

SERTP – 2nd Quarter Meeting

Preliminary Expansion Plan Meeting

June 24th, 2021

WebEx

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

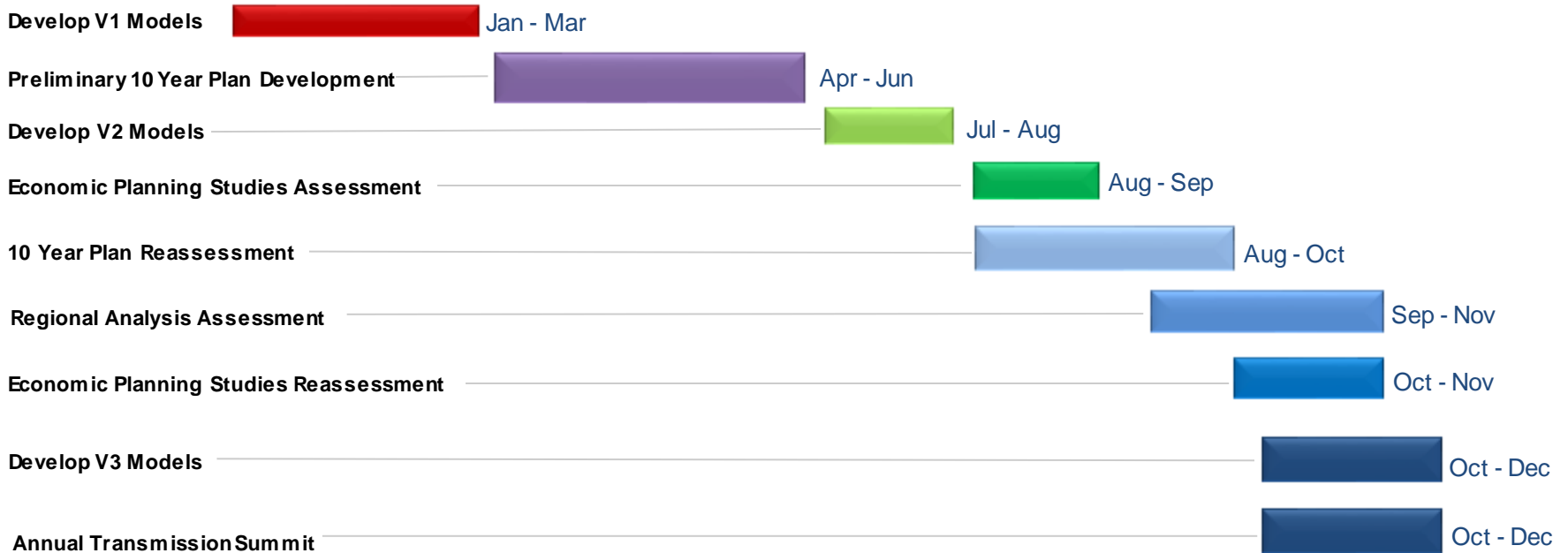
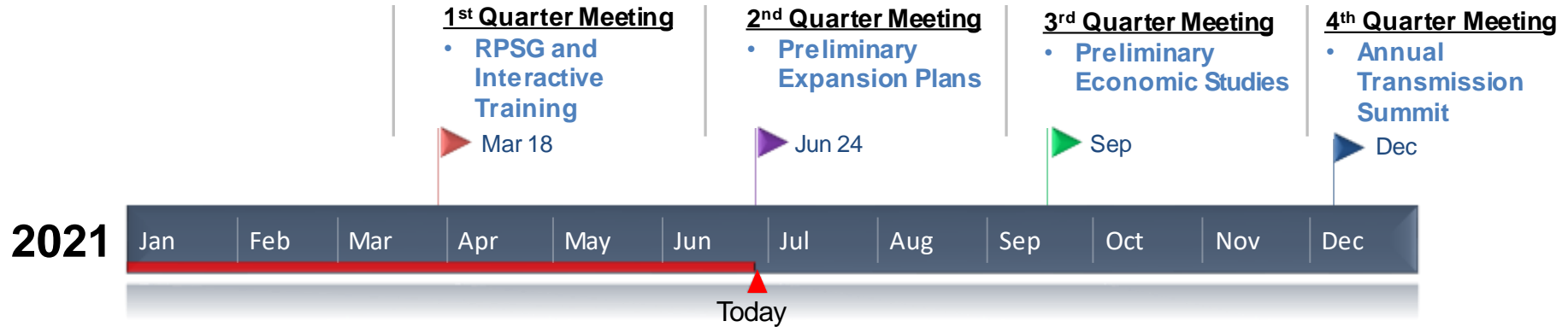
- **Regional Expansion Plan Process**
 - Annual Process Overview
- **Preliminary 10 Year Transmission Expansion Plan**
 - Regional Model Assumptions
 - Load Forecast
 - Generation Assumptions
 - Transmission System Topology
- **Miscellaneous Updates**
- **Next Meeting Activities**

