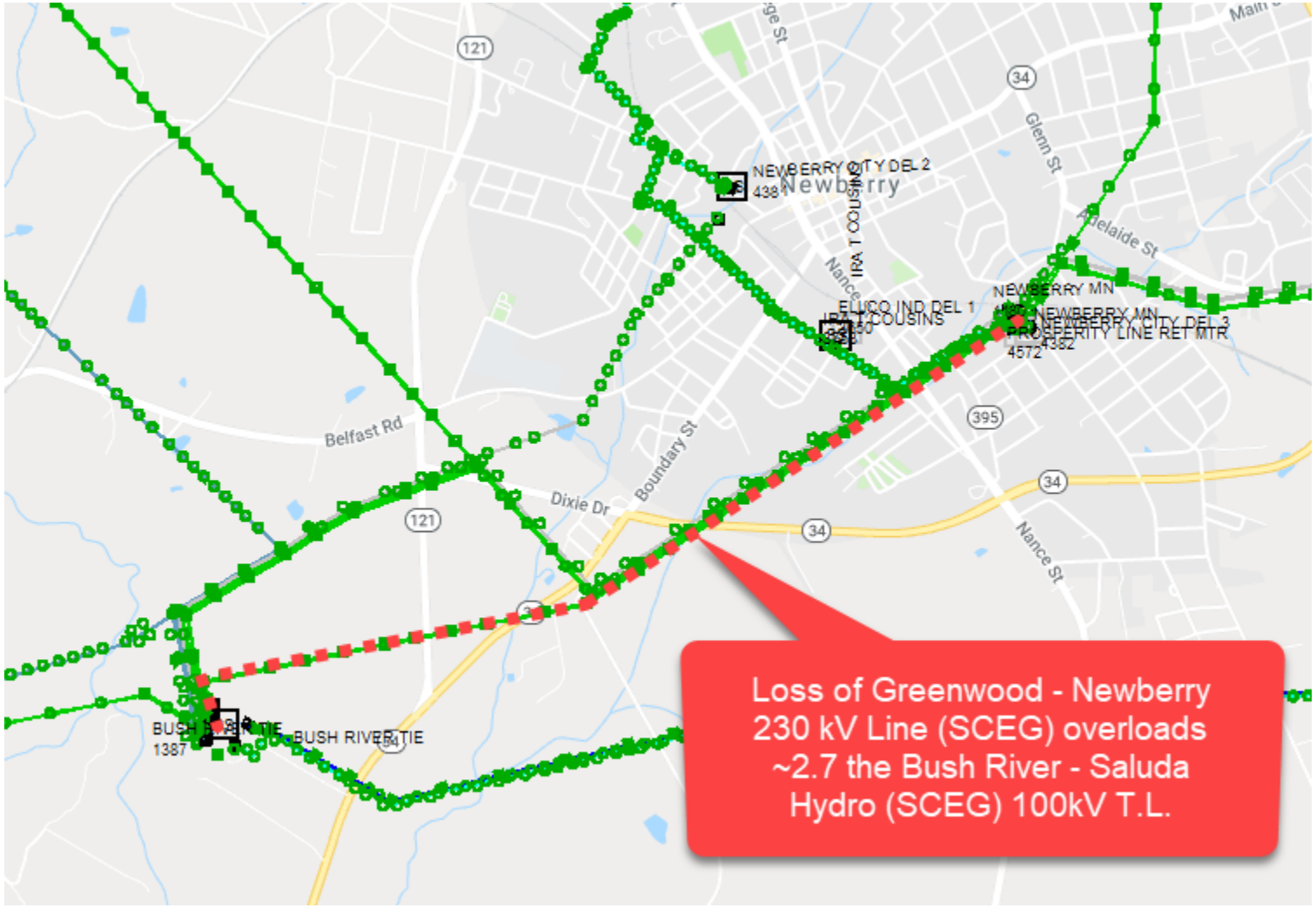
Duke Energy Carolinas to Santee Cooper – 500 MW

Potential Enhancement (P1) – *DEC*



Duke Energy Carolinas to Santee Cooper – 500 MW

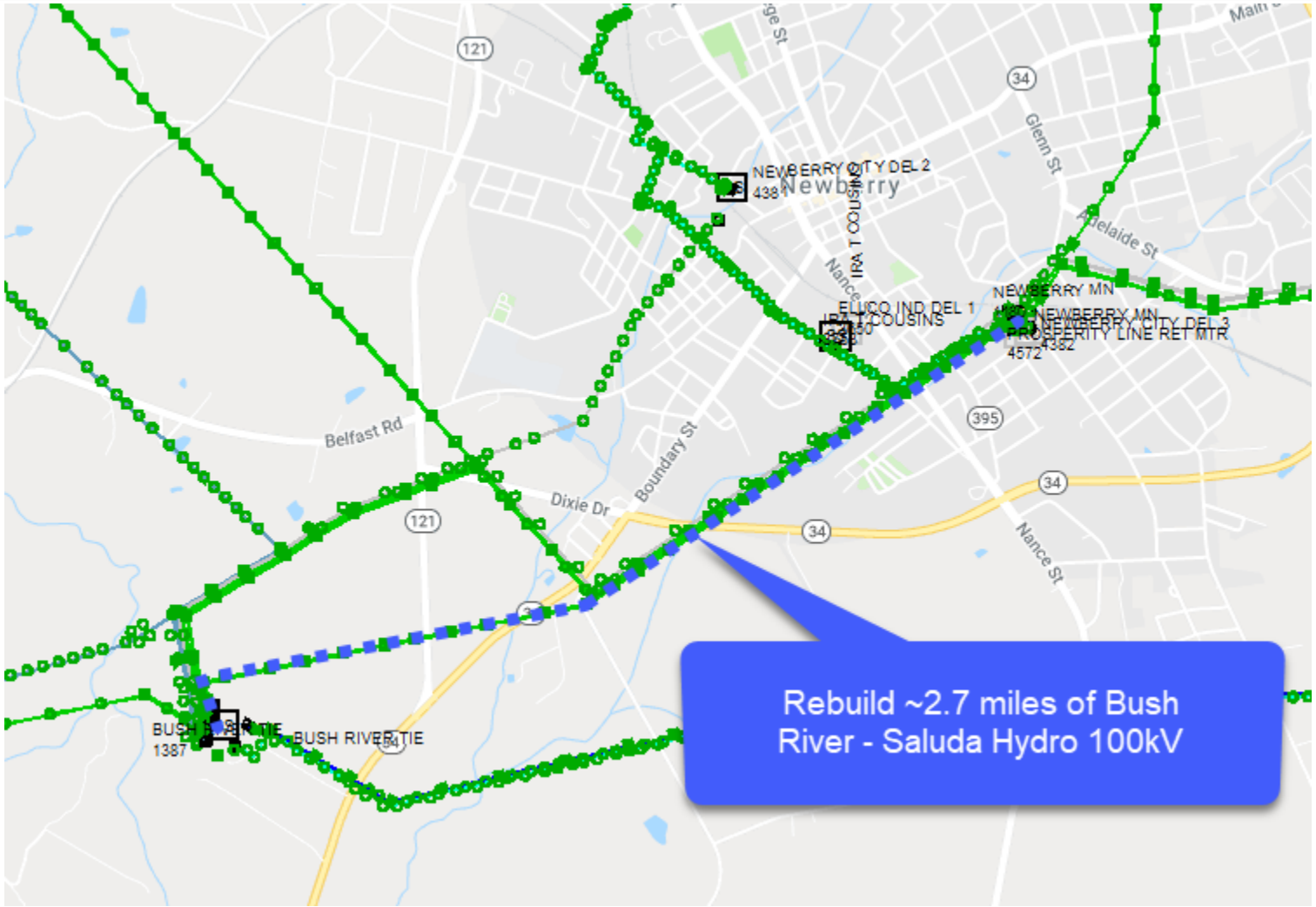
Significant Constraint (P2) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Potential Enhancement (P2) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Transmission System Impacts – *SERTP*

Table 6: Transmission System Impacts - SERTP

Balancing Authority	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$11,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
PowerSouth (PS)	$0
Southern (SBAA)	$0
Tennessee Valley Authority (TVA)	$0
SERTP TOTAL ($2019)	**$11,000,000**

Economic Planning Studies

Economic Planning Studies

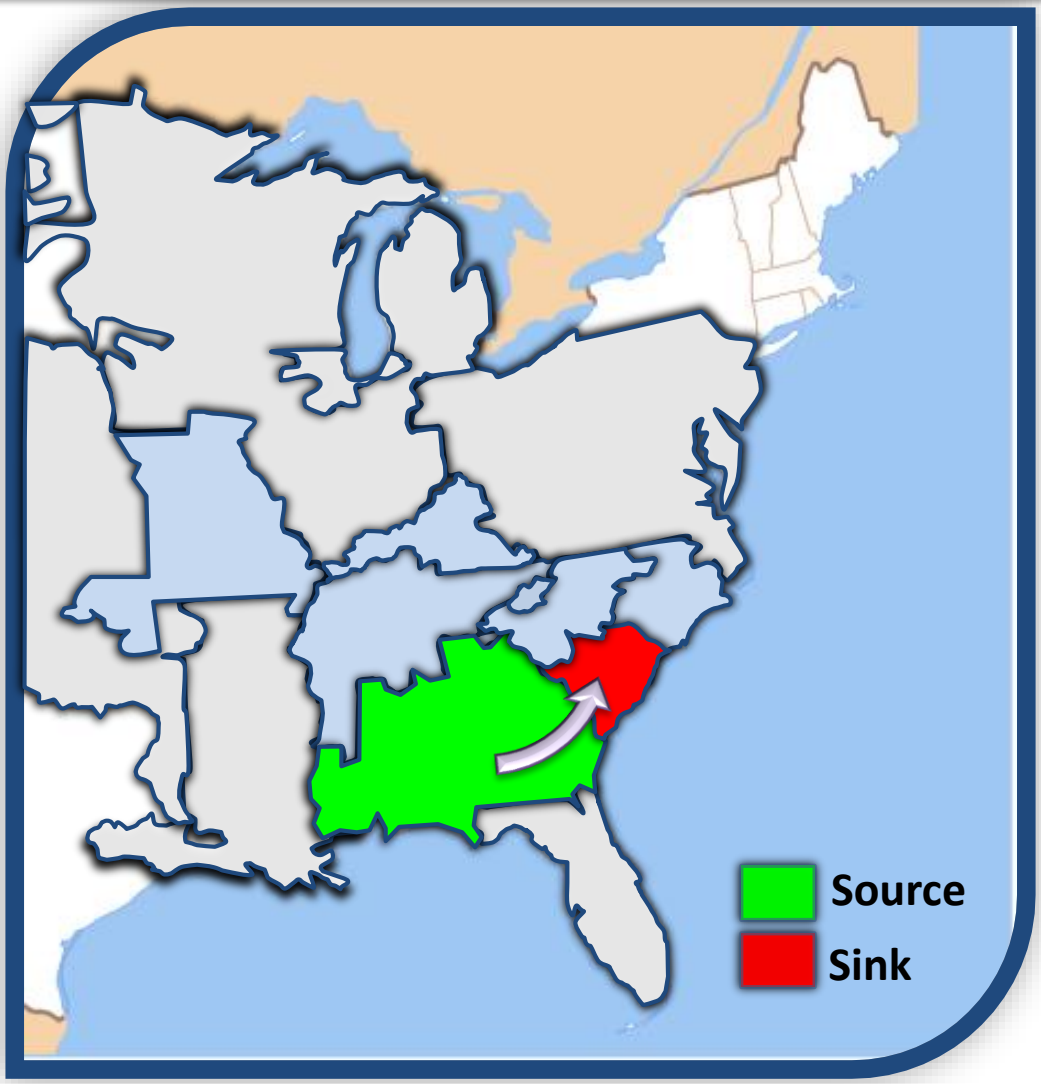
Southern BAA to Santee Cooper Border
800 MW

Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

Study Assumptions

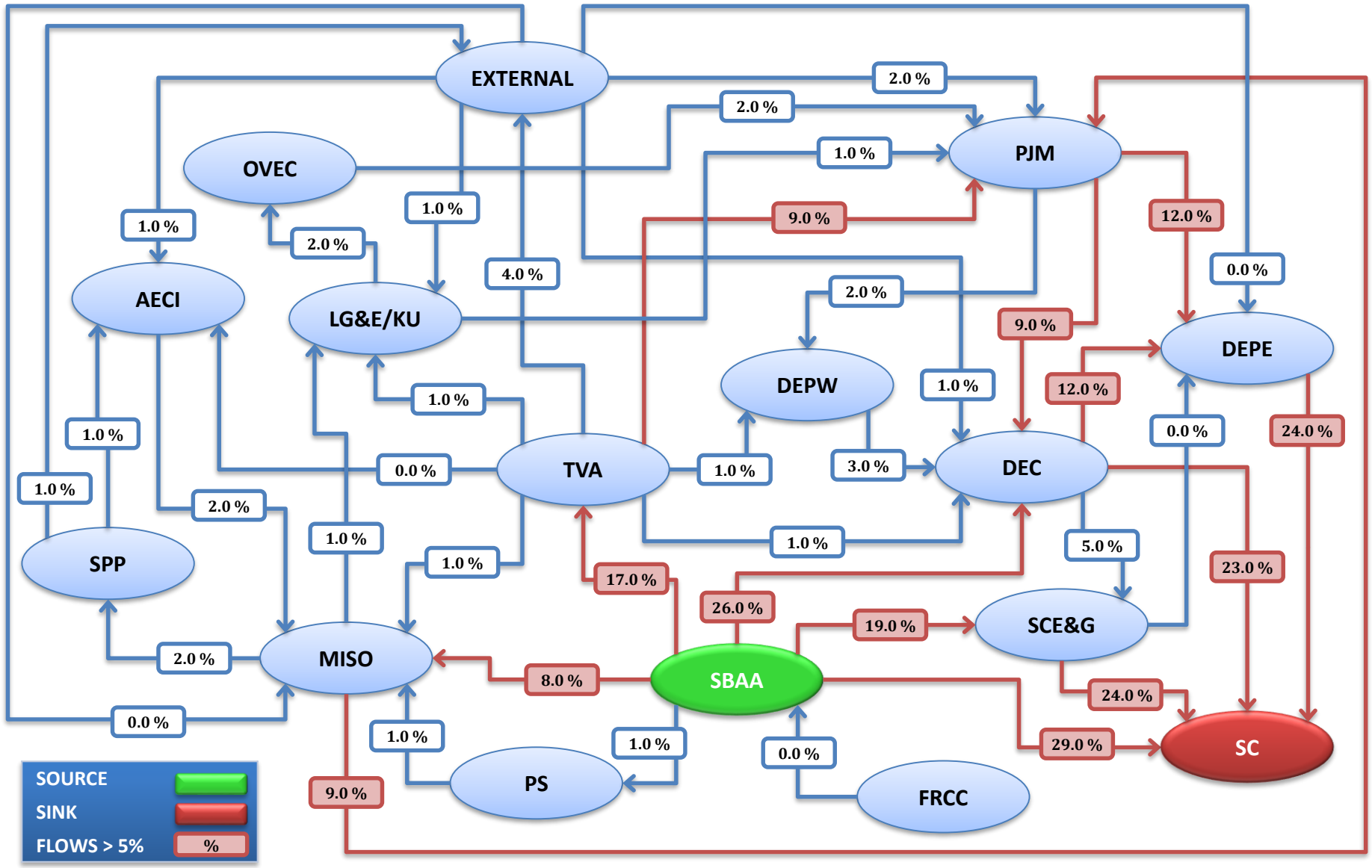
- **Source:** Generation within Southern BAA
- **Sink:** Uniform generation scale within Santee Cooper
- **Transfer Type:** Generation to Generation
- **Year:** 2020
- **Load Level:** Summer Peak



Southeastern Regional
TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

Transfer Flow Diagram (% of Total Transfer)



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

Transmission System Impacts – *SERTP*

- **Transmission System Impacts Identified:**
  - Significant constraints were identified in the following SERTP Balancing Authority Areas:
    - ***DEC***
    - ***SBAA***
- **Potential Transmission Enhancements Identified:**
  - (DEC) Two (2) 100 kV Transmission Line Upgrades
  - (SBAA) One (1) 115 kV Transmission Line Rebuild

SERTP Total ($2019) = $22,000,000

Southern BAA to Santee Cooper – 800 MW

Significant Constraints Identified – *DEC*

Table 7: Significant Constraints - DEC

Potential Enhancement	Limiting Element	Rating (MVA)	Thermal Loadings (%)	
			Without Request	With Request
P1	Bush River Tie – Saluda Hydro 100 kV T.L.	79	101.5	110.8
P2	Laurens Tie – Bush River Tie 100 kV T.L.	65	93.9	103.1

Southern BAA to Santee Cooper – 800 MW

Potential Enhancements Identified – *DEC*

Table 8: Potential Enhancements - DEC

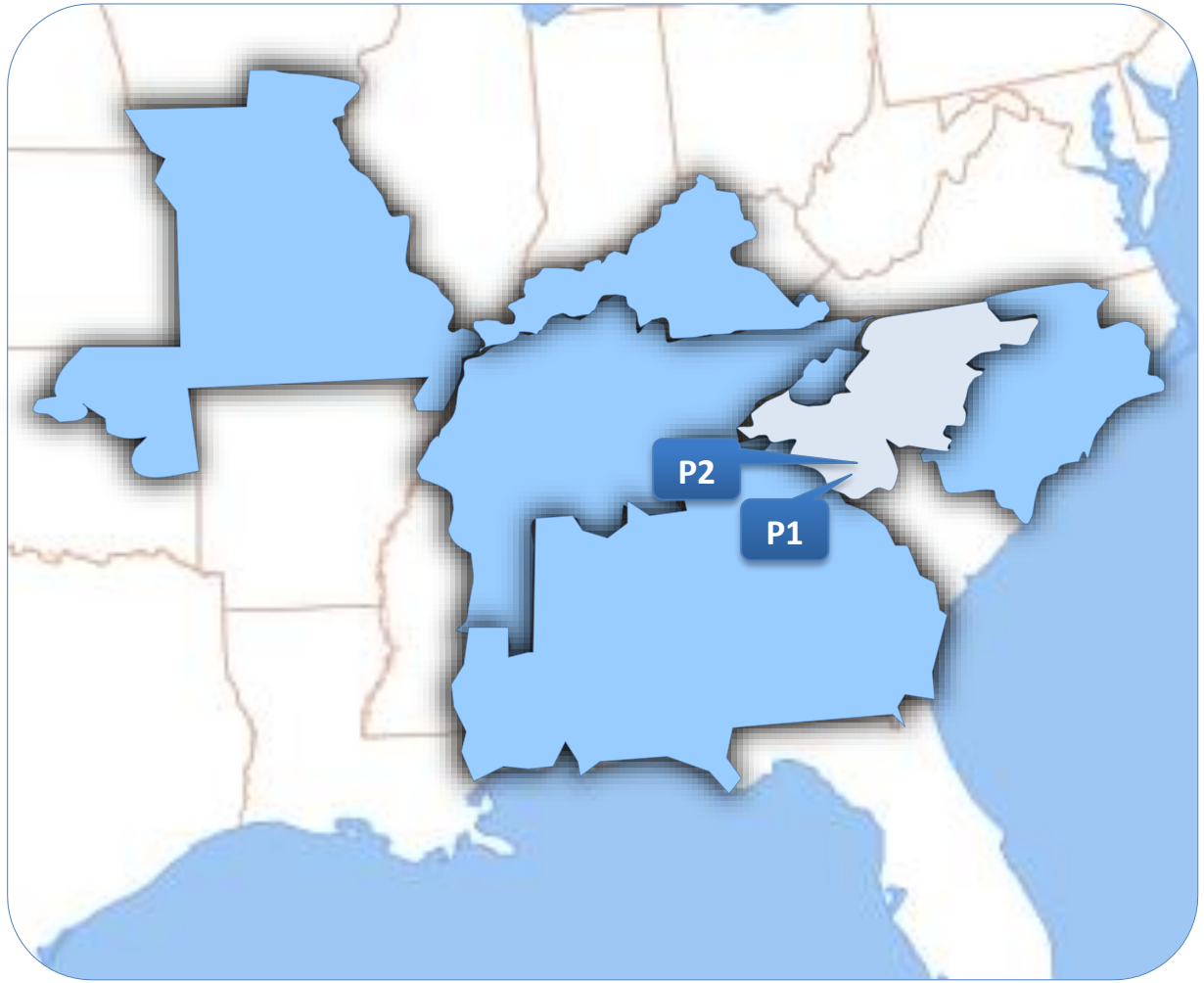
Item	Potential Enhancement	Planning Level Cost Estimate
P1	**Bush River Tie – Saluda Hydro 100 kV double circuit** T.L. • Rebuild the 2.7 miles of Bush River Tie – Saluda Hydro 100 kV double circuit transmission line with 954 ACSR conductors rated to 120˚C	**$4,900,000**
P2	**Laurens Tie – Bush River Tie 100 kV double circuit T.L.** • Rebuild approximately 2.8 miles of Laurens Tie – Bush River Tie 100 kV double circuit transmission line with 954 ACSR conductors rated to 120˚C.	**$5,100,000**
DEC TOTAL ($2019)		**$ 11,000,000**(1)

(1) Total planning level cost estimate does not include the cost of projects that are included in SERTP Sponsors' expansion plans and are scheduled to be completed by June 1st of the study year. The studied transfer depends on these projects being in-service, and the cost to support the study transfer could be greater than the total shown above if any of these projects are delayed or cancelled.

Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

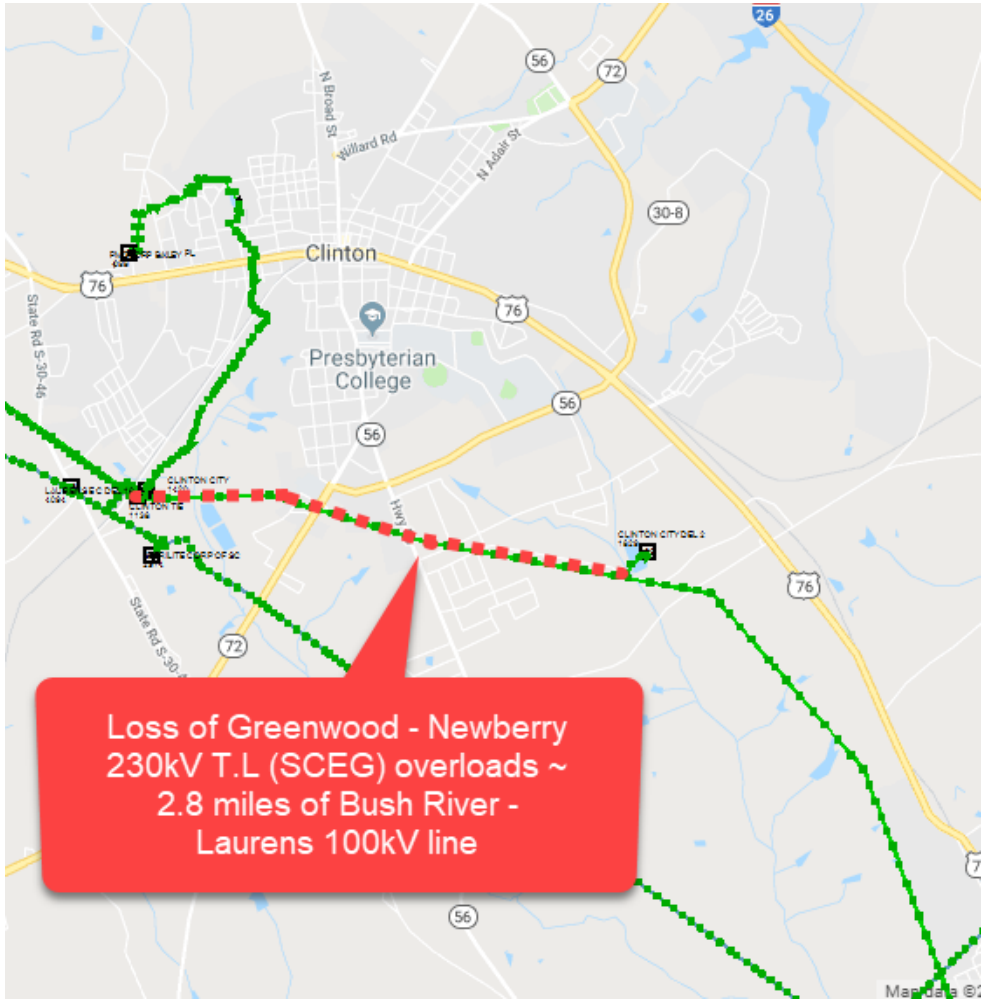
Potential Enhancement Locations – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

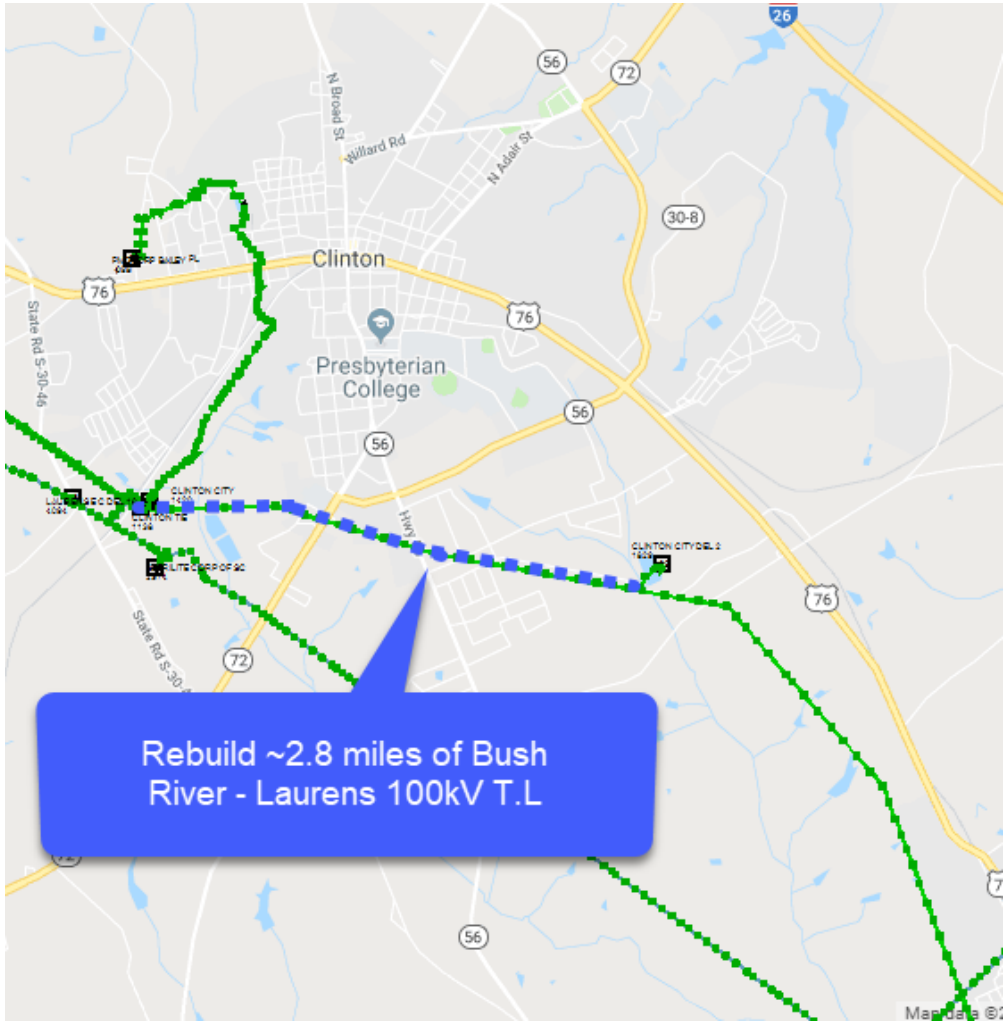
Significant Constraint (P1) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

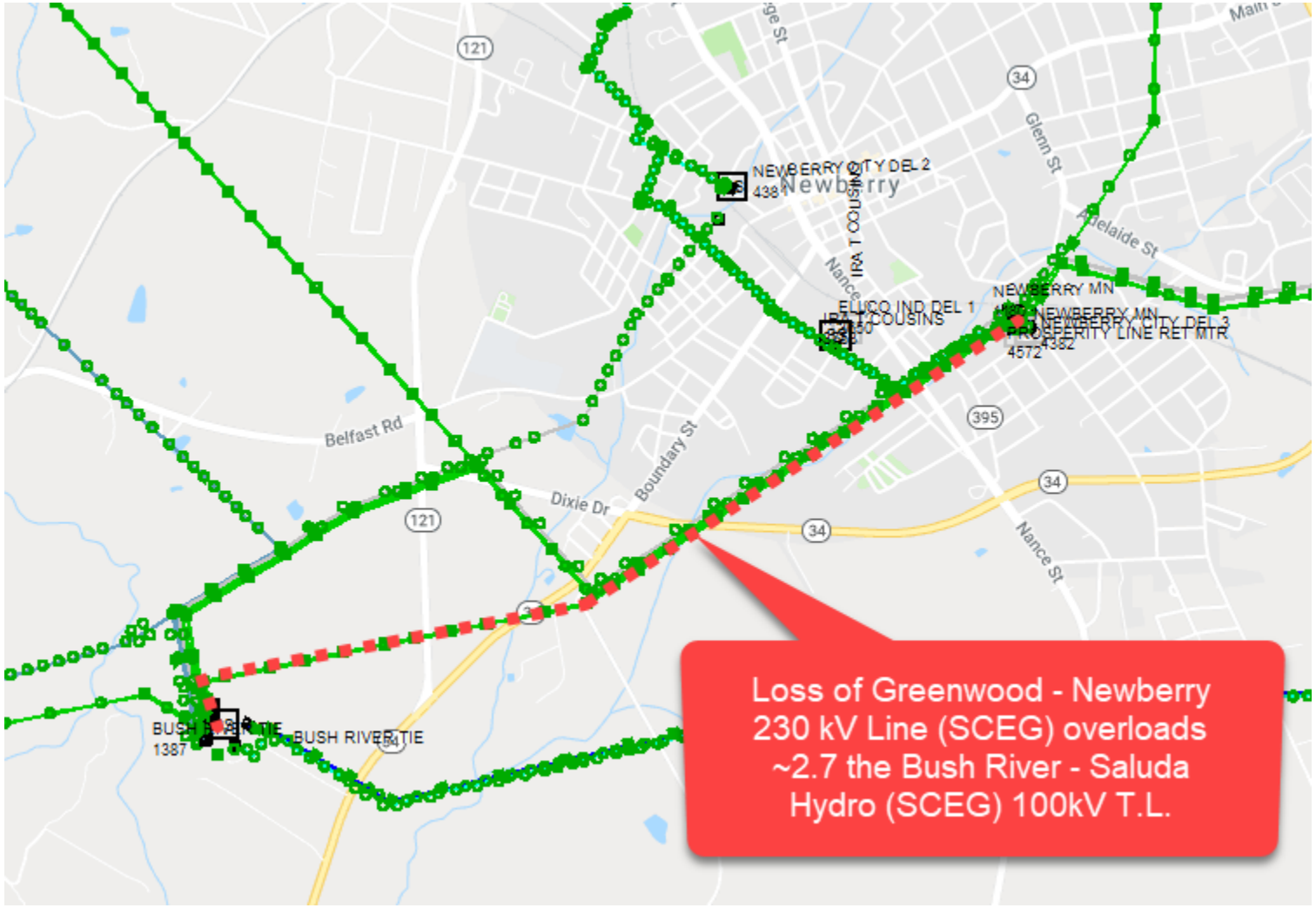
Potential Enhancement (P1) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

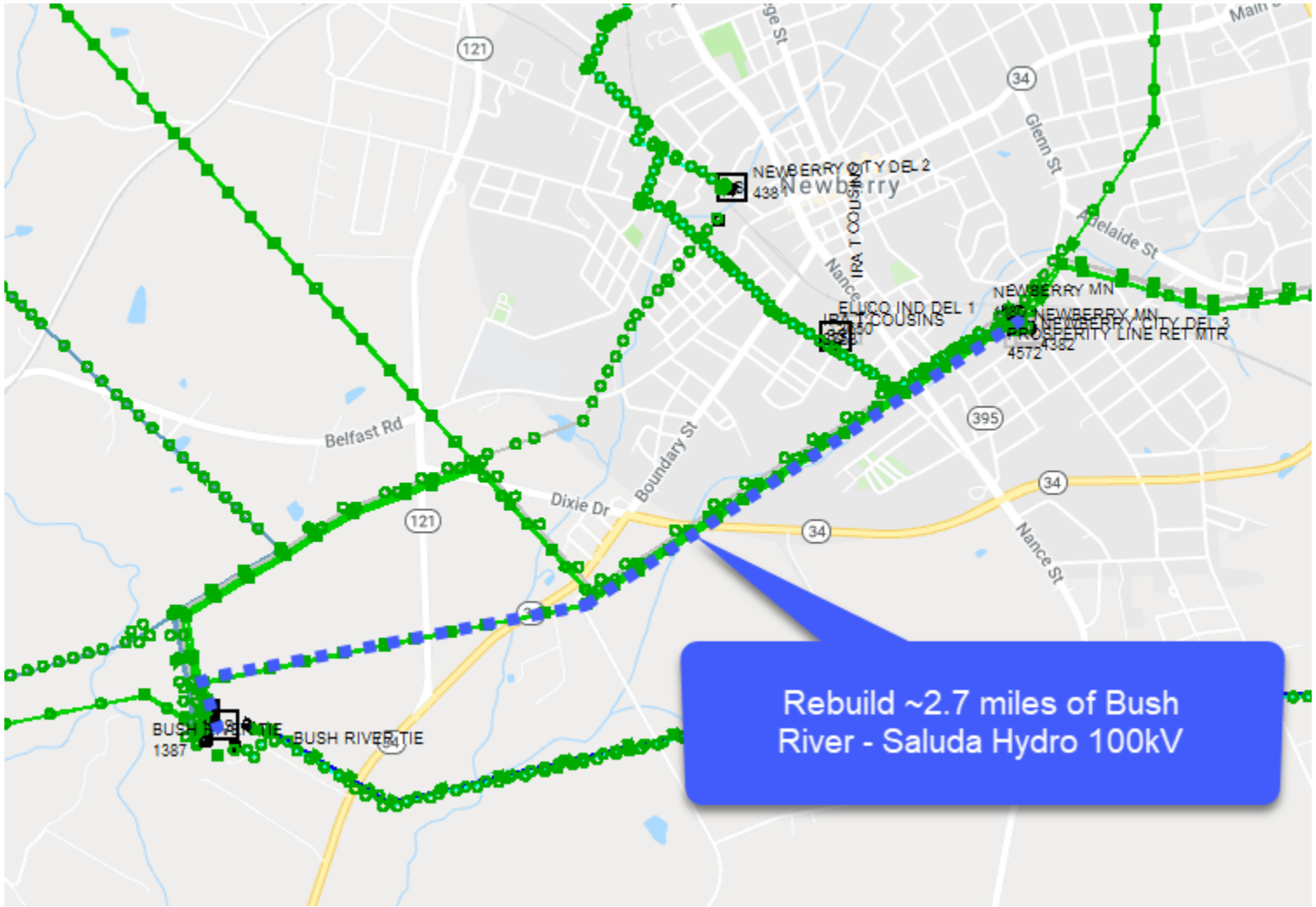
Significant Constraint (P2) – *DEC*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

Potential Enhancement (P2) – *DEC*



Southern BAA to Santee Cooper – 800 MW

Significant Constraints Identified – *SBAA*

Table 9: Significant Constraints - SBAA

Potential Enhancement	Limiting Element	Rating (MVA)	Thermal Loadings (%)	
			Without Request	With Request
P1	Baxley – Pine Grove 115 kV T.L.	114	99	104

Southern BAA to Santee Cooper – 800 MW

Potential Enhancements Identified – *SBAA*

Table 10: Potential Enhancements - SBAA

Item	Potential Enhancement	Planning Level Cost Estimate
P1	**Baxley – Hazelhurst 115 kV Transmission Line Rebuild** • Rebuild approximately 11.2 miles of Baxley – Hazelhurst 115 kV Transmission Line with 100˚C 795 ACSR	**$11,000,000**
SBAA TOTAL ($2019)		**$ 11,000,000**(1)

(1) Total planning level cost estimate does not include the cost of projects that are included in SERTP Sponsors' expansion plans and are scheduled to be completed by June 1st of the study year. The studied transfer depends on these projects being in-service, and the cost to support the study transfer could be greater than the total shown above if any of these projects are delayed or cancelled.

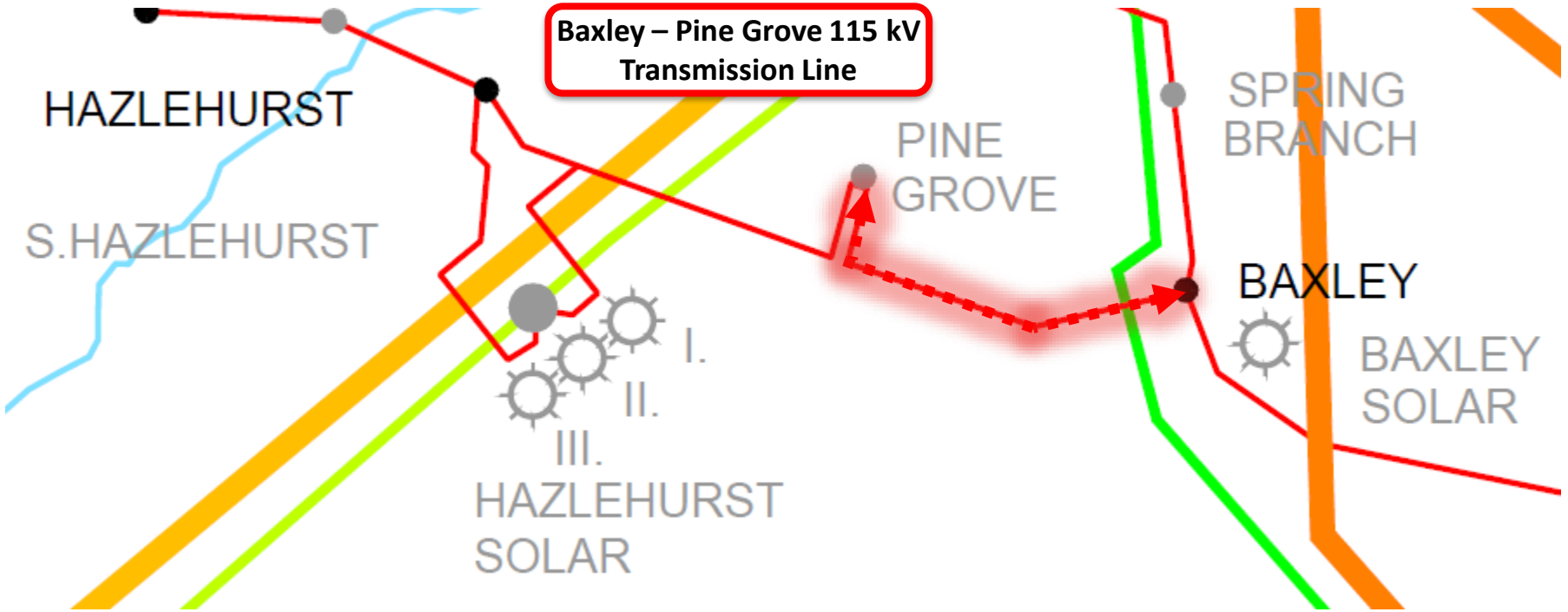
Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

Potential Enhancement (P1) Location – *SBAA*

Southern BAA to Santee Cooper – 800 MW

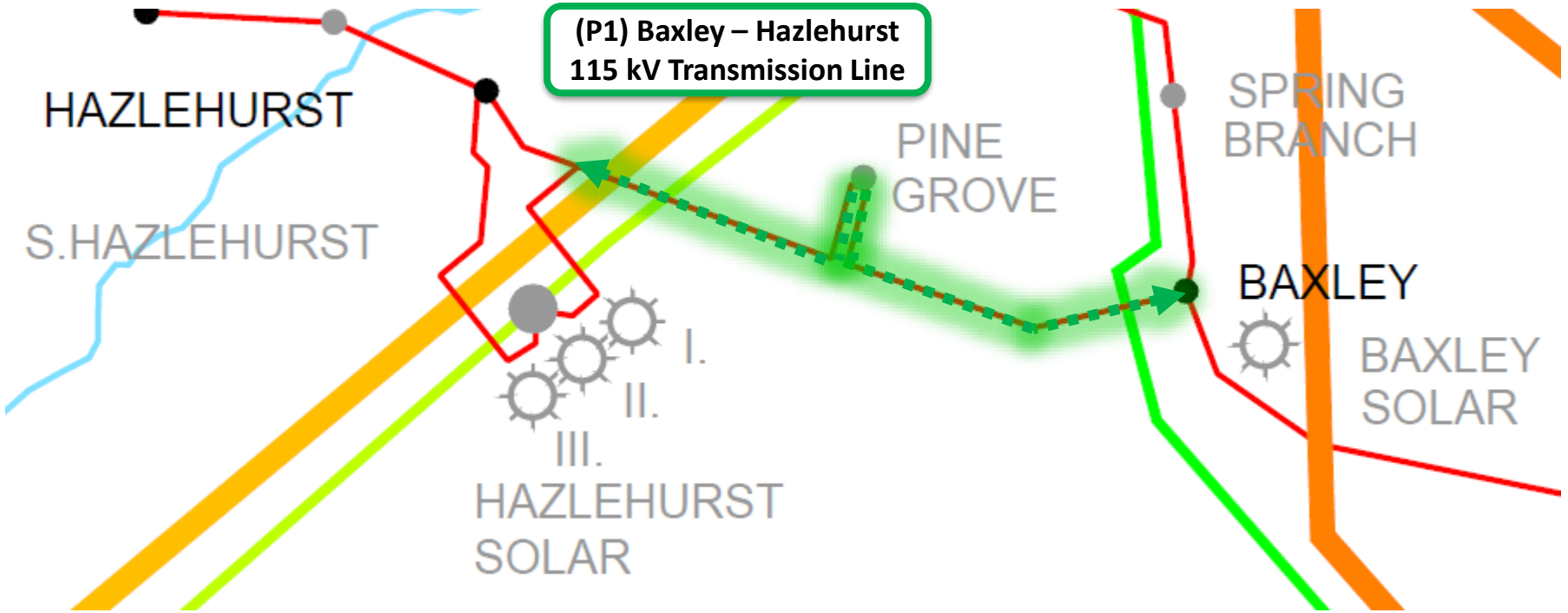
Significant Constraint (P1) – *SBAA*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

Potential Enhancement (P1) – *SBAA*



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 800 MW

Transmission System Impacts – *SERTP*

Table 11: Transmission System Impacts - SERTP

Balancing Authority	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$11,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
PowerSouth (PS)	$0
Southern (SBAA)	$11,000,000
Tennessee Valley Authority (TVA)	$0
SERTP TOTAL ($2019)	**$22,000,000**

Economic Planning Studies

Economic Planning Studies

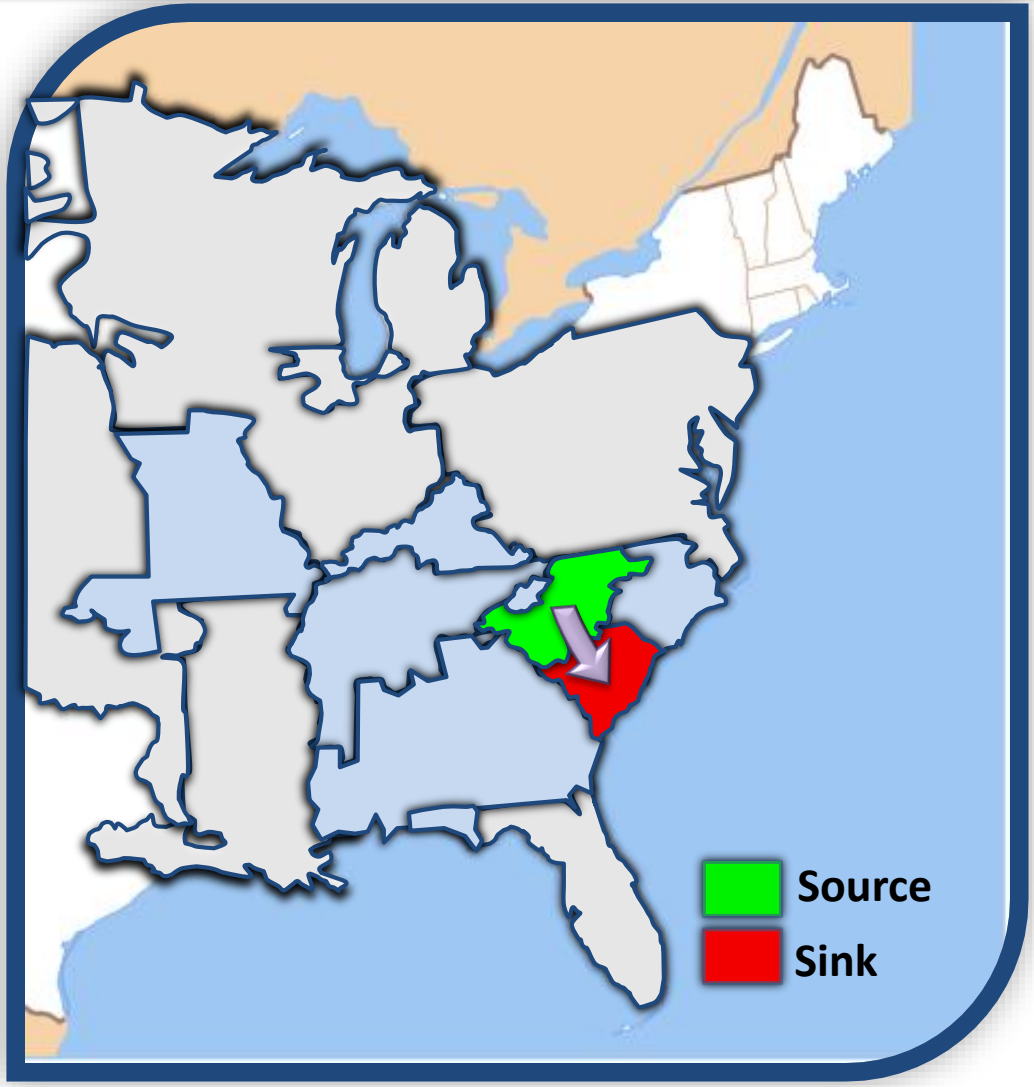
Duke Energy Carolinas to Santee Cooper Border 500 MW

Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Study Assumptions

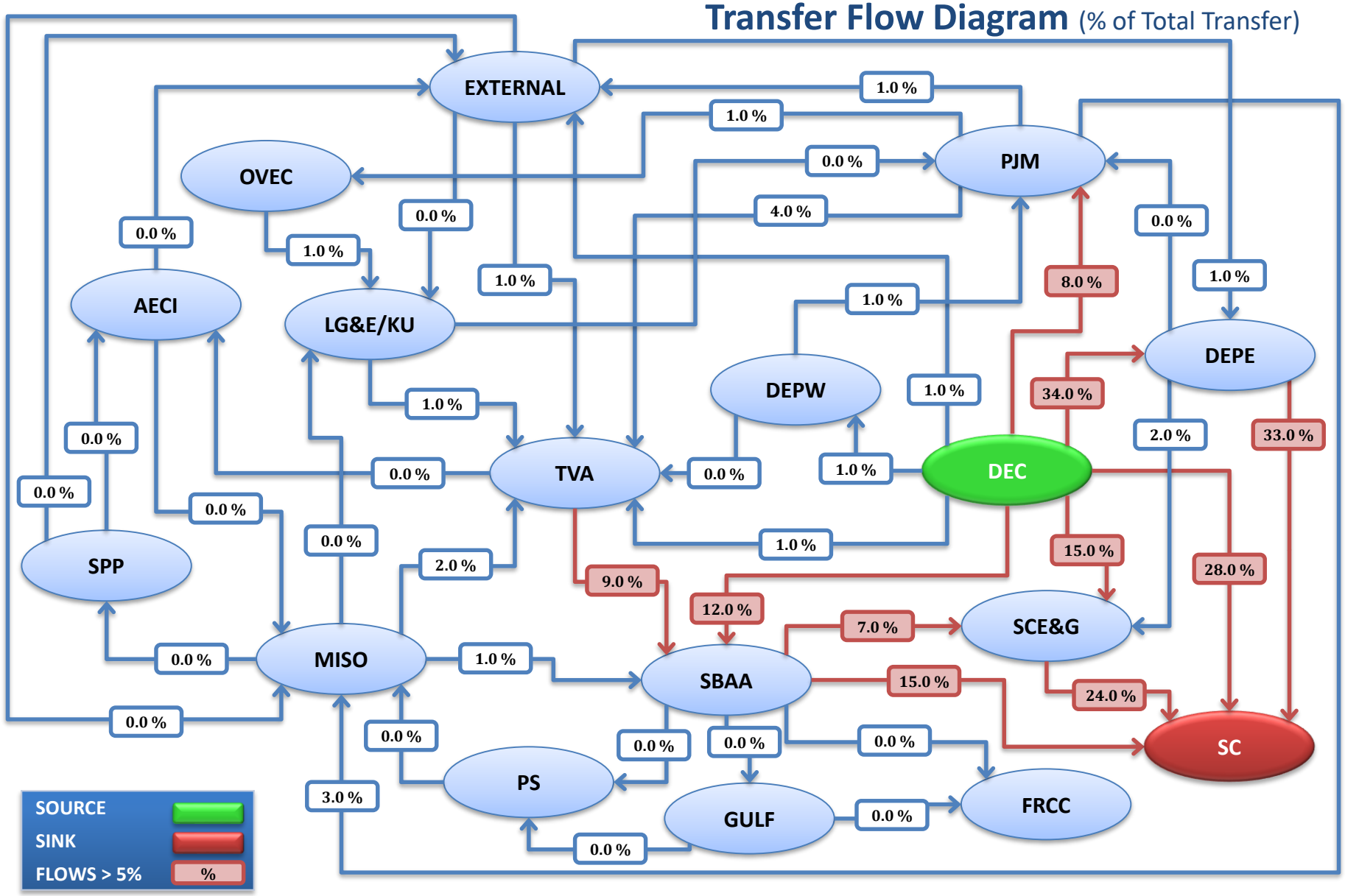
- **Source:** Generation within Duke Energy Carolinas
- **Sink:** Uniform generation scale within Santee Cooper
- **Transfer Type:** Generation to Generation
- **Year:** 2024
- **Load Level:** Winter Peak



Southeastern Regional
TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Transfer Flow Diagram (% of Total Transfer)



Southeastern Regional TRANSMISSION PLANNING

Duke Energy Carolinas to Santee Cooper – 500 MW

Transmission System Impacts – *SERTP*

- **Transmission System Impacts Identified:**
  - Significant constraints were identified in the following SERTP Balancing Authority Areas:
    - ***DEPE***

- **Potential Transmission Enhancements Identified:**
  - (DEPE) One (1) Substation Upgrade

SERTP Total ($2019) = $6,500,000

Duke Energy Carolinas to Santee Cooper – 500 MW

Significant Constraints Identified – *DEPE*

Table 12: Significant Constraints - DEPE

Potential Enhancement	Limiting Element	Rating (MVA)	Thermal Loadings (%)	
			Without Request	With Request
P1	Wateree 115/100 kV Transformers	150	93	103

Duke Energy Carolinas to Santee Cooper – 500 MW

Potential Enhancements Identified – *DEPE*

Table 13: Potential Enhancements - DEPE

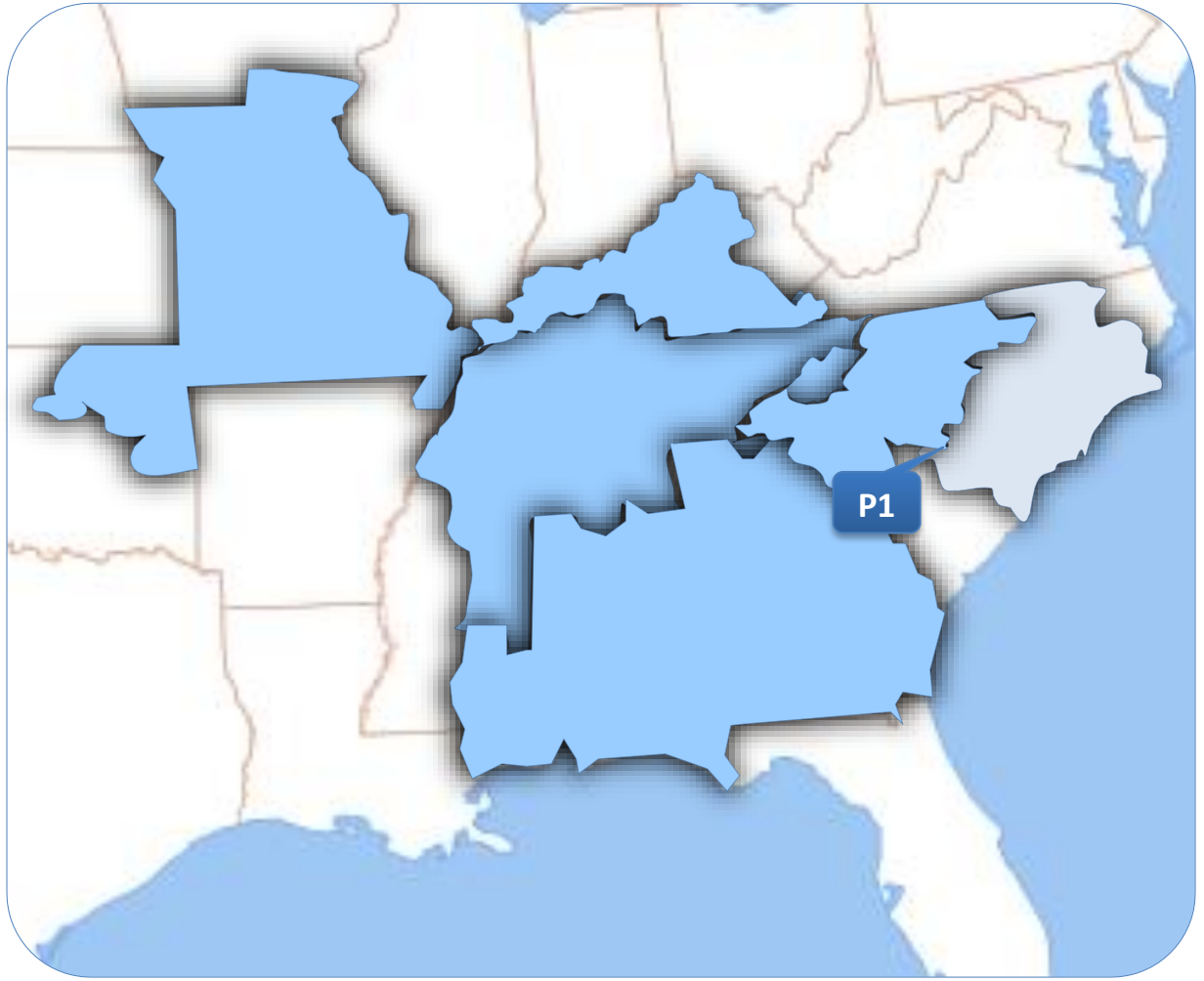
Item	Potential Enhancement	Planning Level Cost Estimate
P1	**Wateree 115/100kV Transformers** • Replace existing 150 MVA 115/100 kV transformer bank with 336 MVA 115/100 kV transformer bank	**$6,500,000**
DEPE TOTAL ($2019)		**$6,500,000** (1)

(1) Total planning level cost estimate does not include the cost of projects that are included in SERTP Sponsors' expansion plans and are scheduled to be completed by winter of the study year. The studied transfer depends on these projects being in-service, and the cost to support the study transfer could be greater than the total shown above if any of these projects are delayed or cancelled.

Southeastern Regional TRANSMISSION PLANNING

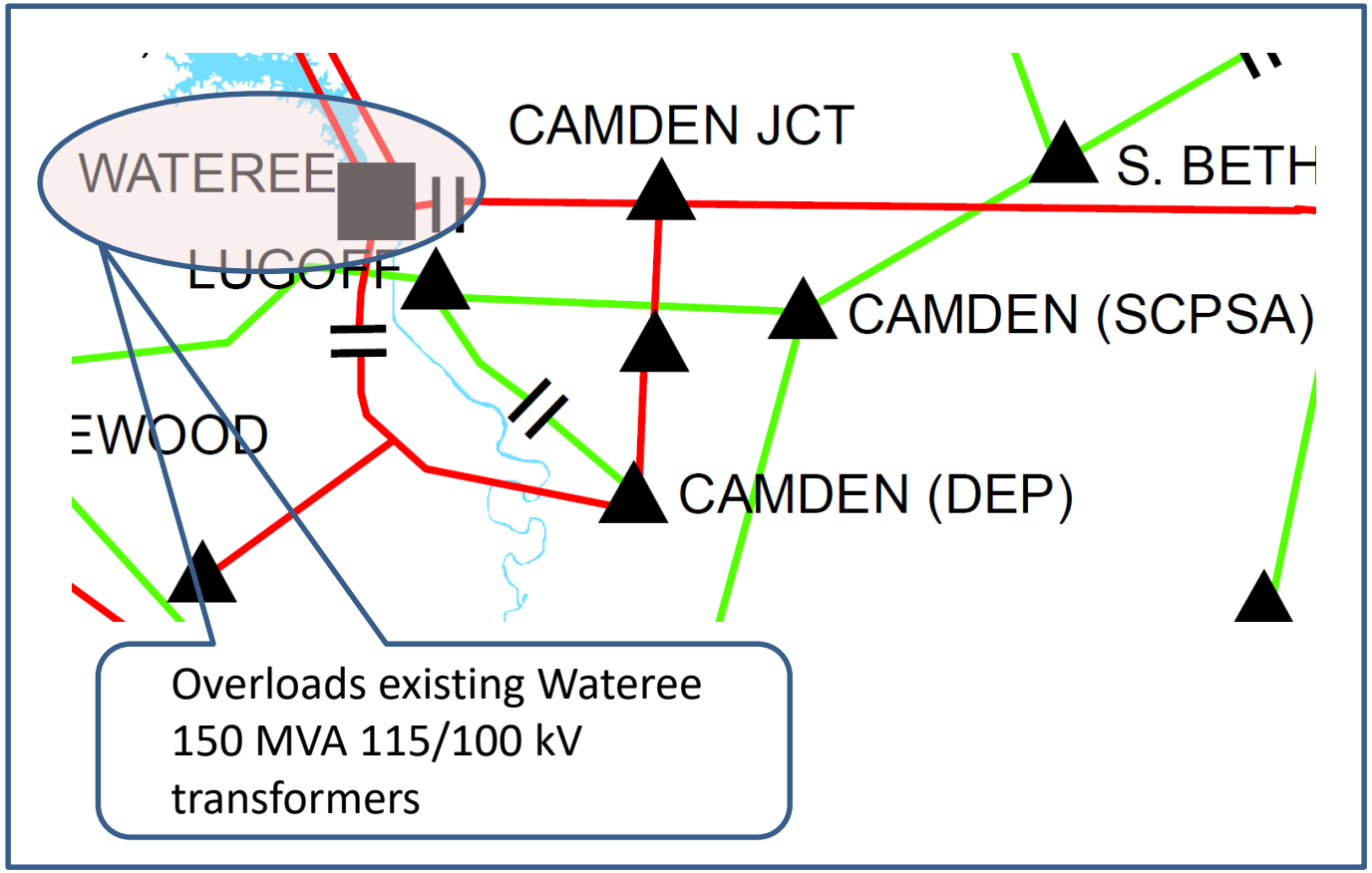
Duke Energy Carolinas to Santee Cooper – 500 MW

Potential Enhancement Locations – *DEPE*



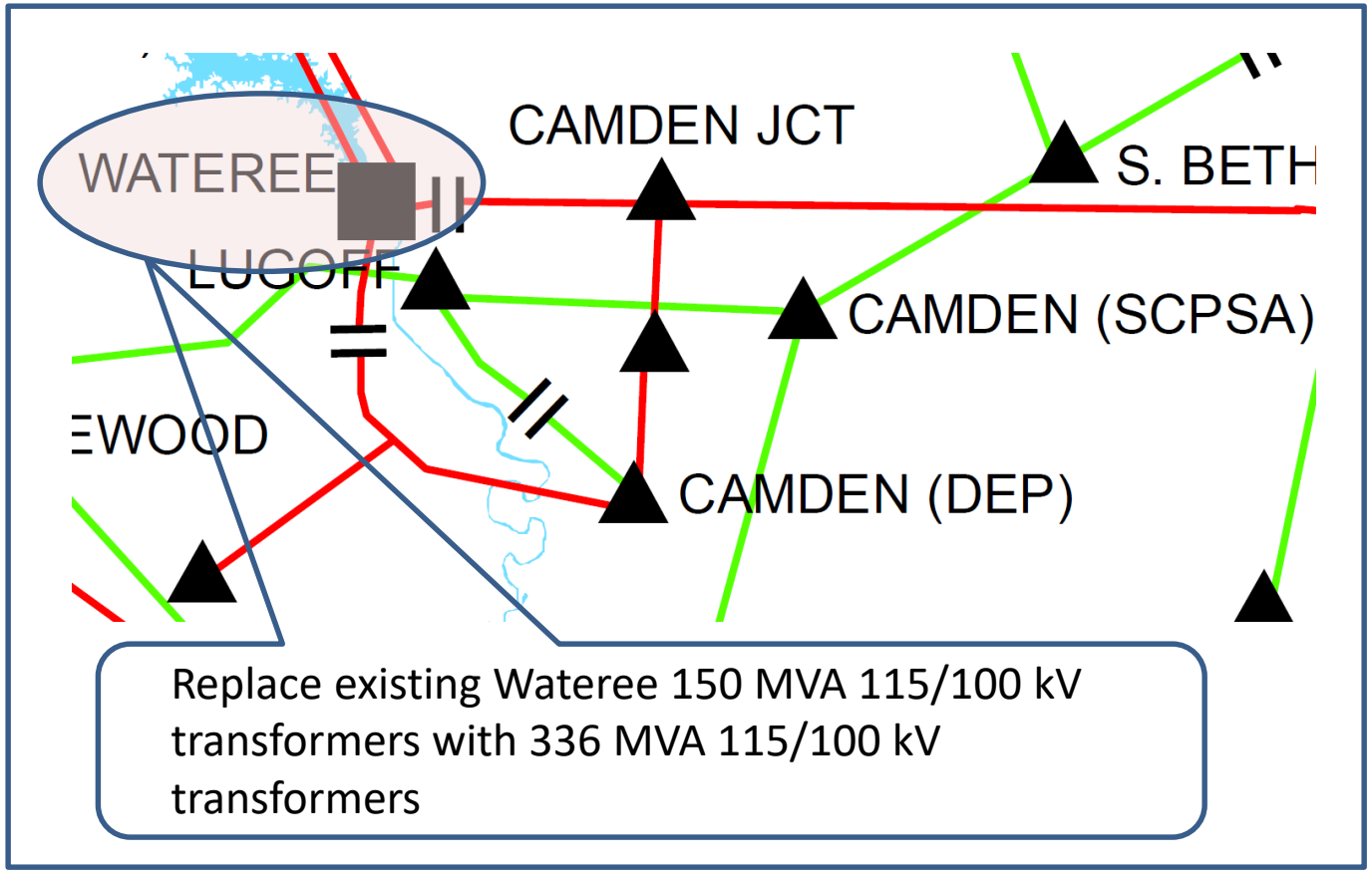
Duke Energy Carolinas to Santee Cooper – 500 MW

Significant Constraints (P1) – *DEPE*



Duke Energy Carolinas to Santee Cooper – 500 MW

Potential Enhancement (P1) – *DEPE*



Duke Energy Carolinas to Santee Cooper – 500 MW

Transmission System Impacts – *SERTP*

Table 14: Transmission System Impacts - SERTP

Balancing Authority	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$0
Duke Progress East (DEPE)	$6,500,000
Duke Progress West (DEPW)	$0
Gulf Power (GULF)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
PowerSouth (PS)	$0
Southern (SBAA)	$0
Tennessee Valley Authority (TVA)	$0
SERTP TOTAL ($2019)	**$6,500,000**

Economic Planning Studies

Economic Planning Studies

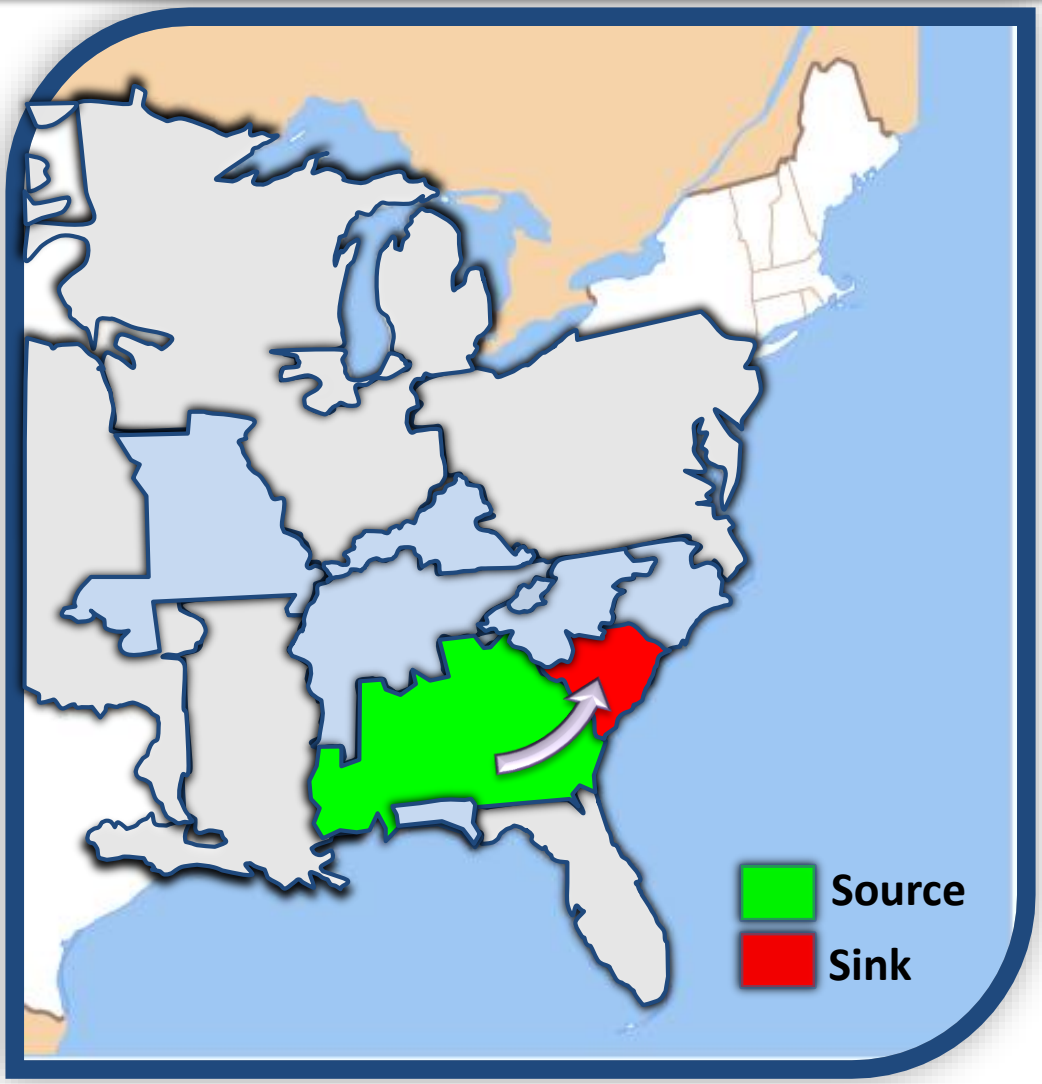
Southern BAA to Santee Cooper Border
1000 MW

Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 1000 MW

Study Assumptions

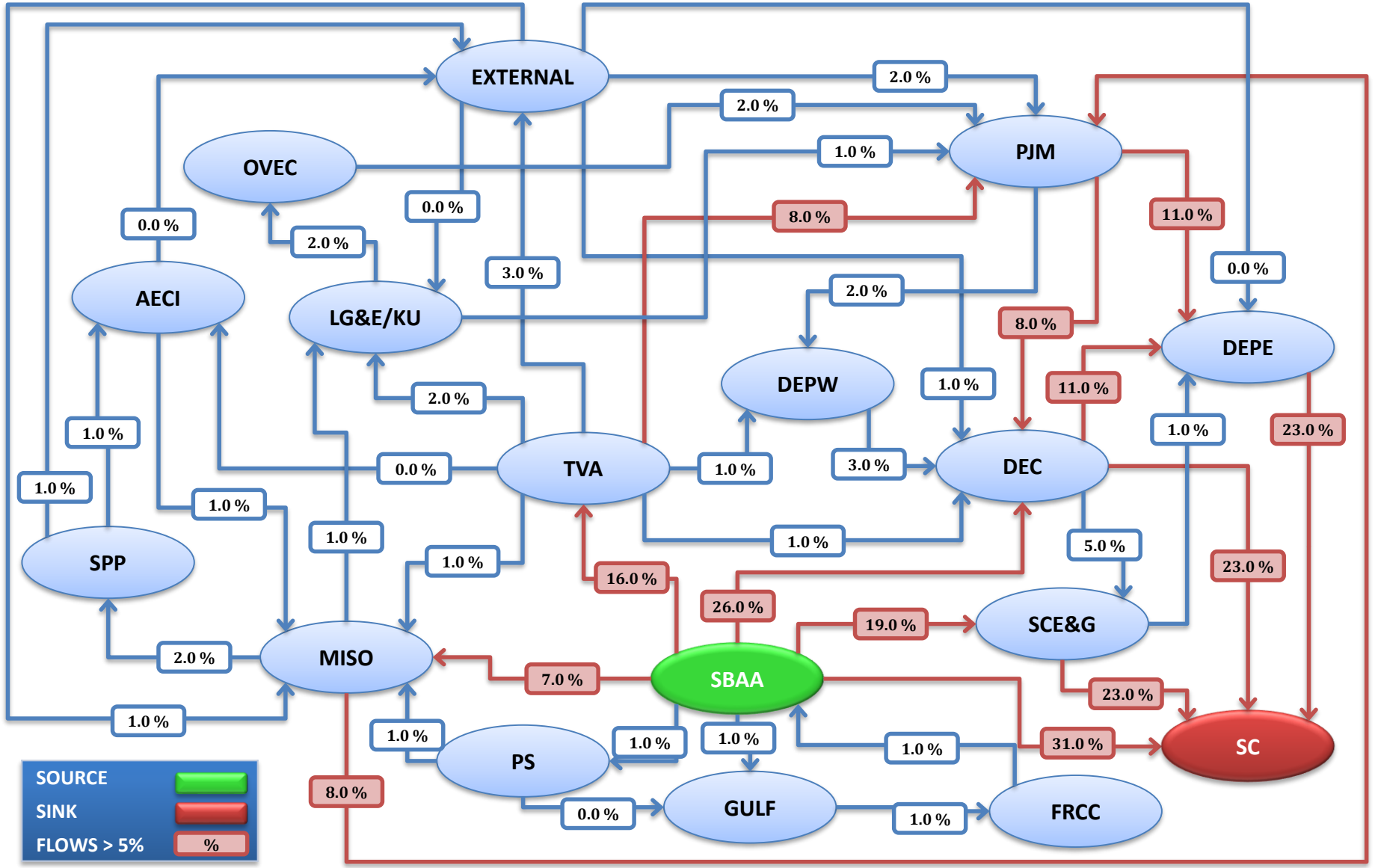
- **Source:** Generation within Southern BAA
- **Sink:** Uniform generation scale within Santee Cooper
- **Transfer Type:** Generation to Generation
- **Year:** 2024
- **Load Level:** Winter Peak



Southeastern Regional
TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 1000 MW

Transfer Flow Diagram (% of Total Transfer)



Southeastern Regional TRANSMISSION PLANNING

Southern BAA to Santee Cooper – 1000 MW

Transmission System Impacts – *SERTP*

- **Transmission System Impacts Identified:**
  - No significant constraints were identified in the SERTP Balancing Authority Areas

- **Potential Transmission Enhancements Identified:**
  - None Required

SERTP Total ($2019) = $0

2019 SERTP

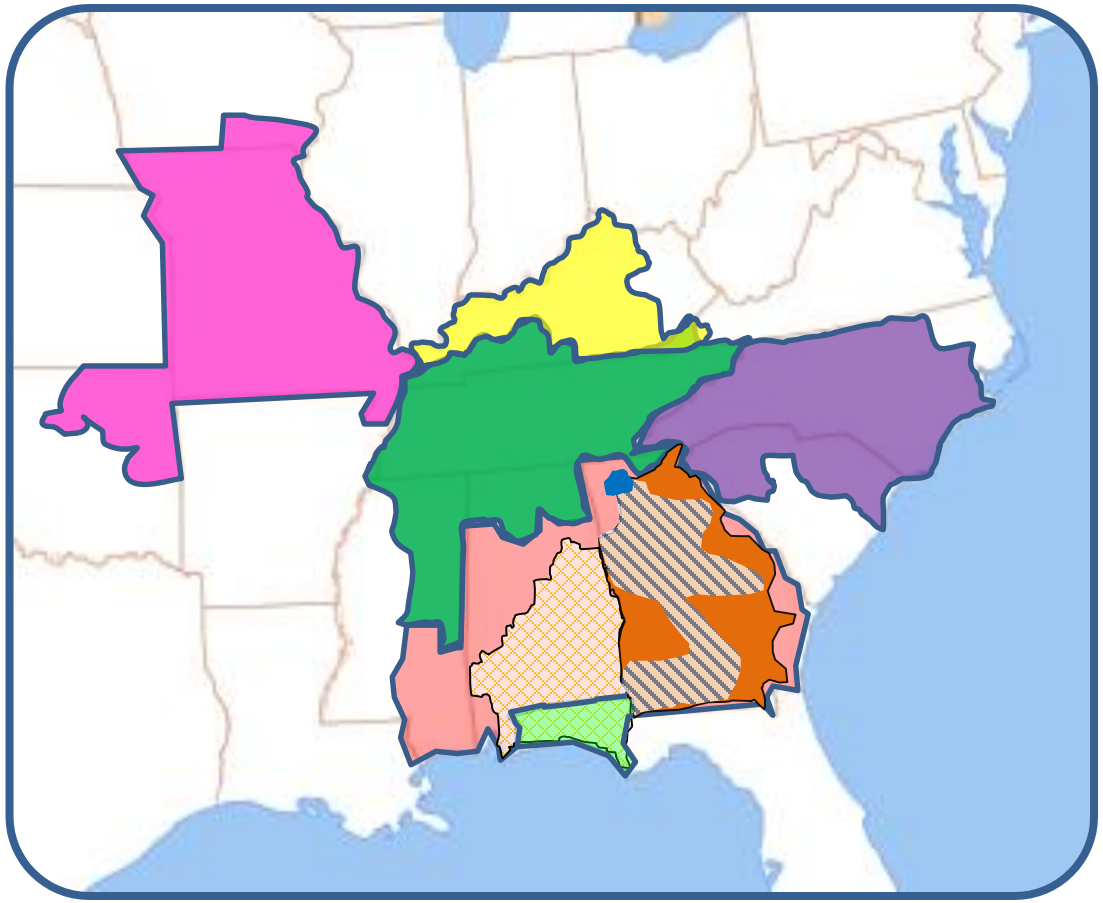
SERTP

Regional Modeling Assumptions

SERTP

Regional Transmission Plan

Southeastern Regional Transmission Planning (SERTP)



SERTP

- Associated Electric Cooperative Inc.
- Dalton Utilities
- Duke Energy
- Georgia Transmission
- Gulf Power
- LG&E KU
- MEAG Power
- PowerSouth Energy Cooperative
- Southern Company
- TVA

Southeastern Regional Transmission Planning (SERTP)

Balancing Authority Area:

AECI

Duke Carolinas

Duke Progress

LG&E/KU

PowerSouth

Southern

TVA

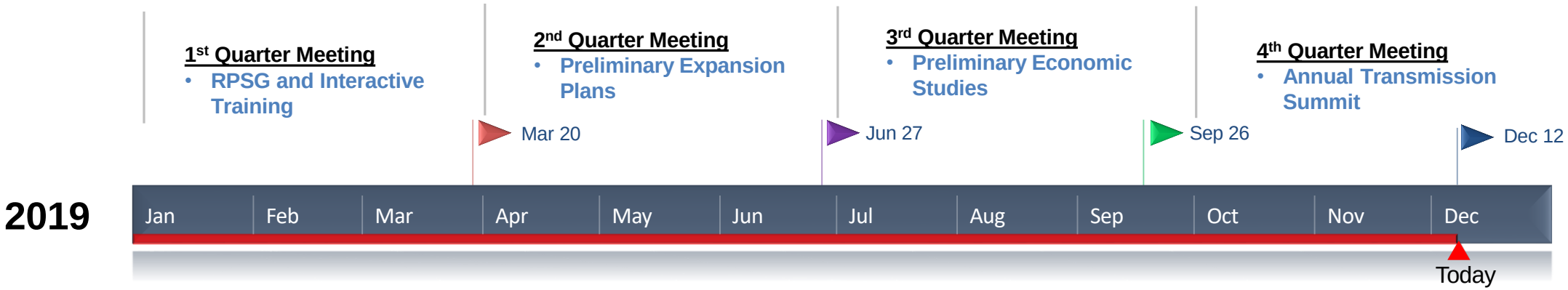
SERTP

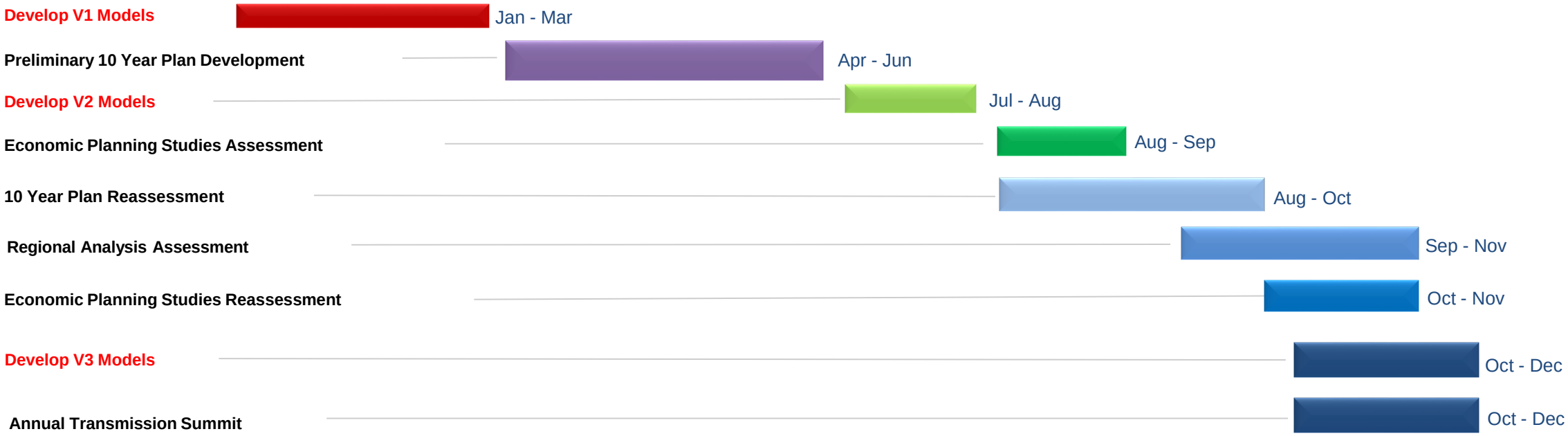
Regional Transmission Expansion Plan Process

Southeastern Regional TRANSMISSION PLANNING

2019 SERTP

10 Year SERTP Regional Transmission Expansion Plan Process



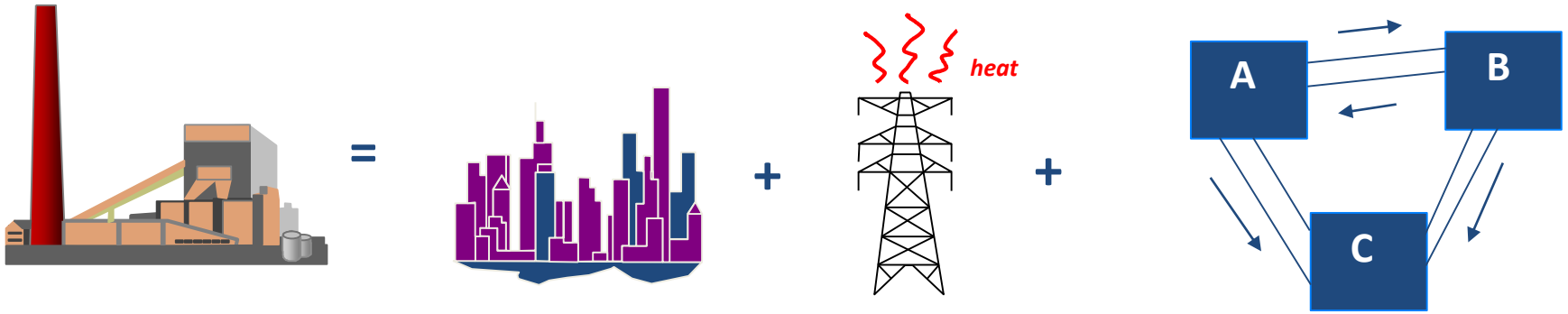


SERTP

Regional Model Assumptions

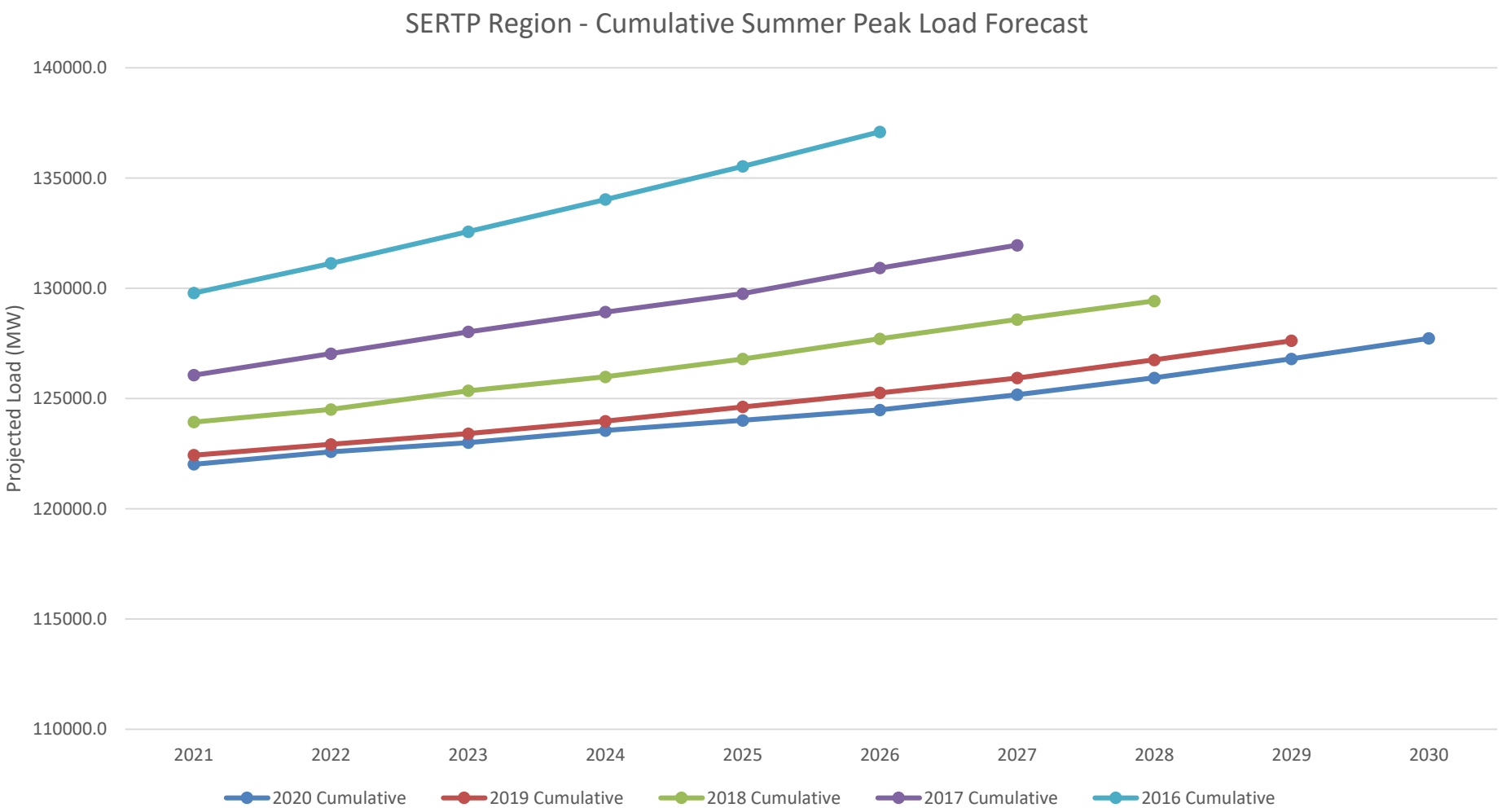
Regional Model Assumptions

Generation = Load + Losses (Topology) + Net Interchange



- Projected load for each year and season
- Losses produced in serving that load
  - Transmission Lines & Transformers
    - 10 Year Transmission Expansion Plan
- Area Interchange of long-term firm commitments across the interface
- Generation needed to balance all of the above

SERTP Cumulative Summer Peak Load Forecast



Regional Transmission Expansion Plan

The projects described in this presentation represent the regional ten (10) year transmission expansion plan. The transmission expansion plan is periodically reviewed and may be revised due to changes in assumptions. This presentation does not represent a commitment to build for projects listed in the future.

SERTP

Regional Transmission Expansion Plans

AECI Balancing Authority Area

AECI Balancing Authority Area

2019 Generation Assumptions

AECI Balancing Authority Area

AECI– Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
White Cloud	WIND	238	238	238	238	238	238	238	238	238	238
Clear Creek	WIND	230	230	230	230	230	230	230	230	230	230

AECI Balancing Authority Area

AECI Balancing Authority Area

2019 SERTP Regional Transmission Expansion Plan

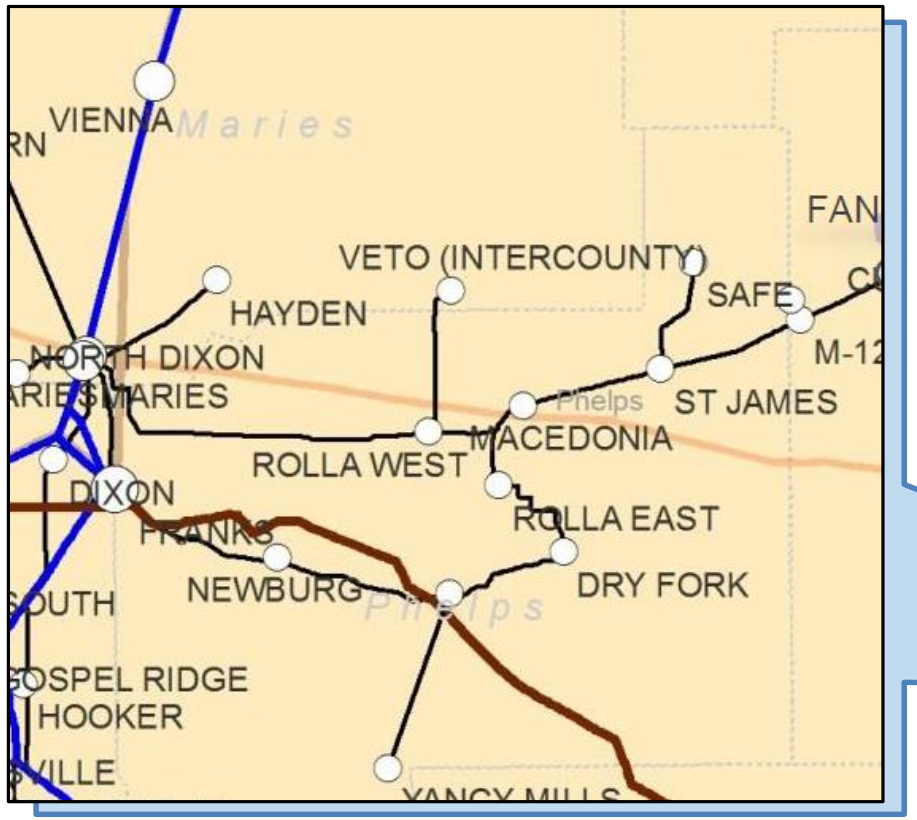
Southeastern Regional TRANSMISSION PLANNING

AECI Balancing Authority Area

AECI – 1

• **2020**

Macedonia – Dillon 138 kV T.L. & Macedonia 138 kV Substation

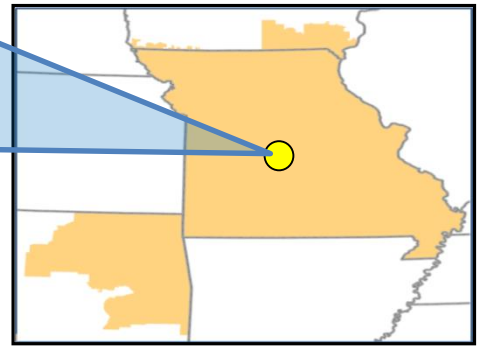


DESCRIPTION:

Construct approximately 1.1 miles of 138 kV transmission line from Macedonia to Dillon (Ameren) with 795 ACSR at 100°C and install a 56 MVA 138/69 kV transformer at Macedonia.

SUPPORTING STATEMENT:

The Maries – Rolla. West transmission line overloads under contingency and additional voltage support is needed in the Maries and Rolla areas under contingency



AECI Balancing Authority Area

AECI Balancing Authority

Upcoming 2020 Generation Assumptions

* AECI has no generation assumptions expected to change throughout the ten year planning horizon for the 2020 SERTP Process.

Duke Carolinas Balancing Authority Area

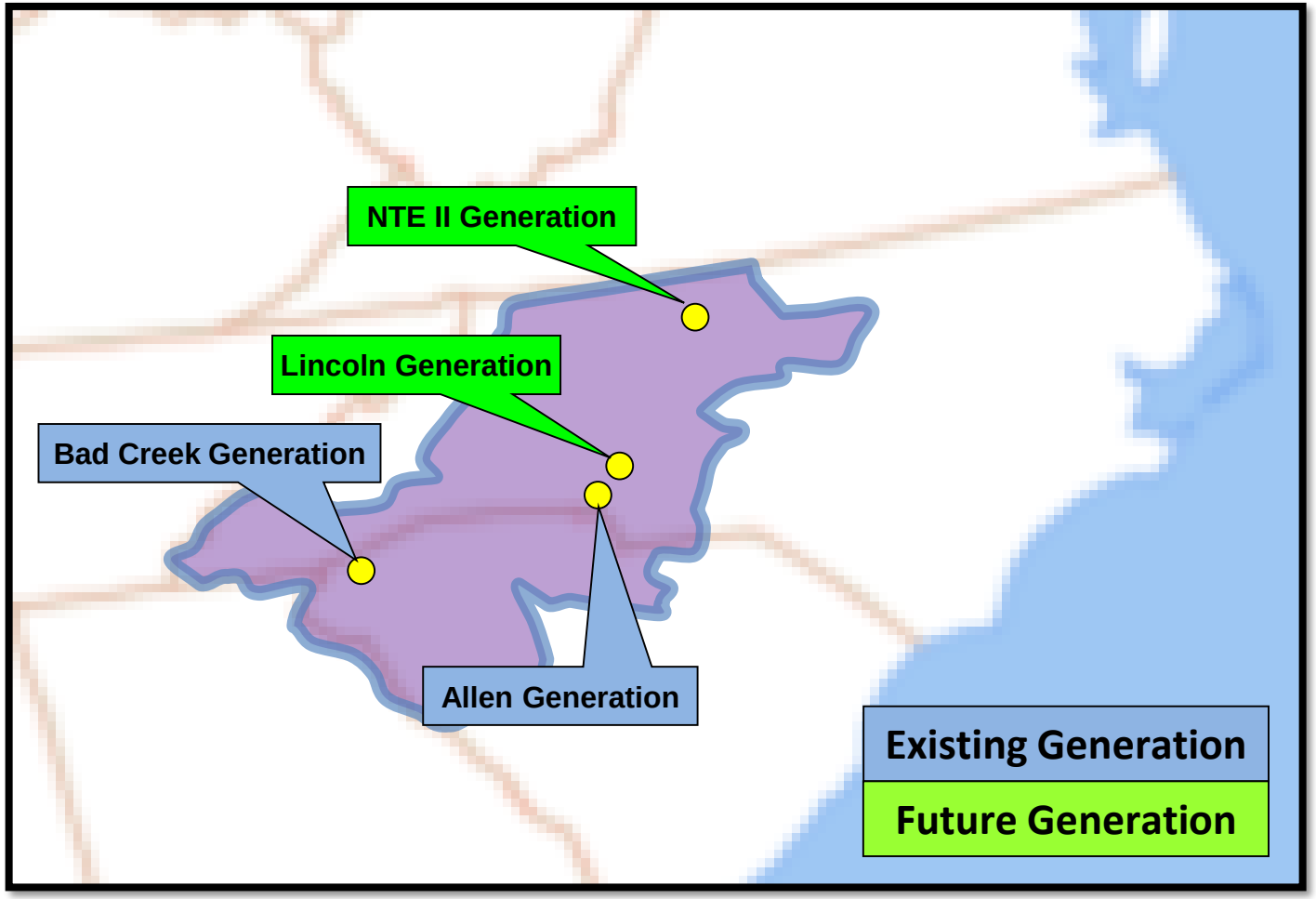
DUKE CAROLINAS Balancing Authority Area

2019 Generation Assumptions

Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process.



Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
ALLEN 1	COAL	174	174	174	174	174	0	--	--	--	--
ALLEN 2	COAL	172	172	172	172	172	0	--	--	--	--
ALLEN 3	COAL	271	271	271	271	271	0	--	--	--	--
ALLEN 4	COAL	274	274	274	274	274	274	274	274	0	--
ALLEN 5	COAL	290	290	290	290	290	290	290	290	0	--
BAD CREEK 1	Pumped Hydro	350	420	420	420	420	420	420	420	420	420
BAD CREEK 2	Pumped Hydro	350	350	420	420	420	420	420	420	420	420
BAD CREEK 3	Pumped Hydro	350	350	350	420	420	420	420	420	420	420
BAD CREEK 4	Pumped Hydro	350	350	350	350	420	420	420	420	420	420
LINCOLN 17	GAS	--	--	--	--	402	402	402	402	402	402
NTE II	GAS	--	--	474	474	474	474	474	474	474	474

Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BROAD RIVER	850	850	850	850	850	850	850	850	850	850
CATAWBA	155	155	155	155	155	155	155	155	155	155
ROWAN	150	150	150	150	150	150	150	150	150	150

Duke Carolinas Balancing Authority Area

DUKE CAROLINAS Balancing Authority Area

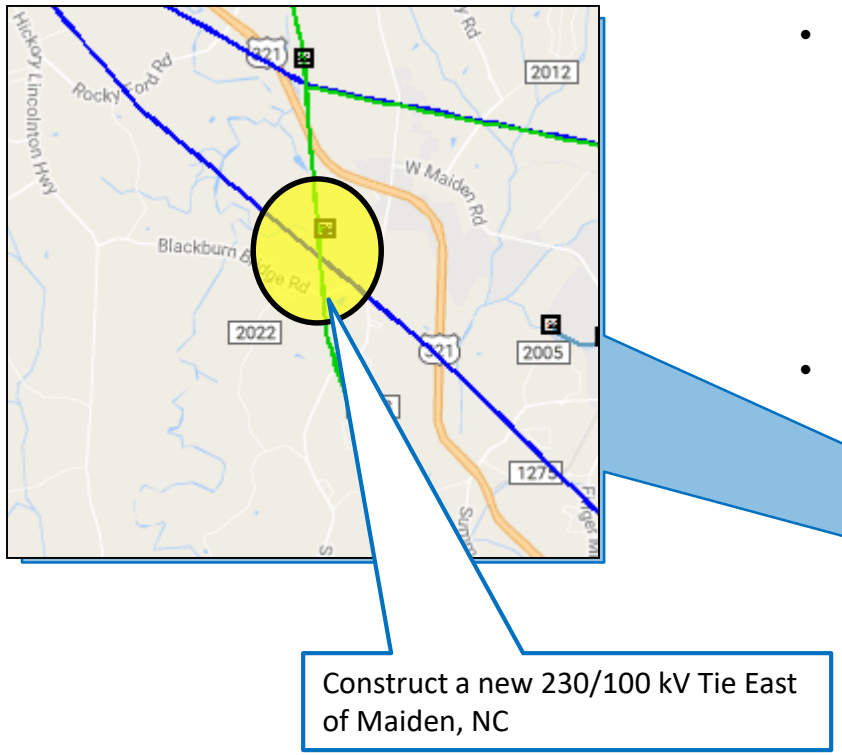
SERTP Regional Transmission Expansion Plan

Duke Carolinas Balancing Authority Area

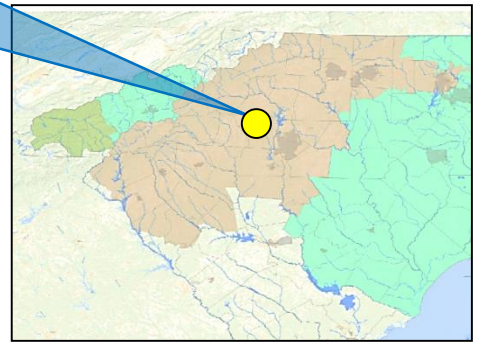
DUKE CAROLINAS – 1

• **2020**

ORCHARD 230/100 KV TIE



- **DESCRIPTION:**
  - Construct a new 230/100 kV Tie station, southwest of Maiden, NC at the intersection of the Lincoln CT to Longview Tie 230 kV transmission line and the Lincolnton Tie to Hickory Tie 100 kV transmission line.
- **SUPPORTING STATEMENT:**
  - To support additional load growth in the area.

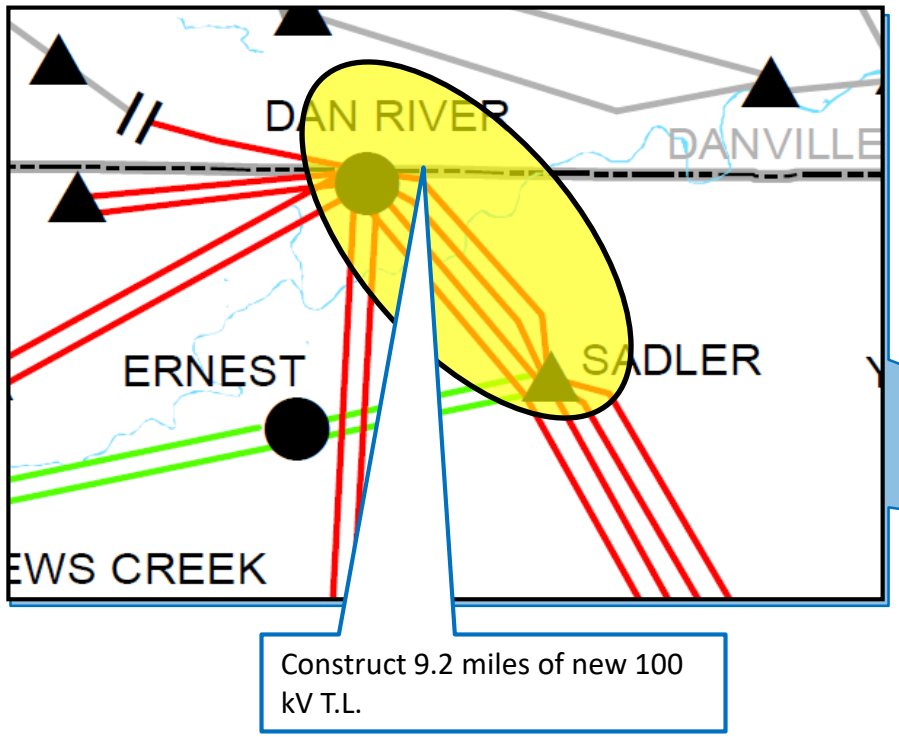


Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – 2

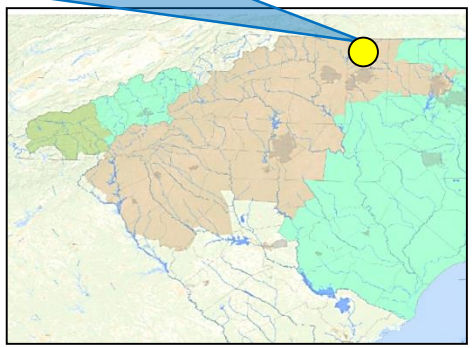
- **2023**

SADLER TIE – DAN RIVER 100 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Construct approximately 9.2 miles of new 100 kV transmission line between Dan River Steam Station and Sadler Tie with 954 AAC at 120°C.

- **SUPPORTING STATEMENT:**
  - Thermal overloads occur around Dan River Steam Station and Dan River Combined Cycle Station under contingency.

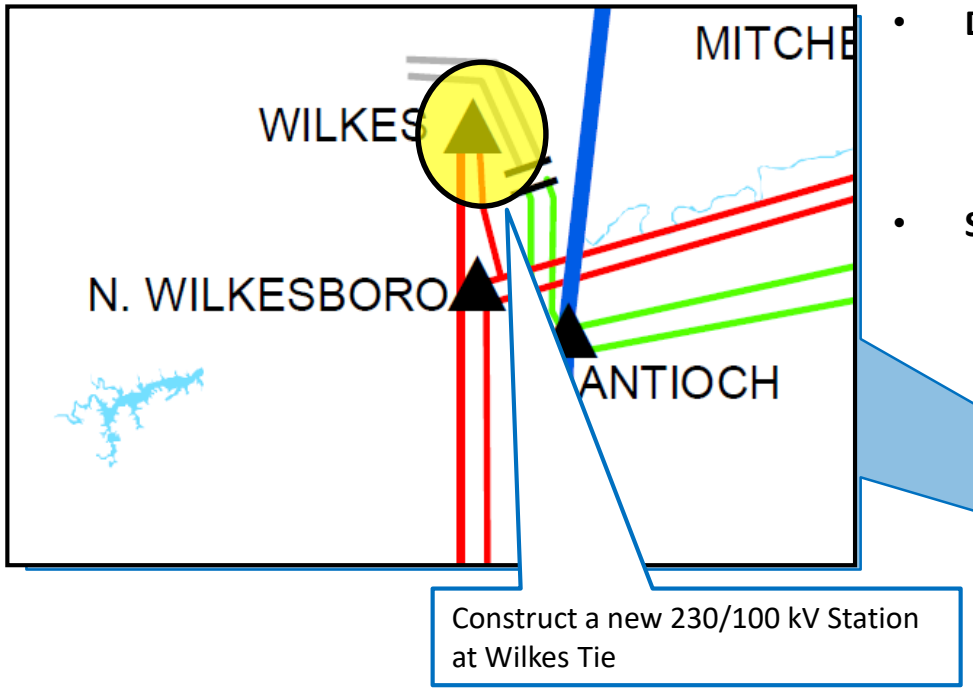


Duke Carolinas Balancing Authority Area

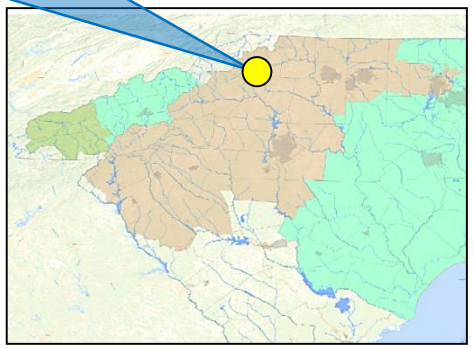
DUKE CAROLINAS – 3

• **2023**

WILKES TIE 230 KV SUBSTATION



- **DESCRIPTION:**
  - Install a new 230/100 kV, 448 MVA transformer at Wilkes Tie.
- **SUPPORTING STATEMENT:**
  - Thermal overloads occur near North Wilkesboro Tie and additional voltage support is needed in the area under contingency.

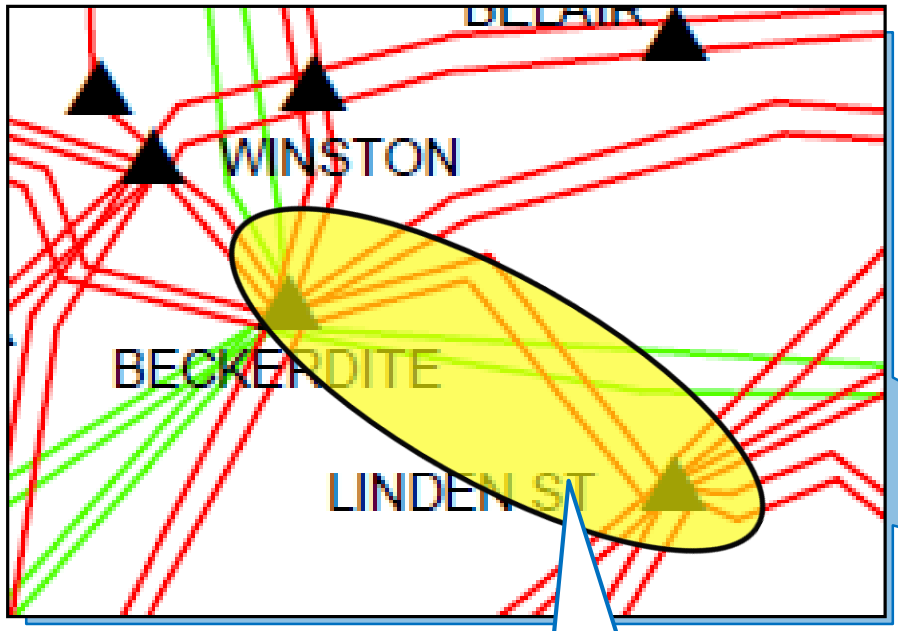


Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – 4

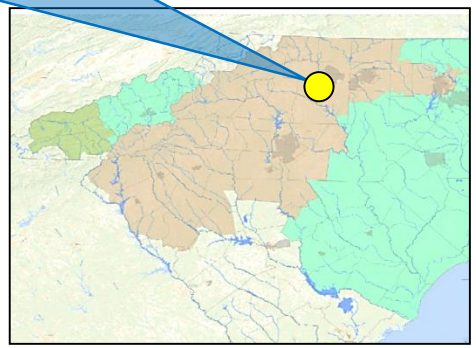
• **2025**

BECKERDITE – LINDEN STREET 100 KV TRANSMISSION LINE



Reconductor 16 miles of the Beckerdite – Linden Street 100

- **DESCRIPTION:**
  - Reconductor approximately 16.0 miles of the double circuit Beckerdite to Linden St 100 kV transmission line with bundled 477 ACSR.
- **SUPPORTING STATEMENT:**
  - The Beckerdite to Linden Street 100 kV transmission line overloads under contingency.



Duke Carolinas Balancing Authority Area

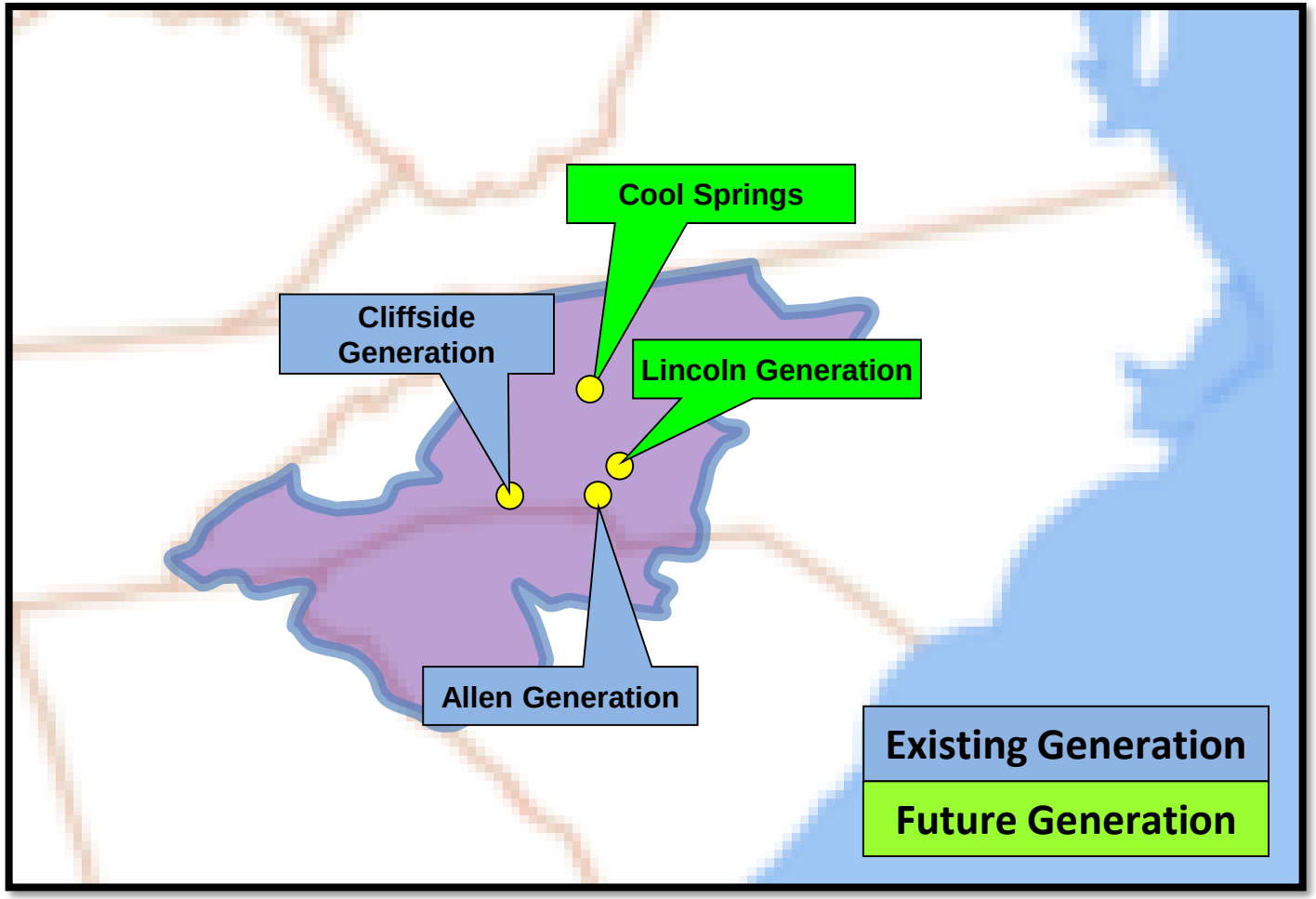
DUKE CAROLINAS Balancing Authority Area

Upcoming 2020 Generation Assumptions

Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process.



Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
ALLEN 1	COAL	174	174	174	174	0	--	--	--	--	--
ALLEN 2	COAL	172	172	172	172	0	--	--	--	--	--
ALLEN 3	COAL	271	271	271	271	0	--	--	--	--	--
ALLEN 4	COAL	274	274	274	274	0	--	--	--	--	--
ALLEN 5	COAL	290	290	290	290	0	--	--	--	--	--
Cliffside 5	COAL	566	566	566	566	566	566	0	--	--	--
Cool Springs	PV	--	80	80	80	80	80	80	80	80	80
LINCOLN 17	GAS	--	--	--	402	402	402	402	402	402	402

Duke Carolinas Balancing Authority Area

DUKE CAROLINAS – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BROAD RIVER	850	850	850	850	850	850	850	850	850	850
CATAWBA	155	155	155	155	155	155	155	155	155	155
ROWAN	150	150	150	150	150	150	150	150	150	150

DUKE PROGRESS EAST/WEST Balancing Authority Area

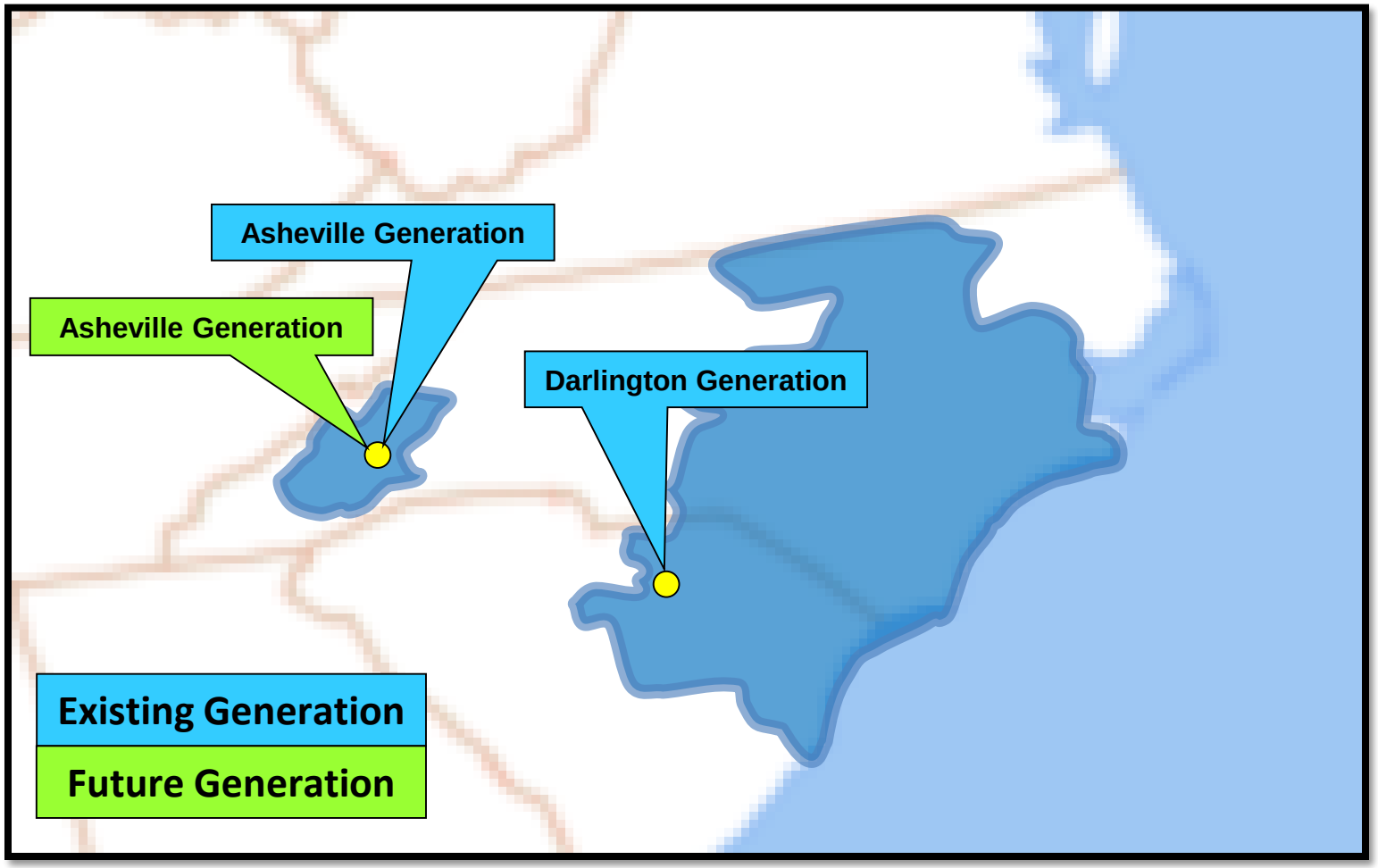
DUKE PROGRESS EAST/WEST Balancing Authority Areas

2019 Generation Assumptions

DUKE PROGRESS EAST/WEST Balancing Authority Area

DUKE PROGRESS – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process.



DUKE PROGRESS EAST/WEST Balancing Authority Area

DUKE PROGRESS – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
ASHEVILLE #1 COAL	0	--	--	--	--	--	--	--	--	--
ASHEVILLE #2 COAL	0	--	--	--	--	--	--	--	--	--
ASHEVILLE CC #1	260	260	260	260	260	260	260	260	260	260
ASHEVILLE CC #2	260	260	260	260	260	260	260	260	260	260
DARLINGTON CT #1	0	--	--	--	--	--	--	--	--	--
DARLINGTON CT #2	0	--	--	--	--	--	--	--	--	--
DARLINGTON CT #3	0	--	--	--	--	--	--	--	--	--
DARLINGTON CT #4	0	--	--	--	--	--	--	--	--	--
DARLINGTON CT #6	0	--	--	--	--	--	--	--	--	--

DUKE PROGRESS EAST/WEST Balancing Authority Area

DUKE PROGRESS – Generation Assumptions (Cont.)

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
DARLINGTON CT #7	0	--	--	--	--	--	--	--	--	--
DARLINGTON CT #8	0	--	--	--	--	--	--	--	--	--
DARLINGTON CT #10	0	--	--	--	--	--	--	--	--	--

DUKE PROGRESS EAST/WEST Balancing Authority Area

DUKE PROGRESS – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
HAMLET #1	55	55	55	55	55	55	55	55	55	55
HAMLET #2	55	55	55	55	55	55	55	55	55	55
HAMLET #3	55	55	55	55	55	55	55	55	55	55

Southeastern Regional TRANSMISSION PLANNING

DUKE PROGRESS EAST Balancing Authority Area

DUKE PROGRESS EAST Balancing Authority

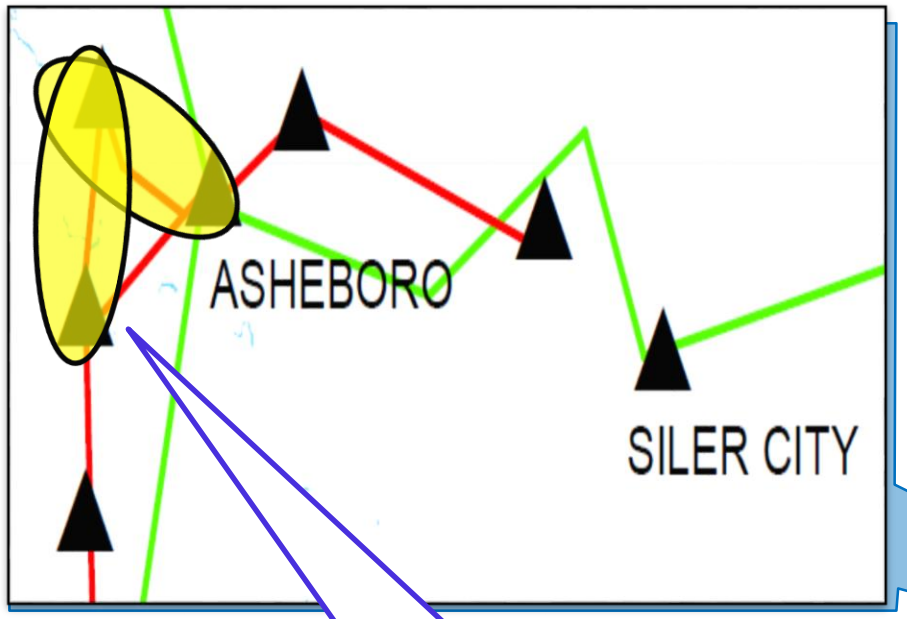
SERTP Regional Transmission Expansion Plan

DUKE PROGRESS EAST Balancing Authority Area

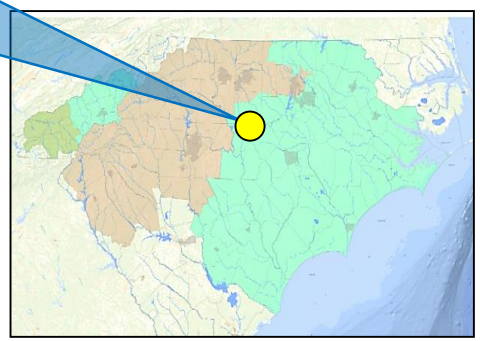
DUKE PROGRESS EAST – 1

• **2020**

ASHEBORO – ASHEBORO EAST (NORTH) 115 KV T.L.



- **DESCRIPTION:**
  - Rebuild approximately 6.5 miles of the Asheboro – Asheboro East (North) 115 kV transmission line using 3-1590 ACSR rated for 307 MVA. Replace disconnect switches at Asheboro 230 kV and both the breaker and the disconnect switches at Asheboro East 115 kV with equipment of at least 2000 A capability.
- **SUPPORTING STATEMENT:**
  - The Asheboro – Asheboro East (North) 115 kV transmission line overloads under contingency.

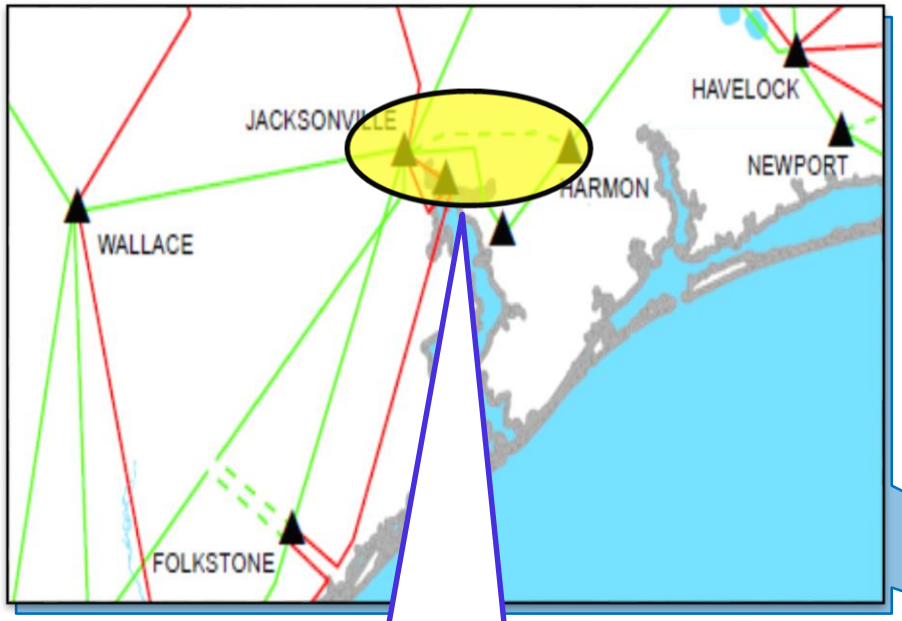


DUKE PROGRESS EAST Balancing Authority Area

DUKE PROGRESS EAST – 2

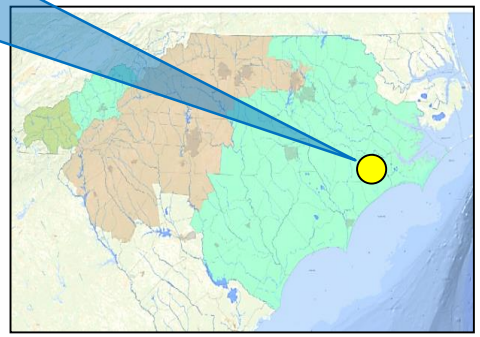
• **2020**

GRANT'S CREEK - JACKSONVILLE 230 KV T.L.



NEW 230 KV TL WITH 6-1590 ACSR OR EQUIVALENT CONDUCTOR. NEW 230 KV SUBSTATION WITH A 230/115 KV, 300 MVA TRANSFORMER

- **DESCRIPTION:**
  - Construct approximately 12.0 miles of new 230 kV transmission line from Jacksonville 230 kV substation to a new 230 kV substation at Grant's Creek with bundled 6-1590 ACSR or equivalent conductor rated for 1195 MVA. Build the new 230 kV Grant's Creek substation with four 230 kV breakers and a new 230/115 kV, 300 MVA transformer.
- **SUPPORTING STATEMENT:**
  - The Havelock – Jacksonville 230 kV transmission line overloads under contingency and additional voltage support is needed in the Jacksonville area.

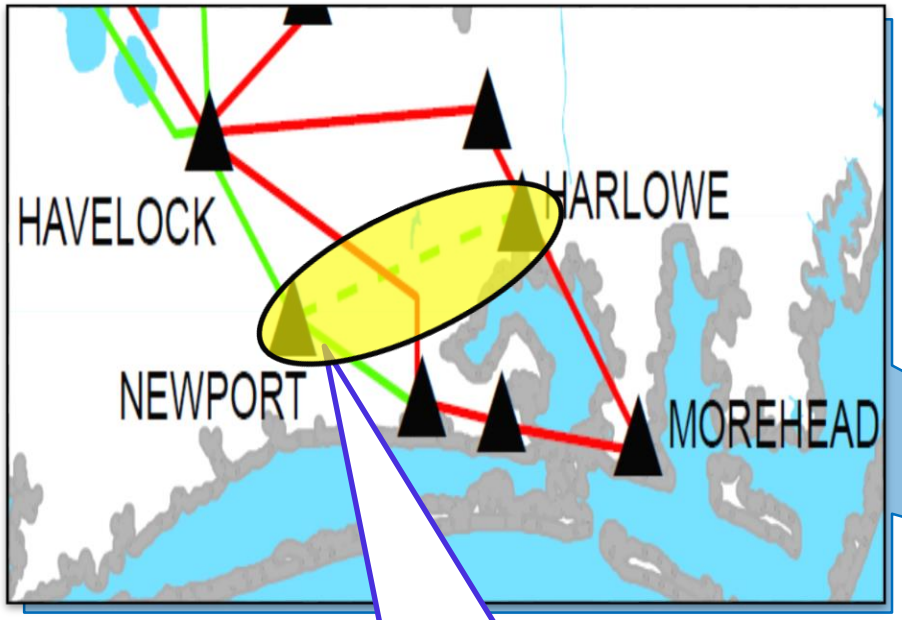


DUKE PROGRESS EAST Balancing Authority Area

DUKE PROGRESS EAST – 3

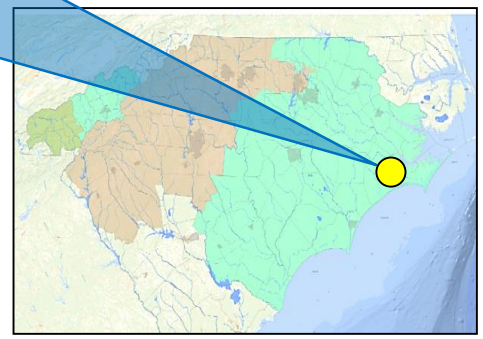
• **2020**

HARLOWE – NEWPORT 230 KV T.L.



NEW 230 KV SWITCHING STATION. NEW 230 KV SUBSTATION. NEW 230 KV T.L. WITH 3-1590 ACSR OR EQUIVALENT CONDUCTOR

- **DESCRIPTION:**
  - Construct a new 230 kV switching station at Newport, construct a new 230 kV substation in the Harlowe Area, and construct approximately 10.0 miles of new 230 kV transmission line from the Harlowe – Newport with 3-1590 ACSR or equivalent conductor rated for 680 MVA.
- **SUPPORTING STATEMENT:**
  - Additional voltage support is needed in Havelock – Morehead area under contingency.

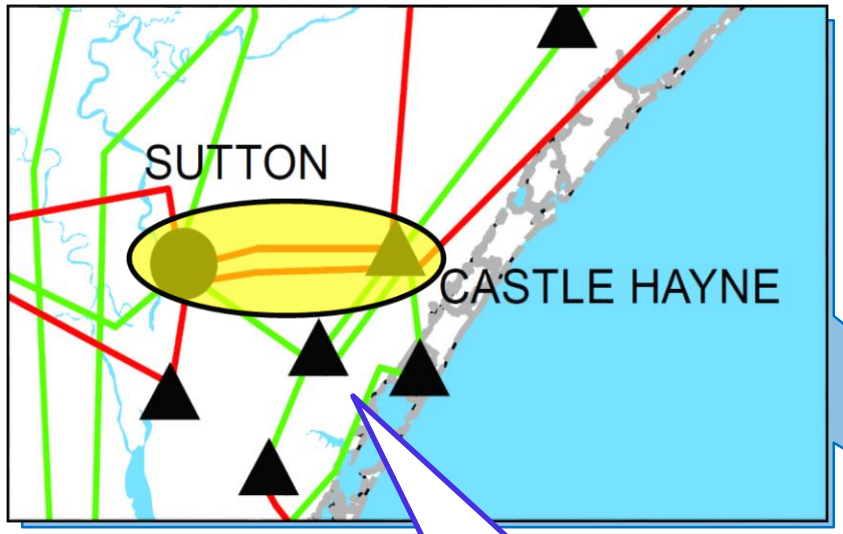


DUKE PROGRESS EAST Balancing Authority Area

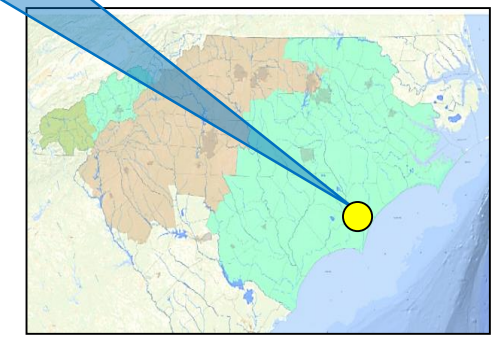
DUKE PROGRESS EAST – 4

• **2020**

SUTTON PLANT – CASTLE HAYNE 115 KV NORTH T.L.



- **DESCRIPTION:**
  - Rebuild approximately 8.0 miles of the Sutton Plant – Castle Hayne 115 kV North transmission line using 1272 ACSR rated for 239 MVA.
- **SUPPORTING STATEMENT:**
  - The Sutton Plant – Castle Hayne 115 kV North transmission line overloads under contingency.

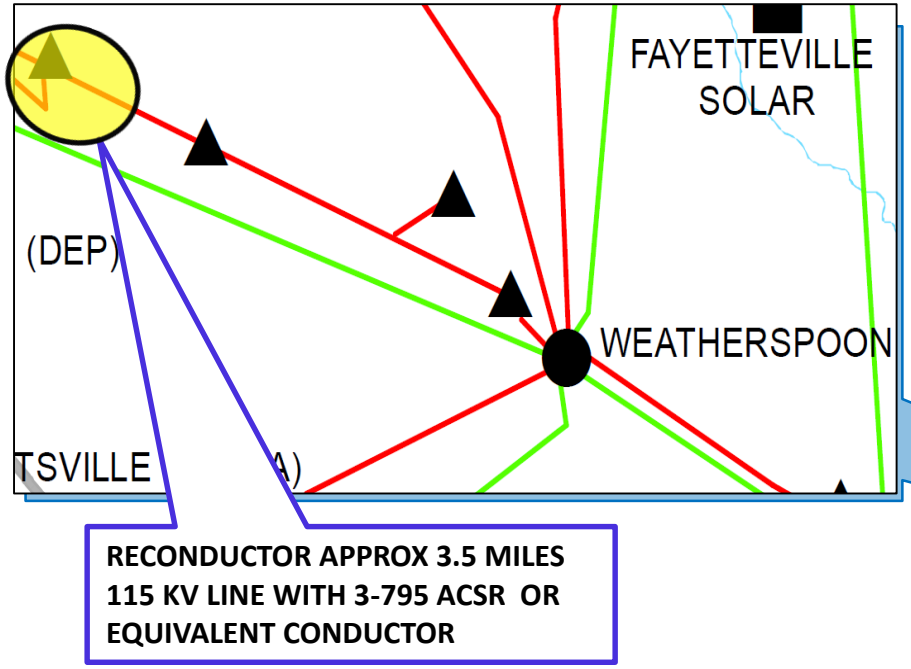


DUKE PROGRESS EAST Balancing Authority Area

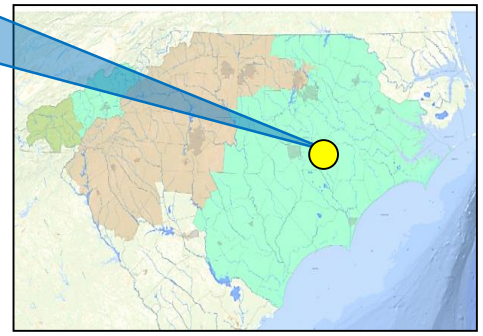
DUKE PROGRESS EAST – 5

• **2022**

IND 304440 – MAXTON 115 KV RECONDUCTOR



- **DESCRIPTION:**
  - Reconductor with 3-795 MCM ACSR or equivalent from IND 304440 to Maxton 115 kV substation approximately 3.5 miles. Replace existing 600 A switches with 1200 A switches.
- **SUPPORTING STATEMENT:**
  - The IND 304440-Maxton section of the Weatherspoon-IND 304440 115 kV transmission line overloads under contingency.

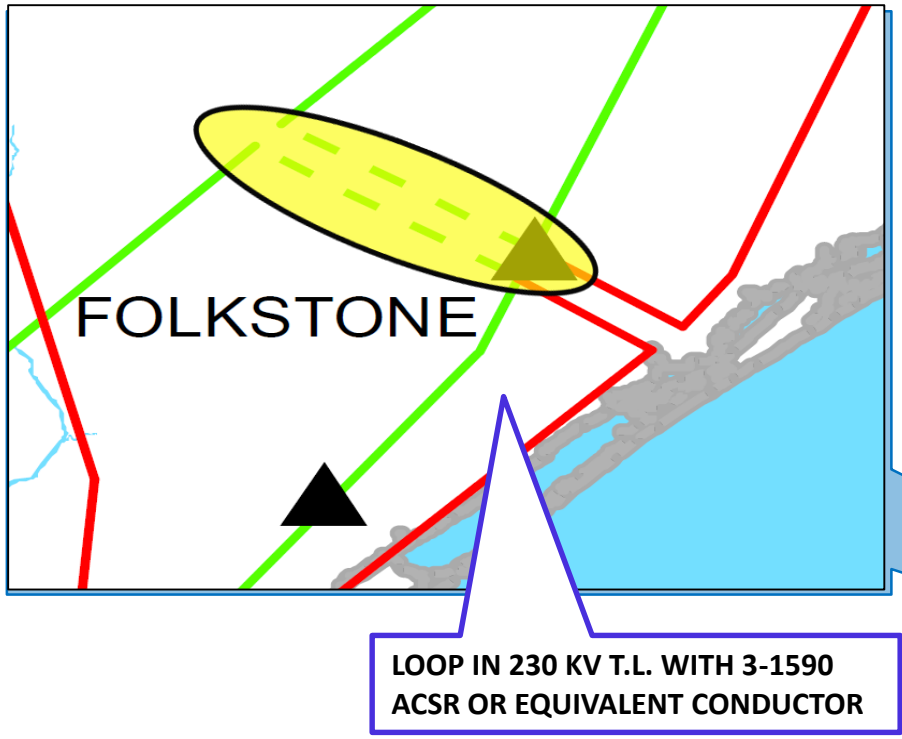


DUKE PROGRESS EAST Balancing Authority Area

DUKE PROGRESS EAST – 6

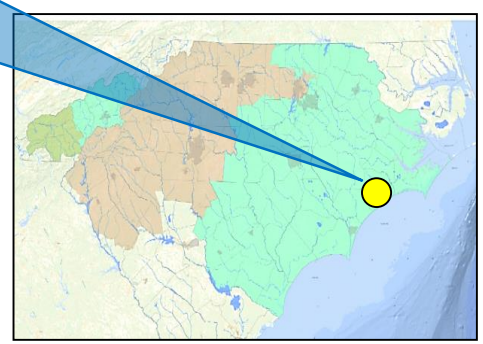
• **2024**

BRUNSWICK #1 – JACKSONVILLE 230 KV T.L.



- **DESCRIPTION:**
  - Loop existing Brunswick Plant Unit 1 – Jacksonville 230 kV transmission line into the Folkstone 230 kV Substation. Also, convert the Folkstone 230 kV bus configuration to breaker-and-one-half by installing three (3) new 230 kV breakers.

- **SUPPORTING STATEMENT:**
  - The Castle Hayne – Folkstone 115 kV transmission line overloads under contingency.

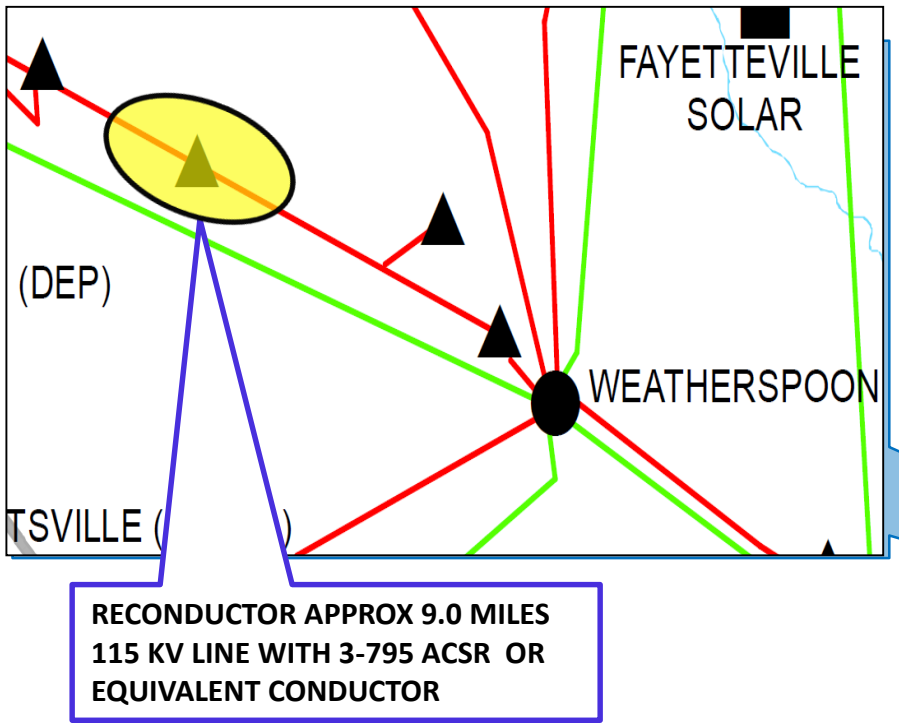


DUKE PROGRESS EAST Balancing Authority Area

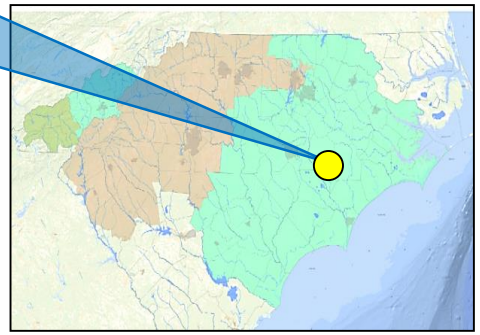
DUKE PROGRESS EAST – 7

• **2026**

WSPN – IND 304440 115 KV T.L.



- **DESCRIPTION:**
  - Reconductor approximately 9.0 miles from Maxton to Pembroke 115 kV substation with 3-795 MCM ACSR or equivalent. Replace existing 600 A switch with 1200 A switch.
- **SUPPORTING STATEMENT:**
  - The Maxton-Pembroke section of the Weatherspoon-IND 304440 115 kV transmission line overloads under contingency.

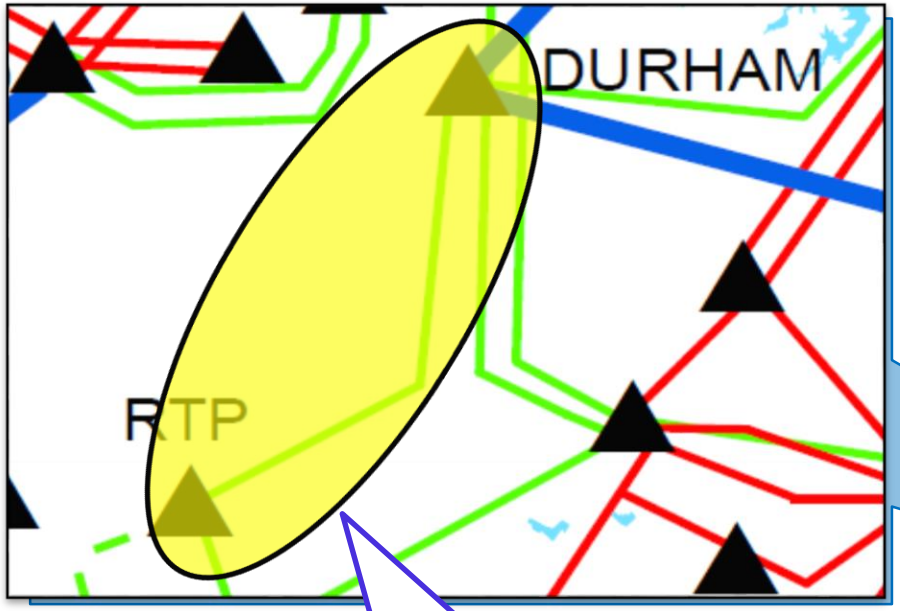


DUKE PROGRESS EAST Balancing Authority Area

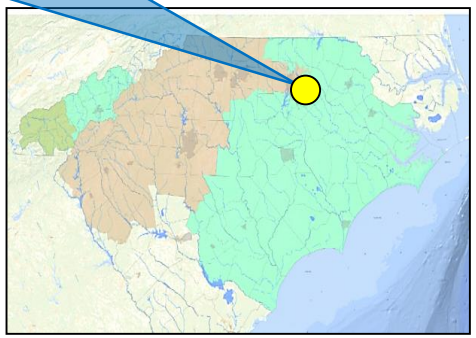
DUKE PROGRESS EAST – 8

• **2027**

DURHAM – RTP 230 KV T.L.