SERTP

Regional Transmission Expansion Plan Process

2021 SERTP

10 Year SERTP Regional Transmission Expansion Plan Process

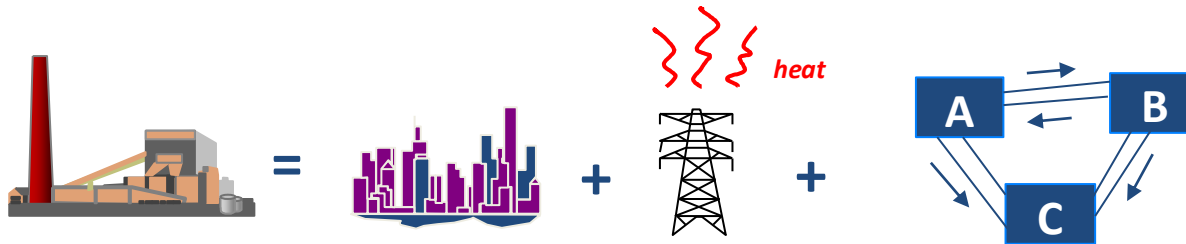


SERTP

Regional Model Assumptions

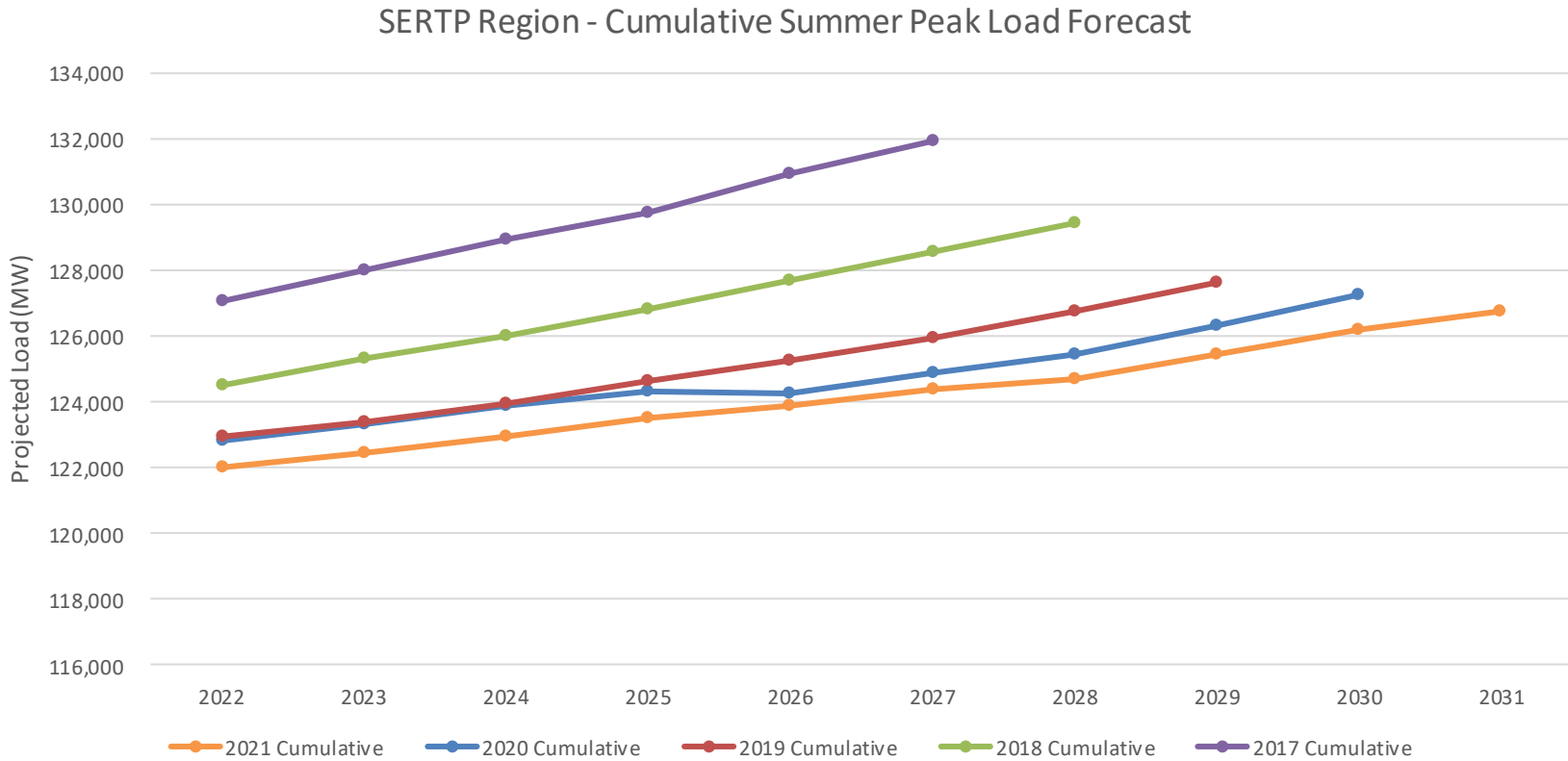
Regional Model Assumptions

$$\text{Generation} = \text{Load} + \text{Losses (Topology)} + \text{Net Interchange}$$



- 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



SERTP

Preliminary Transmission Expansion Plans

Southeastern Regional Transmission Planning (SERTP)



PRELIMINARY 10 YEAR TRANSMISSION EXPANSION PLANS:

AECI

Duke Carolinas

Duke Progress

LG&E/KU

PowerSouth

SBAA

Gulf Power

TVA

Preliminary Transmission Expansion Plan

The projects described in this presentation represent the preliminary 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.

AECI Balancing Authority Area Generation Assumptions

- * AECI has no generation assumptions expected to change throughout the ten year planning horizon for the 2021 SERTP Process.

AECI Balancing Authority Area

AECI Balancing Authority Area

Preliminary Transmission Expansion Plan

AECI – 1

- 2022

Cuba 161 kV 40 MVAR Reactor

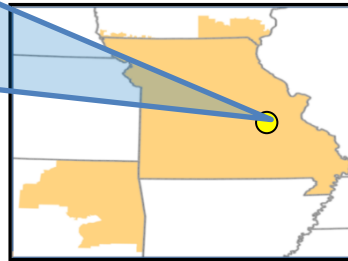


DESCRIPTION:

Construct a 10-40 MVAR reactor at the Cuba 161 kV substation.

SUPPORTING STATEMENT:

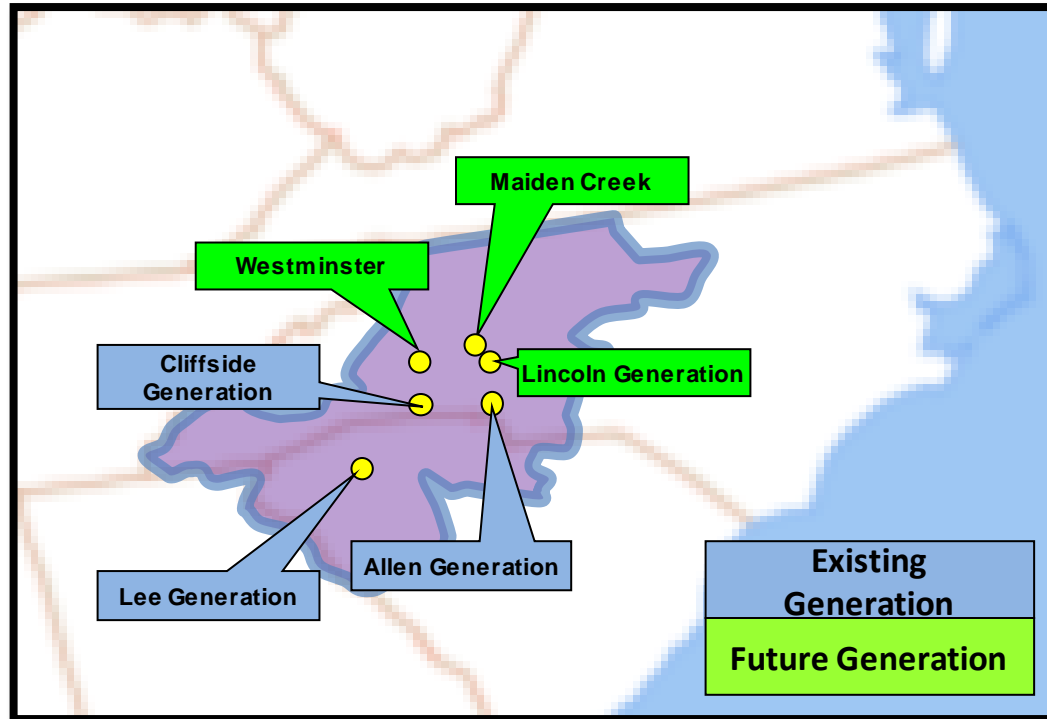
The Cuba area experiences high voltage during low load scenarios.



DUKE CAROLINAS Balancing Authority Area Generation Assumptions

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 – 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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
ALLEN 1	COAL	174	174	0	--	--	--	--	--	--	--
ALLEN 2	COAL	0	--	--	--	--	--	--	--	--	--
ALLEN 4	COAL	0	--	--	--	--	--	--	--	--	--
ALLEN 5	COAL	290	290	0	--	--	--	--	--	--	--
Cliffside 5	COAL	566	566	566	566	566	0	--	--	--	--
Lee 3 NG	GAS	160	160	160	160	160	160	160	160	0	--
Maiden Creek	PV	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3
Westminster	PV	75	75	75	75	75	75	75	75	75	75
LINCOLN 17	GAS	--	--	402	402	402	402	402	402	402	402

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.

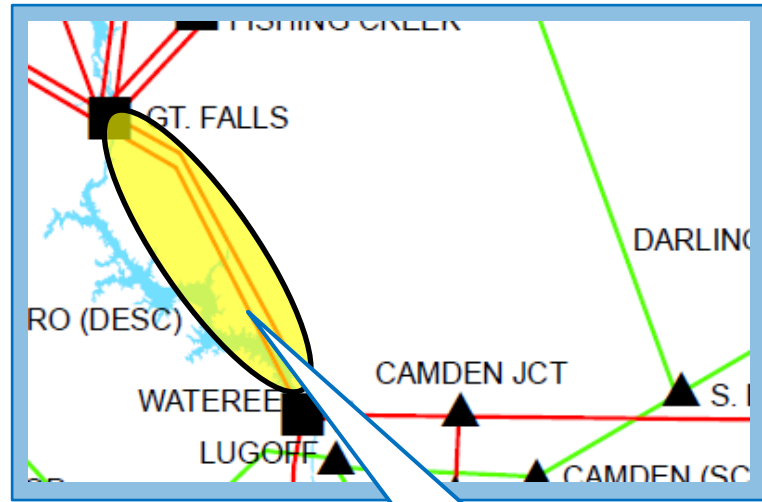
SITE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
CLEVELAND	195	195	195	195	195	195	195	195	195	195
BROAD RIVER	850	850	875	875	875	875	875	875	875	875
CATAWBA	407	407	407	407	407	407	407	407	407	407
ROWAN	605	466	450	431	418	190	190	190	190	190
KINGS MOUNTAIN	32	32	32	32	32	32	92	92	92	92

DUKE CAROLINAS Balancing Authority Area Preliminary Transmission Expansion Plan

DUKE CAROLINAS - 1

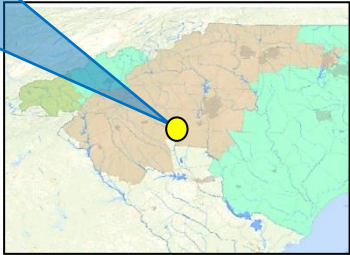
• 2023

WATEREE TIE – GREAT FALLS SWITCHING STATION 100KV TRANSMISSION LINE



6-Wire Wateree Tie –
Great Falls Switching
Station 100kV Lines

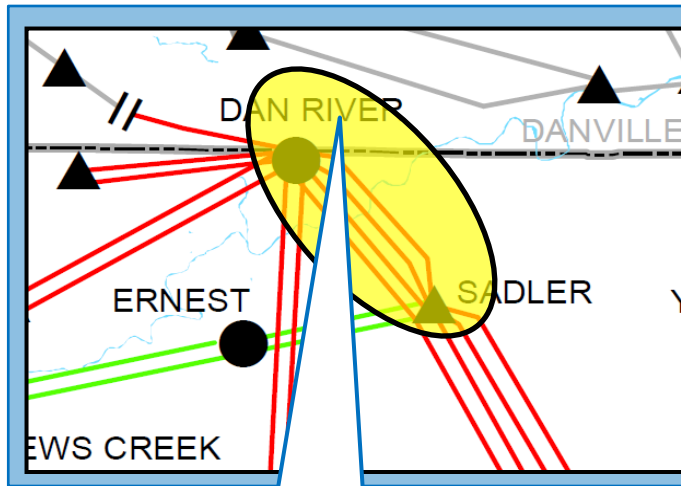
- **DESCRIPTION:**
 - 6-Wire the double circuit Wateree Tie – Great Falls Switching Station 100kV Transmission Line
- **SUPPORTING STATEMENT:**
 - Thermal overloads may occur with the loss of a parallel circuit. Project done in conjunction with DEP’s Wateree Transformer replacement project



DUKE CAROLINAS – 2

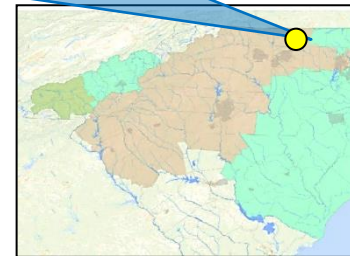
• 2024

SADLER TIE – DAN RIVER STEAM STATION 100KV TRANSMISSION LINE



Construct 9.2 miles of new 100 kV T.L.

- **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 - 3

- 2024

HODGES TIE – CORONACA TIE 100KV TRANSMISSION LINE

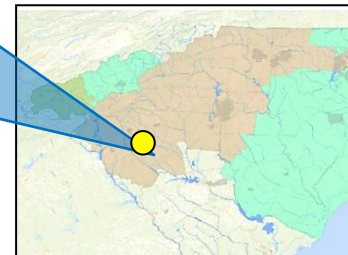


DESCRIPTION:

- Rebuild 9.2 miles of the Hodges Tie– Coronaca Tie 100kV T.L. with 795 ACSS/TW at 200 °C

SUPPORTING STATEMENT:

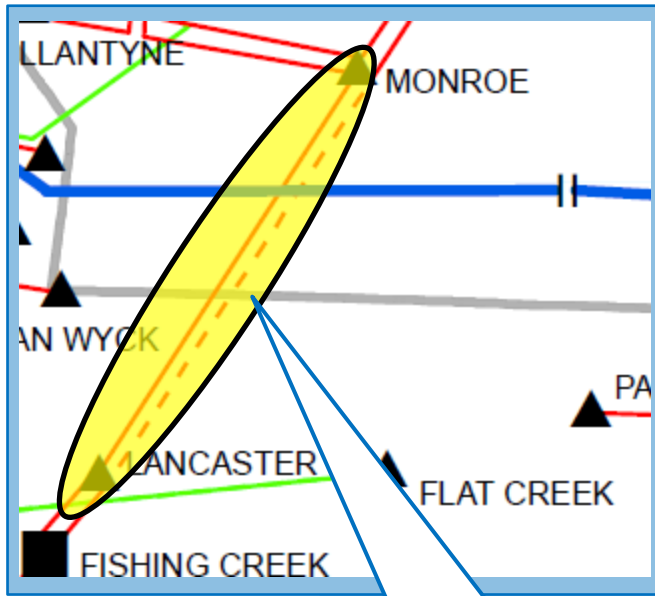
- Thermal overloads may occur with the loss of a parallel Hodges Tie– Coronaca Tie 100kV line.