- **DESCRIPTION:**
  - Reconductor approximately 10.0 miles of the Durham – RTP 230 kV transmission line with bundled 6-1590 ACSR rated for 1195 MVA.
- **SUPPORTING STATEMENT:**
  - The Durham – RTP 230 kV transmission line overloads under contingency.



DUKE PROGRESS WEST Balancing Authority Area

DUKE PROGRESS WEST Balancing Authority Area

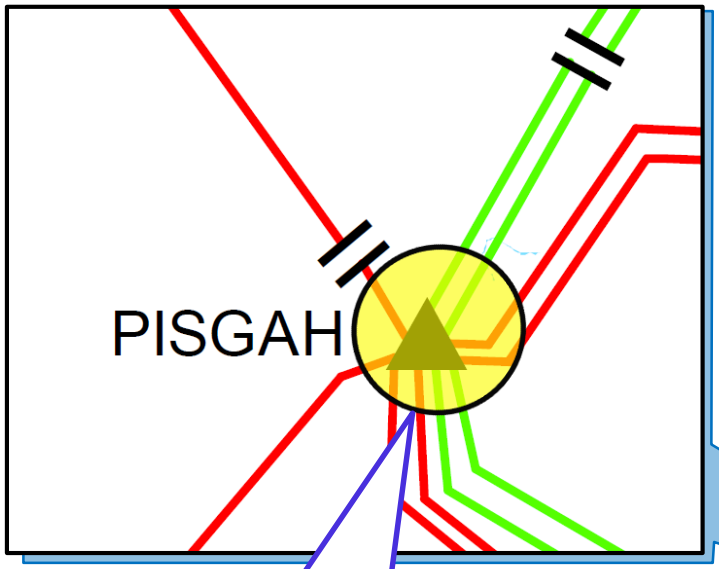
SERTP Regional Transmission Expansion Plan

DUKE PROGRESS WEST Balancing Authority Area

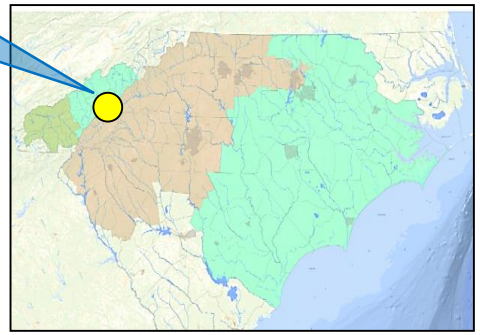
DUKE PROGRESS WEST – 1

• **2021**

PISGAH FOREST 230KV SUBSTATION



REPLACE EXISTING 2-100MVA, 230/100KV TRANSFORMERS AT PISGAH FOREST 230 KV SUB WITH 2-150MVA, 230/100kV TRANSFORMERS



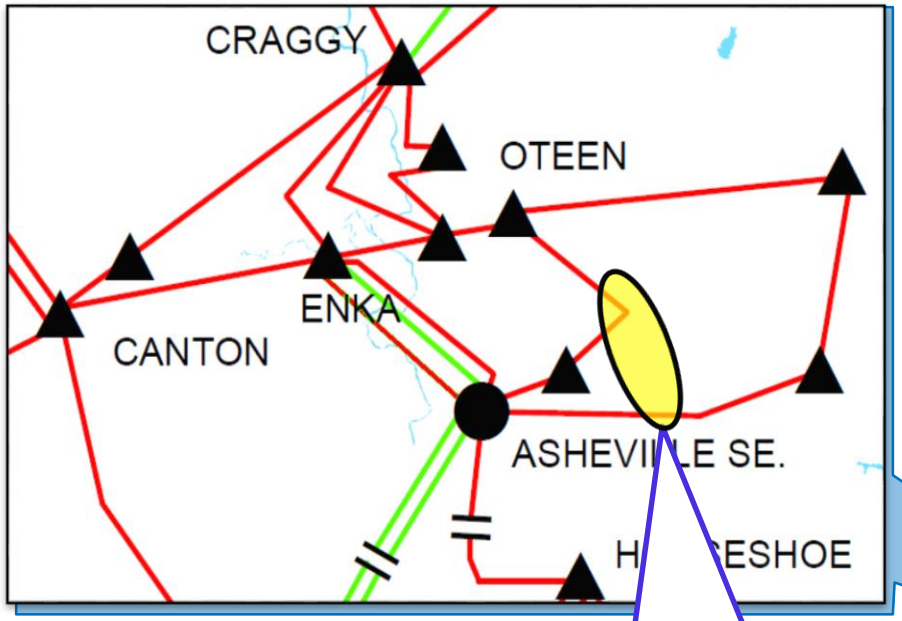
- **DESCRIPTION:**
  - Replace existing 2-100 MVA, 230/100 kV transformers at Pisgah Forest 230 kV Substation with 2-150 MVA, 230/100 kV transformers.
- **SUPPORTING STATEMENT:**
  - Necessary upgrades to allow for the interconnection of two combined cycle units at Asheville Plant.

DUKE PROGRESS WEST Balancing Authority Area

DUKE PROGRESS WEST – 2

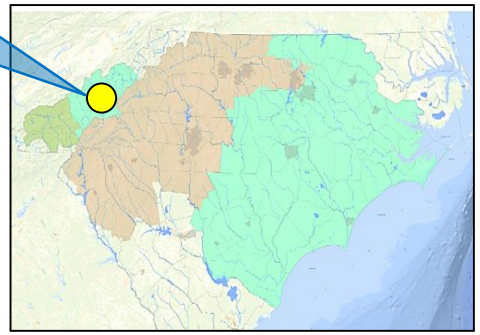
• **2022**

ASHEVILLE PLANT – OTEEN WEST 115 KV T.L., BALDWIN TAP



CONSTRUCT 2.2 MILES OF 115 KV TRANSMISSION LINE WITH 795 ACSR. RECONNECT THE BALDWIN 115 KV SUBSTATION.

- **DESCRIPTION:**
  - Construct approximately 2.2 miles of new 115 kV transmission line from the Asheville Plant – Oteen West 115 kV transmission line to the Asheville Plant – Oteen East 115 kV transmission line with 795 ACSR. The Baldwin 115 kV substation will be reconnected to this new tap line.
- **SUPPORTING STATEMENT:**
  - Additional voltage support is needed in the Baldwin area.



DUKE PROGRESS EAST/WEST Balancing Authority Area

DUKE PROGRESS EAST/WEST Balancing Authority Areas

Upcoming 2020 Generation Assumptions

* Duke Progress East/West has no generation assumptions expected to change throughout the ten year planning horizon for the 2020 SERTP Process.

DUKE PROGRESS EAST/WEST Balancing Authority Area

DUKE PROGRESS – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
HAMLET #1	55	55	55	55	55	55	55	55	55	55
HAMLET #2	55	55	55	55	55	55	55	55	55	55
HAMLET #3	55	55	55	55	55	55	55	55	55	55

GULF POWER Balancing Authority Area

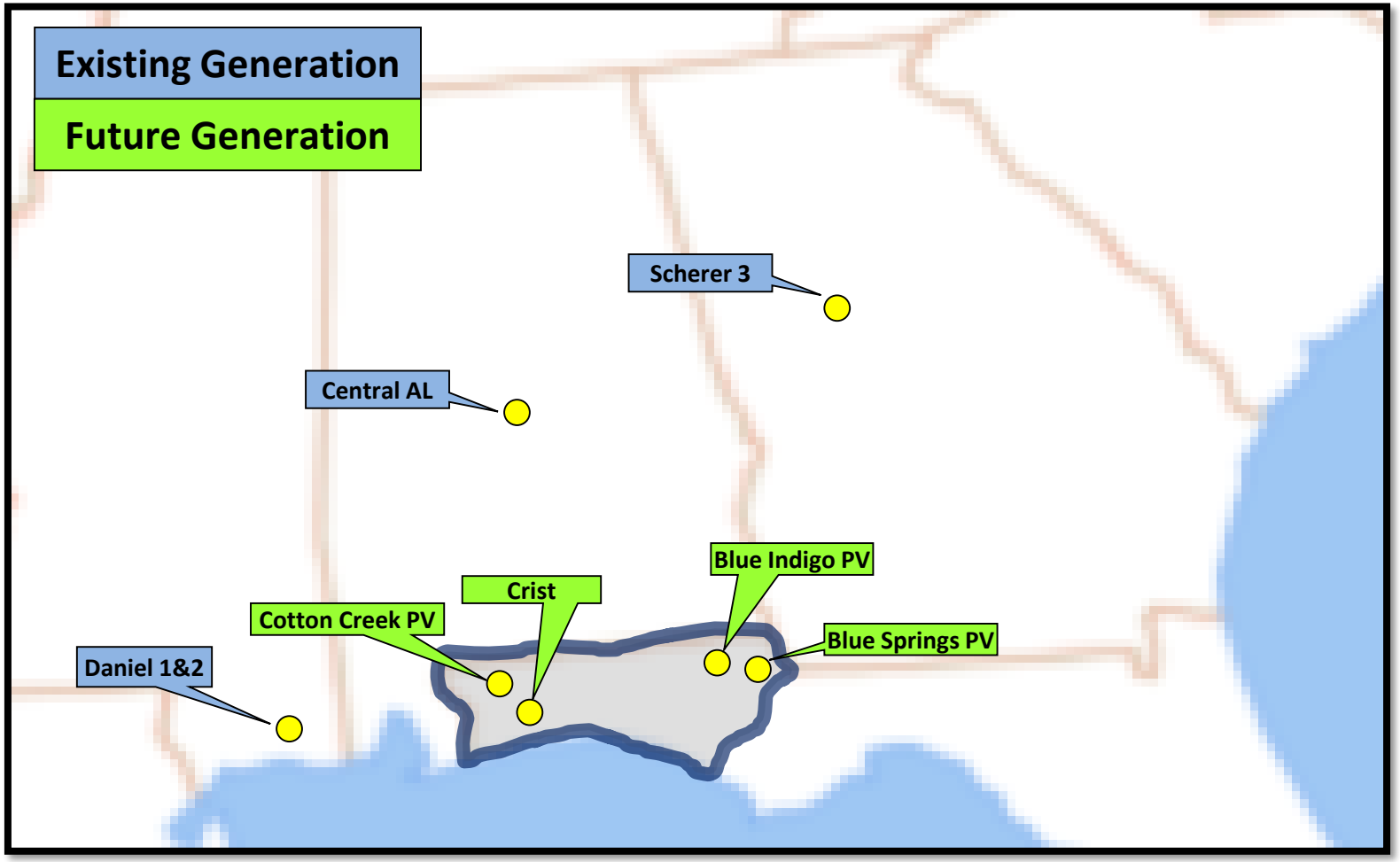
GULF POWER Balancing Authority Area

2019 Generation Assumptions

GULF POWER Balancing Authority Area

GULF POWER – Generation Assumptions 2021

The following diagram depicts the location of generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2019 SERTP Process.



GULF POWER Balancing Authority Area

GULF POWER – Generation Assumptions

The following table depicts future generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020[1]	2021	2022	2023	2024	2025	2026	2027	2028	2029
CRIST	Gas	972	1754	1754	1754	1754	1754	1754	1754	1754	1754
BLUE INDIGO PV	Solar	--	75	75	75	75	75	75	75	75	75
COTTON CREEK PV	Solar	--	75	75	75	75	75	75	75	75	75
BLUE SPRING PV	Solar	--	--	75	75	75	75	75	75	75	75

1) Gulf Power is currently in the SBAA but, during the 2019 planning process, had preliminary plans to leave the SBAA in December 2020

GULF POWER Balancing Authority Area

GULF POWER – Generation Assumptions (Delivery Service)

The following table depicts generation assumptions based upon expected long-term firm delivery service commitments. The years shown represent Summer Peak conditions.

SITE	2020[1]	2021	2022	2023	2024	2025	2026	2027	2028	2029
DANIEL	500	500	500	500	500	500	500	500	500	500
SCHERER	220	220	220	220	220	220	220	220	220	220
CENTRAL ALABAMA	885	885	885	--	--	--	--	--	--	--

1) Gulf Power is currently in the SBAA but, during the 2019 process, had preliminary plans to leave the SBAA in December 2020

GULF POWER Balancing Authority Area

GULF POWER Balancing Authority Area

SERTP Regional Transmission Expansion Plan

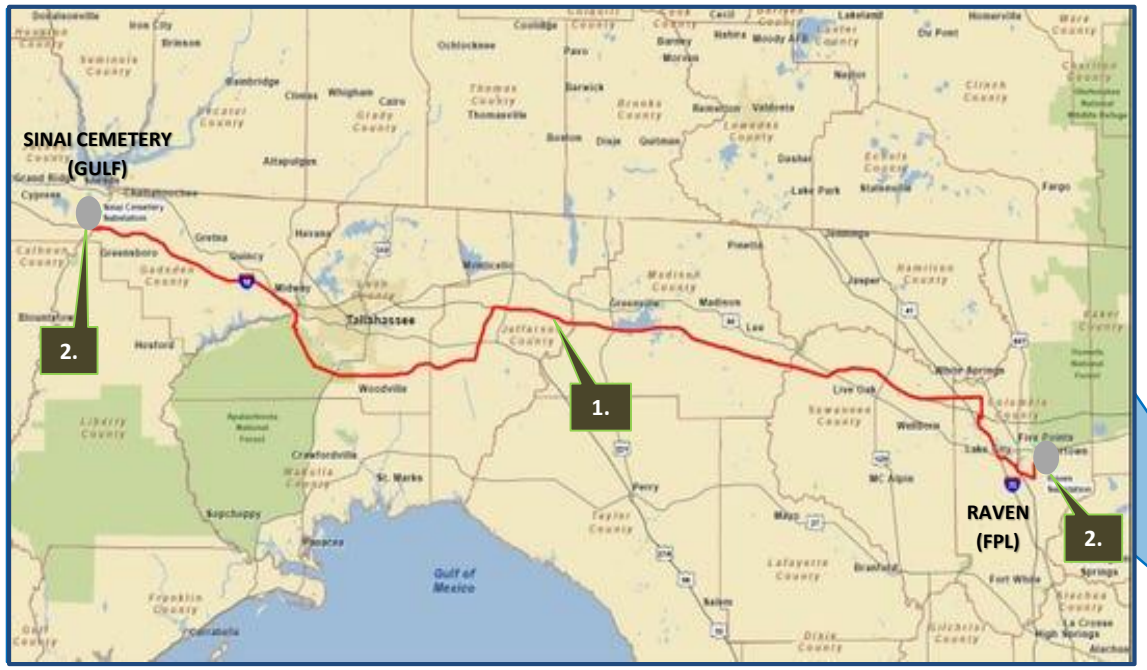
Southeastern Regional TRANSMISSION PLANNING

GULF POWER Balancing Authority Area

GULF - 1

• **2021**

RAVEN-SINAI CEMETARY 161kV TRANSMISSION LINE PROJECT

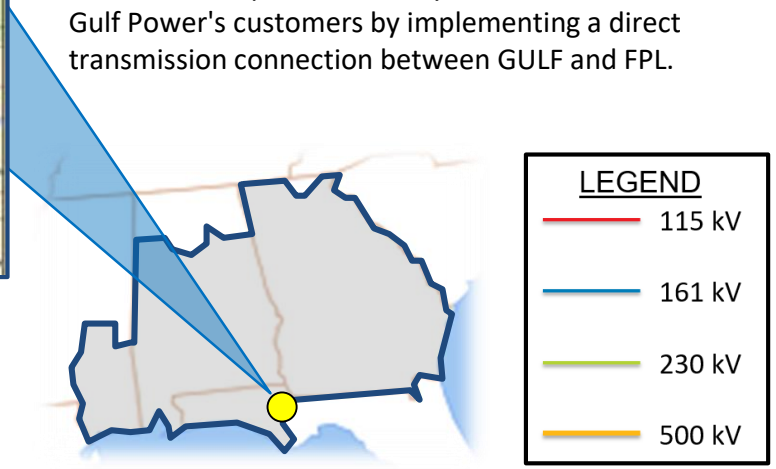


PROJECT DESCRIPTION:

1. Build a new 161kV line of approximately 176 miles rated at 3,210 Amps (895 MVA) from Raven (FPL) to Sinai Cemetery (GULF) substations.
2. Add a 230/161kV transformer at Raven and Sinai substations.

SUPPORTING STATEMENT:

- This project will help meet future load growth and continue to improve reliability in a low cost manner for Gulf Power's customers by implementing a direct transmission connection between GULF and FPL.

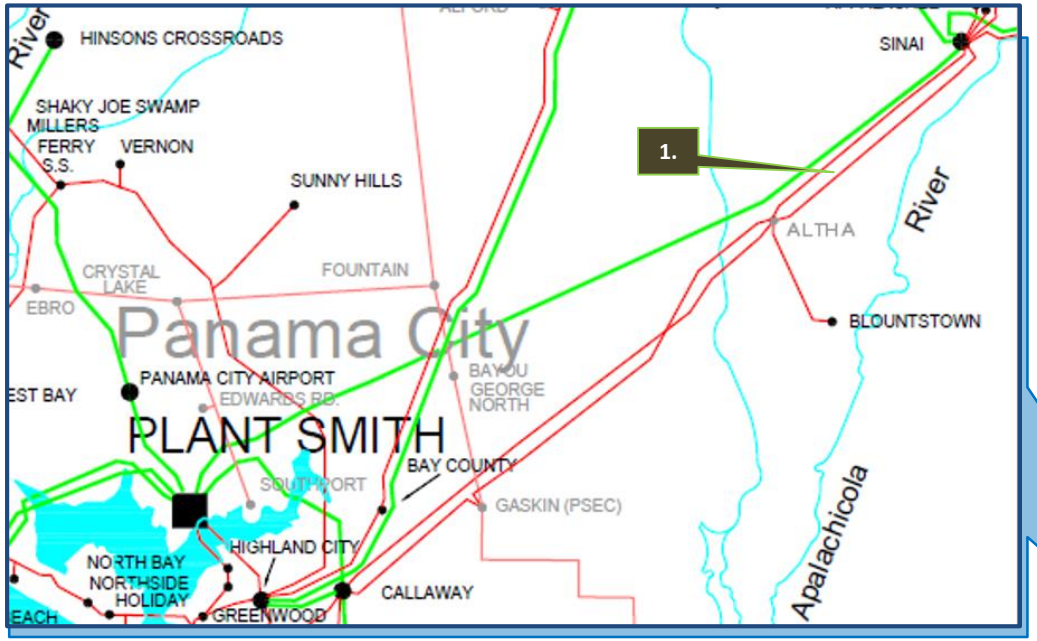


GULF POWER Balancing Authority Area

GULF - 2

• **2021**

SINAI-CALLAWAY 115 KV TRANSMISSION LINE

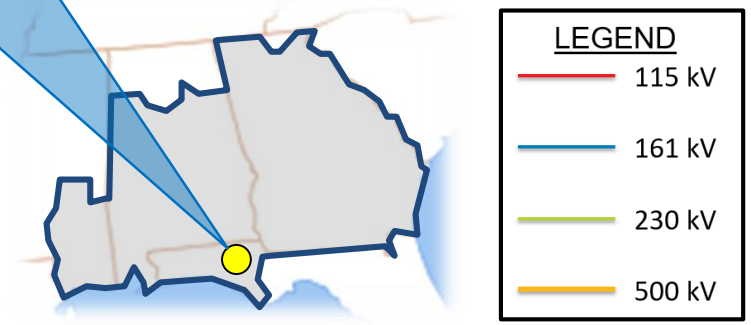


PROJECT DESCRIPTION:

1. Rebuild/upgrade approximately 17.3 miles of 115 kV transmission line between Sinai-Altha (PS) for a minimum of 567Amps (113MVA).

SUPPORTING STATEMENT:

- This project eliminates high loadings under contingency scenarios. This project also provides additional operational and maintenance flexibility which then increases reliability.



Southeastern Regional TRANSMISSION PLANNING

GULF POWER Balancing Authority Area

GULF - 3

• **2021**

CRIST GENERATION EXPANSION PROJECT

PROJECT DESCRIPTION:

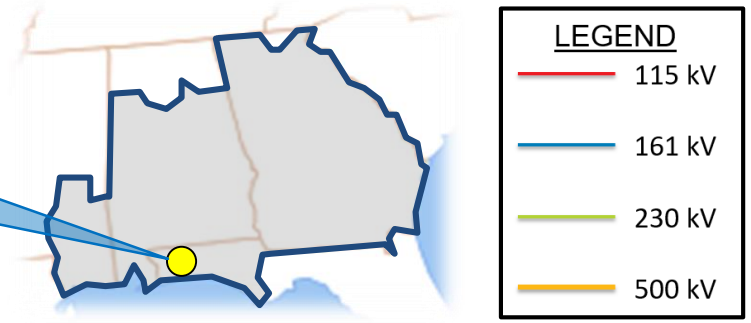
- Construct new 230kV Crist CT switchyard (Conecuh) to connect 4-235MW CTs. Loop existing Crist-Alligator Swamp #2-230kV and Crist-Bellview 230kV lines into new Crist CT switchyard.

Transmission upgrades:

1. Brentwood-Crist 230kV (1928A, 768MVA)(7.6miles)
2. Crist-Scenic Hills 115kV #1 (1800A, 359MVA)(2.9miles)
3. Bellview-Crist 230kV (1928A, 768MVA)(8.9miles)
4. Bellview 230/115kV Transformer (increase to 500MVA)
5. Eastgate-Scenic Hills 115kV (1005A, 200MVA)(4.8miles)
6. Crystal Beach-Bluewater 115kV 7-minutes Emergency Rating (1110A, 221MVA)
7. 1-55MVAR, 230kV cap bank at Laguna Beach

SUPPORTING STATEMENT:

- Revised resource integration in Gulf Power Area.

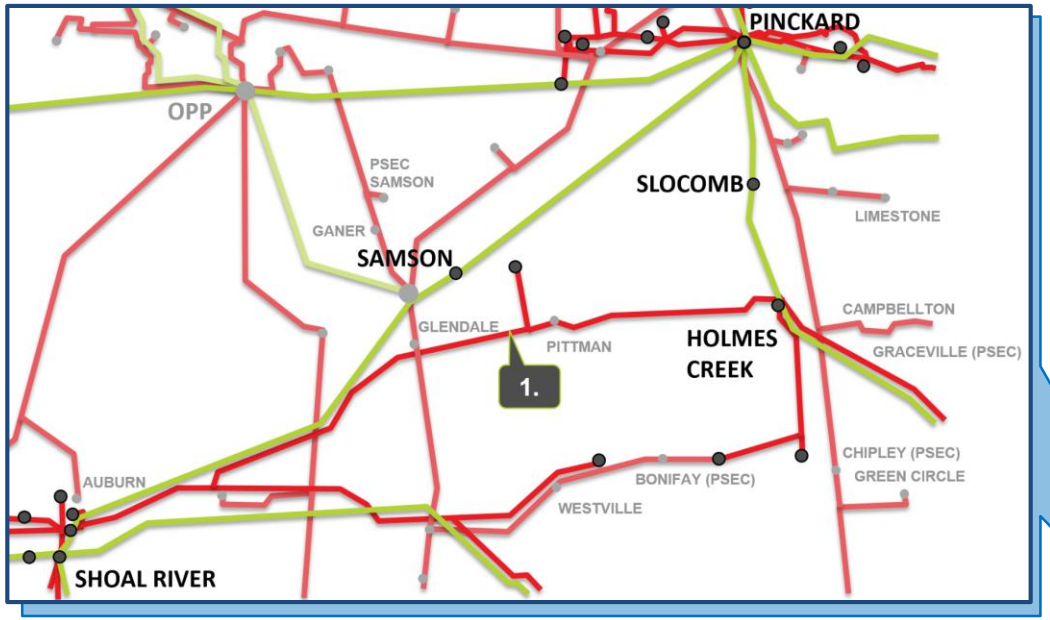


GULF POWER Balancing Authority Area

GULF - 4

• **2024**

HOLMES CREEK – SOUTH CRESTVIEW 115 KV TRANSMISSION LINE

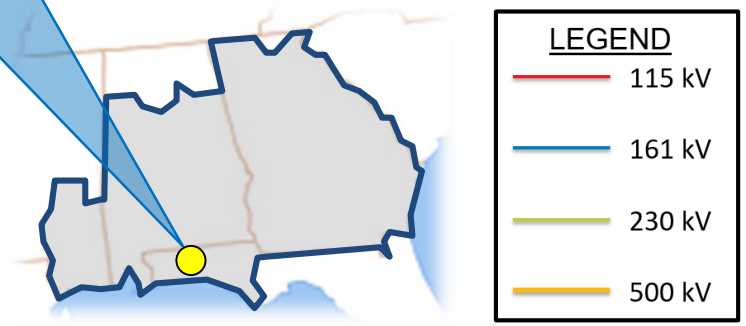


PROJECT DESCRIPTION:

1. Rebuild approximately 54.4 miles of 115 kV transmission line between Holmes Creek and Glendale Road tap point with 795 ACSR at 100˚C.

SUPPORTING STATEMENT:

- This project eliminates high loadings under contingency scenarios. This project also provides additional operational and maintenance flexibility which then increases reliability.

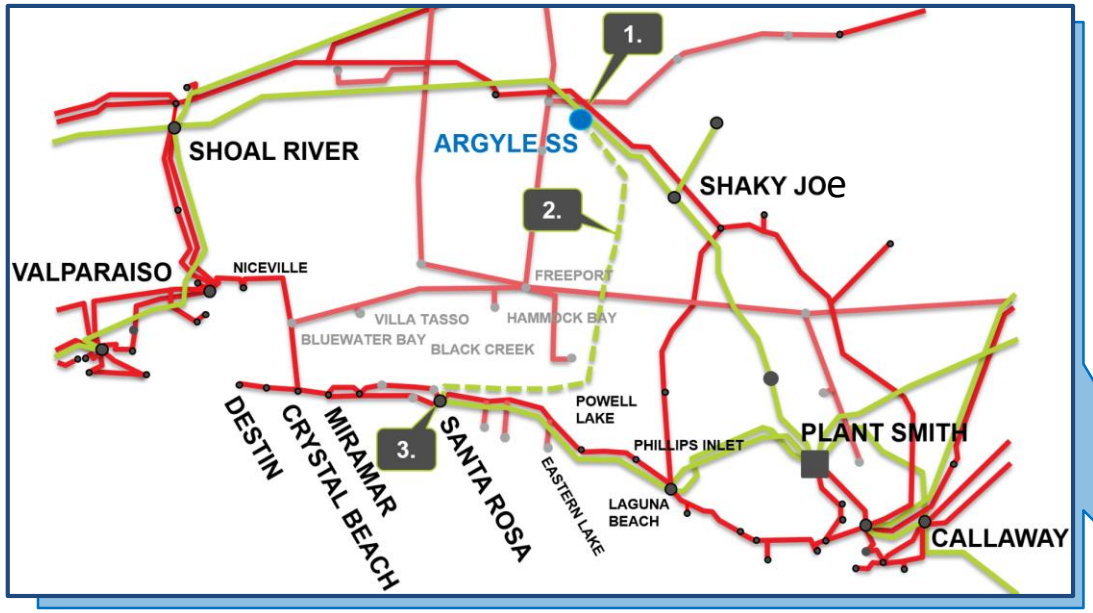


GULF POWER Balancing Authority Area

GULF - 5

• **2023**

ARGYLE – SANTA ROSA 230 KV TRANSMISSION LINE

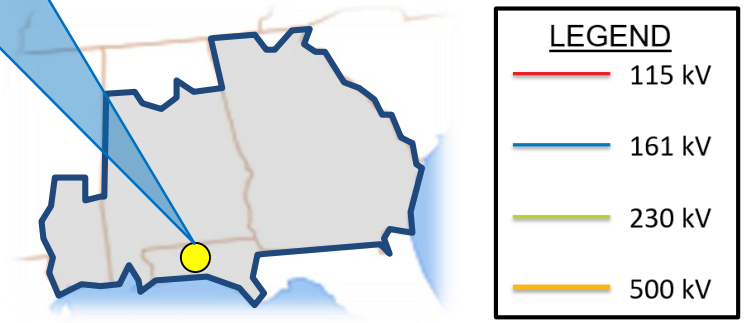


PROJECT DESCRIPTION:

1. Construct of new switching station along the existing Shoal River-Shaky Joe transmission line.
2. Construct approximately 45.0 miles of new 1351 ACSR 230 kV transmission line at 100°C rated at 1,512 Amps (602MVA) from a new 230 KV substation (Argyle) north of Shaky Joe to Santa Rosa transmission line.
3. Install a second 230/115 kV transformer at Santa Rosa substation

SUPPORTING STATEMENT:

- This project eliminates several overloads under a number of contingency scenarios. This project also provides additional operational and maintenance flexibility which then increases reliability.



GULF POWER Balancing Authority Area

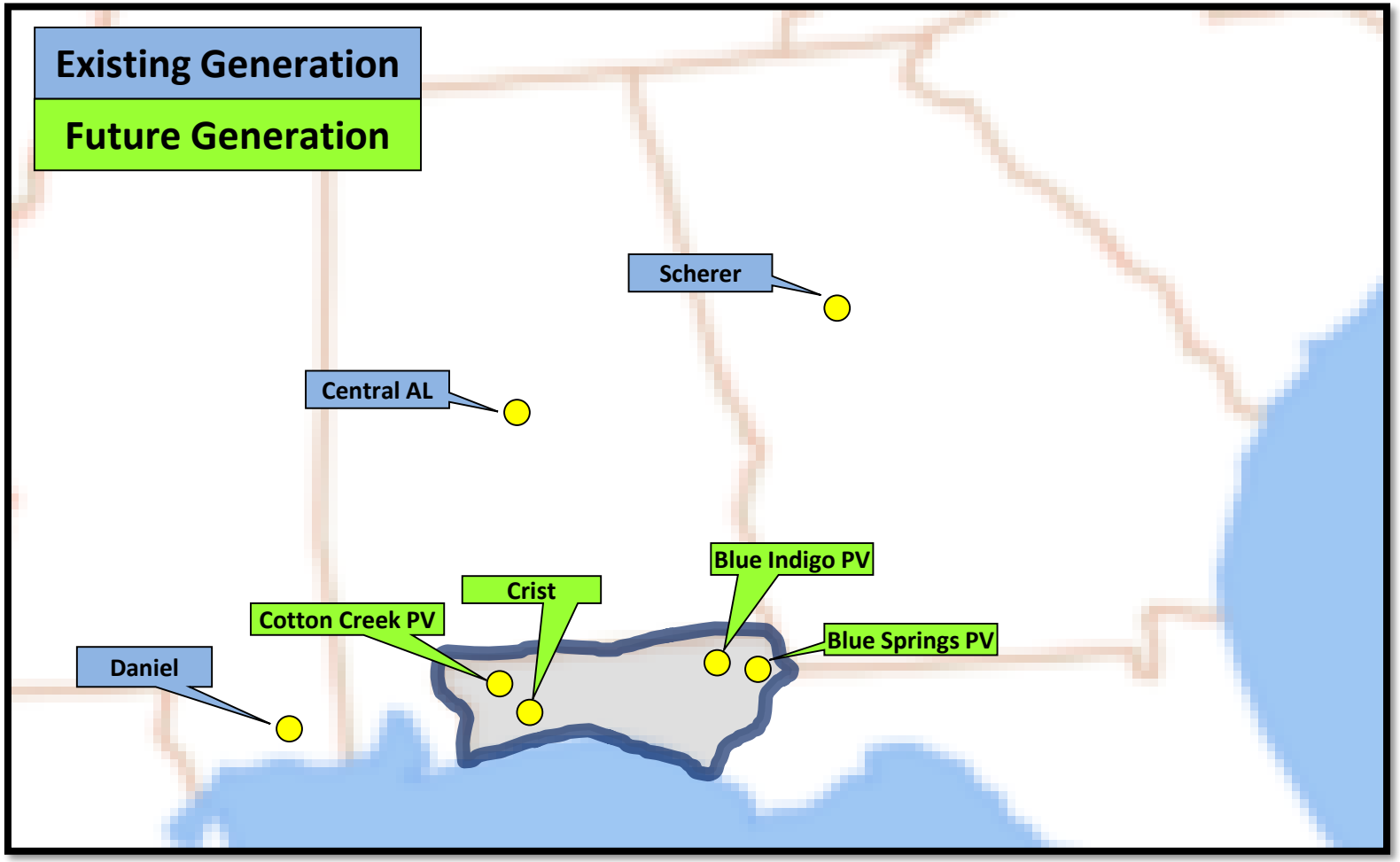
GULF POWER Balancing Authority Areas

Upcoming 2020 Generation Assumptions

GULF POWER Balancing Authority Area

GULF POWER – Generation Assumptions 2022

The following diagram depicts the location of generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2020 SERTP Process.



GULF POWER Balancing Authority Area

GULF POWER – Generation Assumptions

The following table depicts future generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021[1]	2022	2023	2024	2025	2026	2027	2028	2029	2030
CRIST	Gas	1912	1912	1912	1912	1912	1912	1912	1912	1912	1912
BLUE INDIGO PV	Solar	75	75	75	75	75	75	75	75	75	75
COTTON CREEK PV	Solar	75	75	75	75	75	75	75	75	75	75
BLUE SPRING PV	Solar	75	75	75	75	75	75	75	75	75	75

1) Gulf Power is currently in the SBAA but has preliminary plans to leave the SBAA in December 2021

GULF POWER Balancing Authority Area

GULF POWER – Generation Assumptions (Delivery Service)

The following table depicts generation assumptions based upon expected long-term firm delivery service commitments. The years shown represent Summer Peak conditions.

SITE	2021[1]	2022	2023	2024	2025	2026	2027	2028	2029	2030
DANIEL	500	500	500	500	500	500	500	500	500	500
SCHERER	220	220	220	220	220	220	220	220	220	220
CENTRAL ALABAMA	885	885	--	--	--	--	--	--	--	--

1) Gulf Power is currently in the SBAA but has preliminary plans to leave the SBAA in December 2021

LG&E/KU Balancing Authority Area

LG&E/KU Balancing Authority Area

2019 Generation Assumptions

* LG&E/KU has no generation assumptions expected to change throughout the ten year planning horizon for the 2019 SERTP Process.

LG&E/KU Balancing Authority Area

LG&E/KU – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
TRIMBLE COUNTY	324	324	324	324	324	324	324	324	324	324

LG&E/KU Balancing Authority Area

LG&E/KU Balancing Authority Area

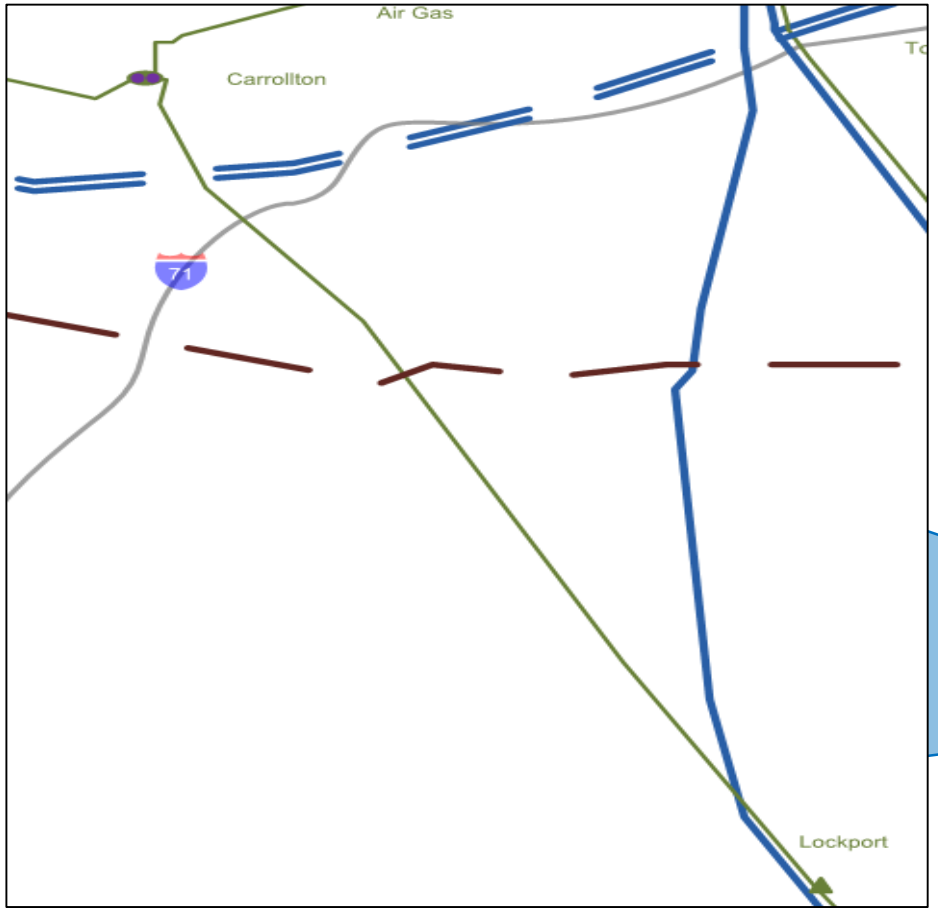
SERTP Regional Transmission Expansion Plan

LG&E/KU Balancing Authority Area

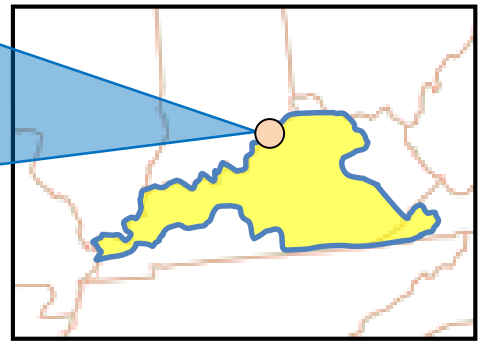
LG&E/KU - 1

- **2020**

CARROLLTON – LOCKPORT 138KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Upgrade the switches associated with breaker 067-704 at Carrollton from 600 A to 1200 A.
- **SUPPORTING STATEMENT:**
  - The Carrollton to Lockport 138 kV transmission line overloads under contingency.

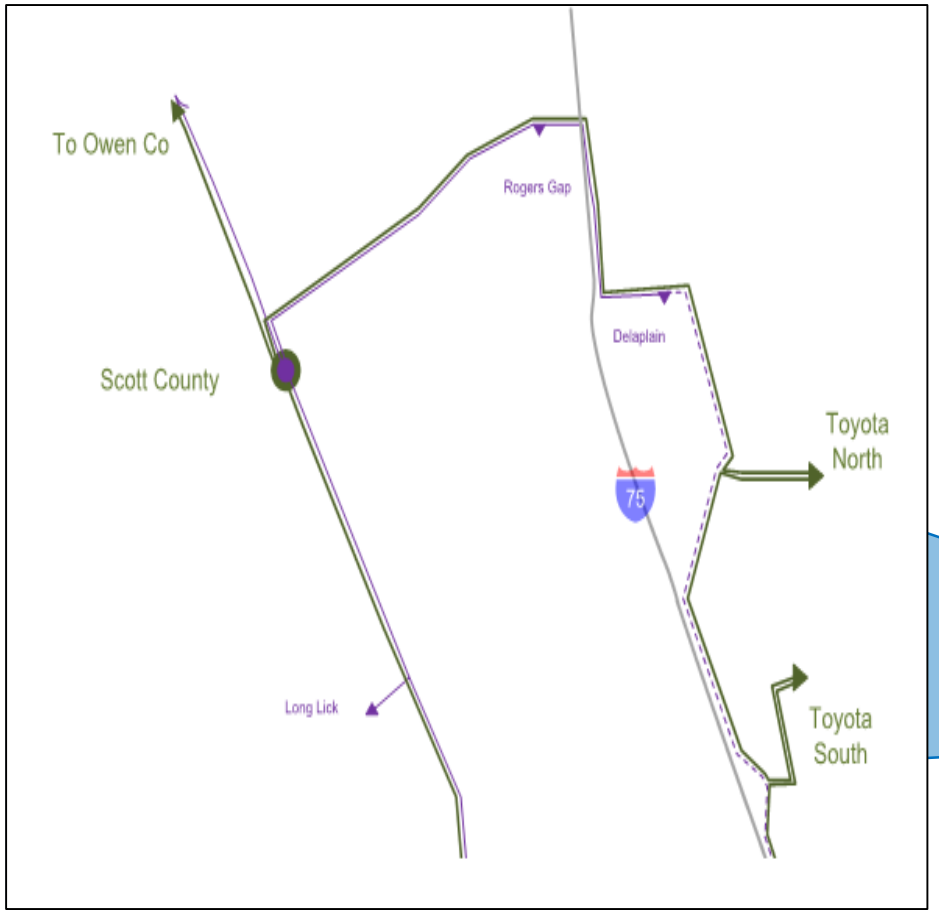


LG&E/KU Balancing Authority Area

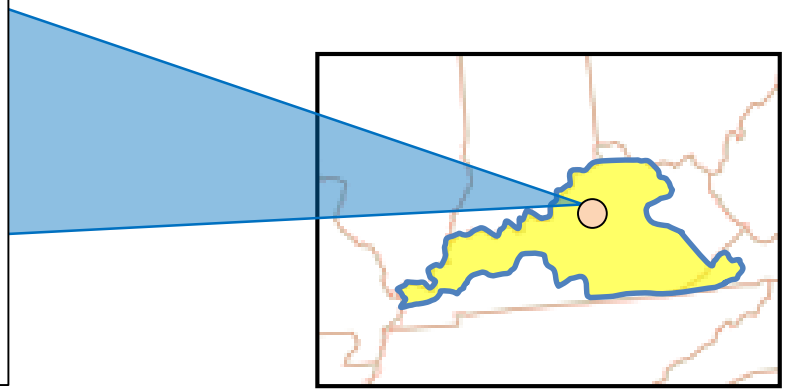
LG&E/KU - 2

- **2021**

MOVE ROGERS GAP LOAD TO 138 KV



- **DESCRIPTION:**
  - Convert the Rogers Gap 69 kV distribution station to a 138 kV station by tapping the existing Scott Co – Toyota North 138 kV line.
- **SUPPORTING STATEMENT:**
  - The Adams to Delaplain Tap 69 kV transmission line overloads under contingency.



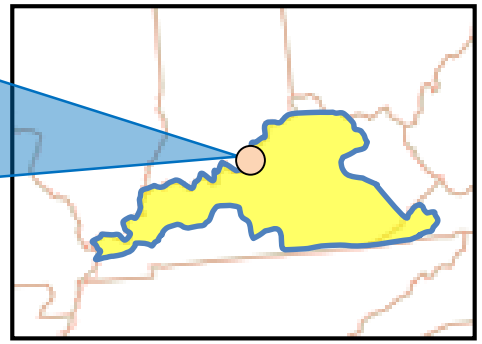
LG&E/KU Balancing Authority Area

LG&E/KU - 3

- **2021**

BLUE LICK 345/161 KV TRANSFORMER

- **DESCRIPTION:**
  - Replace the Blue Lick 345/161 kV, 240 MVA transformer with a 345/161 KV, 450 MVA transformer, reset/replace any CTs less than 2000A and increase the loadability of relays.
- **SUPPORTING STATEMENT:**
  - The existing Blue Lick 345/161 kV transformer overloads under contingency.

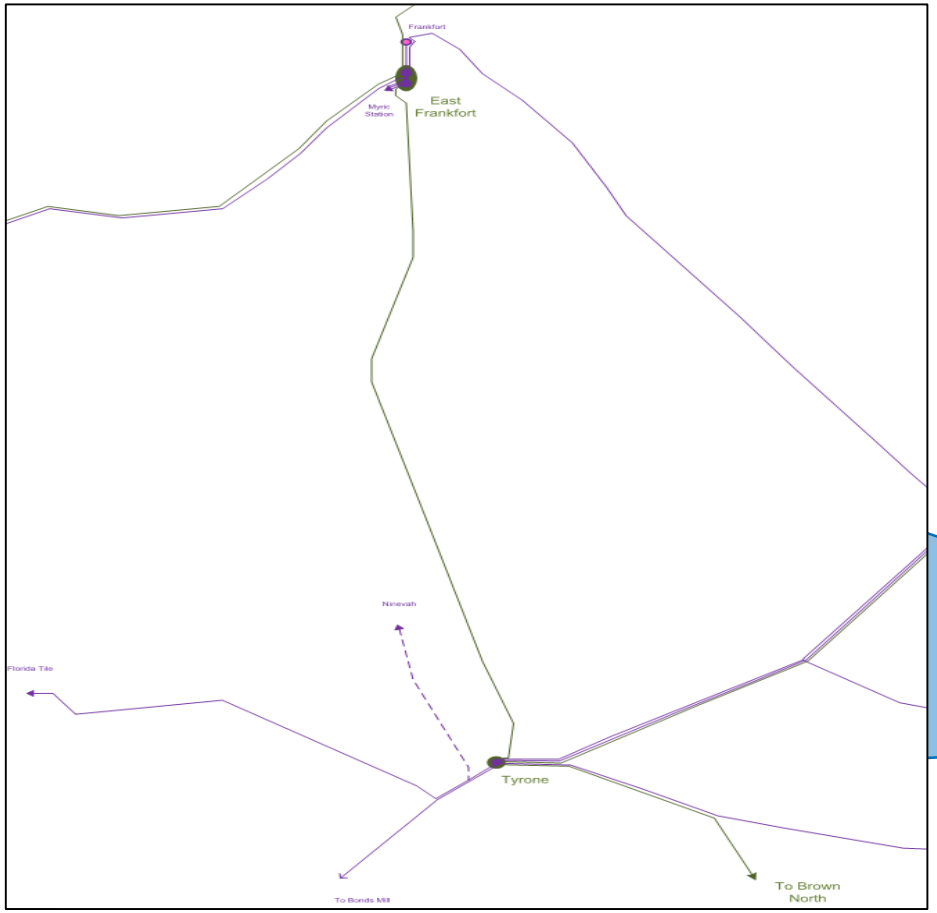


LG&E/KU Balancing Authority Area

LG&E/KU - 4

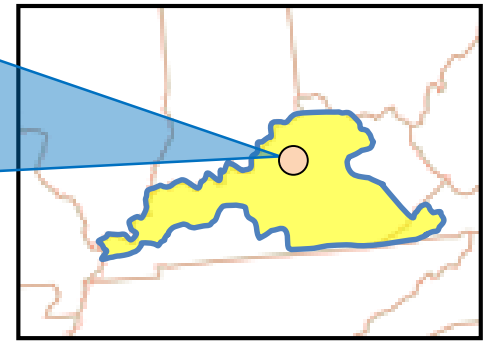
- **2021**

EAST FRANKFORT - TYRONE 138KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Replace breaker 136-704 and associated Bushing CTs at East Frankfort with 1600 A equipment. Change the relay settings so protection will not trip under load for less than 1914 A.