DUKE CAROLINAS – 4

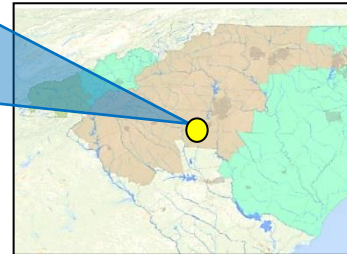
• 2024

LANCASTER MAIN – MONROE MAIN 100KV TRANSMISSION LINE



Rebuild Lancaster Main – Monroe
Main 100kV T.L.

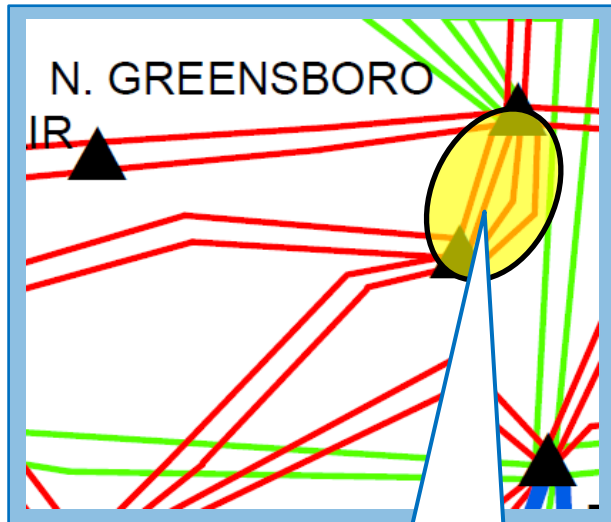
- **DESCRIPTION:**
 - Rebuild 23.8 miles of the Lancaster Main – Monroe Main 100kV double circuit transmission line with 1158 ACSS/TW rated at 200°C
- **SUPPORTING STATEMENT:**
 - Support additional generation in the area
 - Existing single circuit segment can overload under contingency



DUKE CAROLINAS – 5

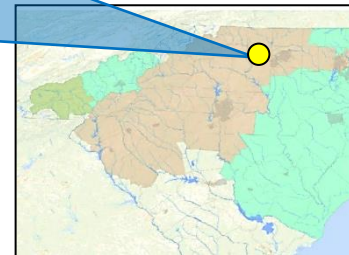
• 2024

NORTH GREENSBORO TIE – GREENSBORO MAIN 100KV TRANSMISSION LINES



Rebuild both double circuit North Greensboro Tie – Greensboro Main 100kV T.L.

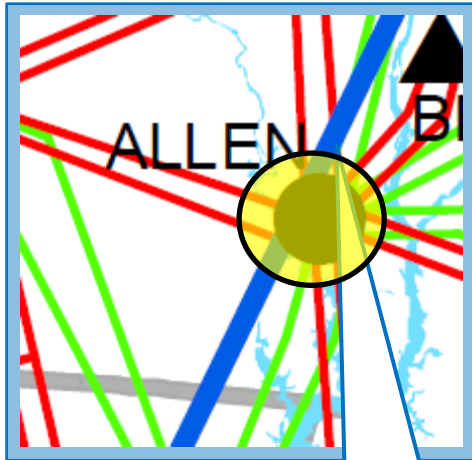
- **DESCRIPTION:**
 - Rebuild both double circuit North Greensboro Tie – Greensboro Main Transmission Lines with 1158 ACSS/TW rated at 200°C (9.35 total miles)
- **SUPPORTING STATEMENT:**
 - Loss of 2 of the 4 existing transmission lines (bus outages, N-1-1), can result in the remaining circuits to overload



DUKE CAROLINAS – 6

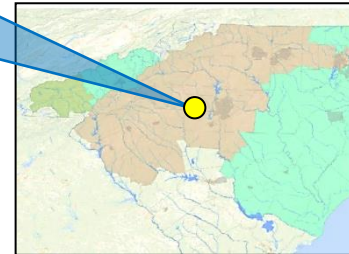
• 2024

ALLEN STEAM STATION AUTOBANK REPLACEMENT / SOUTHPOINT SWITCHING STATION



Replace both 230/100/44kV
Autobanks and build new Switching
Station

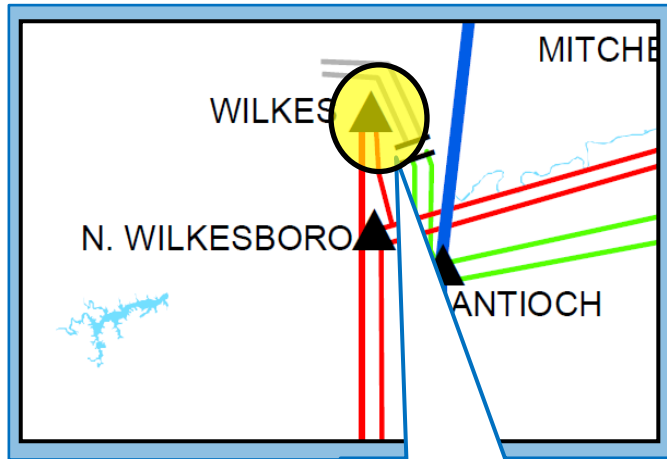
- **DESCRIPTION:**
 - Replace both 230/100/44kV autobanks at Allen Steam and construct new Southpoint Switching Station
- **SUPPORTING STATEMENT:**
 - Loss of one bank can overload the remaining bank



DUKE CAROLINAS – 7

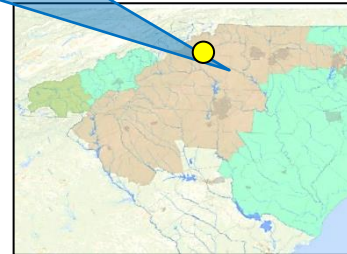
• 2025

WILKES TIE 230 KV SUBSTATION



Construct a new 230/100 kV Station at Wilkes Tie

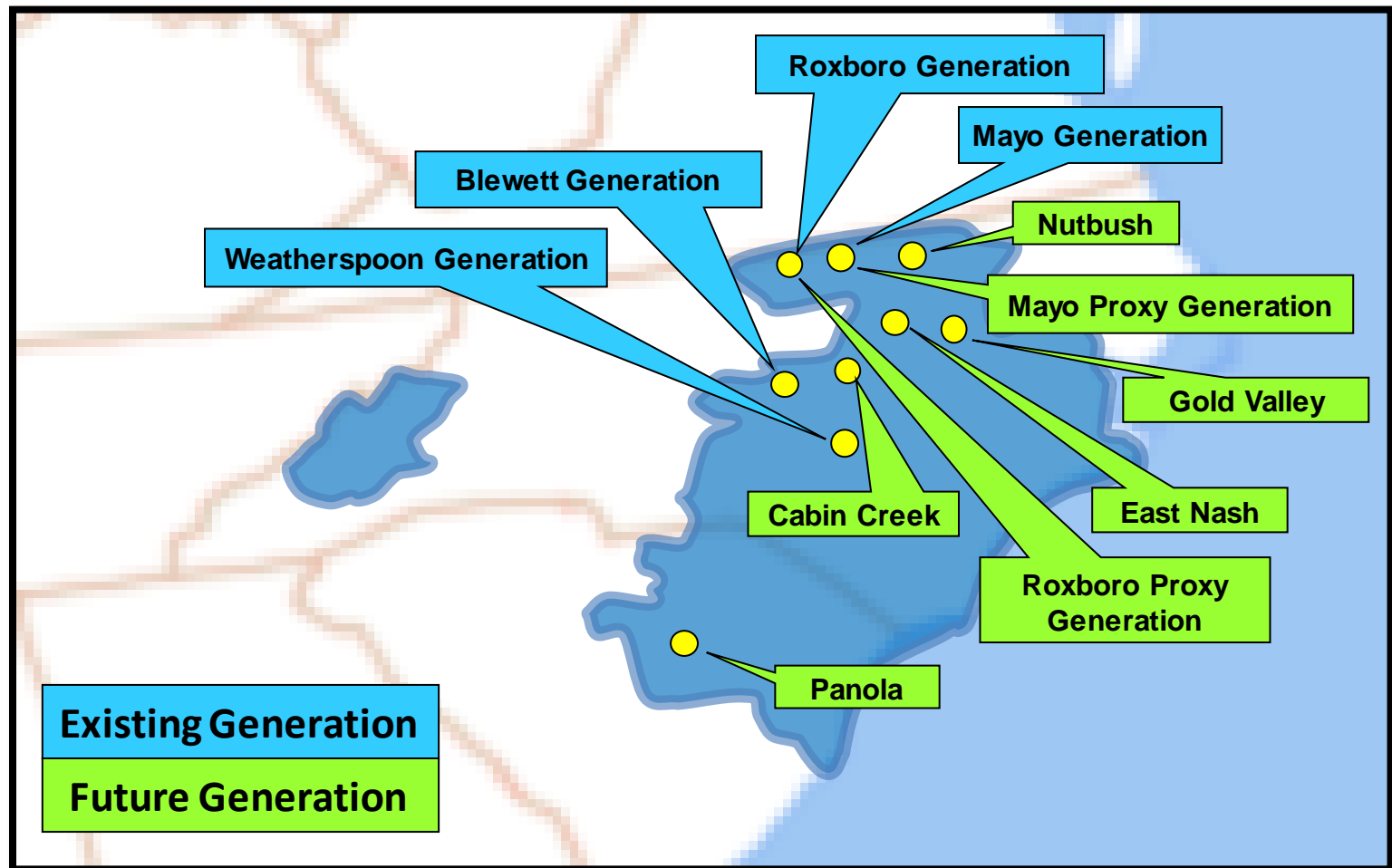
- **DESCRIPTION:**
 - Install a new 230/100 kV, 448 MVA transformer at Wilkes Tie.
- **SUPPORTING STATEMENT:**
 - Thermal overloads occur near North Wilkesboro Tie and additional voltage support is needed in the area under contingency.



DUKE PROGRESS EAST/WEST
Balancing Authority Areas
Generation Assumptions

DUKE PROGRESS – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process.



DUKE PROGRESS – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
BLEWETT IC #1	OIL	13	13	13	0	--	--	--	--	--	--
BLEWETT IC #2	OIL	13	13	13	0	--	--	--	--	--	--
BLEWETT IC #3	OIL	13	13	13	0	--	--	--	--	--	--
BLEWETT IC #4	OIL	13	13	13	0	--	--	--	--	--	--
WEATHERSPOON IC #1	GAS/OIL	32	32	32	0	--	--	--	--	--	--
WEATHERSPOON IC #2	GAS/OIL	32	32	32	0	--	--	--	--	--	--
WEATHERSPOON IC #3	GAS/OIL	33	33	33	0	--	--	--	--	--	--
WEATHERSPOON IC #4	GAS/OIL	31	31	31	0	--	--	--	--	--	--
ROXBORO #3	COAL	691	691	691	691	691	0	--	--	--	--

DUKE PROGRESS – Generation Assumptions (Cont.)

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
ROXBORO #4 COAL	COAL	698	698	698	698	698	0	--	--	--	--
ROXBORO #1 COAL	COAL	379	379	379	379	379	379	0	--	--	--
ROXBORO #2 COAL	COAL	665	665	665	665	665	665	0	--	--	--
MAYO COAL	COAL	727	727	727	727	727	727	0	--	--	--
GOLD VALLEY PV	PV	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8	78.8
CABIN CREEK PV	PV	70.2	70.2	70.2	70.2	70.2	70.2	70.2	70.2	70.2	70.2
EAST NASH PV	PV	49.4	49.4	49.4	49.4	49.4	49.4	49.4	49.4	49.4	49.4
NUTBUSH PV	PV	35	35	35	35	35	35	35	35	35	35
PANOLA PV	PV	--	67	67	67	67	67	67	67	67	67

DUKE PROGRESS – Generation Assumptions (Cont.)

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
ROXBORO PROXY #1	--	--	--	--	--	--	1350	1350	1350	1350	1350
ROXBORO PROXY #2	--	--	--	--	--	--	--	1350	1350	1350	1350
MAYO PROXY	--	--	--	--	--	--	--	602	602	602	602

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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
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

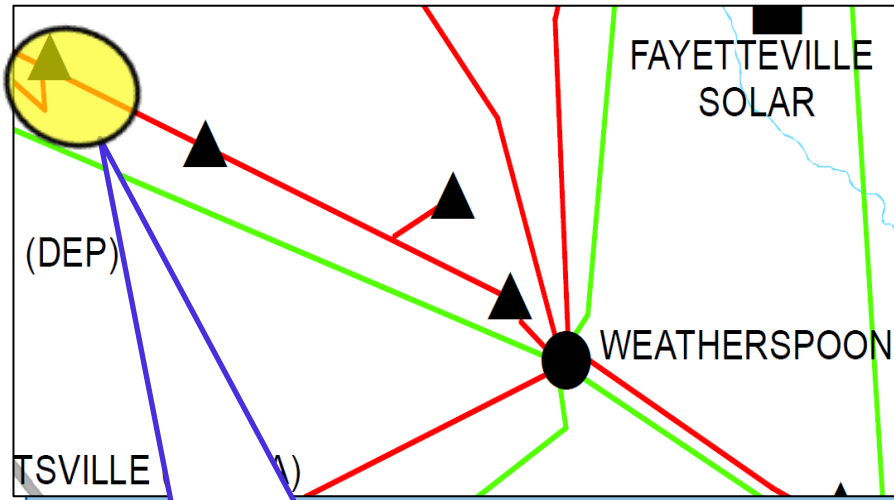
DUKE PROGRESS EAST Balancing Authority Area