- **SUPPORTING STATEMENT:**
  - The East Frankfort to Tyrone 138 kV transmission line overloads under contingency.

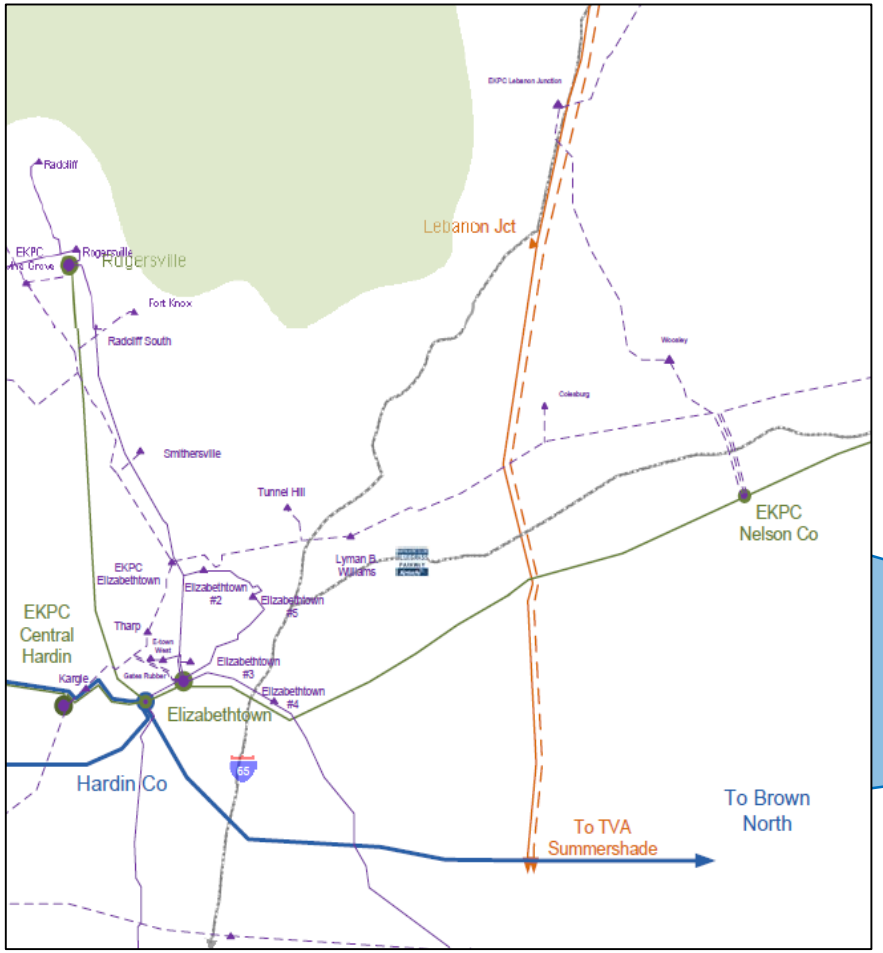


LG&E/KU Balancing Authority Area

LG&E/KU - 5

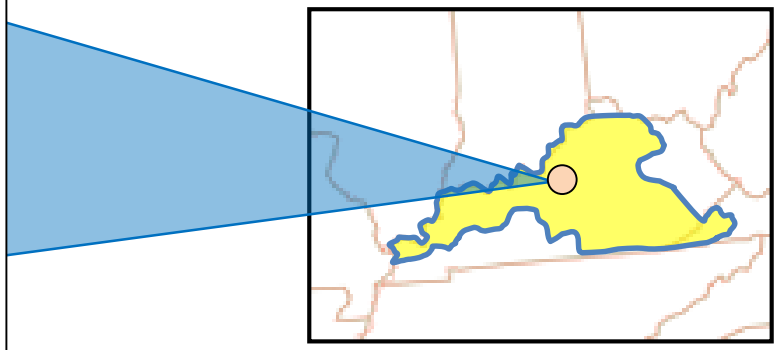
- **2021**

ELIZABETHTOWN - NELSON COUNTY 138 KV TRANSMISSION LINE



- **DESCRIPTION**:
  - Upgrade approximately 15.5 miles of the Nelson County to Elizabethtown 138 kV transmission line to a maximum operating temperature of 176°F.

- **SUPPORTING STATEMENT:**
  - The Nelson County to Elizabethtown 138 kV transmission line overloads under contingency.

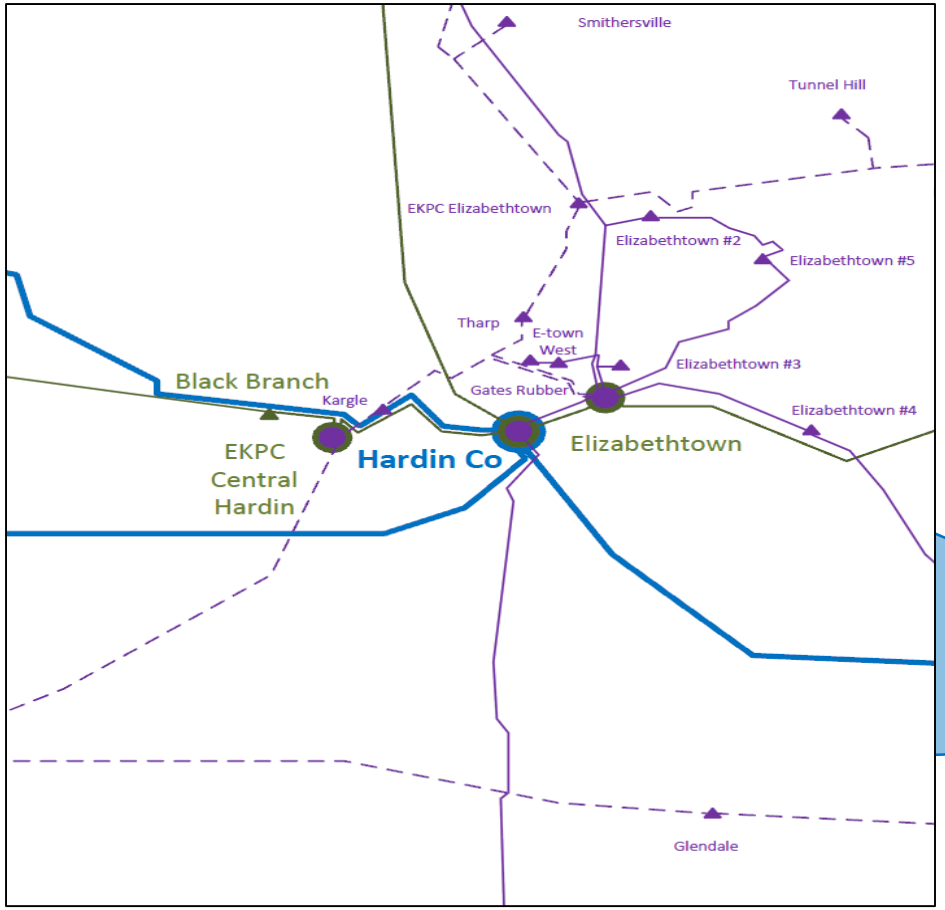


LG&E/KU Balancing Authority Area

LG&E/KU - 6

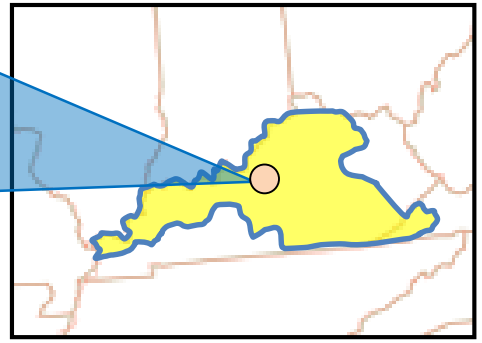
- **2022**

HARDIN CO SUBSTATION ADDITIONS



- **DESCRIPTION:**
  - Install a second 345/138 kV, transformer at Hardin County.
  - Install a second 138/69 kV, transformer at Hardin County
  - Install a second 69 kV line Elizabethtown – Hardin County

- **SUPPORTING STATEMENT:**
  - Additional voltage support in needed in the Hardin Co/Elizabethtown area under contingency.



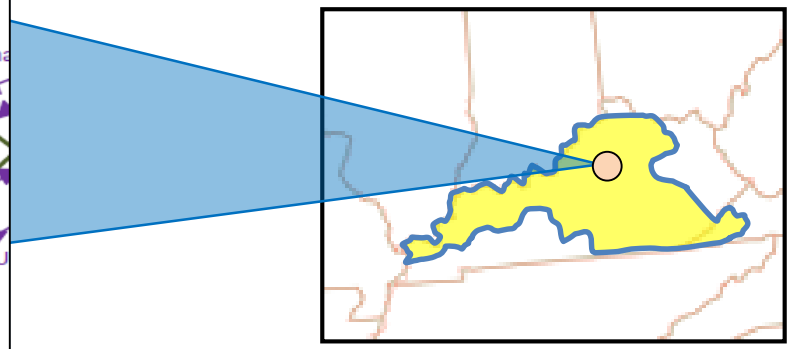
LG&E/KU Balancing Authority Area

LG&E/KU - 7

- **2023**

WEST LEXINGTON 345/138 KV #2 TRANSFORMER

- **DESCRIPTION:**
  - Install a second West Lexington 450 MVA, 345/138 kV transformer.
- **SUPPORTING STATEMENT:**
  - The West Lexington 345/138 kV Transformer #1 overloads under contingency.

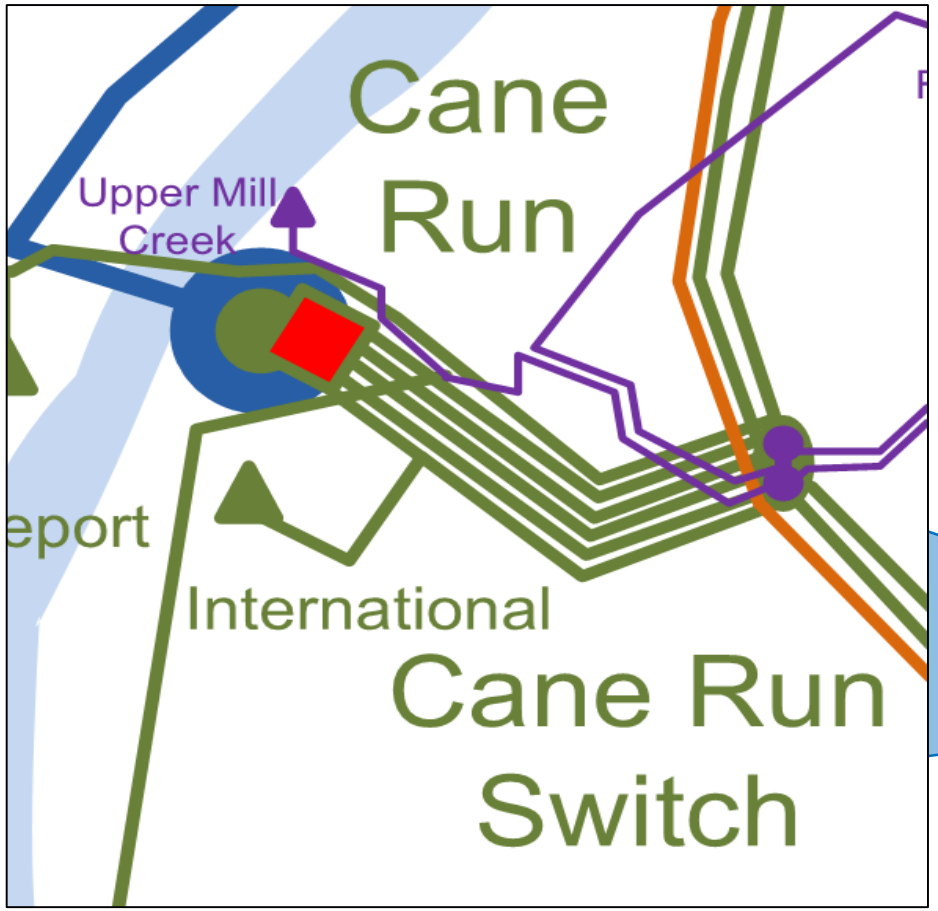


LG&E/KU Balancing Authority Area

LG&E/KU - 8

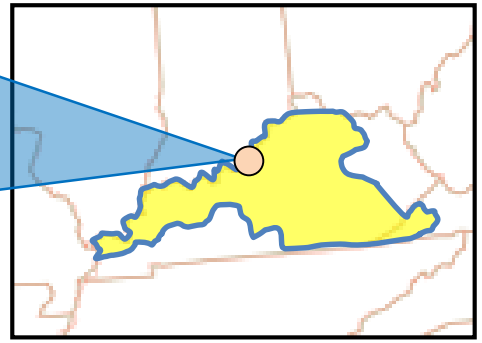
- **2024**

CANE RUN SWITCHING – CANE RUN 11 TAP 138KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Upgrade approximately 1.82 miles of the Cane Run Switching to Cane Run 11 Tap 138 kV transmission line to a maximum operating temperature of 212°F.

- **SUPPORTING STATEMENT:**
  - The Cane Run Switching to Cane Run 11 Tap 138 kV transmission line overloads under contingency.



LG&E/KU Balancing Authority Area

LG&E/KU Balancing Authority Area

Upcoming 2020 Generation Assumptions

LG&E/KU Balancing Authority Area

LG&E/KU – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Zorn	Gas	14	0	0	0	0	0	0	0	0	0
Ashwood	Solar	0	0	86	86	86	86	86	86	86	86

LG&E/KU Balancing Authority Area

LG&E/KU – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
TRIMBLE COUNTY	324	324	324	324	324	324	324	324	324	324

POWERSOUTH Balancing Authority Area

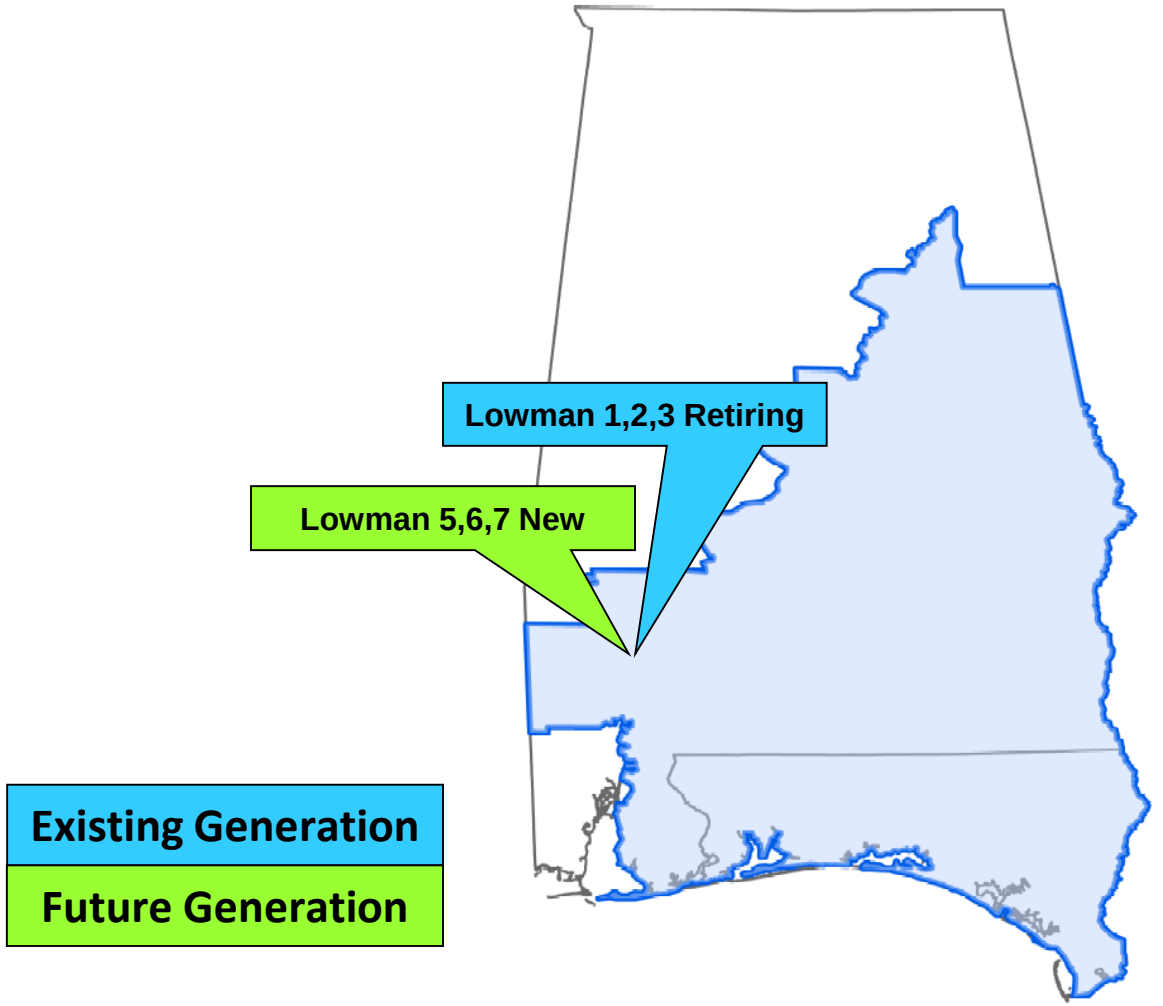
POWERSOUTH Balancing Authority Area

2019 Generation Assumptions

POWERSOUTH Balancing Authority Area

POWERSOUTH – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process.



POWERSOUTH Balancing Authority Area

POWERSOUTH – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Lowman 1,2,3	Coal	551	0	--	--	--	--	--	--	--	--
Lowman 5,6	Gas	--	--	--	632	632	632	632	632	632	632
Lowman 7	Gas	--	--	--	--	--	--	--	179	179	179

POWERSOUTH Balancing Authority Area

POWERSOUTH Balancing Authority Area

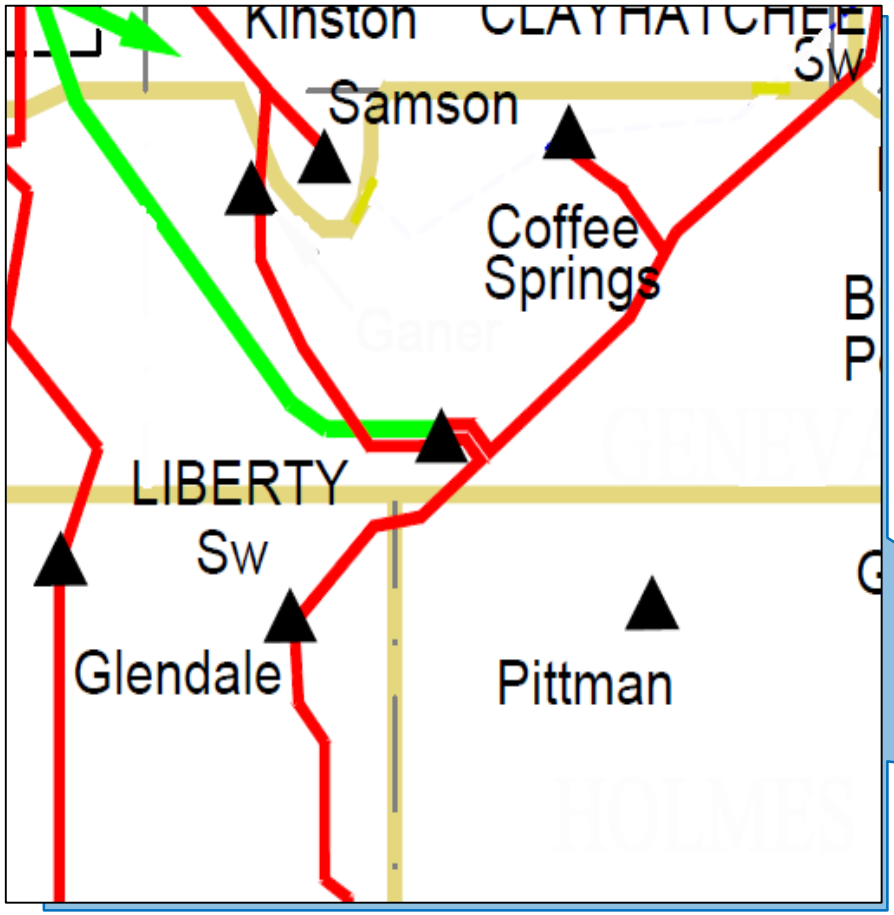
SERTP Regional Transmission Expansion Plan

POWERSOUTH Balancing Authority Area

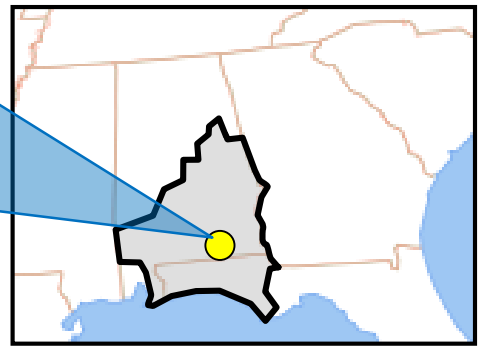
POWERSOUTH – 1

- **2021**

ADD THIRD LIBERTY 230/115 KV TRANSFORMER



- **DESCRIPTION:**
  - Add a third 230/115 kV, 150 MVA transformer.
- **SUPPORTING STATEMENT:**
  - The existing 230/115 kV, 150 MVA transformers at Liberty Substation overload under contingency.

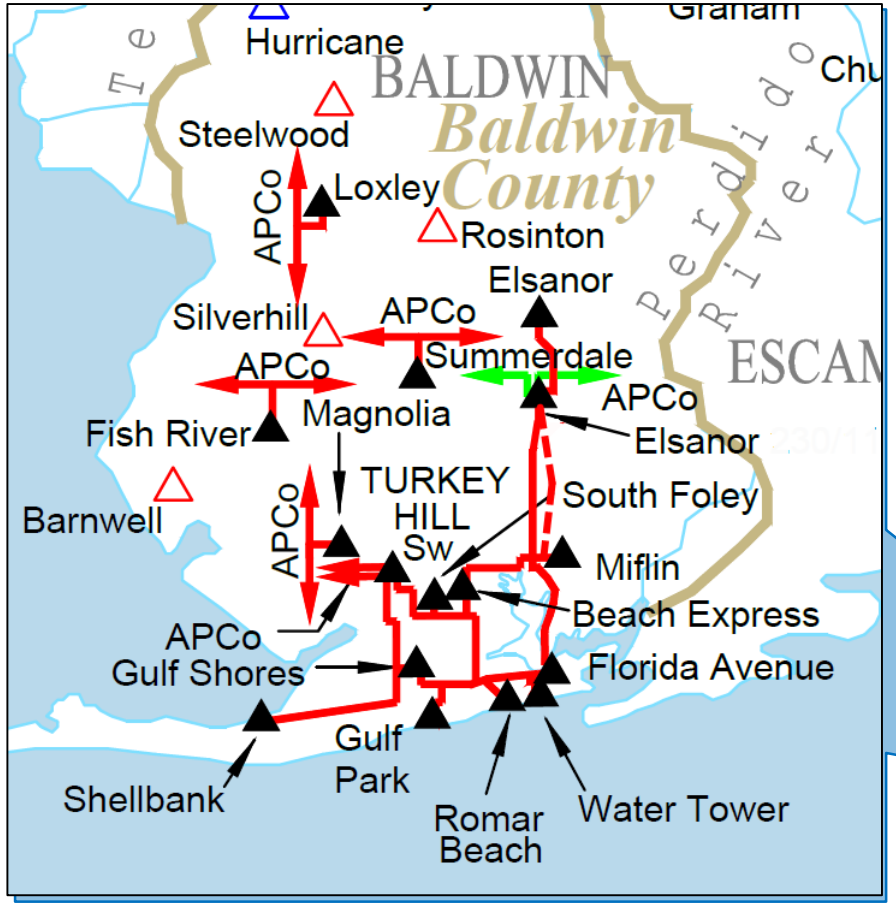


POWERSOUTH Balancing Authority Area

POWERSOUTH - 2

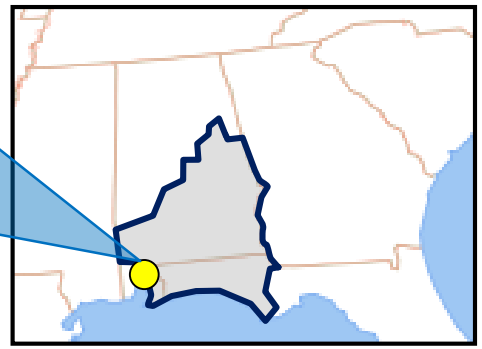
- **2021**

ELSANOR-MIFLIN 2ND 115 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Construct approximately 12.0 miles of new 115 kV transmission line from Elsanor Switching to Miflin Substation with 795 ACSR at 100°C.

- **SUPPORTING STATEMENT:**
  - The existing Elsanor-Miflin 115 kV line overloads under contingency.

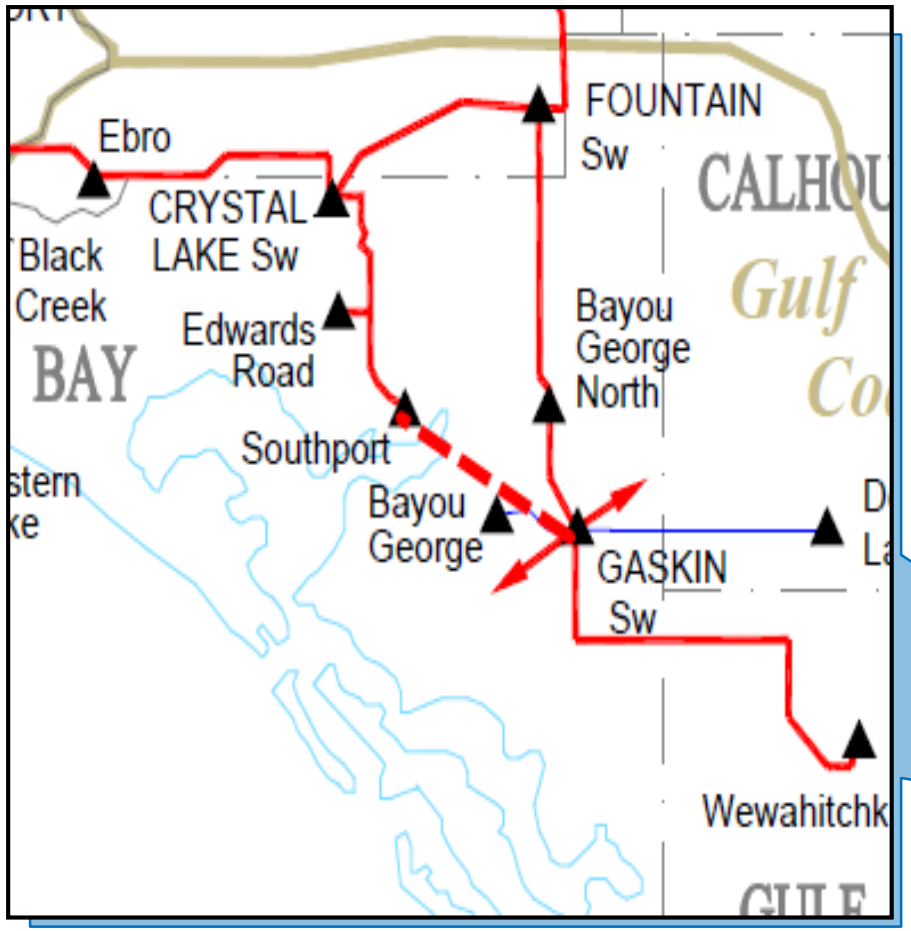


POWERSOUTH Balancing Authority Area

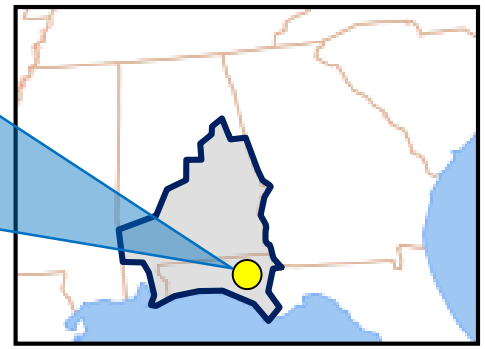
POWERSOUTH - 3

- **2021**

GASKIN – SOUTHPORT 115 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Construct approximately 9.0 miles of new 115 kV transmission line from Gaskin Switching Station to Southport Substation with 795 ACSR at 100°C.
- **SUPPORTING STATEMENT:**
  - Improve the reliability of Gulf Coast Electric's substations by providing a looped service feed.



POWERSOUTH Balancing Authority Area

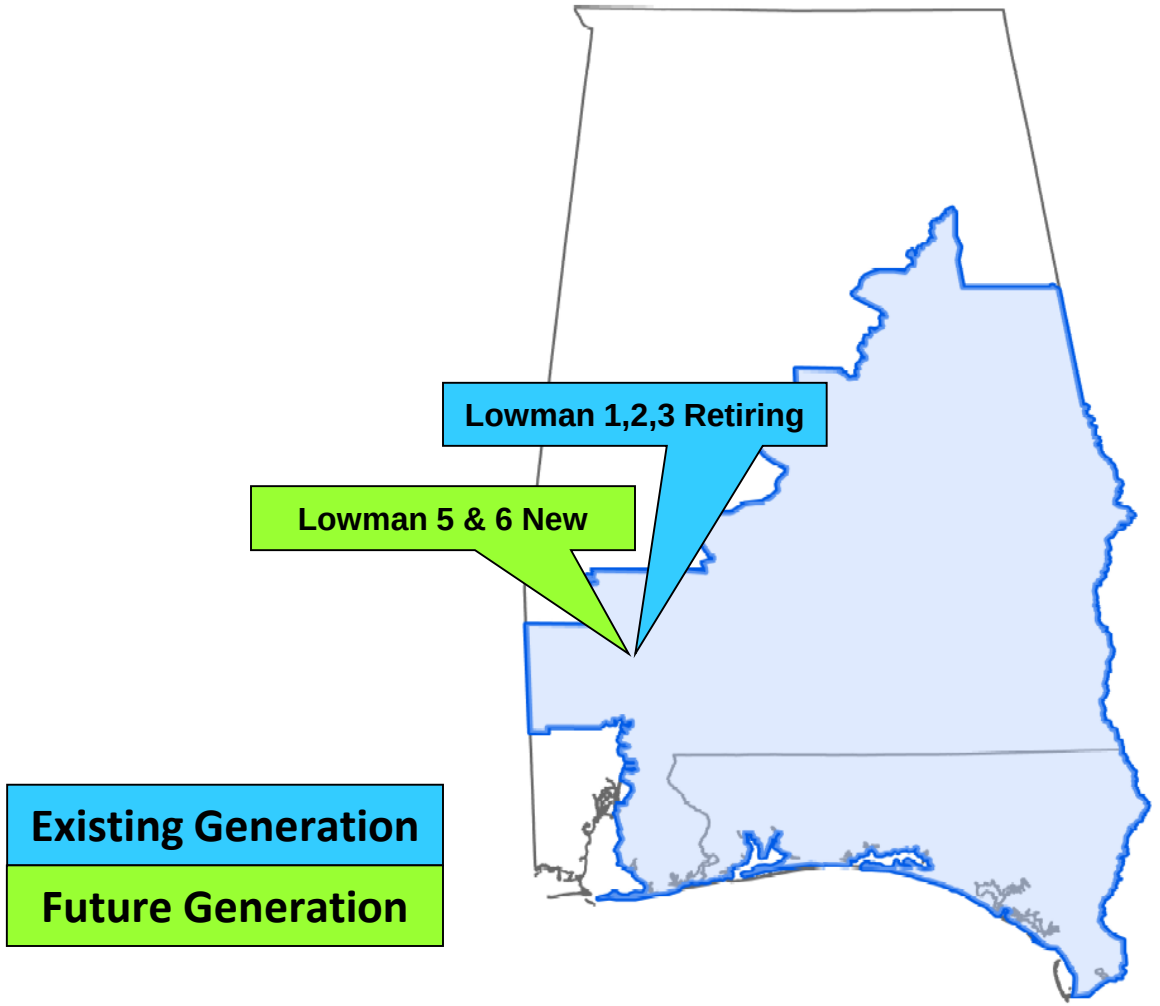
POWERSOUTH Balancing Authority Area

Upcoming 2020 Generation Assumptions

POWERSOUTH Balancing Authority Area

POWERSOUTH – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process.



POWERSOUTH Balancing Authority Area

POWERSOUTH – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Lowman 1,2,3	Coal	0	--	--	--	--	--	--	--	--	--
Lowman 5,6	Gas	--	--	632	632	632	632	632	632	632	632

SOUTHERN Balancing Authority Area

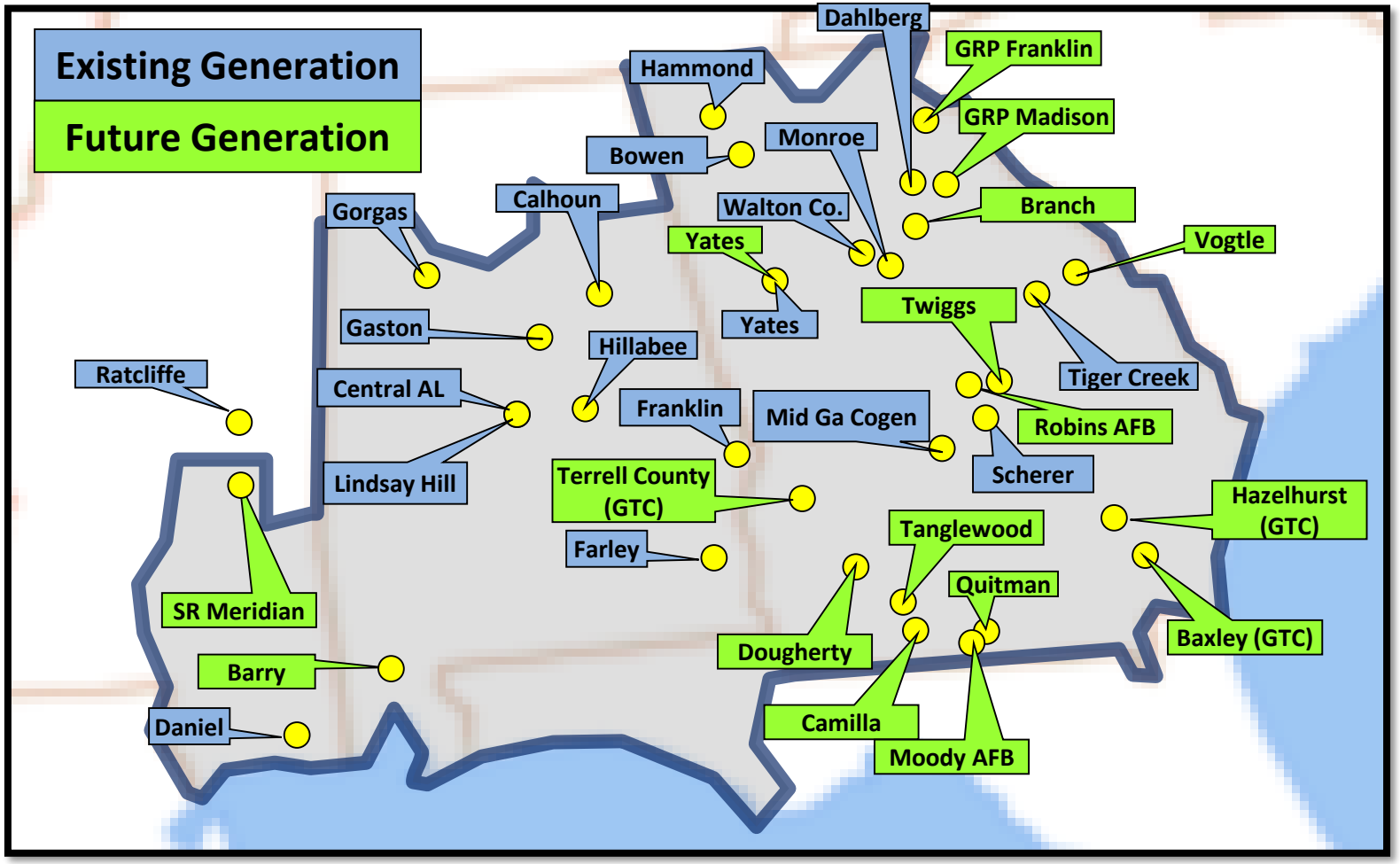
SOUTHERN Balancing Authority Area

2019 Generation Assumptions

SOUTHERN Balancing Authority Area

SOUTHERN – Generation Assumptions

The following diagram depicts the location of generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2019 SERTP Process.



SOUTHERN Balancing Authority Area

Southern Company – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
CALHOUN 1-4	Gas	632	632	632	0	--	--	--	--	--	--
CENTRAL AL	Gas	885	--	--	--	--	--	--	--	--	--
DAHLBERG 2, 6, 8, 10	Gas	298	298	298	298	298	0	--	--	--	--
MID GA COGEN	Gas	300	300	300	300	300	300	300	300	0	--
MONROE POWER	Gas	309	309	309	309	0	--	--	--	--	--
TIGER CREEK 1&4	Gas	313	313	313	0	--	--	--	--	--	--
WALTON COUNTY	Gas	465	465	465	0	--	--	--	--	--	--

Southern Company – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
GASTON 1-4	Gas	465	465	465	465	515	515	515	515	515	515
YATES 6-7	Gas	649	649	649	649	714	714	714	714	714	714

Southern Company – Generation Assumptions (Cont.)

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
CAMILLA	Solar	160	160	160	160	160	160	160	160	160	160
DOUGHERTY	Solar	120	120	120	120	120	120	120	120	120	120
QUITMAN SOLAR	Solar	150	150	150	150	150	150	150	150	150	150
SR MERIDIAN III	Solar	52	52	52	52	52	52	52	52	52	52
MOODY AFB	Solar	48	48	48	48	48	48	48	48	48	48
TANGLEWOOD	Solar	58	58	58	58	58	58	58	58	58	58
TWIGGS	Solar	200	200	200	200	200	200	200	200	200	200
VOGTLE 3	Nuclear	--	504	504	504	504	504	504	504	504	504
VOGTLE 4	Nuclear	--	--	504	504	504	504	504	504	504	504

Southern Company – Generation Assumptions (Cont.)

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
FARLEY 1	Nuclear	874	874	898	898	898	898	898	898	898	898
FARLEY 2	Nuclear	877	901	901	901	901	901	901	901	901	901
Gorgas 8-10	Coal	--	--	--	--	--	--	--	--	--	--

Southern Company – Generation Assumptions

The following table depicts future generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BARRY[1]	--	--	--	610	610	610	610	610	610	610
BRANCH[1]	--	--	--	--	--	--	--	940	940	940
YATES[1]	--	--	--	--	--	1200	1200	1200	1200	1200

(1) This assumption may be modified as resource decisions are made by the corresponding LSEs pursuant to applicable regulatory processes.

SOUTHERN Balancing Authority Area

SOUTHERN COMPANY – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BOWEN	159	159	159	159	159	159	159	159	159	159
CENTRAL ALABAMA	885	885	885	--	--	--	--	--	--	--
DAHLBERG	494	494	494	494	494	494	494	494	494	494
DANIEL	500	650	650	650	600	600	600	600	600	600
FRANKLIN	424	424	424	424	424	424	424	424	424	424
HAMMOND	10	10	10	10	10	10	10	10	10	10
HILLABEE	350	350	350	350	350	350	350	350	350	350
LINDSAY HILL	300	300	300	300	300	300	300	300	300	300
SCHERER	1131	1131	1131	1131	1131	1131	1131	1131	1131	1131
VOGTLE	206	206	206	206	206	206	206	206	206	206

SOUTHERN Balancing Authority Area

GTC – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
SANDHILLS	SOLAR	--	--	--	--	--	--	--	--	--	--
SR HAZELHURST 3	SOLAR	40	40	40	40	40	40	40	40	40	40
TERRELL COUNTY	SOLAR	--	74	74	74	74	74	74	74	74	74
ARLINGTON	SOLAR	123	123	123	123	123	123	123	123	123	123
LANCASTER	SOLAR	--	80	80	80	80	80	80	80	80	80
ODOM	SOLAR	--	20	20	20	20	20	20	20	20	20
VOGTLE 3	NUCLEAR	--	330	330	330	330	330	330	330	330	330
VOGTLE 4	NUCLEAR	--	--	330	330	330	330	330	330	330	330

MEAG – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
VOGTLE 3	NUCLEAR	--	250	250	250	250	250	250	250	250	250
VOGTLE 4	NUCLEAR	--	--	250	250	250	250	250	250	250	250

DALTON – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
VOGTLE 3	NUCLEAR	--	19	19	19	19	19	19	19	19	19
VOGTLE 4	NUCLEAR	--	--	19	19	19	19	19	19	19	19

SOUTHERN Balancing Authority Area

SOUTHERN (WEST) Balancing Authority Area

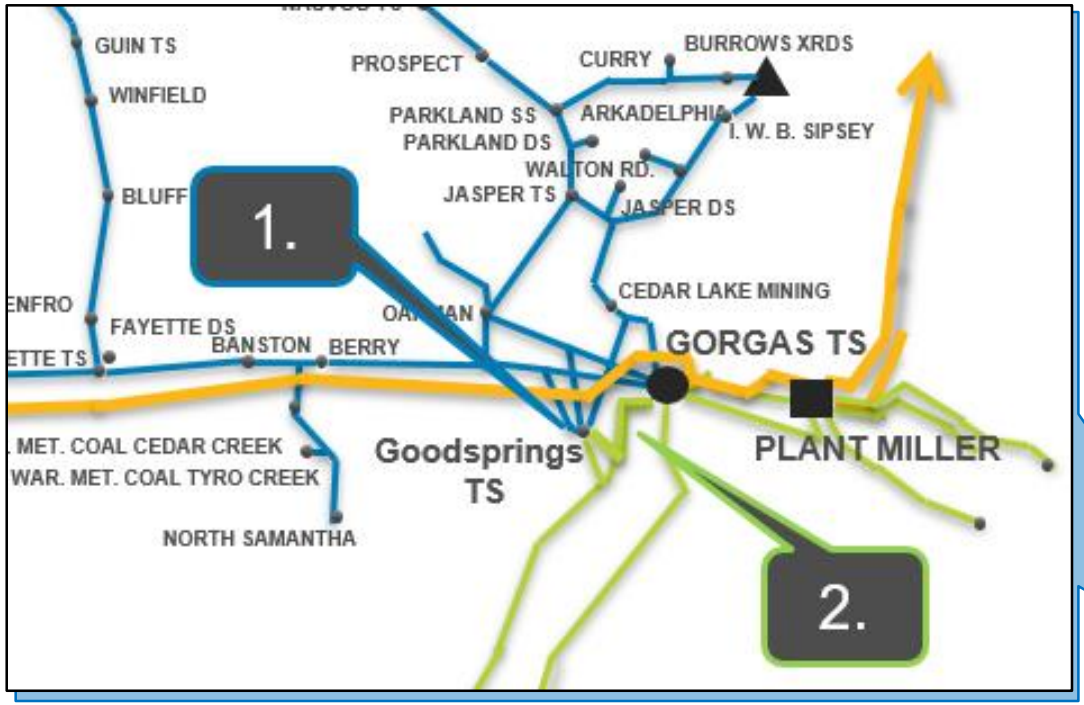
SERTP Regional Transmission Expansion Plan

SOUTHERN Balancing Authority Area

SOUTHERN – 1W

• **2020**

GOODSPRINGS 230/161 KV T.S.

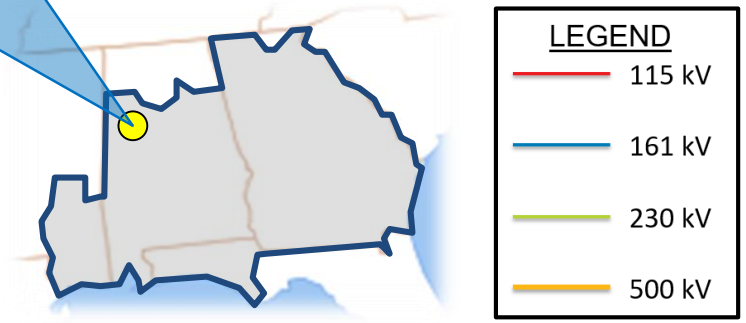


PROJECT DESCRIPTION:

1. Construct Goodsprings 230/161 TS
2. Rebuild approximately 2 miles from Gorgas to Holt No. 1 230 kV Transmission line from Gorgas to Goodsprings TS.

SUPPORTING STATEMENT:

- The Gorgas 230/115 kV transformer overloads under contingency.

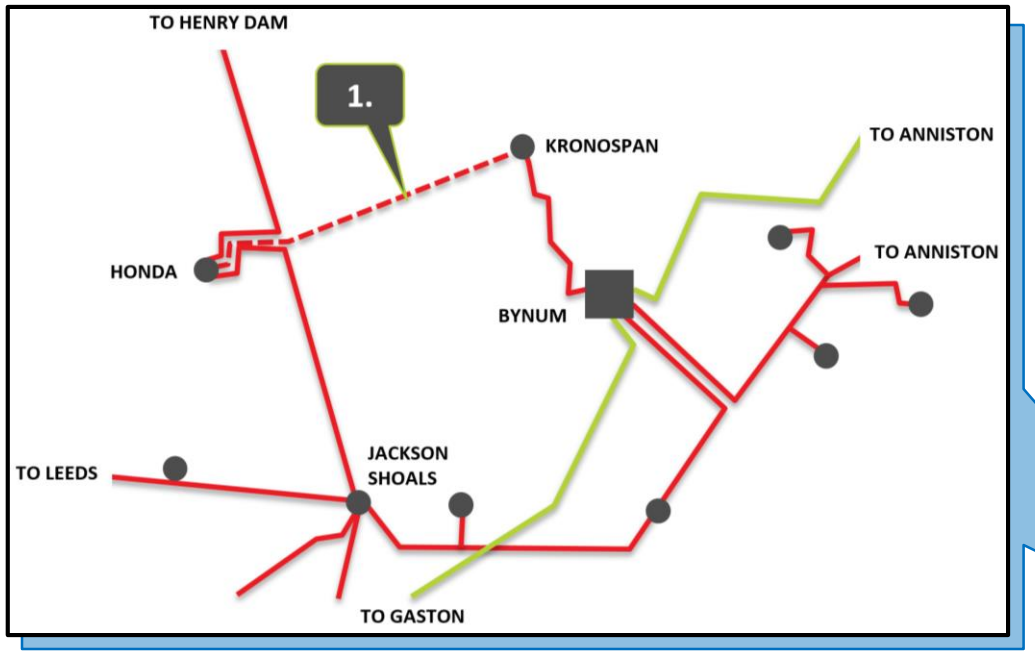


SOUTHERN Balancing Authority Area

SOUTHERN – 2W

• **2020**

HONDA – KRONOSPAN 115 KV TRANSMISSION LINE

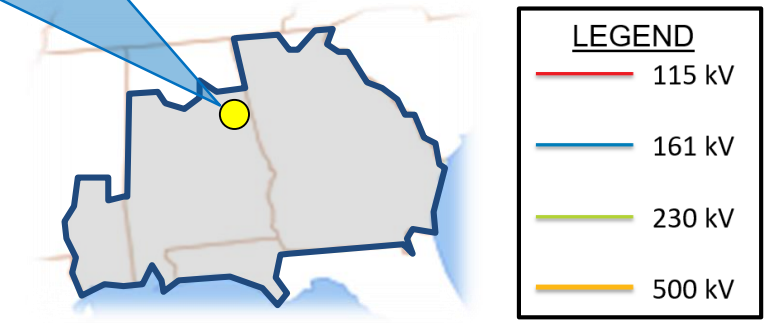


PROJECT DESCRIPTION:

1. Construct approximately 10.3 miles of 795 ACSR 115 kV transmission line at 100°C from Honda to Kronospan.

SUPPORTING STATEMENT:

- Provides additional operational and maintenance flexibility, which then increases reliability. This project also provides voltage support under contingency scenarios.