Preliminary Transmission Expansion Plan

DUKE PROGRESS EAST – 1

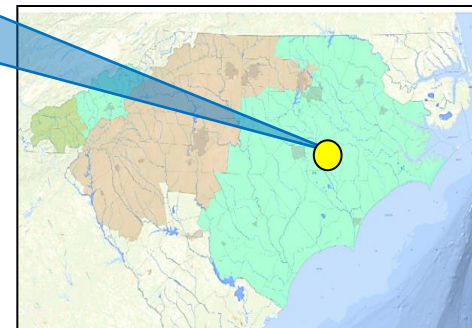
• 2022

IND 304440 – MAXTON 115 KV T.L. - RECONDUCTOR



RECONDUCTOR APPROX 3.5 MILES
115 KV LINE WITH 3-795 ACSR OR
EQUIVALENT CONDUCTOR

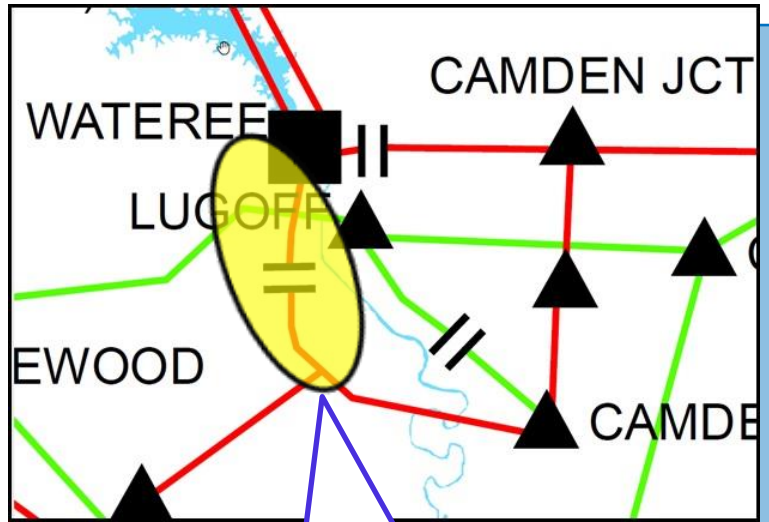
- **DESCRIPTION:**
 - Reconductor with 3-795 MCM ACSR or equivalent from IND 304440 to Maxton 115 kV substation approximately 3.5 miles. Replace existing 600A switches with 1200A switches.
- **SUPPORTING STATEMENT:**
 - The IND 304440-Maxton section of the Weatherspoon-IND 304440 115 kV transmission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



DUKE PROGRESS EAST – 2

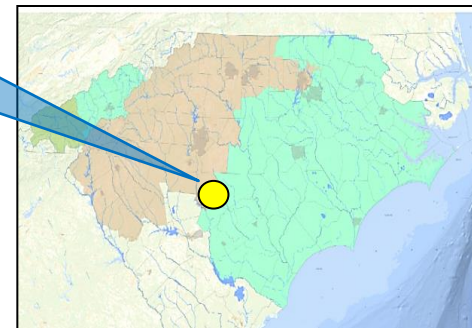
• 2022

IND 304731-DPC WATEREE PLANT 115 KV T.L. – UPRATE ELGIN-WATEREE SECTION



UPRATE THE ELGIN TAP-DPC
WATEREE PLANT SECTION OF THE
IND 304731-DPC WATEREE PLANT
115KV

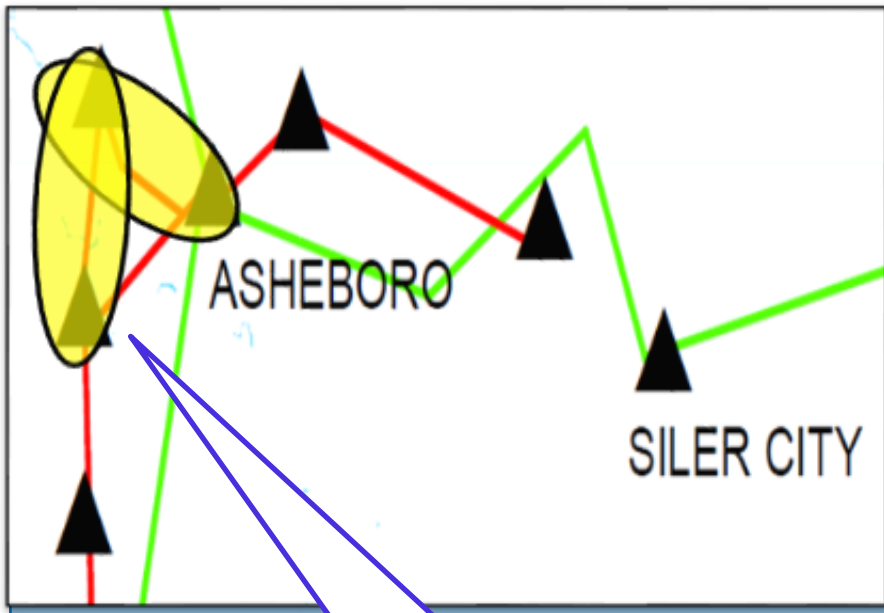
- **DESCRIPTION:**
 - Uprate the Elgin Tap – DPC Waterree Plant section (5 miles) of the IND 304731 – DPC Waterree Plant 115kV line to its full 336 MCM ACSR conductor rating (from 170 deg F to 212 deg F).
- **SUPPORTING STATEMENT:**
 - The existing line section overloads under contingency.



DUKE PROGRESS EAST – 3

• 2022

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



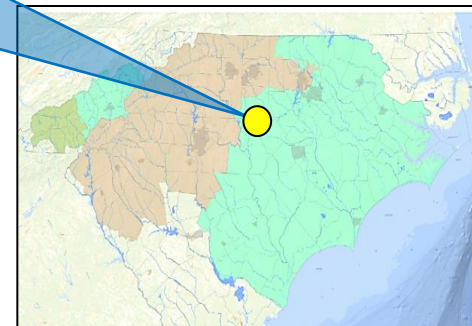
REBUILD 6.5 MILES OF 115 KV TL
WITH 3-1590. REPLACE SWITCHES
WITH AT LEAST 2000 A CAPABILITY

• **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 2000A capability.

• **SUPPORTING STATEMENT:**

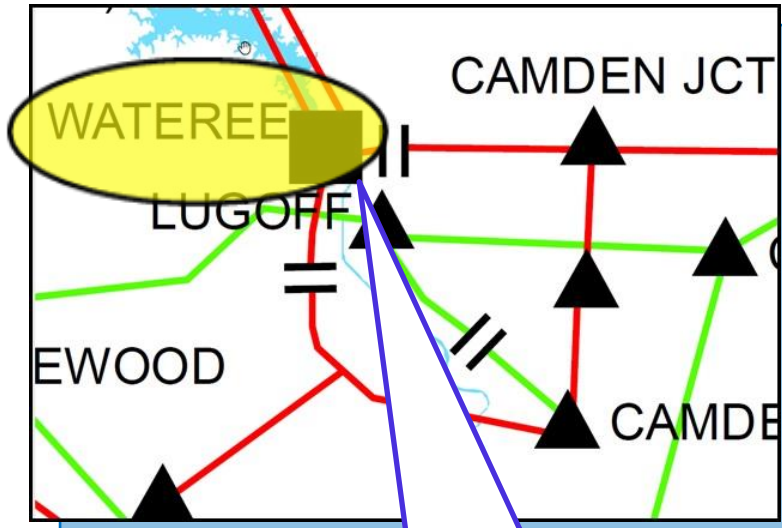
- The Asheboro – Asheboro East (North) 115 kV transmission line overloads under contingency.