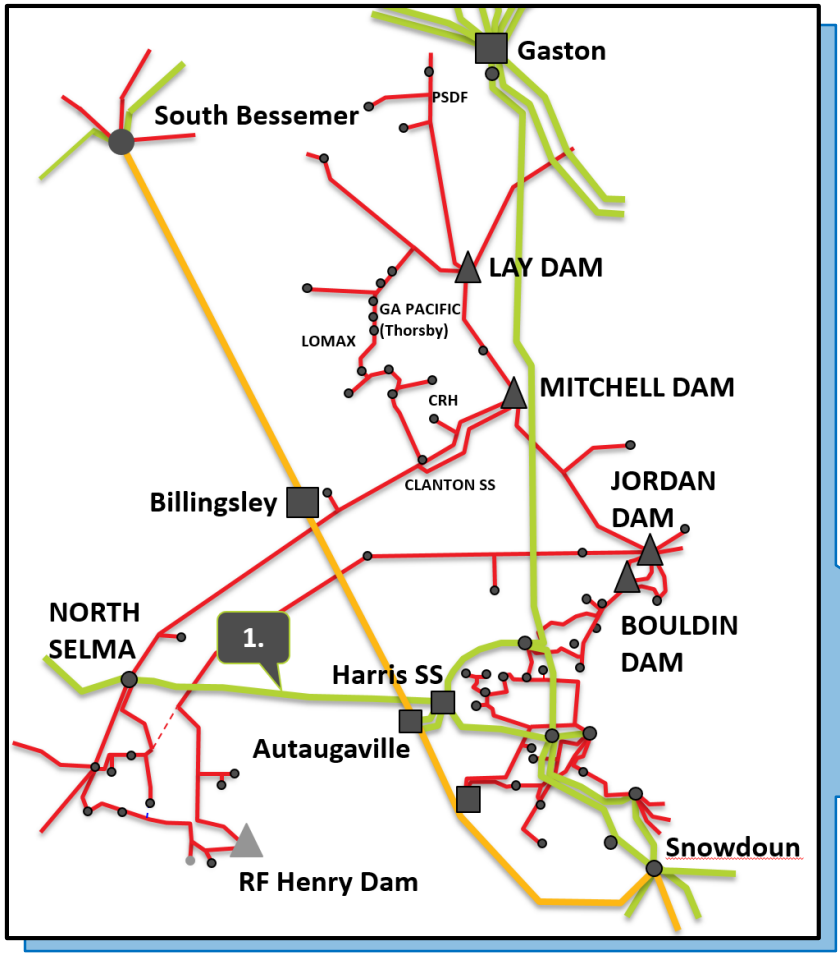


SOUTHERN Balancing Authority Area

SOUTHERN – 3W

• **2020**

HARRIS – NORTH SELMA 230 KV TRANSMISSION LINE

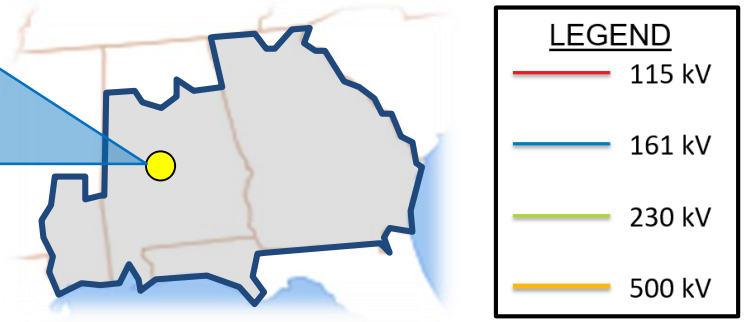


PROJECT DESCRIPTION:

1. Rebuild approximately 26.0 miles of the Harris SS to North Selma 230 kV transmission line with 1033 ACCR at 200°C.

SUPPORTING STATEMENT:

- The Harris to North Selma 230 kV transmission line overloads under contingency.

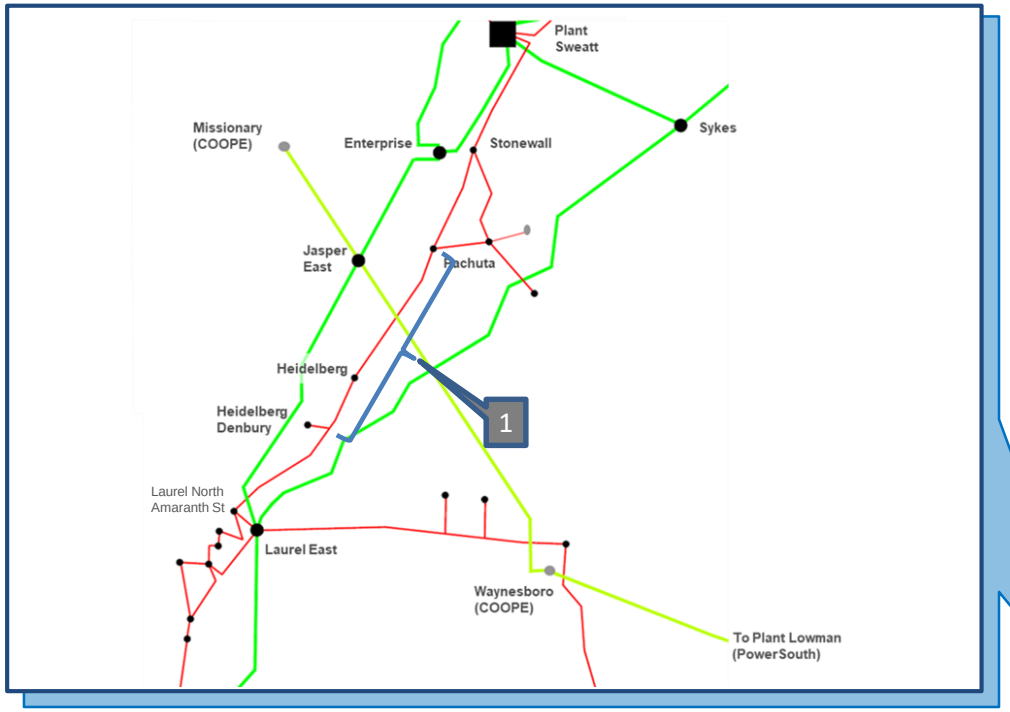


SOUTHERN Balancing Authority Area

SOUTHERN – 4W

• **2021**

REBUILD / RECONDUCTOR HEIDELBERG DENBURY - PACHUTA 115 KV TRANSMISSION LINE

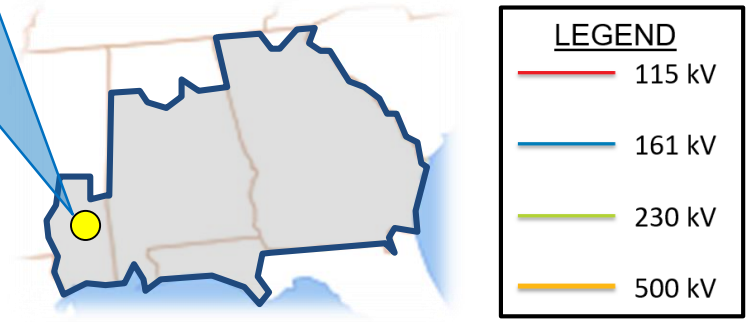


PROJECT DESCRIPTION:

1. Rebuild/Reconductor approximately 14 miles of 115 kV line with 795 ACSR at 100°C.

SUPPORTING STATEMENT:

- The Heidelberg Denbury – Pachuta 115 kV transmission line overloads under contingency. This project also provides additional operational and maintenance flexibility which then increases reliability.

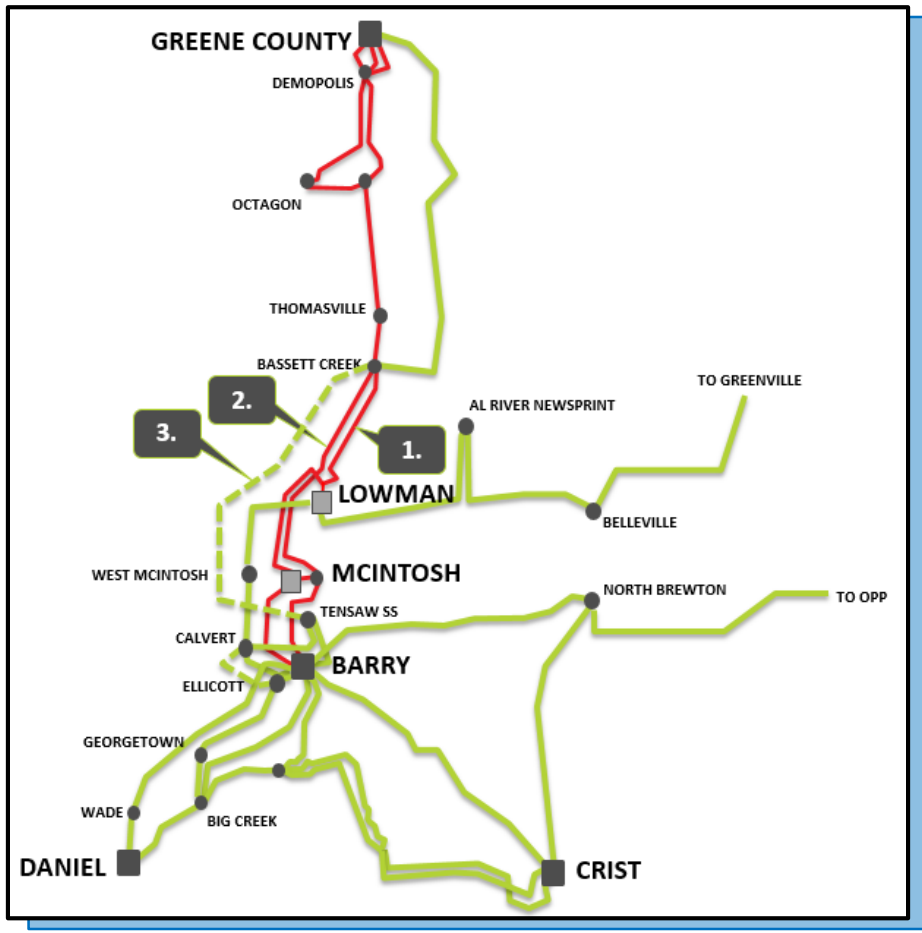


SOUTHERN Balancing Authority Area

SOUTHERN – 5W

• **2022**

BASSETT CREEK CORRIDOR PROJECTS

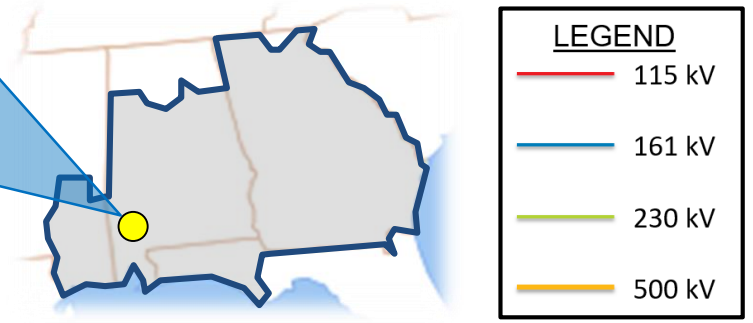


PROJECT DESCRIPTION:

1. Reconductor approximately 24.0 miles along the Bassett Creek to Lowman 115 kV transmission line with 1033.5 ACSS at 200°C.
2. Reconductor approximately 46.0 miles along the Bassett Creek to McIntosh 115 kV transmission line with 1033.5 ACSS at 200°C.
3. Construct approximately 60.0 miles of 1351 ACSS 230 kV transmission line at 200°C from Bassett Creek to Tensaw then Calvert to Ellicott.

SUPPORTING STATEMENT:

- There are multiple 115 kV transmission lines in the local area that overload under contingency. These projects also provide additional operational and maintenance flexibility which then increases reliability.

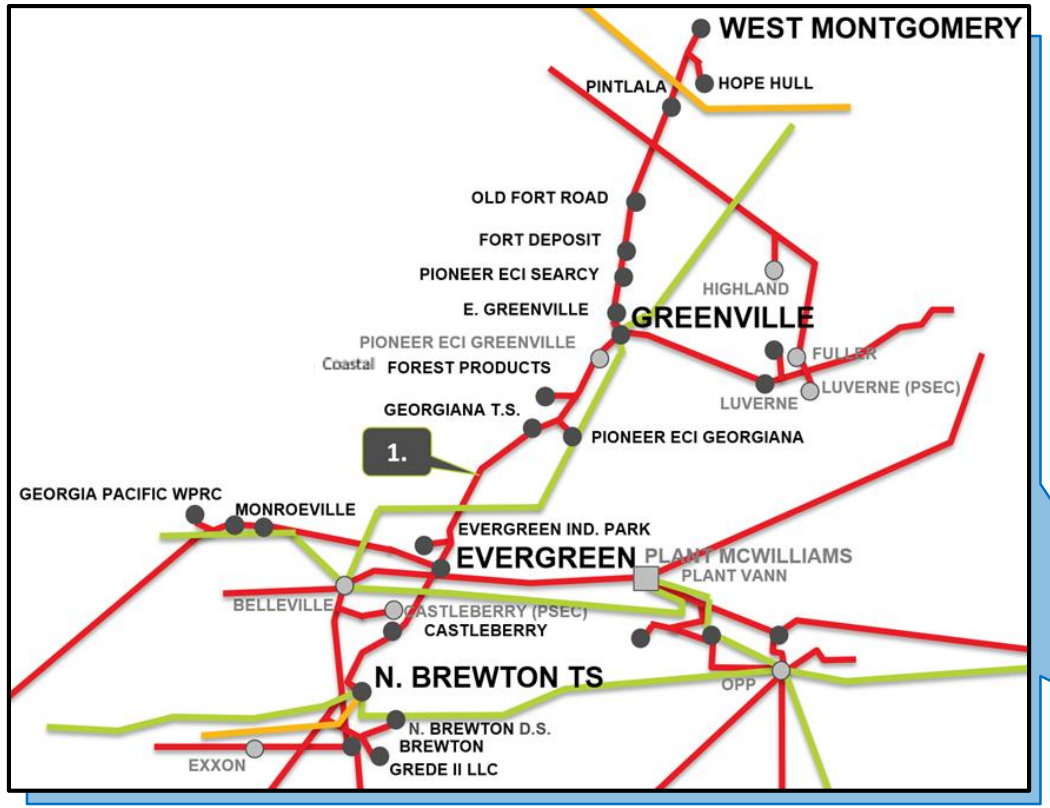


SOUTHERN Balancing Authority Area

SOUTHERN – 6W

• **2023**

CENTRAL CORRIDOR SOLUTION 115 KV PROJECT

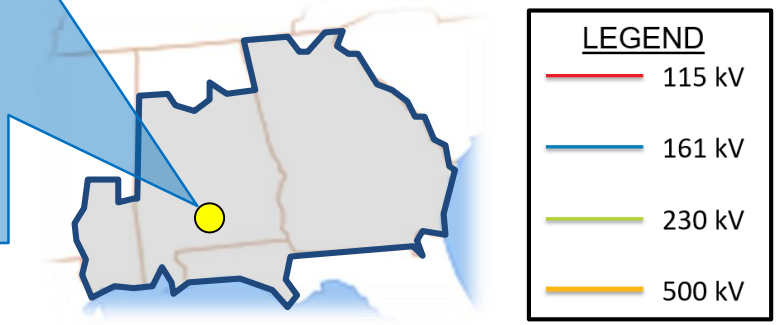


PROJECT DESCRIPTION:

1. Rebuild approximately 97.0 miles of 115 kV transmission line from West Montgomery to North Brewton 115 kV transmission line with 795 ACSS at 200˚C.

SUPPORTING STATEMENT:

- Multiple sections of the central corridor overload under contingency. This project also provides additional operational and maintenance flexibility which then increases reliability.

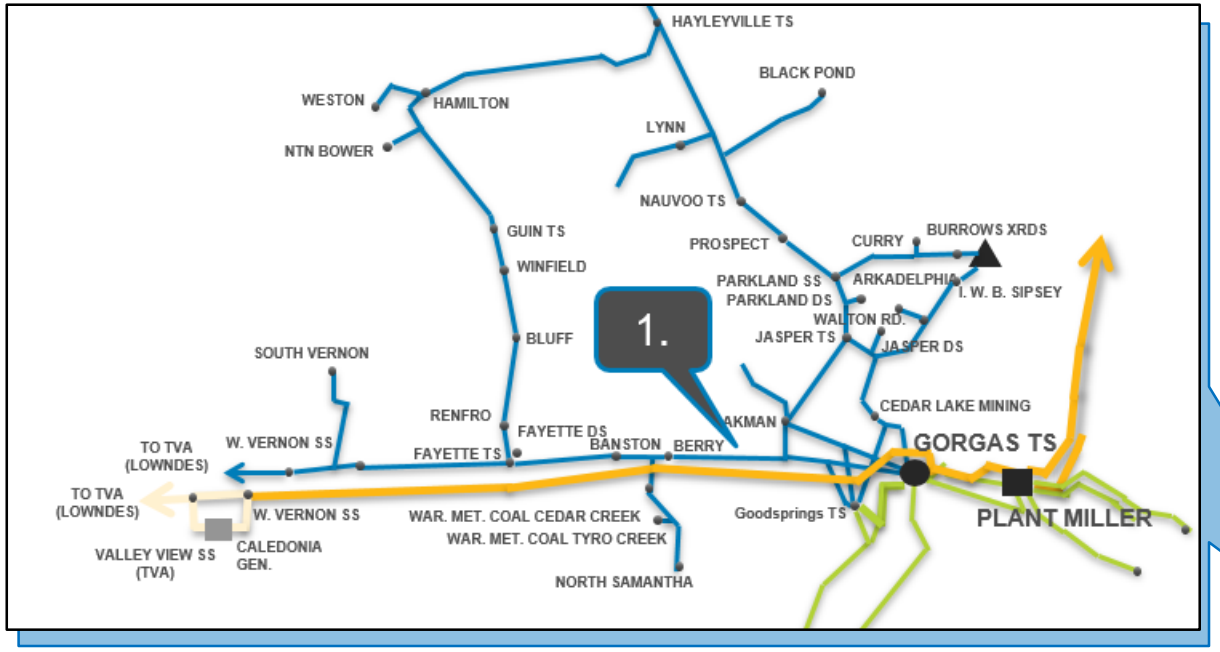


SOUTHERN Balancing Authority Area

SOUTHERN – 7W

• **2023**

FAYETTE – GORGAS 161 KV TRANSMISSION LINE

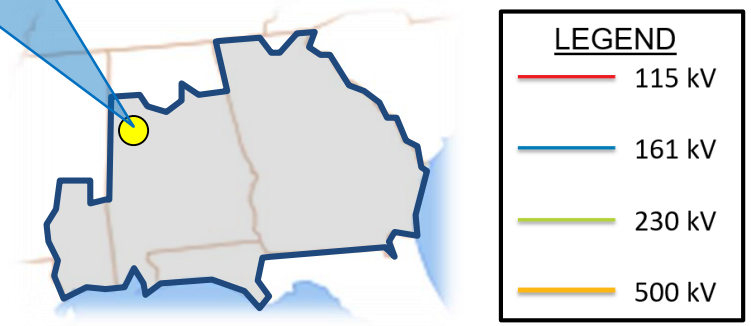


PROJECT DESCRIPTION:

1. Rebuild approximately 37.0 miles of 397 from Fayette to Gorgas 161 kV transmission line with 795 ACSS at 200˚C.

SUPPORTING STATEMENT:

- The Fayette to Gorgas 161 kV transmission line overloads under contingency.

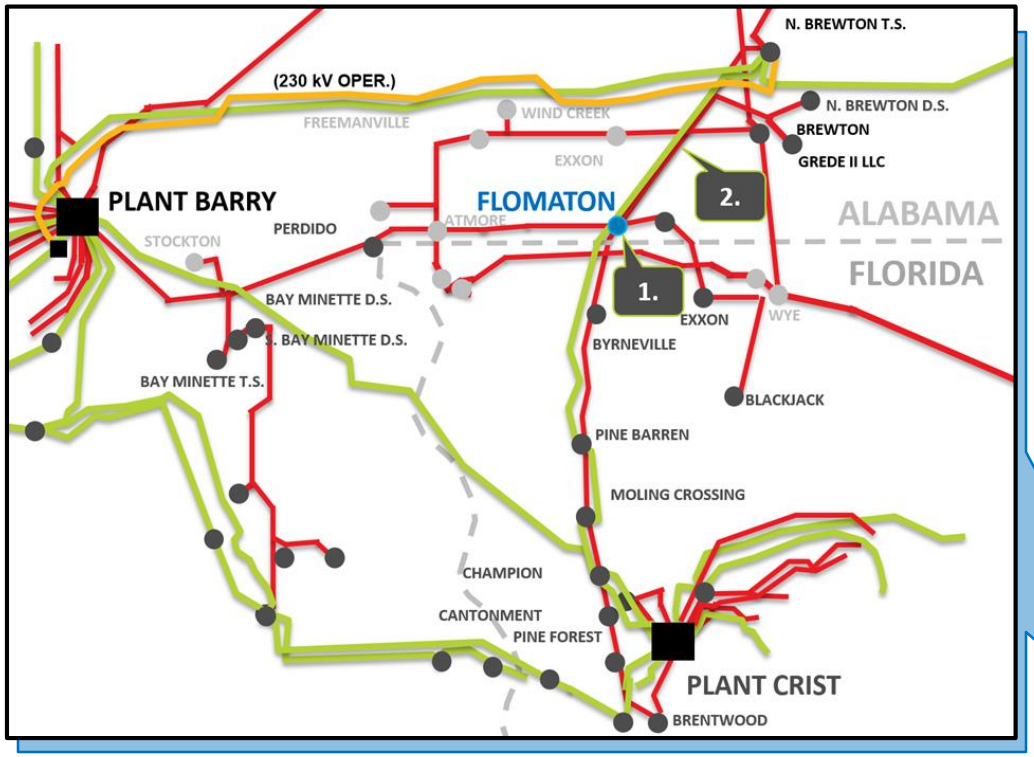


SOUTHERN Balancing Authority Area

SOUTHERN – 8W

• **2023**

FLOMATON 230/115 KV SUBSTATION

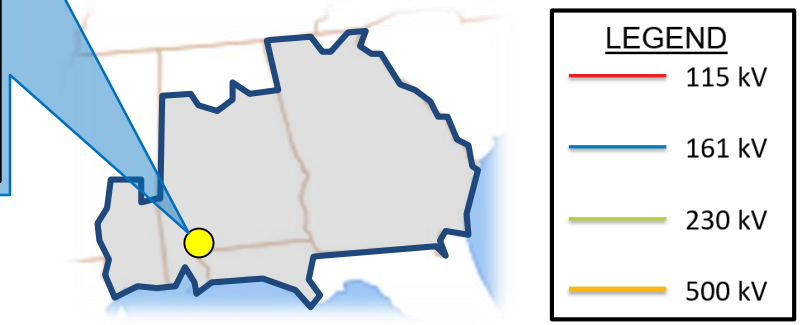


PROJECT DESCRIPTION:

1. Install a new Flomaton 230/115 kV, 480 MVA transformer at Flomaton TS.
2. Reconductor approximately 16.0 miles of 795 ACSR from N. Brewton to Flomaton 115 kV with 795 ACSS at 200°C.

SUPPORTING STATEMENT:

- Provides additional operational and maintenance flexibility which then increases reliability. This project also provides voltage support under contingency scenarios.

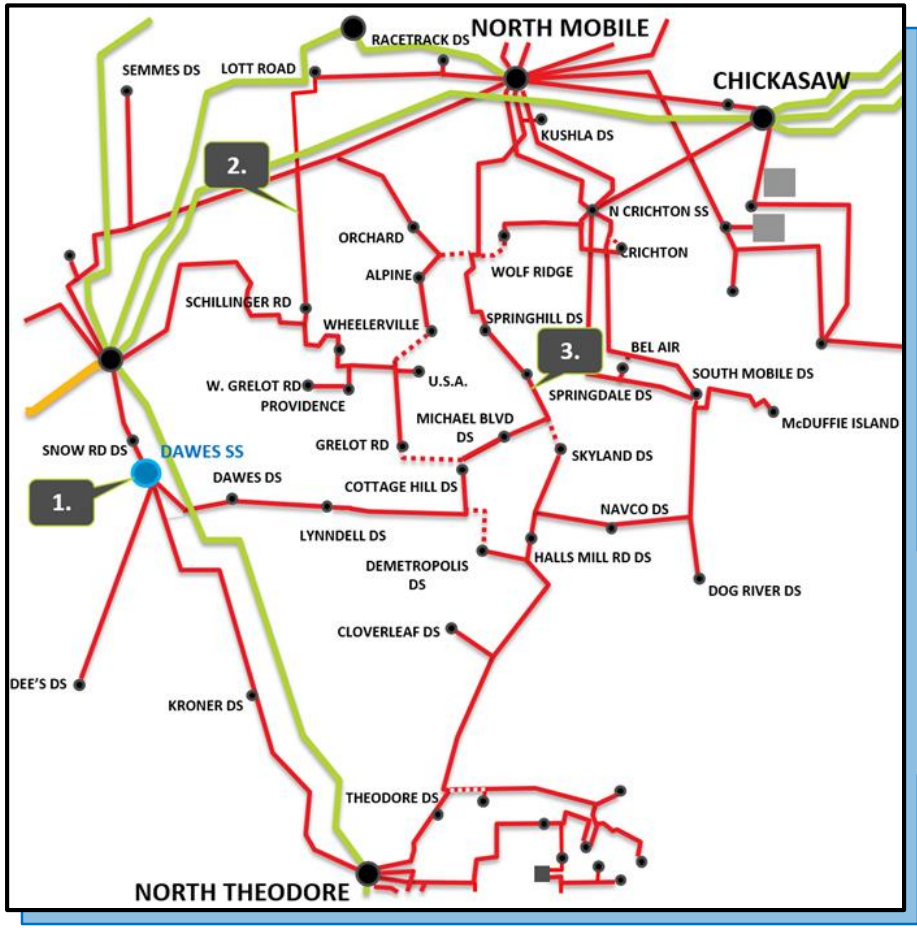


SOUTHERN Balancing Authority Area

SOUTHERN – 9W

• **2023**

MOBILE AREA NETWORKING

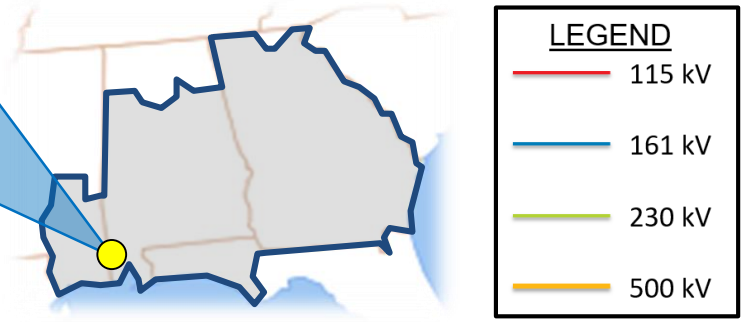


PROJECT DESCRIPTION:

1. Construct a new substation at Dawes Tap on the Big Creek to N. Theodore 115 kV transmission line.
2. Reconductor approximately 4.0 miles of 115 kV transmission line from Lott Road to Schillinger Road with 795 ACSS at 200°C.
3. Reconductor approximately 6.3 miles of 115 kV transmission line from North Mobile to Michael Blvd with 397 ACSS at 200°C.

SUPPORTING STATEMENT:

- Provides additional operational and maintenance flexibility which then increases reliability.

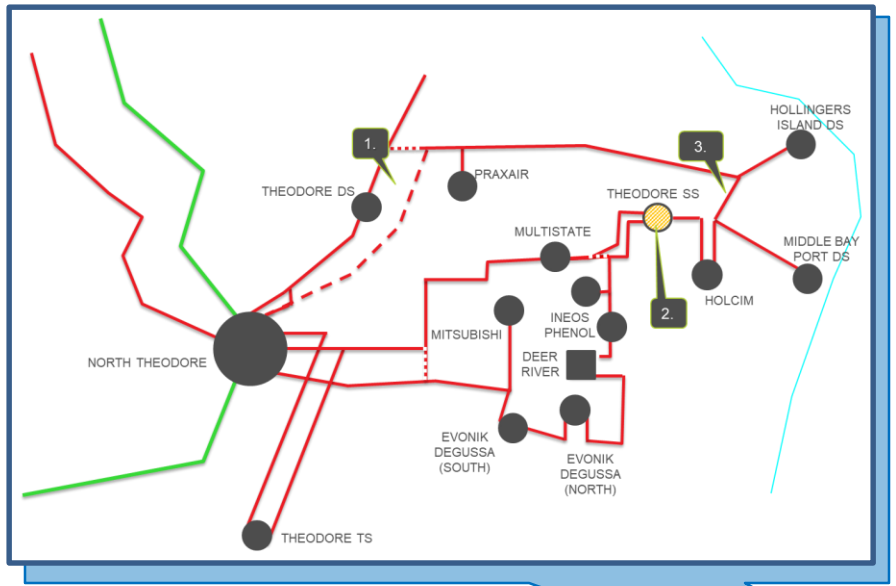


SOUTHERN Balancing Authority Area

SOUTHERN – 10W

• **2023**

NORTH THEODORE AREA 115 KV PROJECT

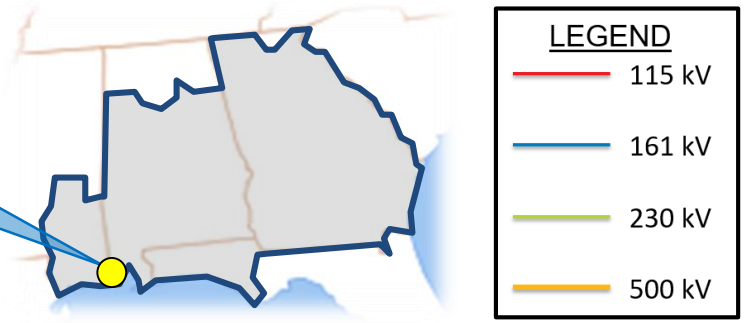


PROJECT DESCRIPTION:

1. Construct approximately 5.3 miles of new 115 kV transmission line to the Praxair Tap from North Theodore.
2. Construct a switching station near Multistate CU.
3. Reconductor approximately 1.0 mile of the Hollinger's Island DS – Holcim CU 115 kV transmission line to 795 ACSR at 100°C

SUPPORTING STATEMENT:

- Provides additional operational and maintenance flexibility which then increases reliability.

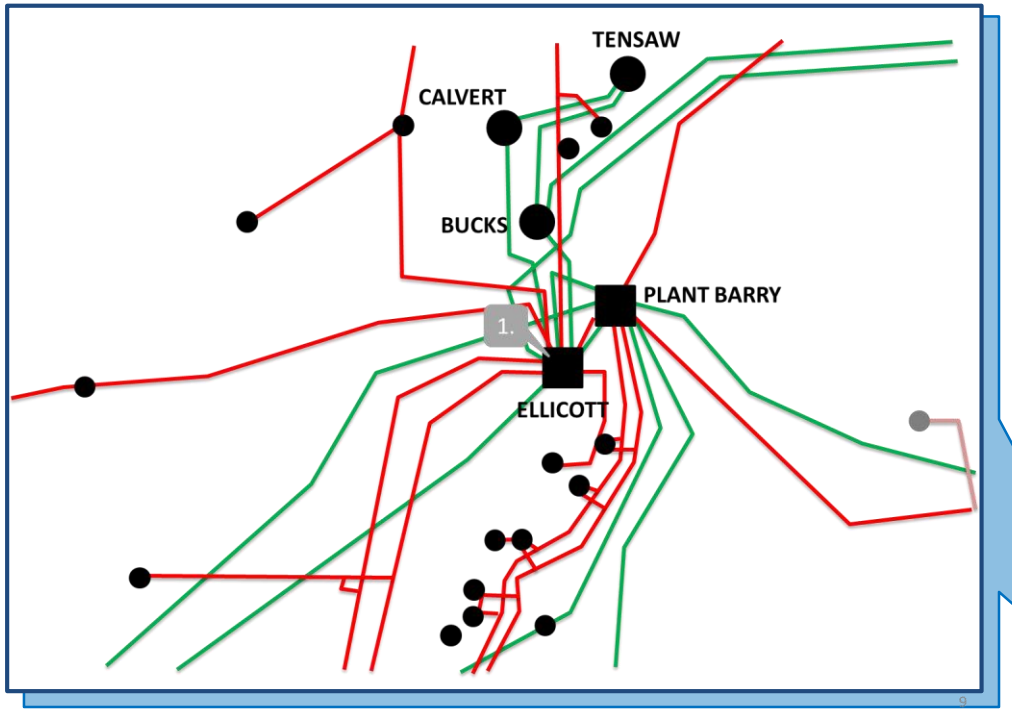


SOUTHERN Balancing Authority Area

SOUTHERN – 11W

• **2024**

ELLICOTT SUBSTATION EXPANSION PROJECT

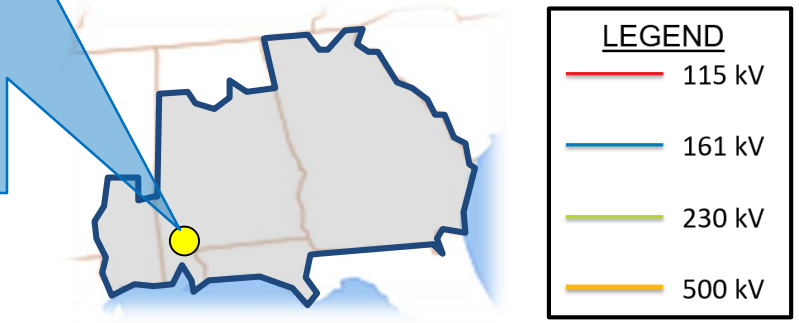


PROJECT DESCRIPTION:

1. Relocate multiple 115 kV lines to a new 115 kV substation

SUPPORTING STATEMENT:

- Upgrade existing and construct new transmission facilities to provide additional operational and maintenance flexibility, which increases reliability.



SOUTHERN Balancing Authority Area

SOUTHERN (EAST) Balancing Authority Area

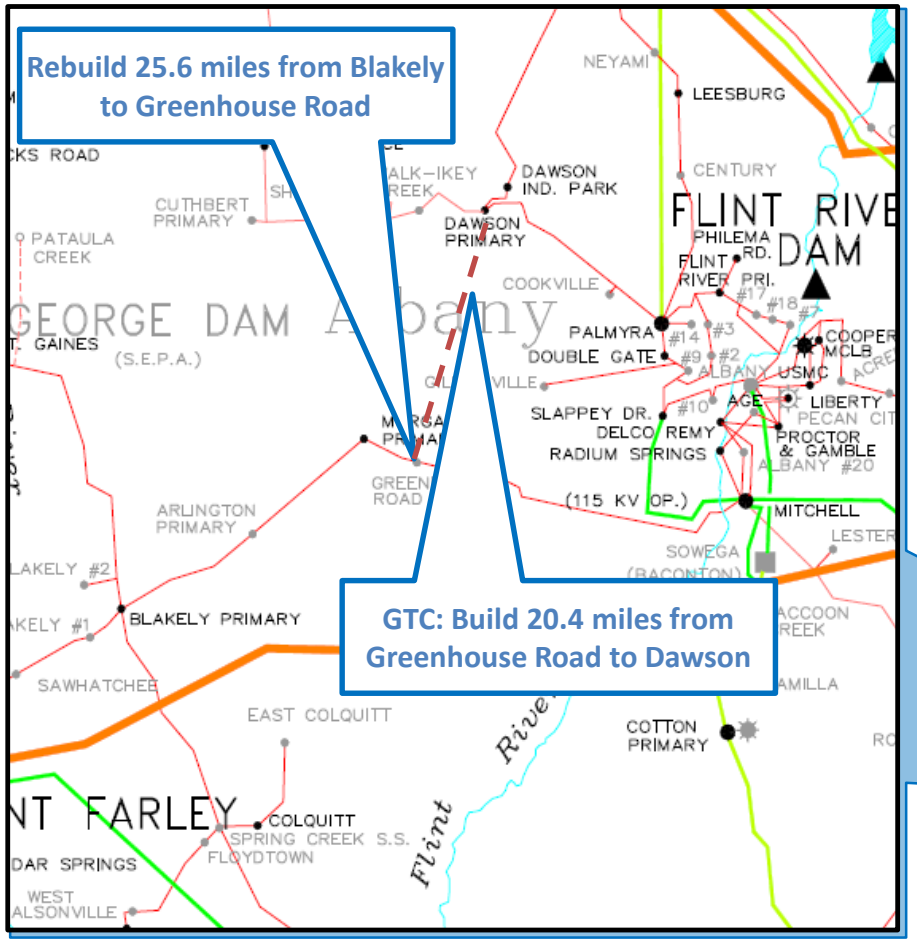
SERTP Regional Transmission Expansion Plan

SOUTHERN Balancing Authority Area

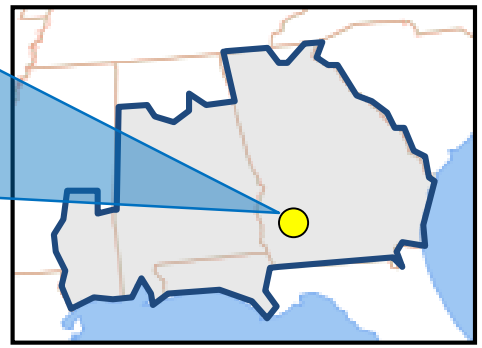
SOUTHERN – 1E

- **2020**

BLAKELY PRIMARY – DAWSON PRIMARY 115 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - GPC to rebuild approximately 25.6 miles of 50°C 266 ACSR 115 kV transmission line from Blakely Primary to Greenhouse Road with 100°C 765 ACSR.
  - GTC to build approximately 20.4 miles of new 115 kV transmission line from Greenhouse Road to Dawson Primary with 100°C 765 ACSR.
- **SUPPORTING STATEMENT:**
  - The Blakely Primary to Mitchell 115 kV transmission line overloads under contingency.

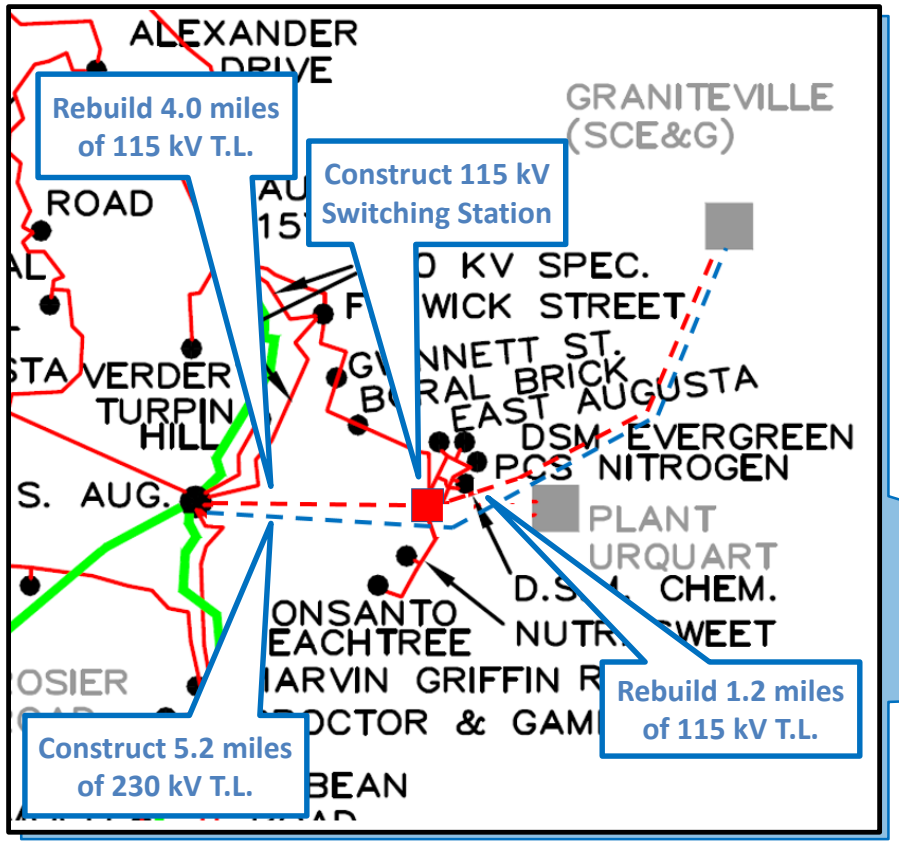


SOUTHERN Balancing Authority Area

SOUTHERN – 2E

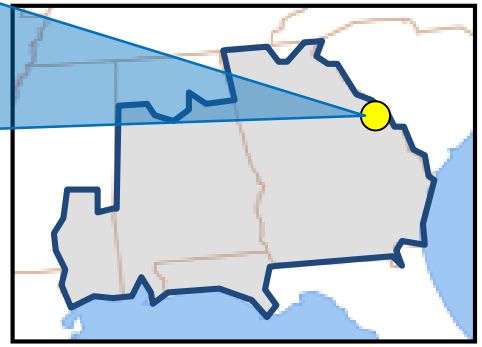
• **2020**

GRANITEVILLE - SOUTH AUGUSTA 115 & 230 KV TRANSMISSION LINES



- **DESCRIPTION:**
  - Construct a new 5.2 mile 230 kV tie-line (GPC to SCE&G) from the South Augusta 230/115 kV substation to the GA/SC state-line with bundled 1351 ACSR at 100°C. Construct a 5-breaker 115 kV switching station. Rebuild existing transmission line from the switching station to the GA/SC state line (1.2 miles) with 1351 ACSR at 100°C. Rebuild 4.0 miles of existing line between South Augusta and the new switching station with 1351 ACSR at 100°C.

- **SUPPORTING STATEMENT:**
  - The Savannah River (SCE&G) to Vogtle 230 kV tie – line and multiple other transmission facilities on the SCE&G system overload under contingency.

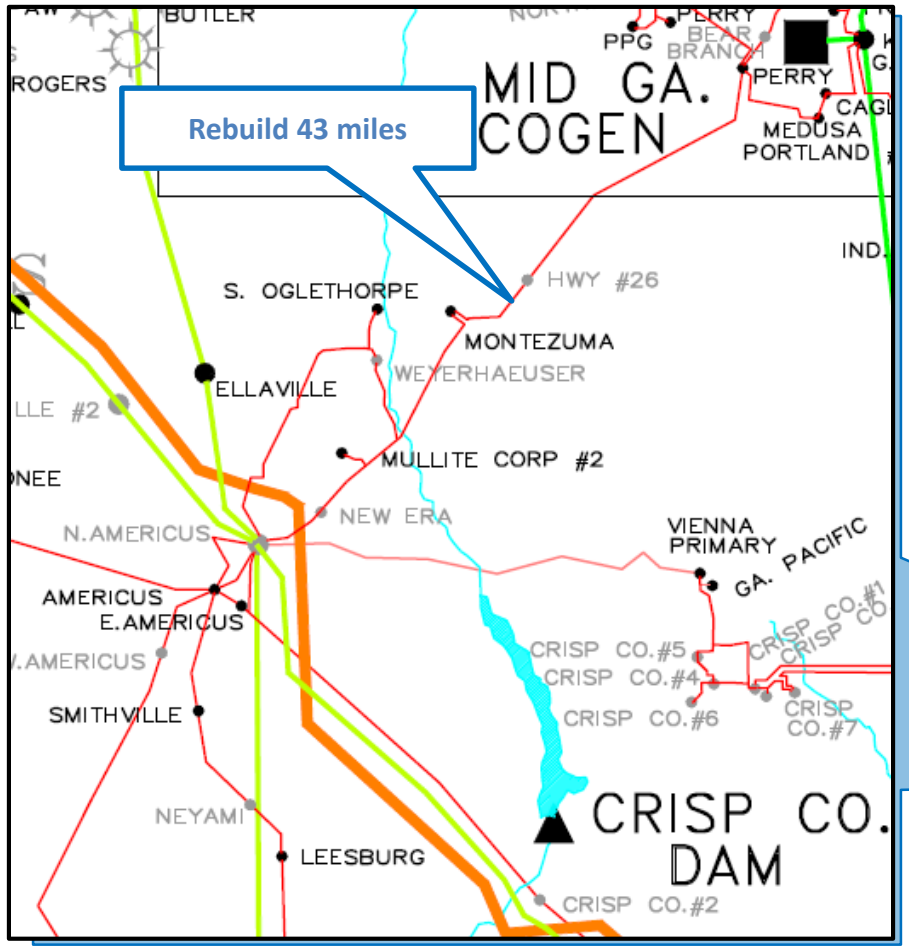


SOUTHERN Balancing Authority Area

SOUTHERN – 3E

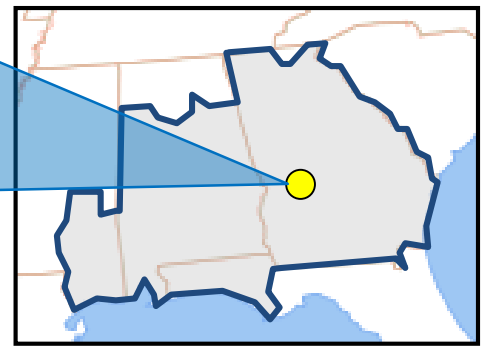
• **2020**

NORTH AMERICUS – PERRY 115 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Rebuild approximately 43.0 miles of the existing 115 kV transmission line from North Americus to Perry substation with 795 ACSR at 100°C.

- **SUPPORTING STATEMENT:**
  - The North Americus to Perry 115 kV transmission line overloads under contingency.

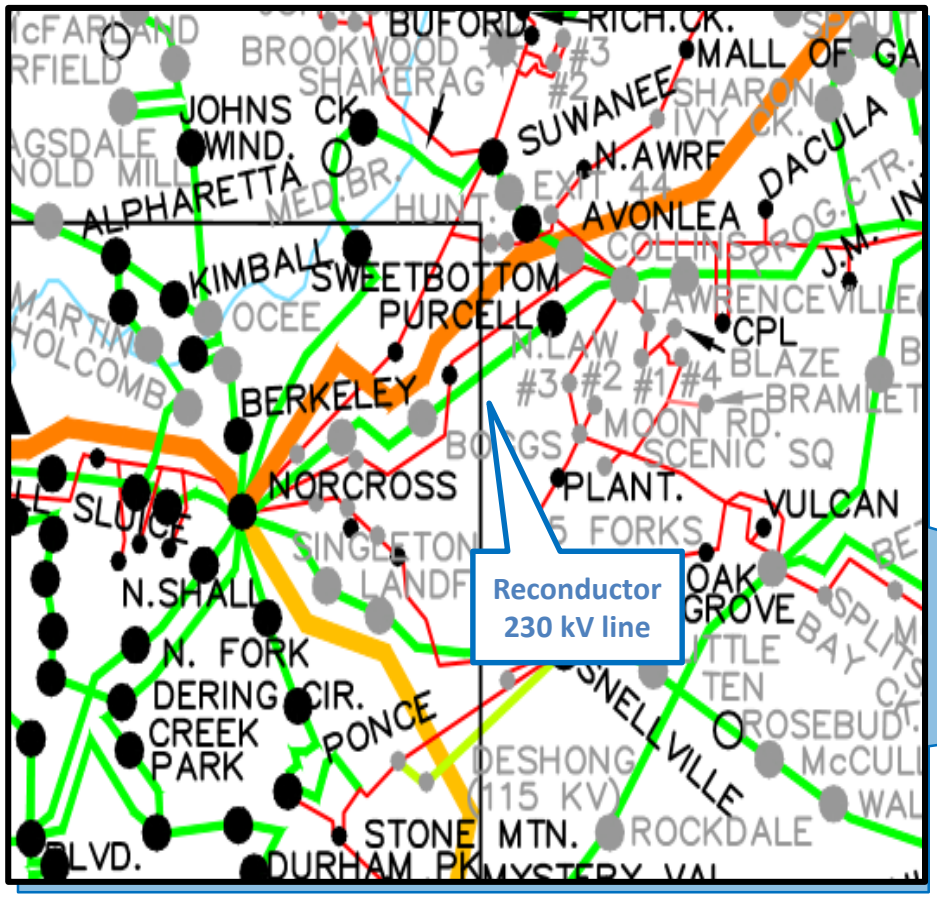


SOUTHERN Balancing Authority Area

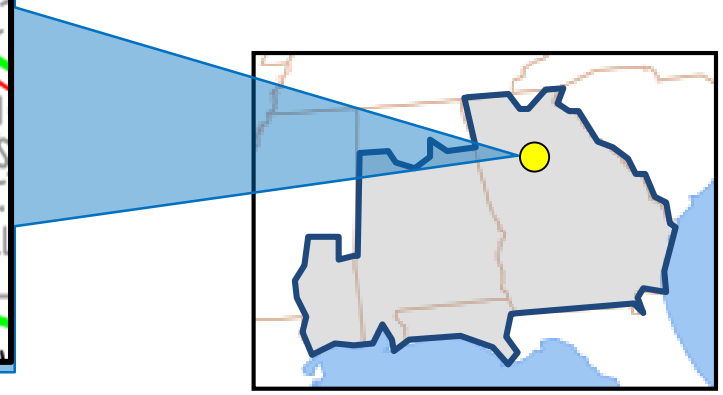
SOUTHERN – 4E

• **2021**

LAWRENCEVILLE – NORCROSS 230 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Reconductor approximately 5.9 miles of the Boggs Road – Lawrenceville section of the Lawrenceville – Norcross 230 kV transmission line with 1351 ACSS at 170°C.
- **SUPPORTING STATEMENT:**
  - The Lawrenceville - Norcross 230 kV transmission line overloads under contingency.

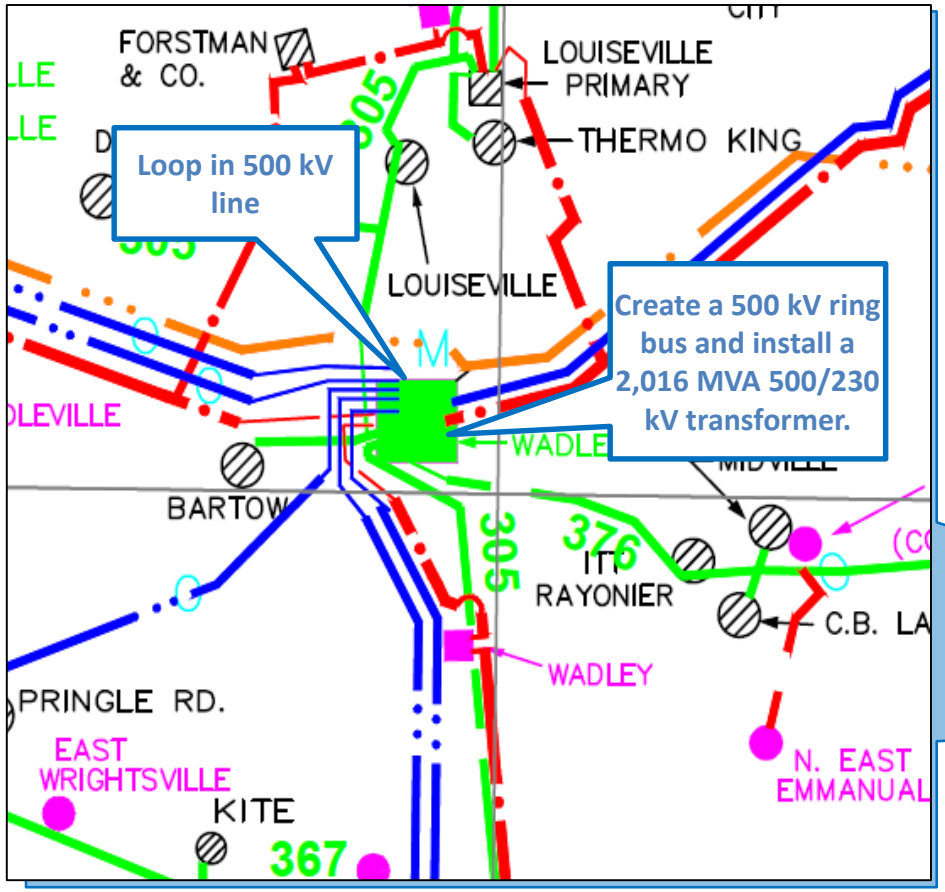


SOUTHERN Balancing Authority Area

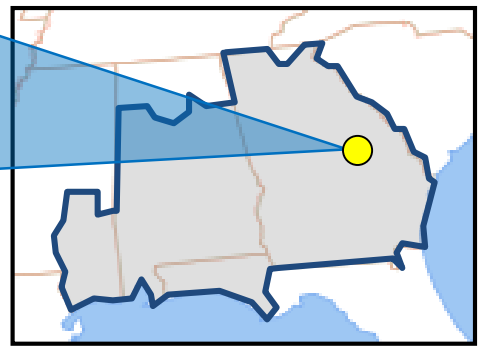
SOUTHERN – 5E

- **2021**

WADLEY PRIMARY 500/230 KV PROJECT



- **DESCRIPTION:**
  - Loop in the Vogtle to Warthen 500 kV transmission line into the new 500 kV ring bus at Wadley Primary. Install a 500/230 kV, 2016 MVA transformer that ties to the Wadley Primary 230 kV bus.
- **SUPPORTING STATEMENT:**
  - Project to enhance reliability in the Augusta area and to support the expansion of Plant Vogtle.

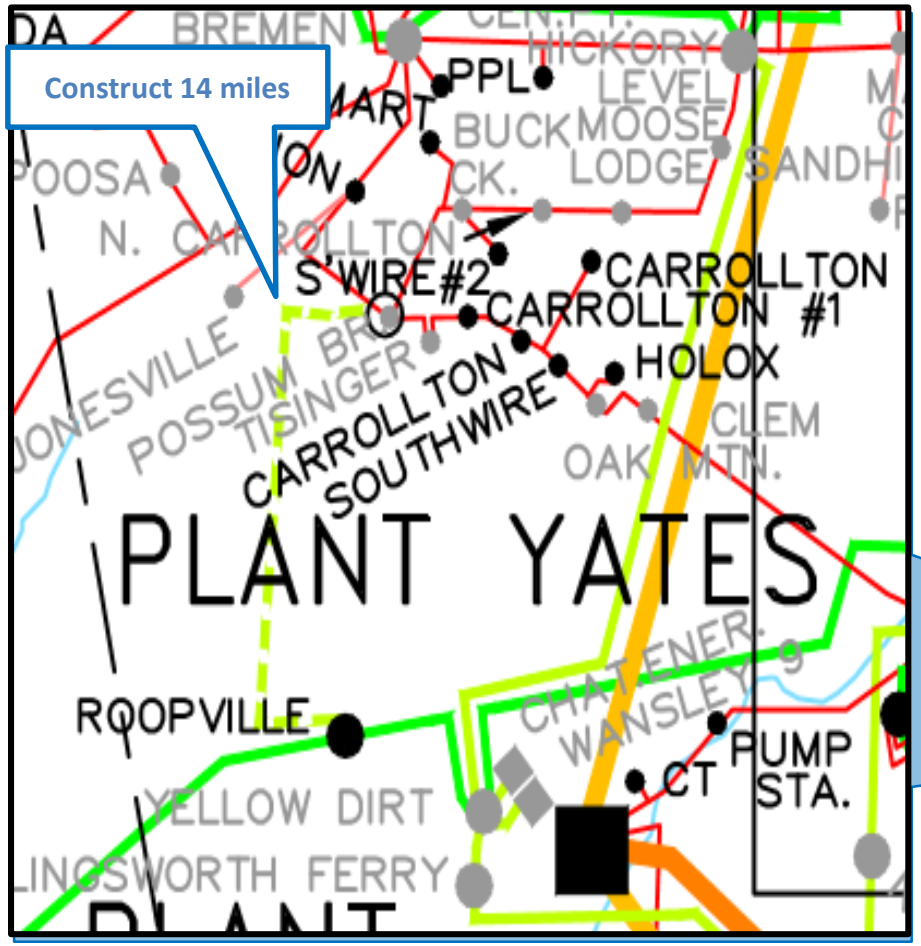


SOUTHERN Balancing Authority Area

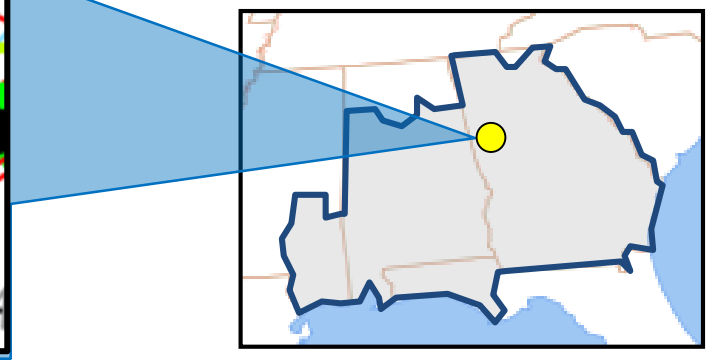
SOUTHERN – 6E

• **2022**

POSSUM BRANCH 230/115KV PROJECT



- **DESCRIPTION:**
  - Construct a new 14 mile Possum Branch – Roopville 230 kV Line with 100°C 1351 ACSR conductor. Install a 230/115 kV, 400 MVA transformer at Possum Branch with a 230 kV bus. Construct a 230 kV a ring bus switching station at Roopville along with additional substation modifications.
- **SUPPORTING STATEMENT:**
  - Reliability issues identified.

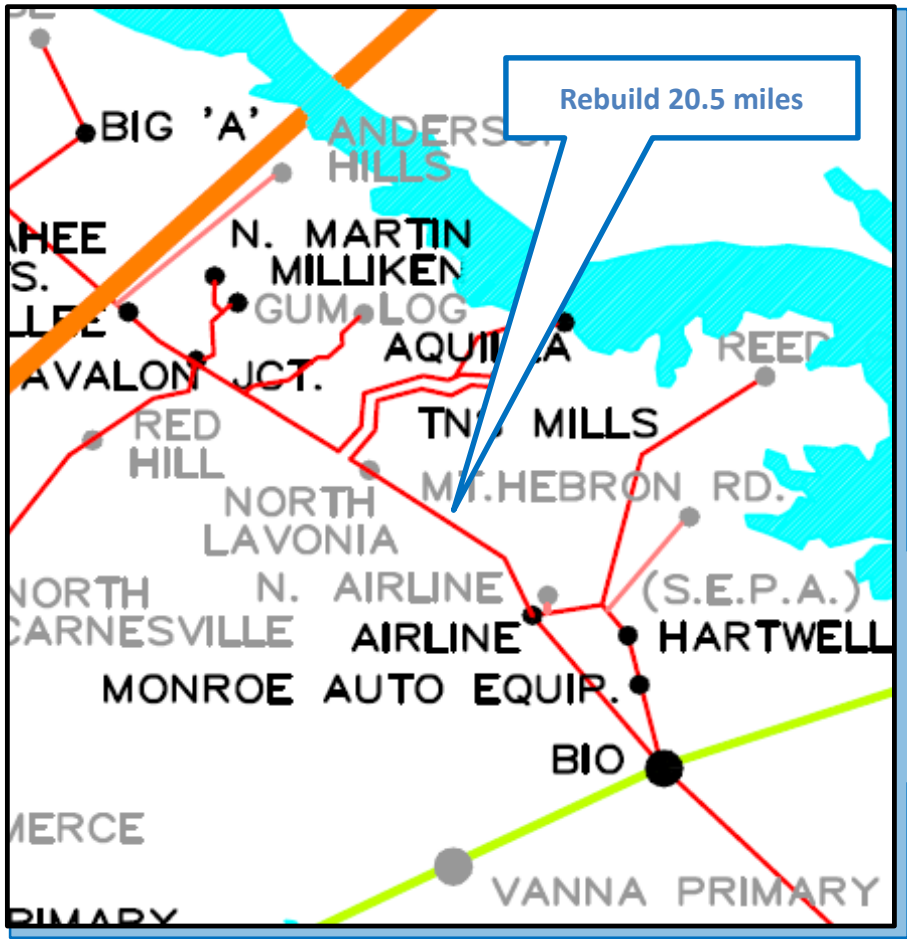


SOUTHERN Balancing Authority Area

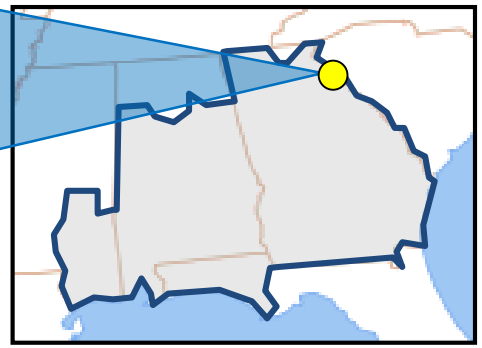
SOUTHERN – 7E

• **2024**

AVALON JUNCTION – BIO 115 KV TRANSMISSION LINE REBUILD



- **DESCRIPTION:**
  - Rebuild approximately 20.5 miles of the Avalon Junction to Bio 115 kV transmission line (636 ACSR/795ACSR) with 100°C 1351 ACSR and replace the terminal equipment at various substations.
- **SUPPORTING STATEMENT:**
  - The Avalon Junction to Bio 115 kV transmission line overloads under contingency.

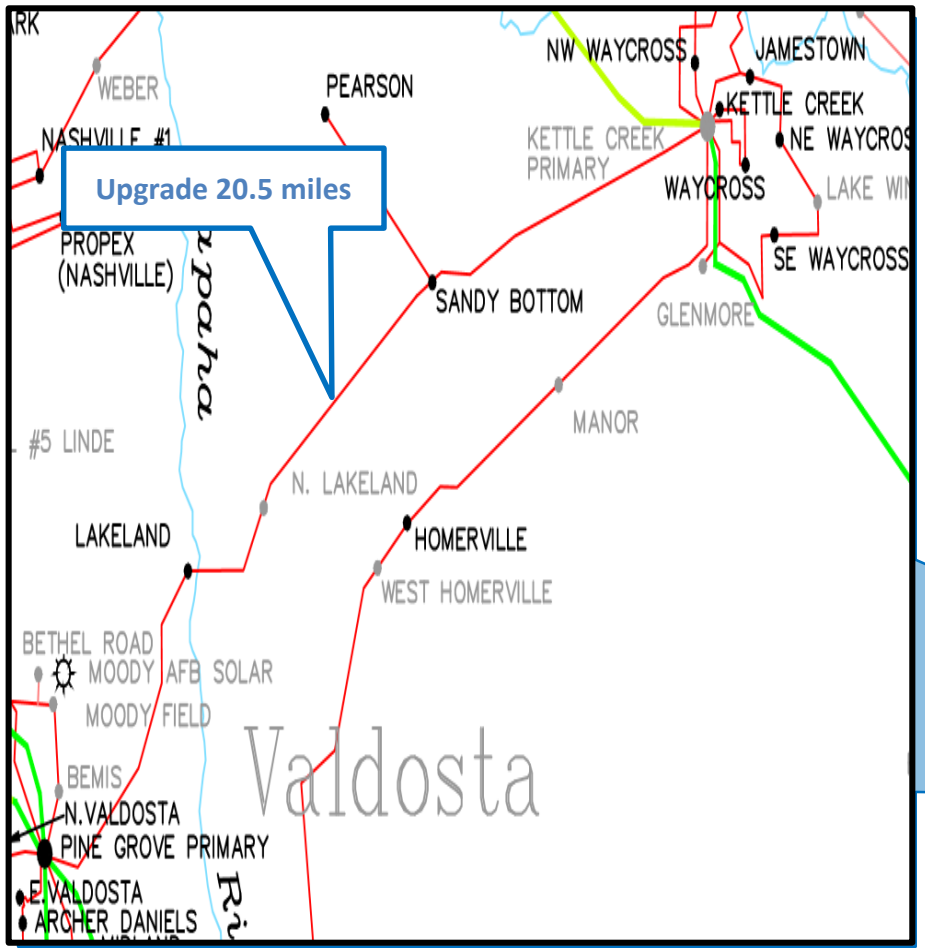


SOUTHERN Balancing Authority Area

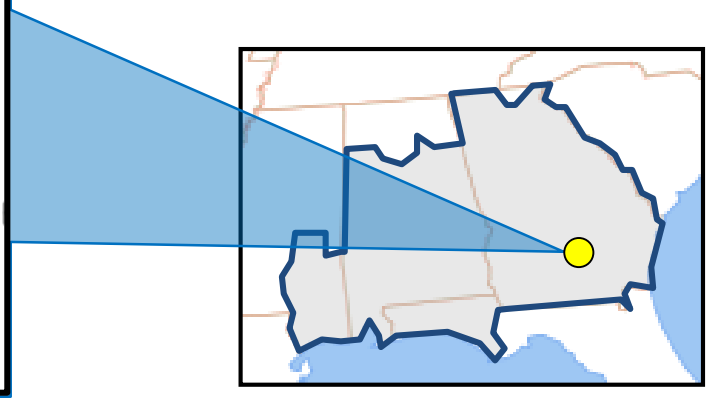
SOUTHERN – 8E

- **2025**

KETTLE CREEK PRIMARY – PINE GROVE PRIMARY 115 KV



- **DESCRIPTION:**
  - Upgrade approximately 20.5 miles of 50°C 4/0 ACSR to 75°C operation from Kettle Creek Primary to Sandy Bottom.
- **SUPPORTING STATEMENT:**
  - Kettle Creek Primary to Sandy Bottom line segment overloads under contingency.

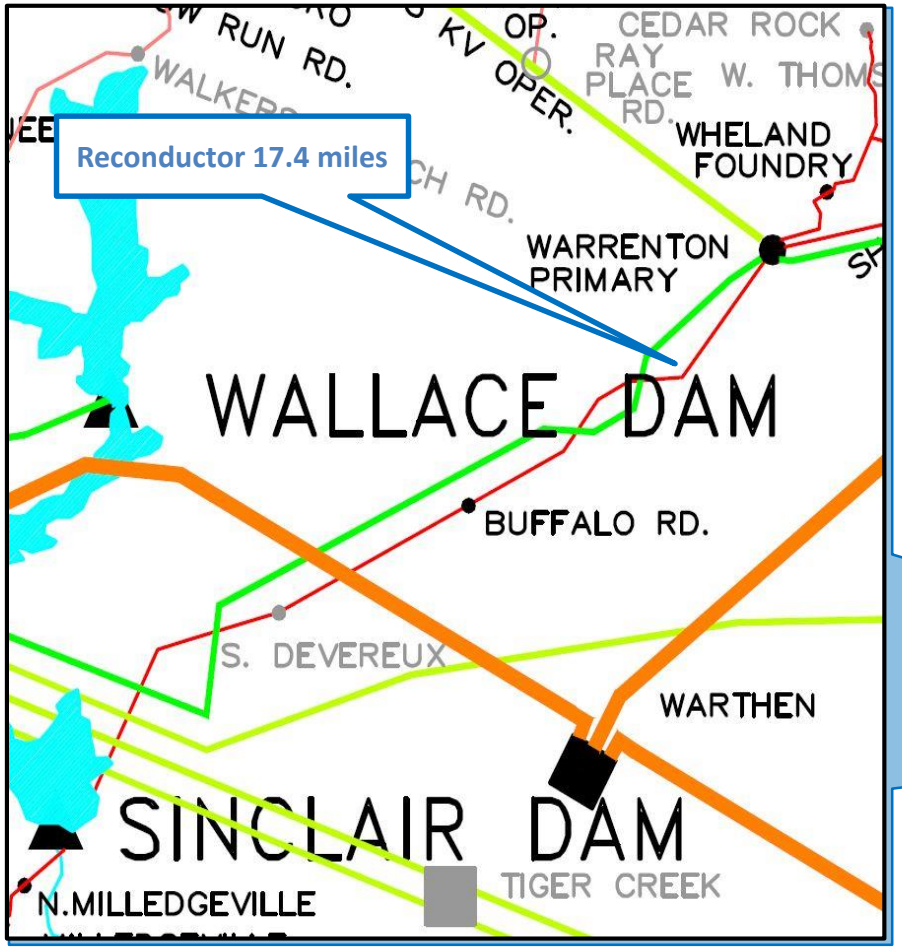


SOUTHERN Balancing Authority Area

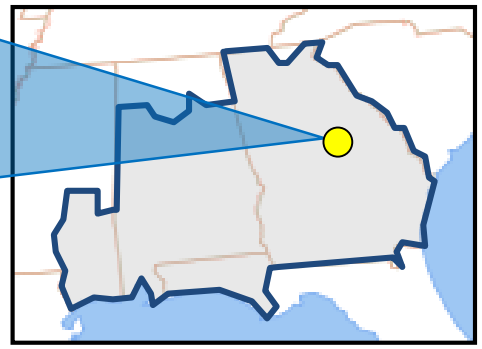
SOUTHERN – 9E

• **2025**

SINCLAIR DAM – WARRENTON PRIMARY 115 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Reconductor 17.4 miles of 50°C 4/0 CU on the Buffalo Road to Warrenton Primary line section with 100°C 795 ACSR.
  - Replace 90°C 4/0 CU jumpers with AAC 1590 at Buffalo Road.
- **SUPPORTING STATEMENT:**
  - The Sinclair Dam to Warrenton Primary 115 kV transmission line overloads under contingency.

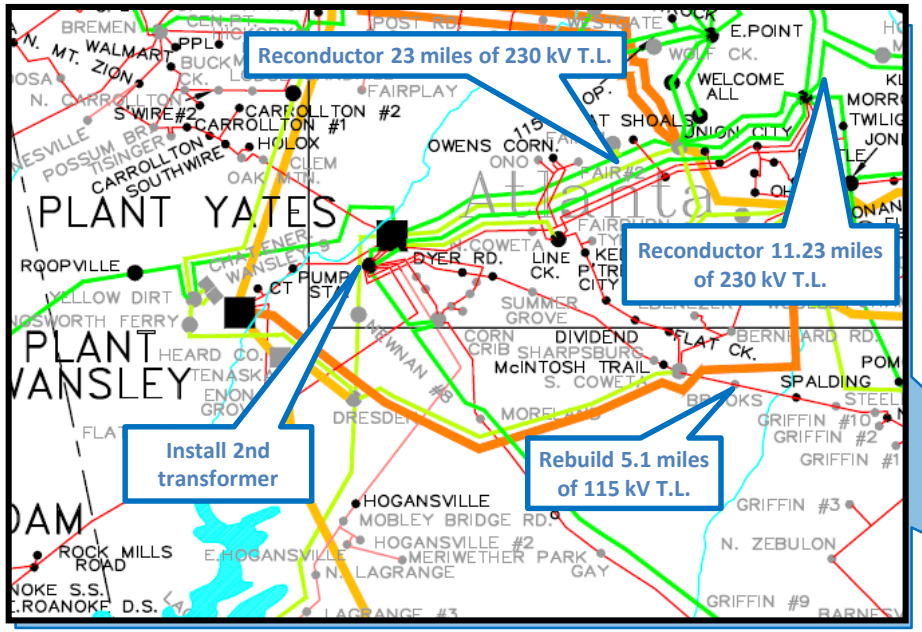


SOUTHERN Balancing Authority Area

SOUTHERN – 10E

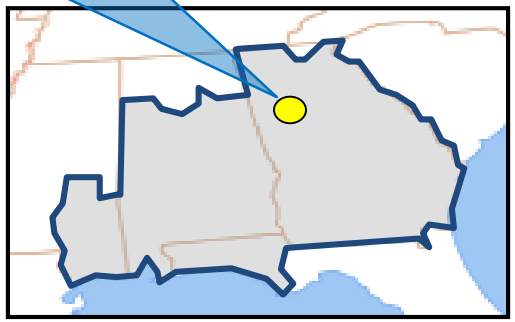
• **2025**

NEWNAN AREA NETWORK IMPROVEMENTS



- **DESCRIPTION:**
  - Reconductor Union City to Yates (White) 230 kV (23.0 miles with 200°C 1033 ACSS), Klondike - Morrow 230 kV Line (11.23 miles with 2-795 ACSR)
  - Rebuild South Coweta to South Griffin 115 kV Line (5.1 miles of 100°C 1033 ACSR)
  - Install second Dyer Road 230/115 kV transformer
  - Rebuild Conyers Substation 230 kV bus

- **SUPPORTING STATEMENT:**
  - The addition of Plant Yates Unit 8 generation causes various facilities in the northwestern Georgia area to overload.

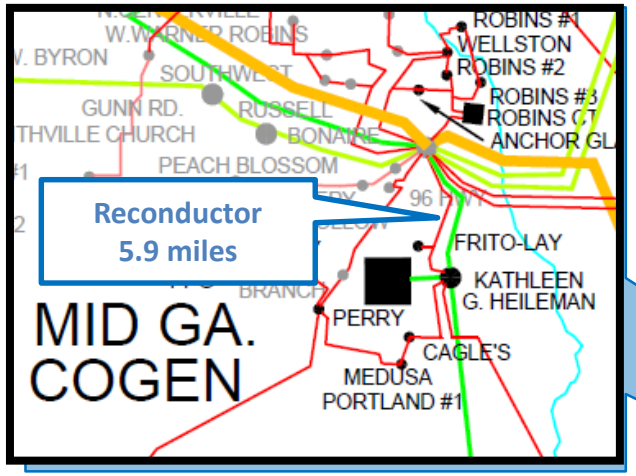


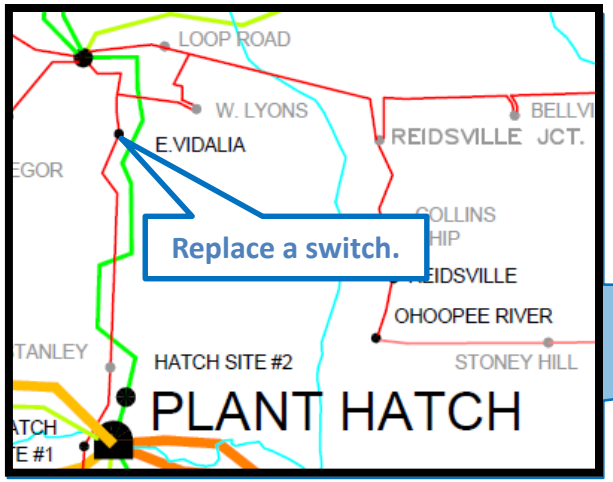
SOUTHERN Balancing Authority Area

SOUTHERN – 11E

- **2027**

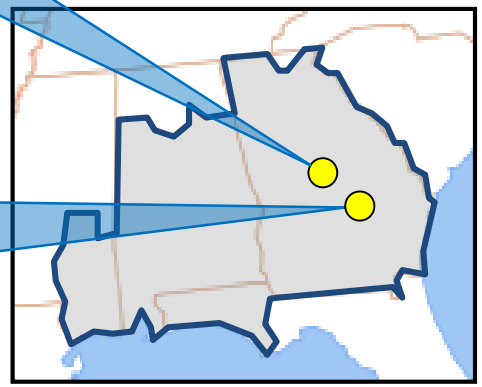
MILLEDGEVILLE AREA NETWORK IMPROVEMENTS





- **DESCRIPTION:**
  - Reconductor 5.9 miles Bonaire Primary-Kathleen 115 KV to 100°C 795 ACSR.
  - Replace the 600A BLD switch at East Vidalia with 2000A BLD switch.

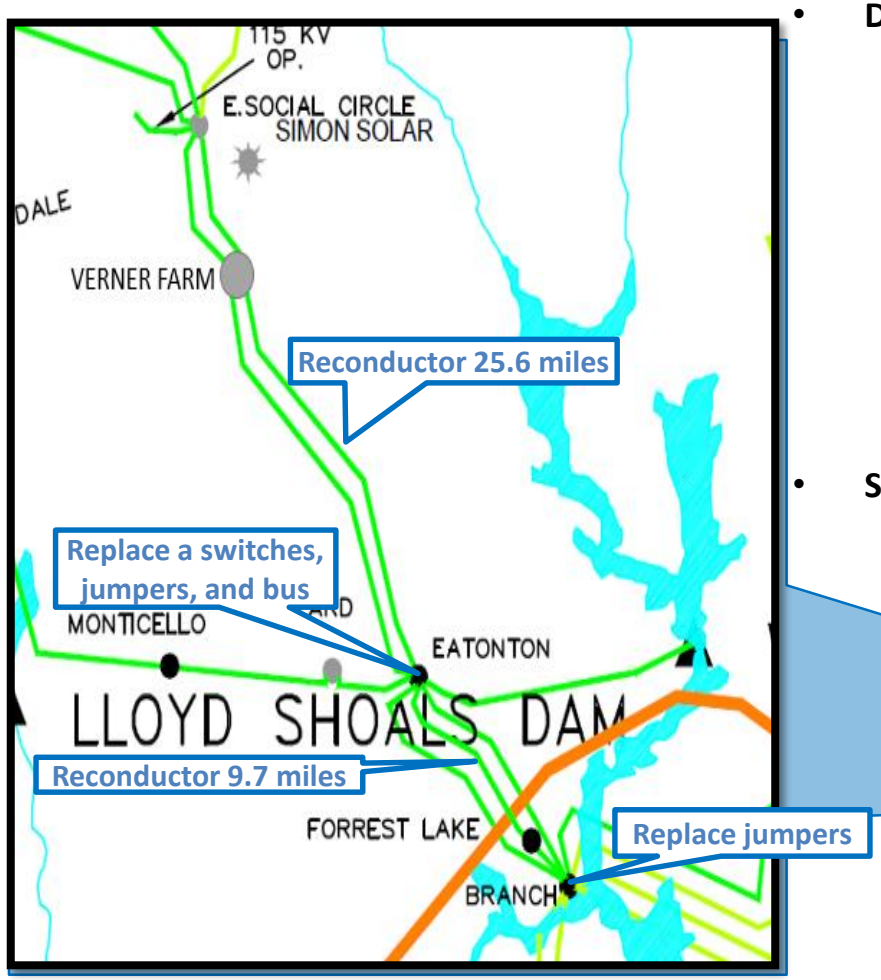
- **SUPPORTING STATEMENT:**
  - The addition of Plant Branch Unit 5 generation causes various facilities in the northern Georgia area to overload.



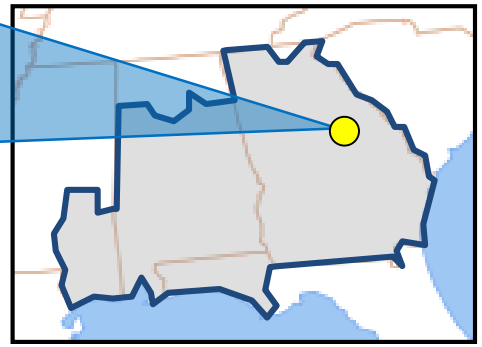
SOUTHERN – 11E (Continued)

• **2027**

MILLEDGEVILLE NETWORK IMPROVEMENTS



- **DESCRIPTION:**
  - Reconductor the Branch to Verner Farms 230 kV line (9.7 miles of 100°C 1351 ACSR) using 160°C 1351 ACSS. Replace 1590 AAC main bus, jumpers at Eatonton Primary, and jumpers at Branch, with 2-1590 AAC. Replace switches at Eatonton Primary with 2000 A switches.
  - Reconductor the Eatonton Primary to Verner Farms 230 kV line (25.6 miles of 100°C 1351 ACSR) using 160°C 1351 ACSS. Replace switches at Eatonton Primary with 2000 A switches.
- **SUPPORTING STATEMENT:**
  - The addition of Plant Branch Unit 5 generation causes various facilities in the northern Georgia area to overload.



SOUTHERN Balancing Authority Area

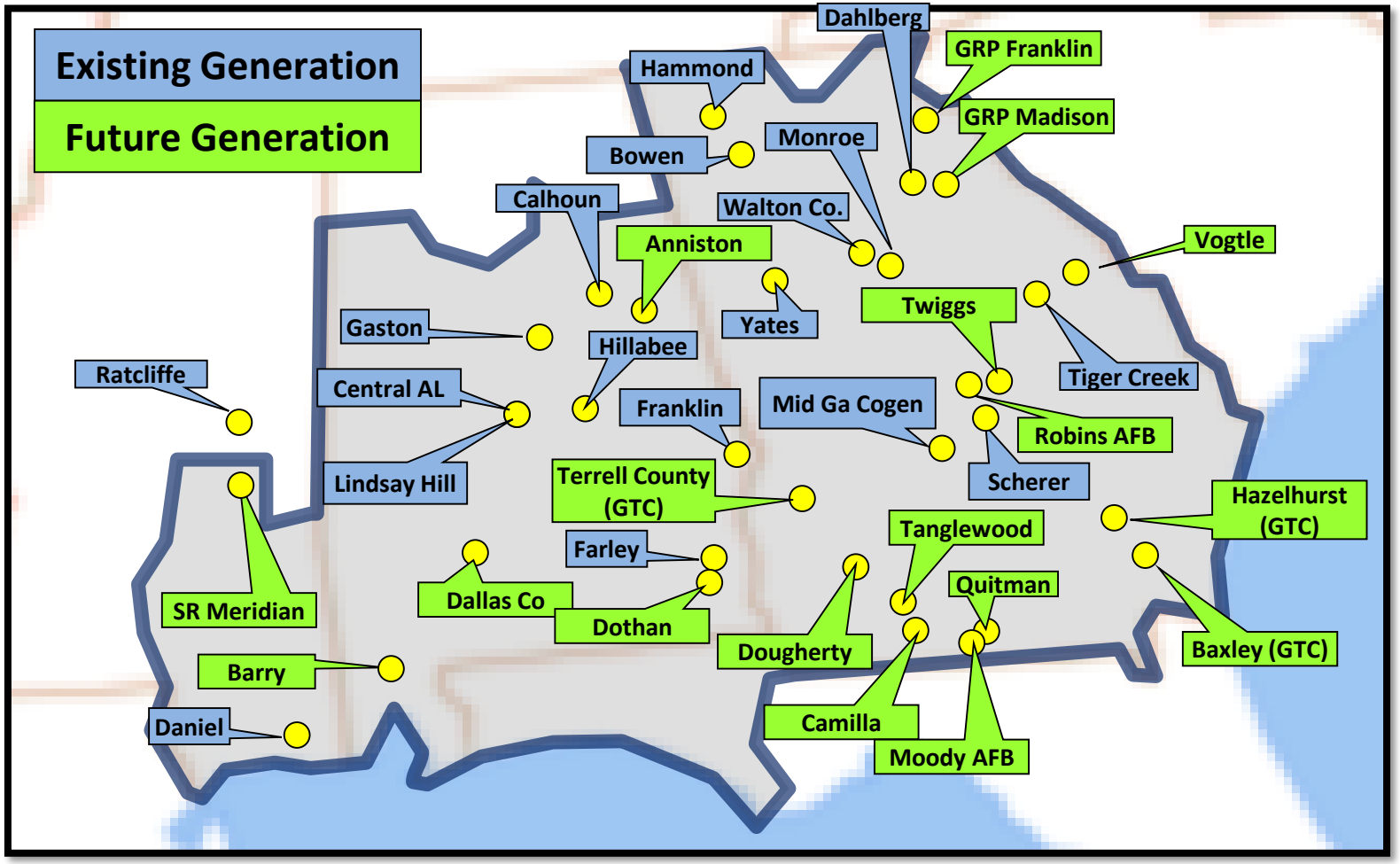
SOUTHERN Balancing Authority Area

2020 Upcoming Generation Assumptions

SOUTHERN Balancing Authority Area

SOUTHERN – Generation Assumptions

The following diagram depicts the location of generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2020 SERTP Process.



SOUTHERN Balancing Authority Area

Southern Company – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
CALHOUN 1-4	Gas	632	632	0	--	--	--	--	--	--	--
CENTRAL AL	Gas	885	--	--	--	--	--	--	--	--	--
DAHLBERG 2, 6, 8, 10	Gas	298	298	298	298	0	--	--	--	--	--
MID GA COGEN	Gas	300	300	300	300	300	300	300	0	--	--
MONROE POWER	Gas	309	309	309	0	--	--	--	--	--	--
TIGER CREEK 1&4	Gas	313	313	313	0	--	--	--	--	--	--
WALTON COUNTY	Gas	465	465	313	0	--	--	--	--	--	--

Southern Company – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
GASTON 1-4	Gas	465	465	465	515	515	515	515	515	515	515
YATES 6-7	Gas	649	649	649	714	714	714	714	714	714	714

Southern Company – Generation Assumptions (Cont.)

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
VOGTLE 3	Nuclear	504	504	504	504	504	504	504	504	504	504
VOGTLE 4	Nuclear	--	504	504	504	504	504	504	504	504	504
FARLEY 1	Nuclear	874	898	898	898	898	898	898	898	898	898
FARLEY 2	Nuclear	901	901	901	901	901	901	901	901	901	901
ANNISTON SOLAR	S&B	--	80	80	80	80	80	80	80	80	80
AL SOLAR C	S&B	--	--	80	80	80	80	80	80	80	80
DALLAS COUNTY SOLAR	S&B	--	--	--	80	80	80	80	80	80	80
DOTHAN SOLAR	S&B	--	--	--	80	80	80	80	80	80	80
TALLADEGA SOLAR	S&B	--	--	--	80	80	80	80	80	80	80

Southern Company – Generation Assumptions

The following table depicts future generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BARRY[1]	Gas	--	--	658	658	658	658	658	658	658	658
CENTRAL AL	Gas	--	--	885	885	885	885	885	885	885	885
Hog Bayou Energy Center	Gas	--	--	--	238	238	238	238	238	238	238

(1) This assumption may be modified as resource decisions are made by the corresponding LSEs pursuant to applicable regulatory processes.

SOUTHERN Balancing Authority Area

SOUTHERN COMPANY – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BOWEN	159	159	159	159	159	159	159	159	159	159
CENTRAL ALABAMA	885	885	--	--	--	--	--	--	--	--
DAHLBERG	494	494	494	494	494	494	494	494	494	494
DANIEL	650	650	650	600	600	600	600	600	600	600
FRANKLIN	424	424	424	424	424	424	424	424	424	424
HAMMOND	10	10	10	10	10	10	10	10	10	10
HILLABEE	350	350	350	350	350	350	350	350	350	350
LINDSAY HILL	300	300	300	300	300	300	300	300	300	300
SCHERER	1131	1131	1131	1131	1131	1131	1131	1131	1131	1131
VOGTLE	206	206	206	206	206	206	206	206	206	206

SOUTHERN Balancing Authority Area

GTC – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BAXLEY	SOLAR	25	25	25	25	25	25	25	25	25	25
SR LUMPKIN	SOLAR	--	100	100	100	100	100	100	100	100	100
LANCASTER	SOLAR	80	80	80	80	80	80	80	80	80	80
ODOM	SOLAR	20	20	20	20	20	20	20	20	20	20
VOGTLE 3	NUCLEAR	330	330	330	330	330	330	330	330	330	330
VOGTLE 4	NUCLEAR	--	330	330	330	330	330	330	330	330	330

MEAG – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
VOGTLE 3	NUCLEAR	250	250	250	250	250	250	250	250	250	250
VOGTLE 4	NUCLEAR	--	250	250	250	250	250	250	250	250	250

DALTON – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
VOGTLE 3	NUCLEAR	19	19	19	19	19	19	19	19	19	19
VOGTLE 4	NUCLEAR	--	19	19	19	19	19	19	19	19	19

TVA Balancing Authority Area

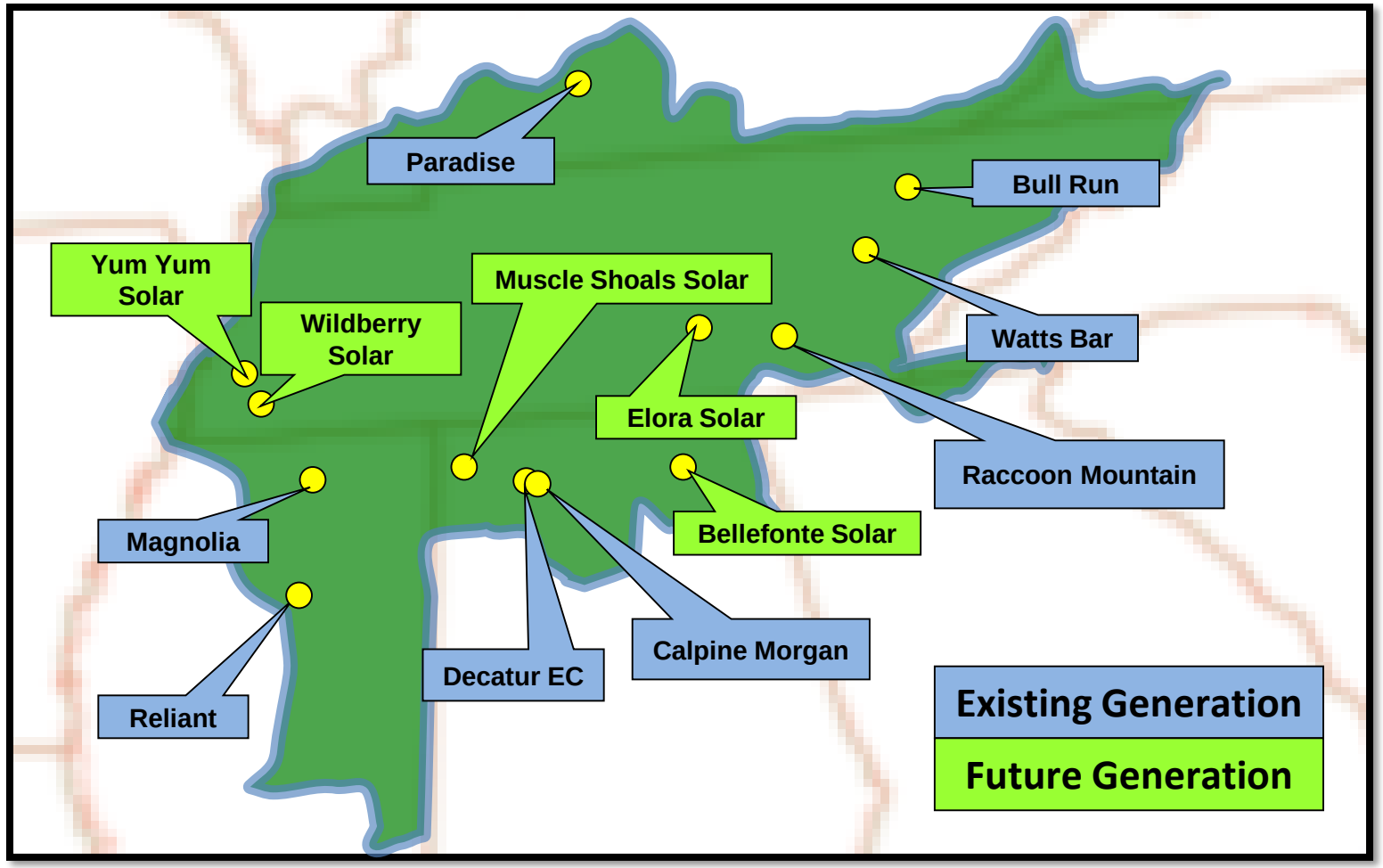
TVA Balancing Authority Area

2019 Generation Assumptions

TVA Balancing Authority Area

TVA – Generation Assumptions

The following diagram depicts the location of generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2019 SERTP Process.