DUKE PROGRESS EAST – 4

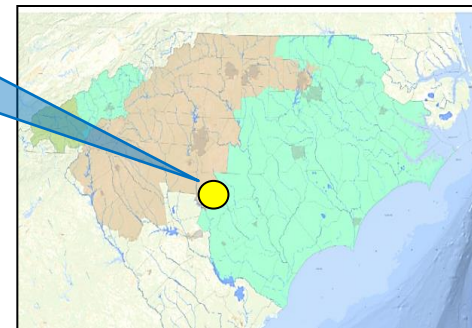
• 2022

WATEREE 115 KV PLANT – REPLACE 115/100 KV TRANSFORMERS



REPLACE EXISTING 150 MVA,
115/100 KV TRANSFORMER BANK
WITH TWO 168 MVA, 115/100 KV
TRANSFORMERS

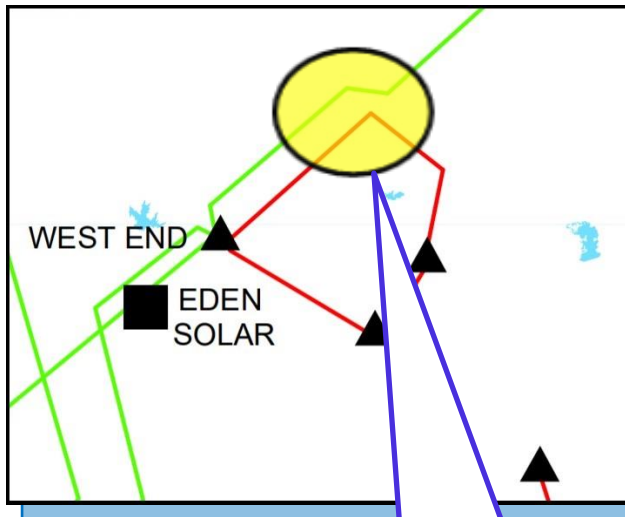
- **DESCRIPTION:**
 - Replace existing 150 MVA, 115/100 kV transformer bank with two 168 MVA, 115/100 kV transformers. Project to be done in conjunction with DEC's Wateree Line 6-wire project.
- **SUPPORTING STATEMENT:**
 - The existing Wateree transformer bank overloads under contingency.



DUKE PROGRESS EAST – 5

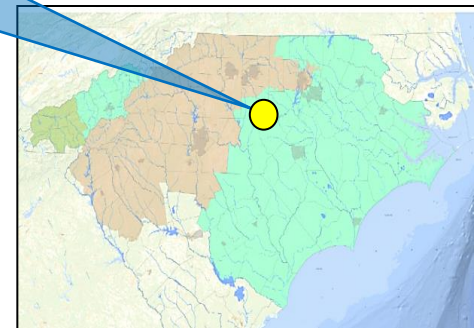
• 2025

CARTHAGE 230/115KV SUBSTATION - CONSTRUCT



CONSTRUCT A NEW
230/115KV SUBSTATION NEAR THE
EXISTING CARTHAGE 115KV
SUBSTATION

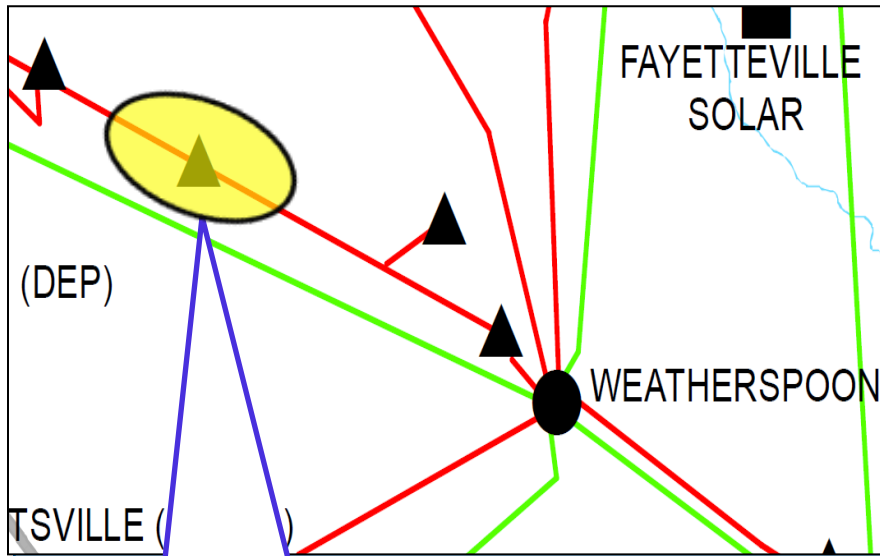
- **DESCRIPTION:**
 - Construct a new 230/115kV substation near the existing Carthage 115kV substation. Loop in the existing Cape Fear – West End 230kV line and West End – Southern Pines 115kV feeder.
- **SUPPORTING STATEMENT:**
 - Outage of one West End transformer overloads the other and voltage at Southern Pines 115kV drops below criteria..



DUKE PROGRESS EAST – 6

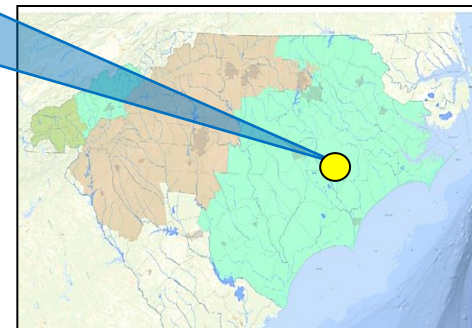
• 2026

WSPN – IND 304440 115 KV T.L.