TVA Balancing Authority Area

TVA – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
WATTS BAR UNIT 2	1216	1216	1216	1216	1216	1216	1216	1216	1216	1216
RACOON MTN GEN 1	429	440	440	440	440	440	440	440	440	440
RACOON MTN GEN 2	413	440	440	440	440	440	440	440	440	440
RACOON MTN GEN 3	413	413	440	440	440	440	440	440	440	440
RACOON MTN GEN 4	440	440	440	440	440	440	440	440	440	440
MAGNOLIA CC	984	984	984	984	984	984	984	984	984	984
CALPINE MORGAN CC	614	614	614	614	614	614	0	--	--	--
DECATUR EC CC	700	700	700	0	--	--	--	--	--	--
BULL RUN FP UNIT 1	925	925	925	925	0	--	--	--	--	--
PARADISE FP UNIT 3	1007	0	--	--	--	--	--	--	--	--

TVA Balancing Authority Area

TVA – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2019 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
BELLEFONTE SOLAR	--	--	150	150	150	150	150	150	150	150
ELORA SOLAR	--	--	150	150	150	150	150	150	150	150
MUSCLE SHOALS SOLAR	--	227	227	227	227	227	227	227	227	227
WILDBERRY SOLAR	15	15	15	15	15	15	15	15	15	15
YUM YUM SOLAR	--	--	147	147	147	147	147	147	147	147

TVA Balancing Authority Area

TVA – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
RELIANT	800	800	800	800	800	800	800	800	800	800

TVA Balancing Authority Area

TVA Balancing Authority Area

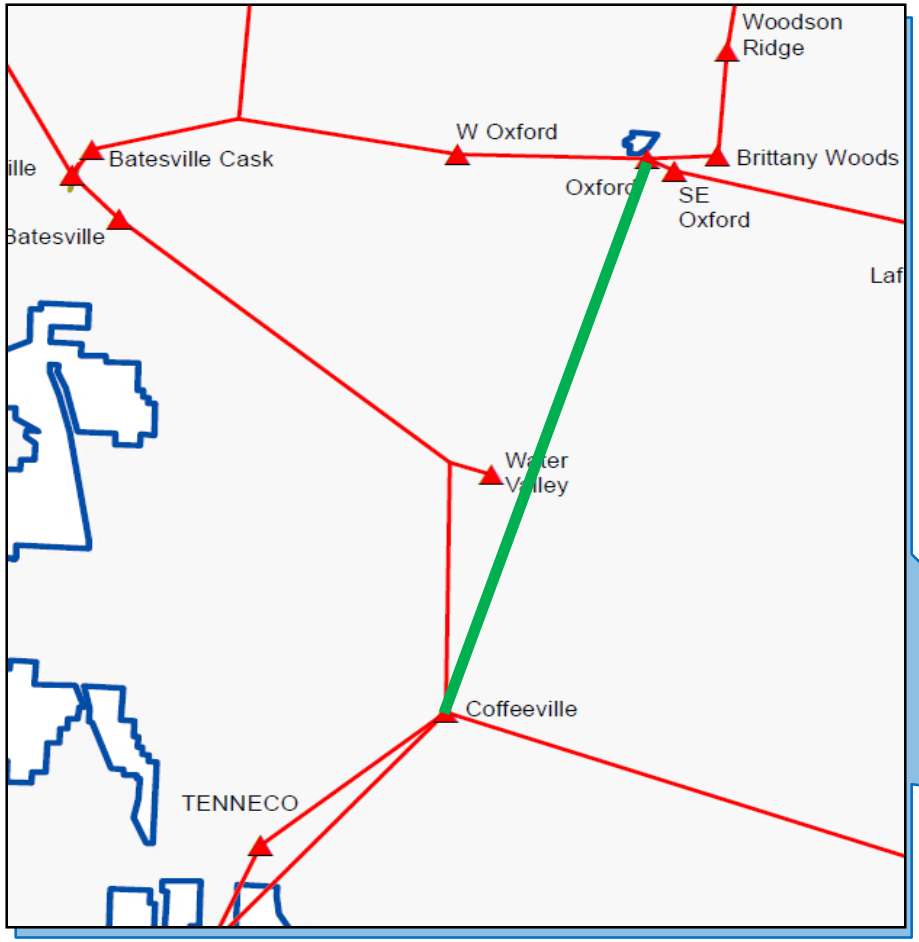
SERTP Regional Transmission Expansion Plan

TVA Balancing Authority Area

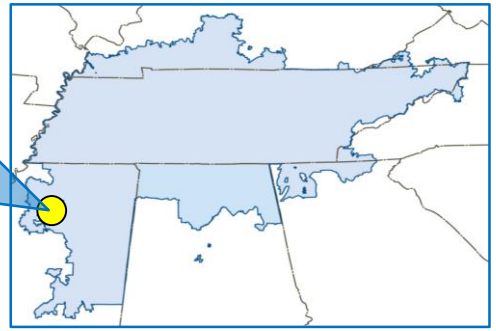
TVA – 1

- **2020**

OXFORD – COFFEEVILLE 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Construct approximately 30.0 miles of the new Oxford to Coffeeville 161 kV transmission line with 954 ACSR at 100°C.
- **SUPPORTING STATEMENT:**
  - Additional voltage support is needed in the Oxford, MS and Coffeeville, MS areas under contingency.

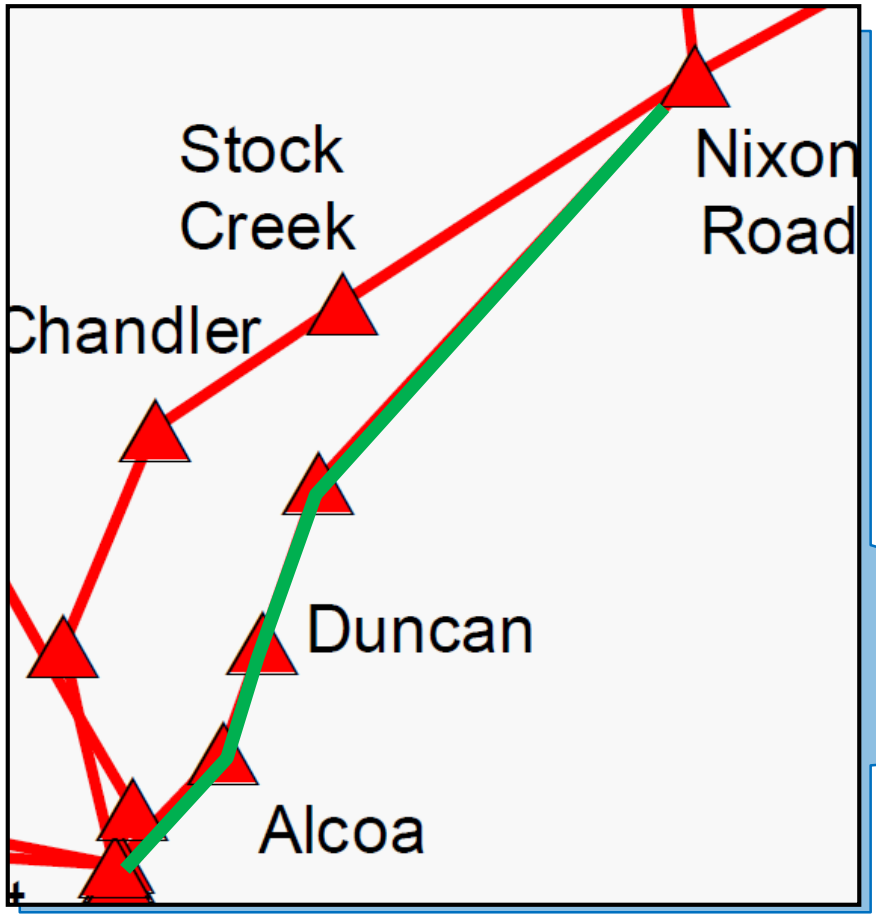


TVA Balancing Authority Area

TVA – 2

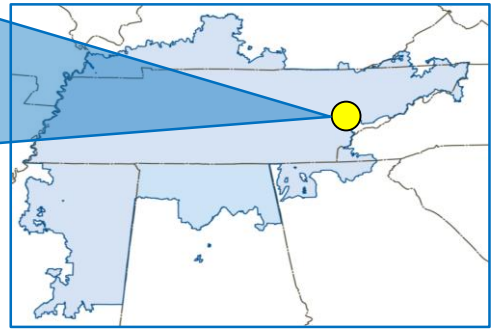
- **2021**

ALCOA SS – NIXON ROAD 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Rebuild approximately 12.0 miles of the Alcoa North to Nixon Road 161 kV transmission line with 1590 ACSR at 100°C and construct approximately 2.0 miles of new transmission line to create the Alcoa SS to Nixon Rd 161 kV #2 transmission line.

- **SUPPORTING STATEMENT:**
  - The existing Alcoa Switching Station to Nixon Road 161 kV transmission line overloads under contingency.

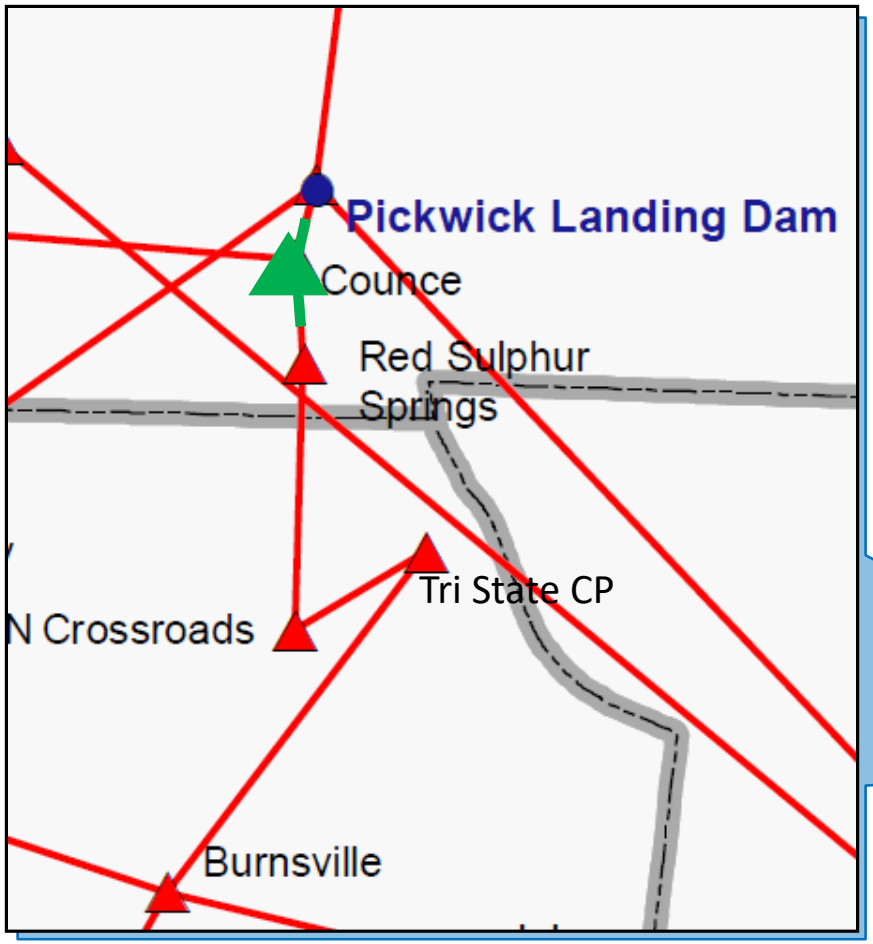


TVA Balancing Authority Area

TVA – 3

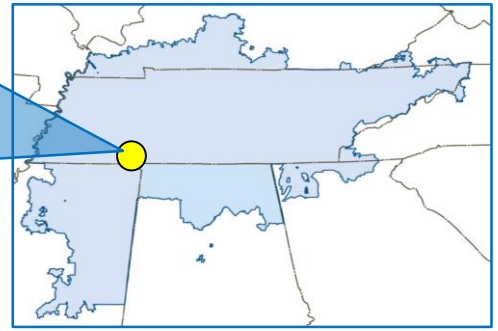
- **2021**

COUNCE 161 KV SUBSTATION



- **DESCRIPTION:**
  - Convert Counce 161 kV switchyard to a double breaker arrangement. Loop the existing Pickwick to Tri State Commerce Park 161 kV transmission line into the Counce 161 kV station.

- **SUPPORTING STATEMENT:**
  - Additional voltage support is needed in the Counce, TN area under contingency.

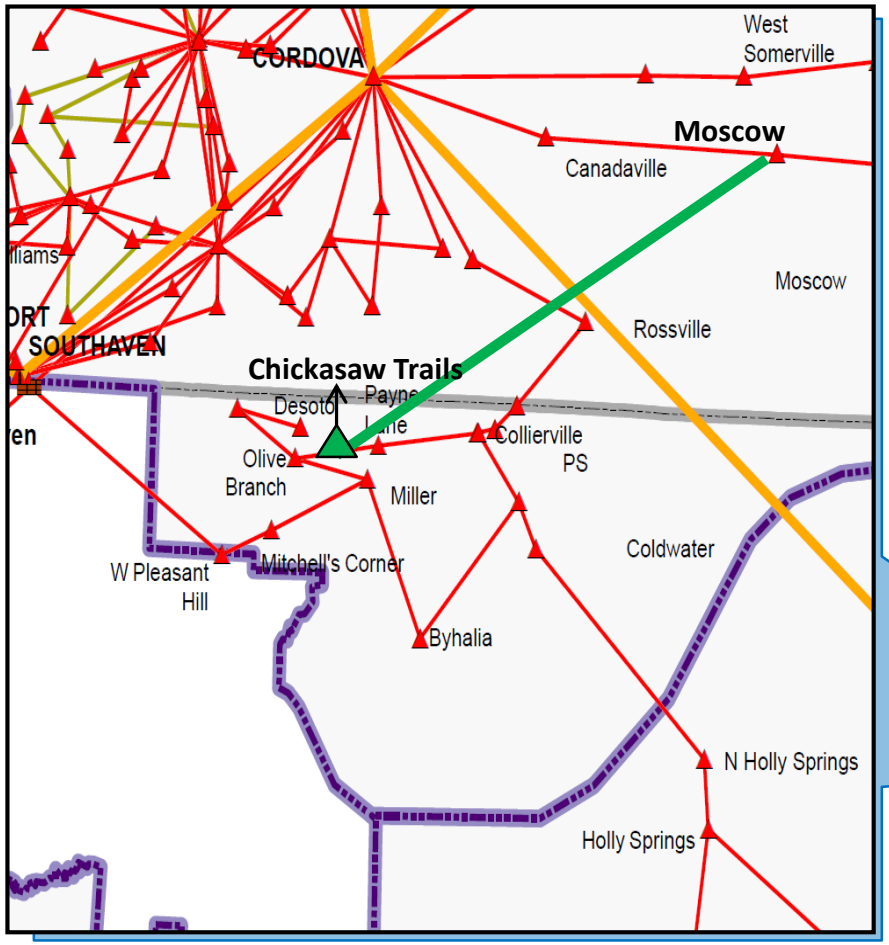


TVA Balancing Authority Area

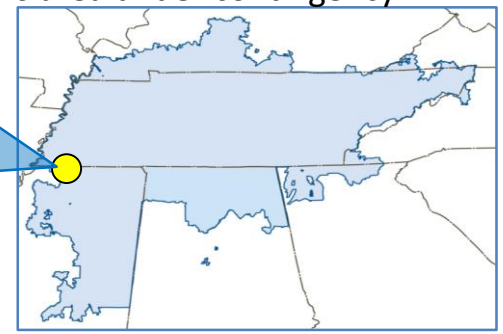
TVA – 4

- **2021**

MOSCOW – CHICKASAW TRAILS 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Construct the Chickasaw Trails 161 kV Substation and the Diffee 161 kV Substation. Construct approximately 17.0 miles for new Chickasaw Trails to Moscow 161 kV transmission line with 954 ACSR at 100°C. Loop existing Miller to Holly Springs 161 kV transmission line into the Chickasaw Trails Substation.
- **SUPPORTING STATEMENT:**
  - Thermal overloads occur and voltage support is needed in the Olive Branch and Chickasaw Trails area under contingency

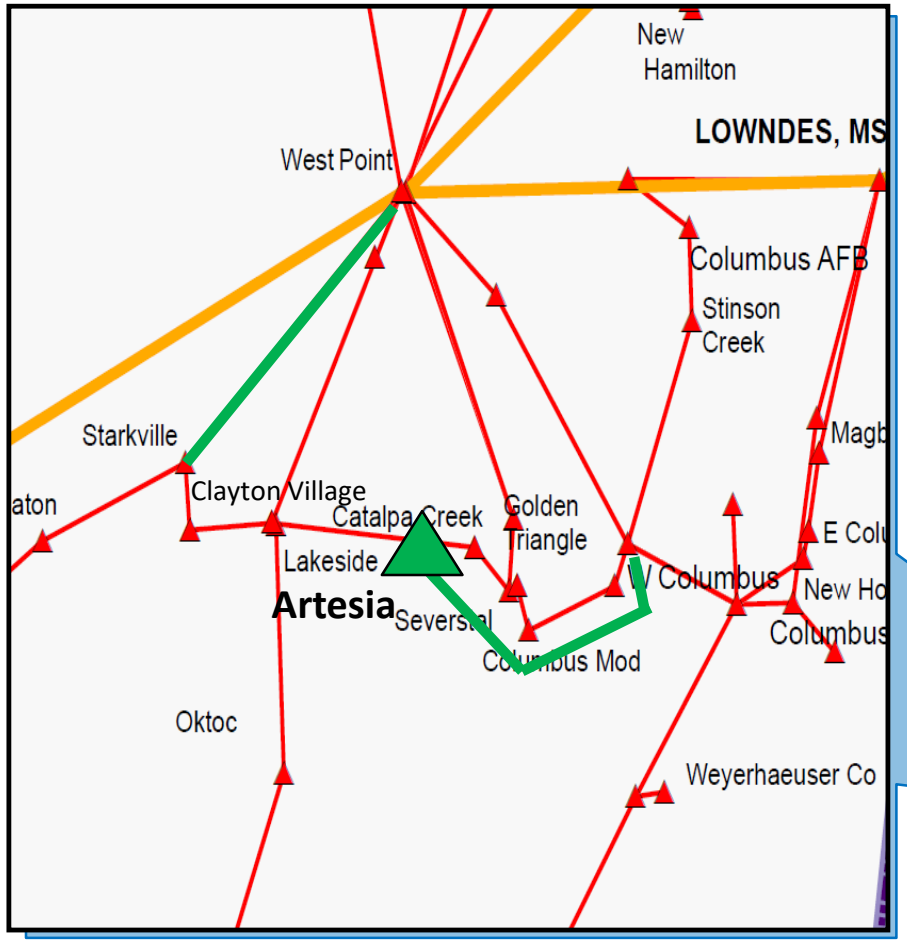


TVA Balancing Authority Area

TVA – 5

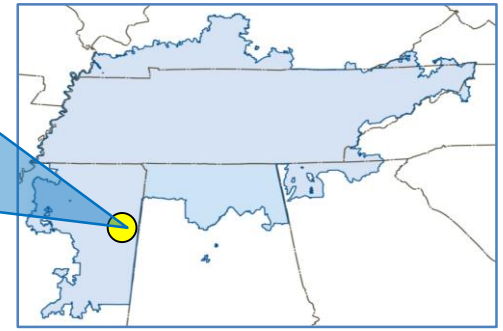
- **2022**

ARTESIA – W. COLUMBUS 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Construct the Artesia 161 kV Substation. Construct approximately 12.0 miles for Artesia to West Columbus with 954 ACSS at 150°C. Reconductor approximately 15.0 miles of West Point to Starkville 161 kV with 954 ACSS at 150°C.

- **SUPPORTING STATEMENT:**
  - Thermal overloads occur and voltage support is needed in the West Point and Columbus area under contingency.

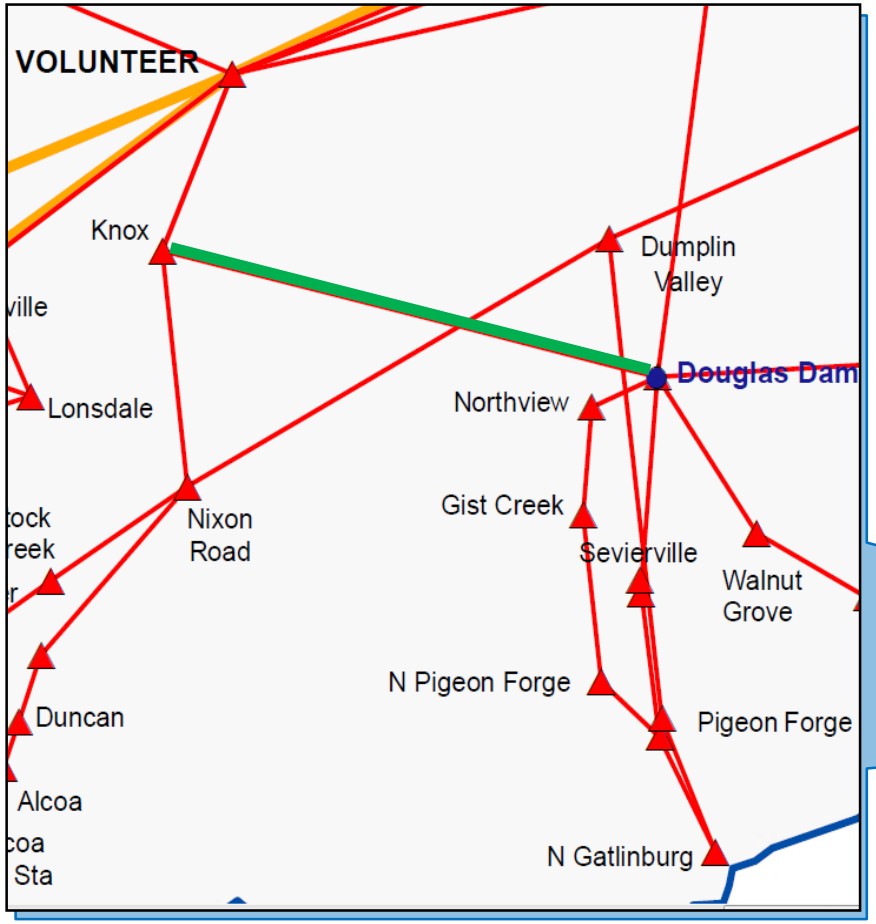


TVA Balancing Authority Area

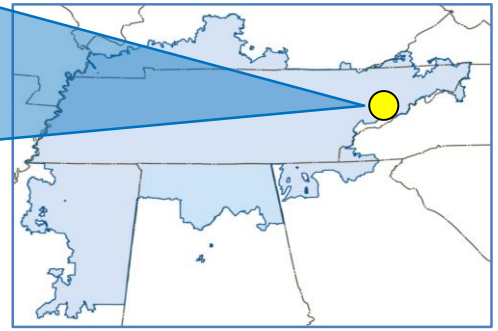
TVA – 6

- **2022**

KNOX – DOUGLAS 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Rebuild approximately 15.0 miles of the Knox to Douglas 161 kV transmission line with 954 ACSS at 125°C.
- **SUPPORTING STATEMENT:**
  - The Knox to Douglas 161 kV transmission line overloads under contingency.

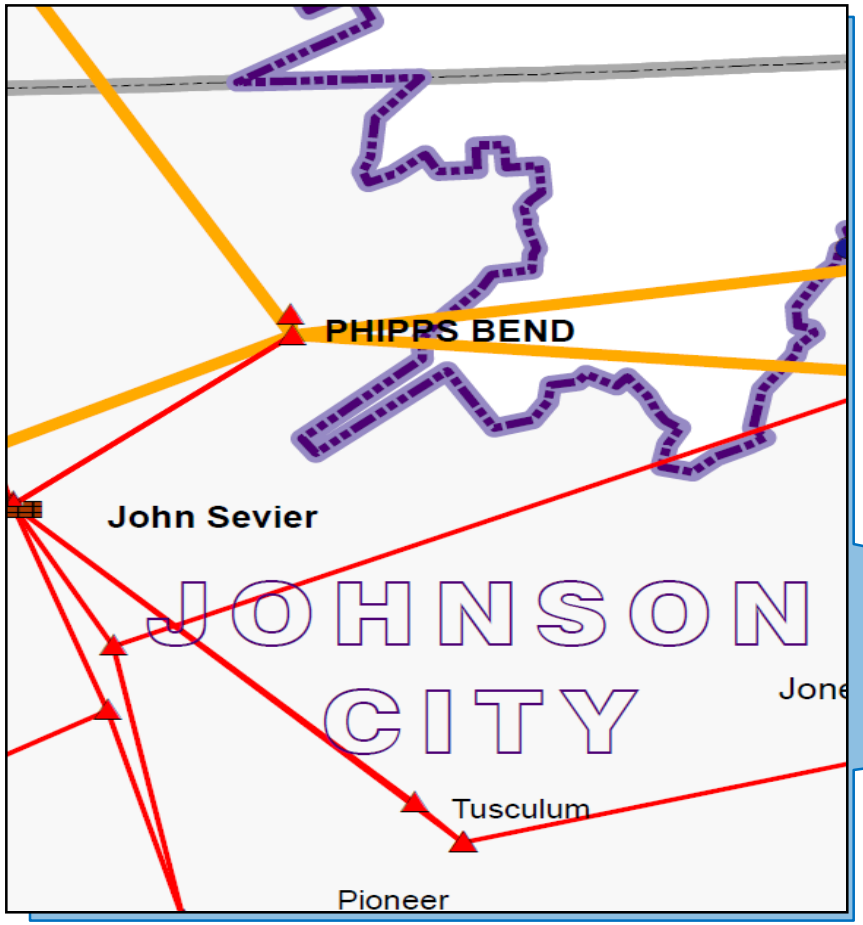


TVA Balancing Authority Area

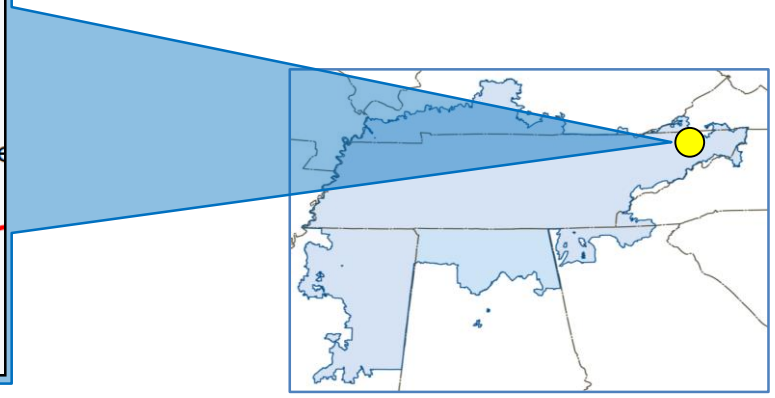
TVA – 7

• **2022**

PHIPPS BEND 500 KV SUBSTATION



- **DESCRIPTION:**
  - Rebuild structures with weathered steel in the Phipps Bend 500 and 161 kV yard.
- **SUPPORTING STATEMENT:**
  - Steel structures in the Phipps Bend 500 kV and 161 kV yards are beginning to show signs of corrosion and will be replaced.

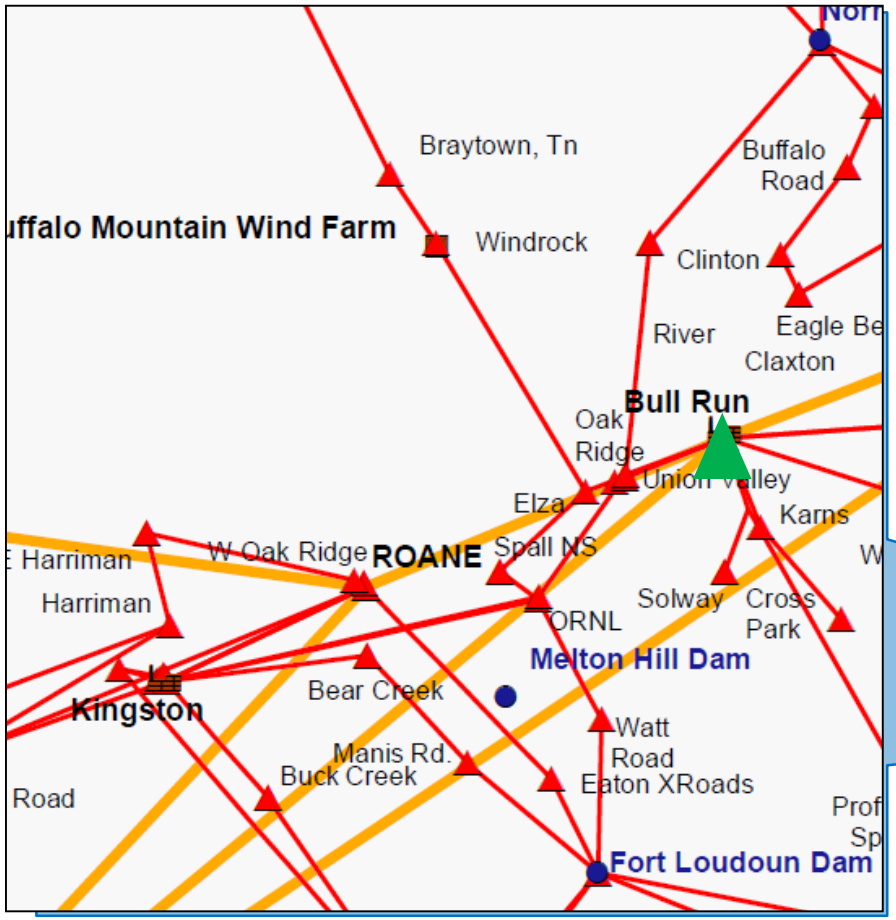


TVA Balancing Authority Area

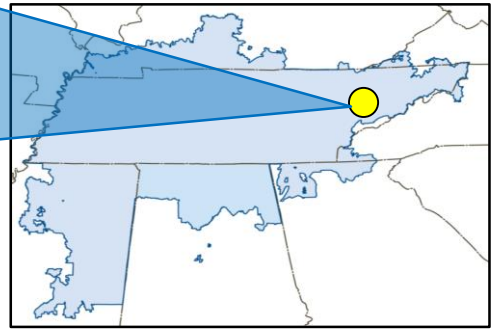
TVA – 8

- **2023**

ANDERSON 500 KV SUBSTATION



- **DESCRIPTION:**
  - Build new Anderson 500 kV Substation and build Anderson 500/161 kV transformer bank.
- **SUPPORTING STATEMENT:**
  - Area 500/161 kV transformer overloads under contingency.

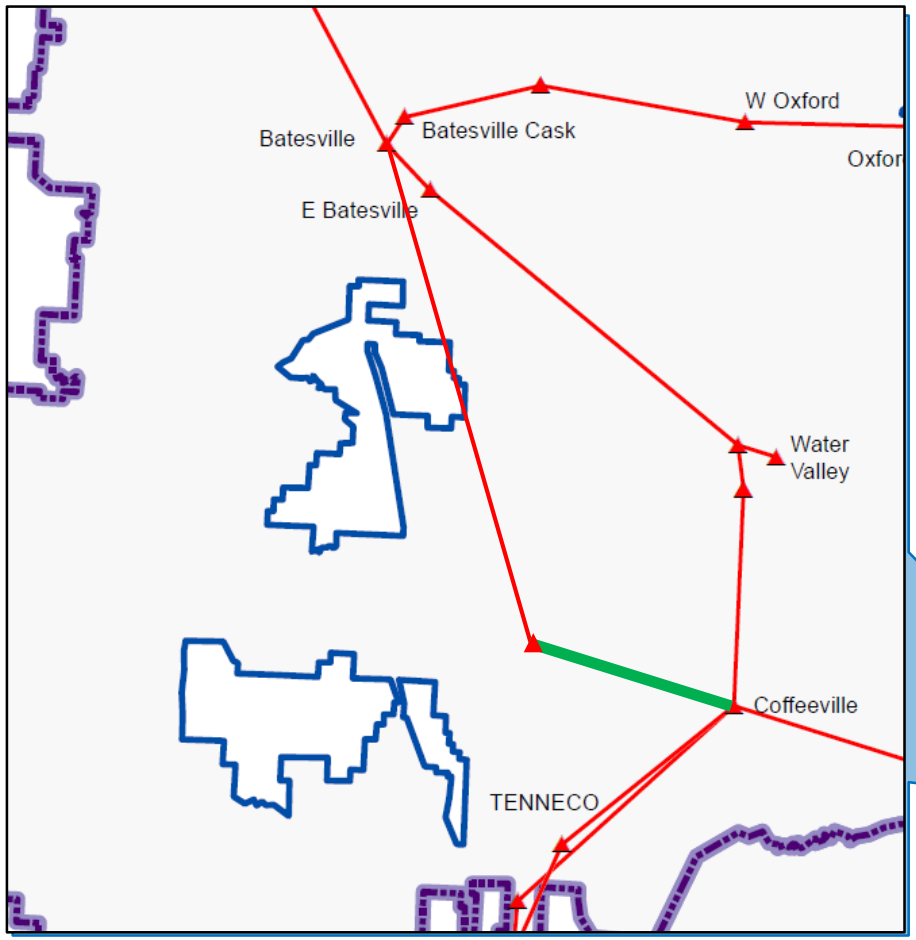


TVA Balancing Authority Area

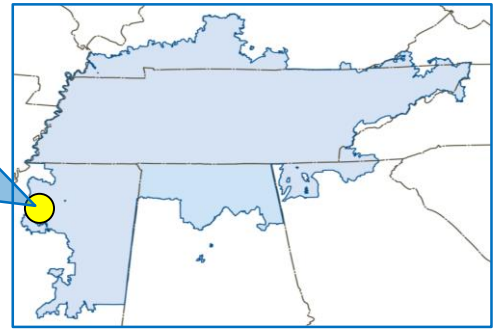
TVA – 9

• **2023**

N. OAKLAND – COFFEEVILLE 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
  - Construct approximately 18.0 miles of new 161 kV transmission line from North Oakland - Coffeeville using 954 at 100°C and upgrade terminal equipment to 472 MVA at Batesville 161 kV.
- **SUPPORTING STATEMENT:**
  - Multiple 161 kV transmission lines overload under contingency.

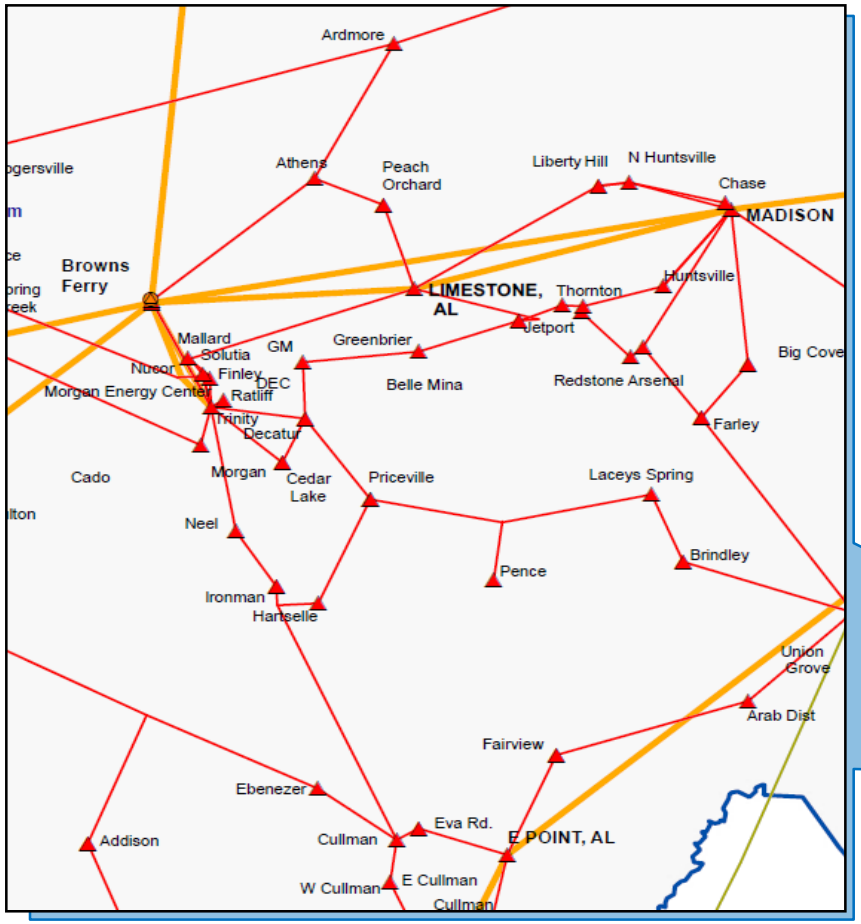


TVA Balancing Authority Area

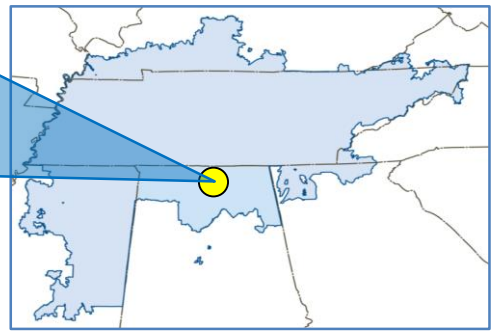
TVA – 10

- **2028**

LIMESTONE 500 KV SUBSTATION



- **DESCRIPTION:**
  - Install additional 500 kV breakers at the Limestone 500 kV substation.
- **SUPPORTING STATEMENT:**
  - Area 500/161 kV transformer overloads under contingency.



TVA Balancing Authority Area

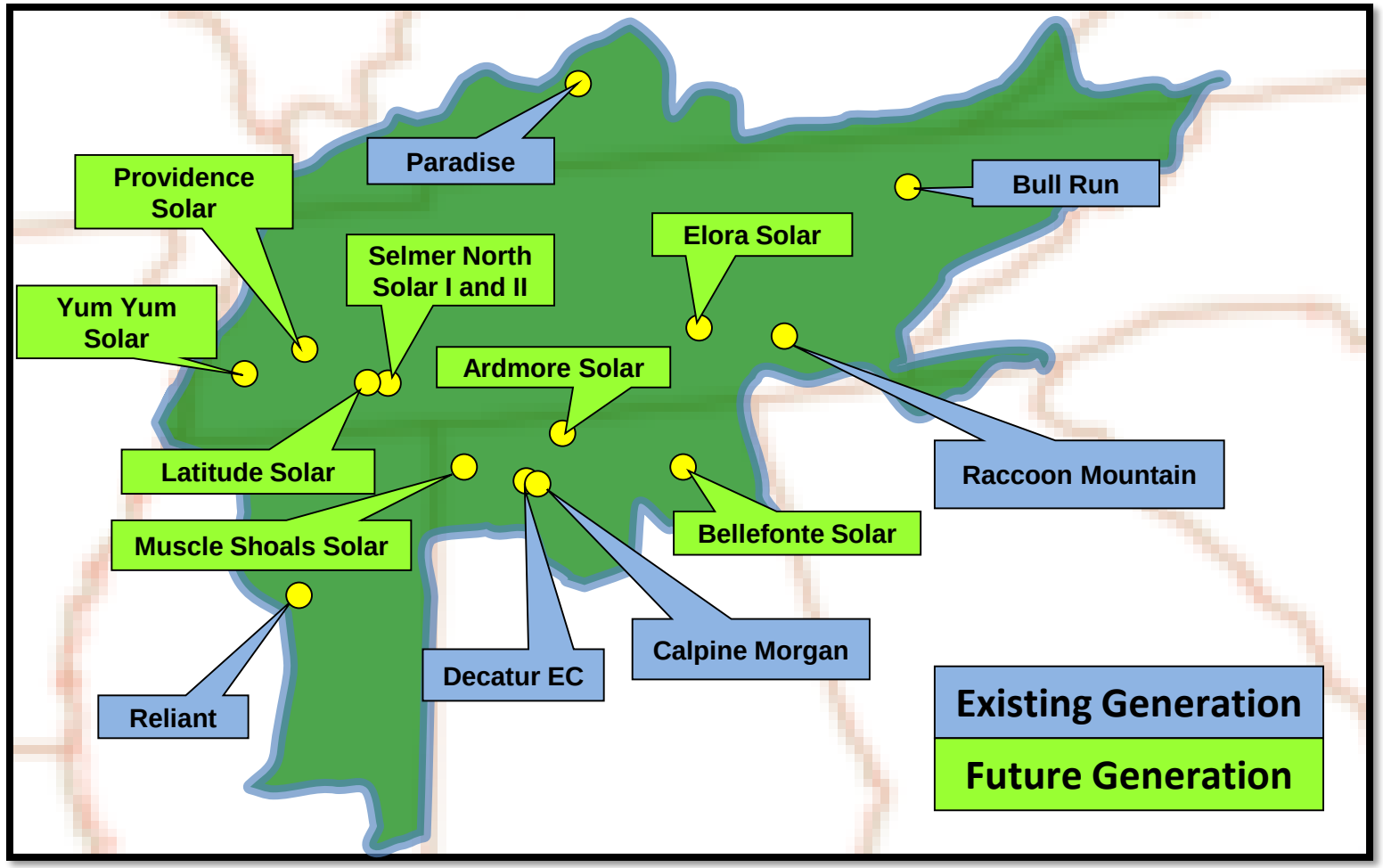
TVA Balancing Authority Area

Upcoming 2020 Generation Assumptions

TVA Balancing Authority Area

TVA – Generation Assumptions

The following diagram depicts the location of generation assumptions <u>that change</u> throughout the ten year planning horizon for the 2020 SERTP Process.



TVA Balancing Authority Area

TVA – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
RACOON MTN GEN 1	440	440	440	440	440	440	440	440	440	440
RACOON MTN GEN 2	440	440	440	440	440	440	440	440	440	440
RACOON MTN GEN 3	413	440	440	440	440	440	440	440	440	440
CALPINE MORGAN CC	754	754	754	754	754	754	754	754	754	754
DECATUR EC CC	754	754	754	754	754	754	754	754	754	754
BULL RUN FP UNIT 1	925	925	925	0	--	--	--	--	--	--
PARADISE FP UNIT 3	0	--	--	--	--	--	--	--	--	--

TVA Balancing Authority Area

TVA – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2020 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
BELLEFONTE SOLAR	--	150	150	150	150	150	150	150	150	150
ELORA SOLAR	--	150	150	150	150	150	150	150	150	150
MUSCLE SHOALS SOLAR	227	227	227	227	227	227	227	227	227	227
YUM YUM SOLAR	--	147	147	147	147	147	147	147	147	147
SELMER NORTH I SOLAR	14	14	14	14	14	14	14	14	14	14
SELMER NORTH II SOLAR	7	7	7	7	7	7	7	7	7	7
PROVIDENCE SOLAR	15	15	15	15	15	15	15	15	15	15
ARDMORE SOLAR	15	15	15	15	15	15	15	15	15	15
LATITUDE SOLAR	15	15	15	15	15	15	15	15	15	15

TVA Balancing Authority Area

TVA – Generation Assumptions (Point-to-Point)

The following table depicts generation assumptions based upon expected long-term firm point-to-point commitments. The years shown represent Summer Peak conditions.

SITE	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
RELIANT	800	800	800	800	800	800	800	800	800	800

SERTP

Regional Transmission Analyses Overview

Regional Transmission Analysis

Regional Transmission Analyses Overview

- Assess if the then current regional transmission plan addresses the Transmission Provider's transmission needs

- Assess whether there may be more efficient or cost effective transmission projects to address transmission needs

Regional Transmission Analysis

Assessment of Current Regional Plan

- **SERTP Sponsors developed 12 coordinated regional models***
- **Models include latest transmission planning model information within the SERTP region**
- **Contingency analysis was performed to identify potential constraints that may result from the regional coordination of latest input assumptions**

*Available on the secure area of the SERTP website upon satisfying access requirements

No.	Season	Year
1	SUMMER	2020
2		2022
3		2024
4		2025
5		2027
6		2029
7	SHOULDER	2022
8		2024
9		2027
10		2029
11	WINTER	2024
12		2029

2019 Regional Transmission Analyses

Alternative Regional Transmission Projects

Alternative Regional Transmission Projects	Miles	From	To
		BAA (State)	BAA (State)
Paradise – Hardin Co 345 kV	67	TVA (KY)	LG&E/KU (KY)
Trinity – Miller 500 kV	68	TVA (AL)	SBAA (AL)
Clay – Wansley 500 kV	100	SBAA (AL)	SBAA (GA)
South Hall – Branch 500 kV	80	SBAA (GA)	SBAA (GA)
Farley – Sinai 500 kV	50	SBAA (AL)	Gulf (FL)

Southeastern Regional TRANSMISSION PLANNING

2019 Regional Transmission Analyses

Alternative Regional Transmission Projects

	Paradise – Hardin Co 345 kV
	Trinity – Miller 500 kV
	Clay – Wansley 500 kV
	South Hall – Branch 500 kV
	Farley – Sinai 500 kV

2019 Regional Transmission Analyses

Regional Transmission Analyses Overview

- **No significantly constrained transmission facilities were identified in the assessment of the current regional transmission plan.**

- **No evaluated transmission project alternatives were found to be more efficient or cost effective.**
  - Estimated cost of transmission project alternatives significantly outweighed potential benefits.

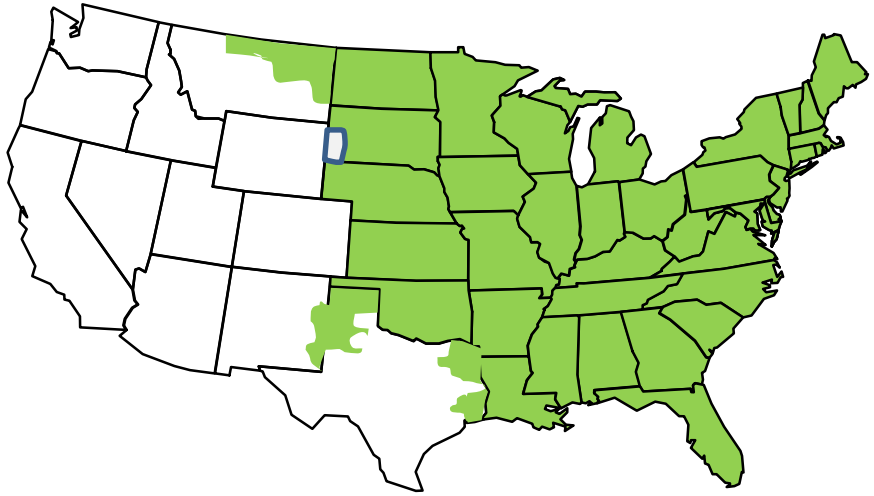
- **The regional transmission analyses summary is posted on the SERTP website.**

SERTP

Miscellaneous Updates

Eastern Interconnection Planning Collaborative Update

EIPC



Planning Coordinators

- ALCOA Power Generating, Inc.
- Duke Energy – Carolinas
- Duke Energy – Florida
- Duke Energy – Progress
- LGE / KU
- Florida Power & Light
- Georgia Transmission Corporation
- ISO – New England
- MISO
- MEAG
- New York ISO
- PJM
- PowerSouth
- SCE&G
- SCPSA
- Southern Company
- SPP
- TVA

EIPC Update

- **Key Initiatives**
  - 2028 Transmission Planning analysis
  - Potential NERC Designated Entity for Model Building
  - Frequency Response Efforts
  - 2020 Transmission Planning Workshop

http://www.eipconline.com

Regional Planning Updates

- Version 3 SERTP Regional Models available on SERTP Website

- Exchanged the latest transmission models for the ten year planning horizon with FRCC
  - FRCC models will be incorporated into subsequent regional power flow models

Planning Study Updates

- Coordination study to assess the impact of the proposed tie line between FPL and Gulf Power with a 850MW transfer between FPL and Gulf Power is near completion

- Coordination study group to prepare for Vogtle 3 and 4 coming online is still on going.

Upcoming 2020 SERTP Process

- **SERTP 1st Quarter – *1st RPSG Meeting & Interactive Training Session***

  March 2020

  – Form Regional Planning Stakeholder Group "RPSG"
  – Select Economic Planning Studies
    - RPSG Economic Study Request Form
  – Interactive Training Session

- **SERTP 2nd Quarter – *Preliminary Expansion Plan Meeting***

  June 2020

  – Review Modeling Assumptions
  – Preliminary 10 Year Expansion Plan
  – Stakeholder Input & Feedback Regarding the Plan

Upcoming 2020 SERTP Process

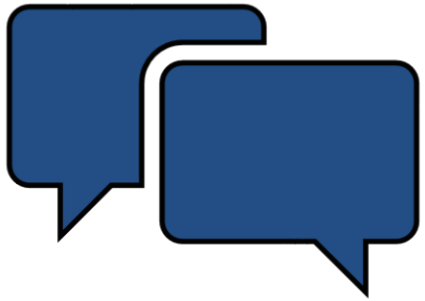
- **SERTP 3rd Quarter – *2nd RPSG Meeting***

  September 2020
  - Preliminary Results of the Economic Studies
  - Stakeholder Input & Feedback Regarding the Study Results
  - Discuss Previous Stakeholder Input on the Expansion Plan

- **SERTP 4th Quarter – *Annual Transmission Planning Summit & Input Assumptions***

  December 2020
  - Final Results of the Economic Studies
  - Regional Transmission Plan
  - Regional Analyses
  - Stakeholder Input on the 2021 Transmission Model Input Assumptions

2019 SERTP



Questions?

www.southeasternrtp.com