RECONDUCTOR APPROX 9.0 MILES
115 KV LINE WITH 3-795 ACSR OR
EQUIVALENT CONDUCTOR

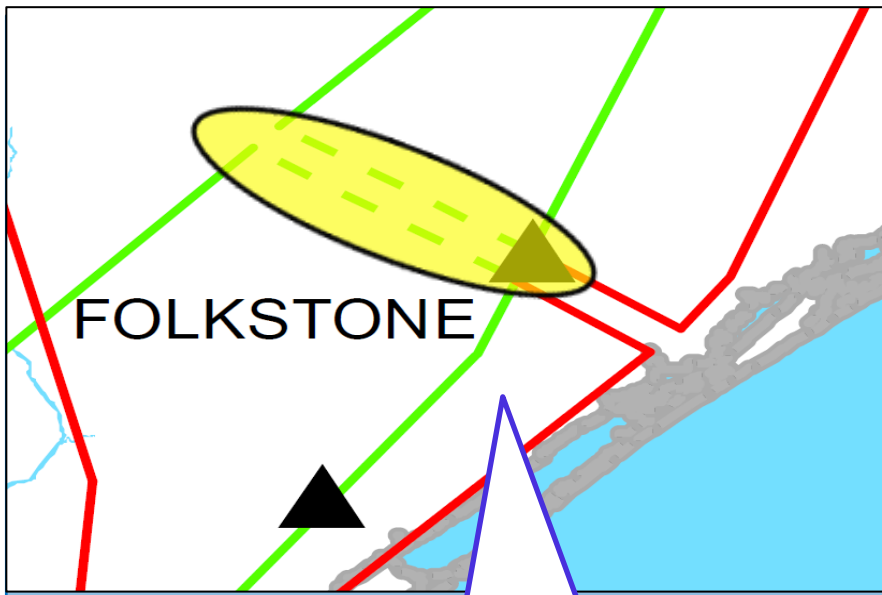
- **DESCRIPTION:**
 - Reconductor approximately 9.0 miles from Maxton to Pembroke 115 kV substation with 3-795 MCM ACSR or equivalent. Replace existing 600A switch with 1200A switch.
- **SUPPORTING STATEMENT:**
 - The Maxton-Pembroke section of the Weatherspoon-IND 304440 115 kV transmission line overloads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



DUKE PROGRESS EAST – 7

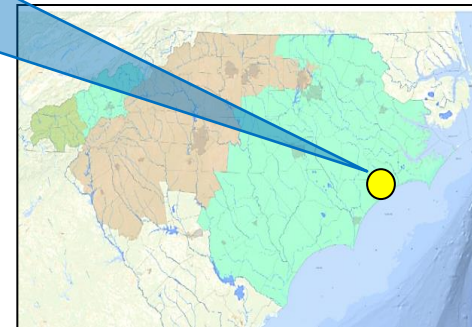
• 2027

BRUNSWICK #1 – JACKSONVILLE 230 KV T.L.



LOOP IN 230 KV T.L. WITH 3-1590
ACSR OR EQUIVALENT CONDUCTOR

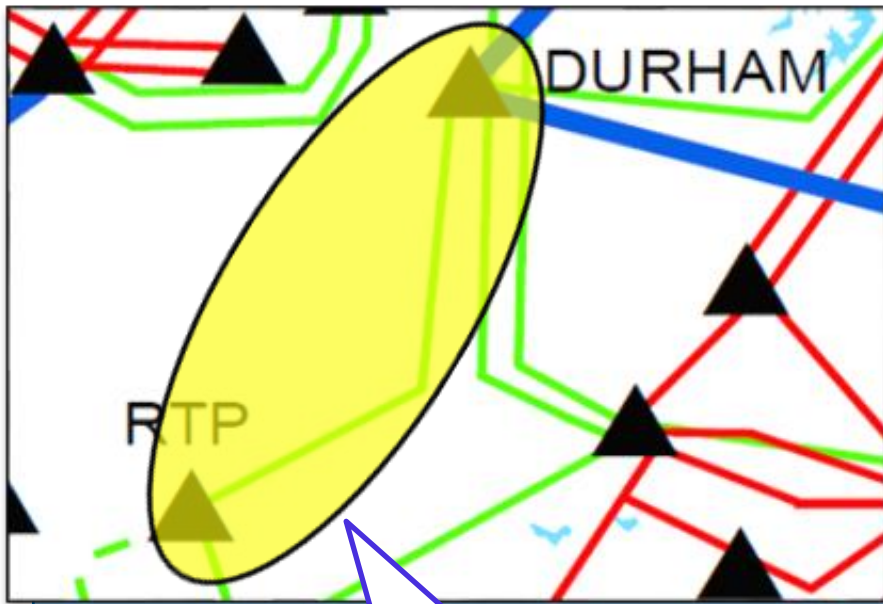
- **DESCRIPTION:**
 - Loop existing Brunswick Plant Unit 1 – Jacksonville 230 kV transmission line into the Folkstone 230 kV Substation. Also, convert the Folkstone 230 kV bus configuration to breaker-and-one-half by installing three (3) new 230 kV breakers.
- **SUPPORTING STATEMENT:**
 - The Castle Hayne – Folkstone 115 kV transmission line overloads under contingency.



DUKE PROGRESS EAST – 8

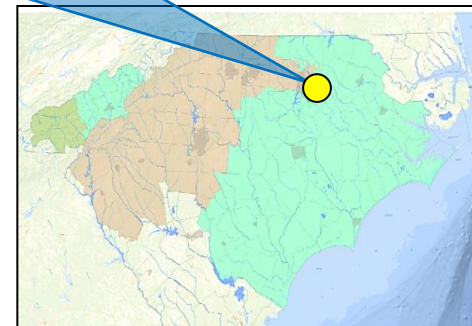
• 2028

DURHAM – RTP 230 KV T.L.



RECONDUCTOR 10 MILES OF 230 KV
T.L. WITH 6-1590 ACSR

- **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.



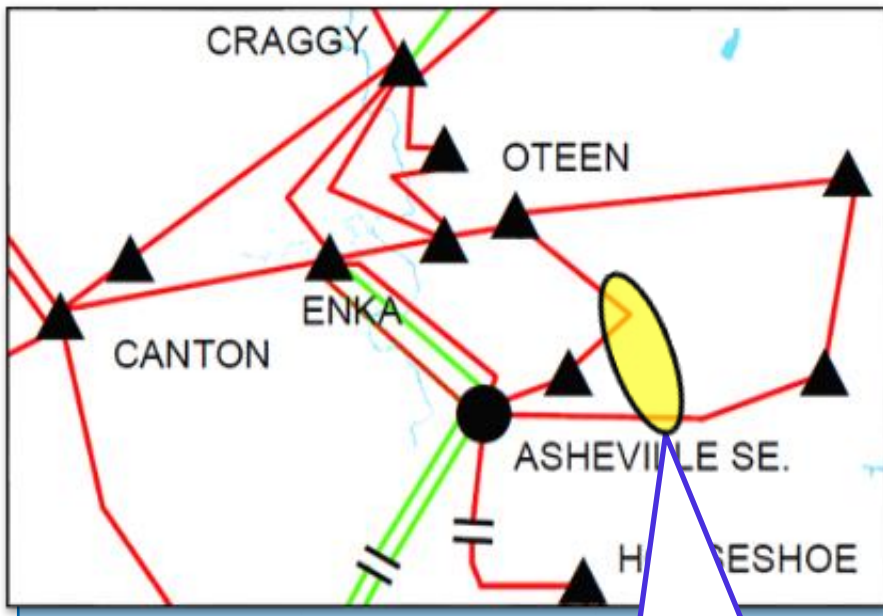
DUKE PROGRESS WEST Balancing Authority Area

Preliminary Transmission Expansion Plan

DUKE PROGRESS WEST – 1

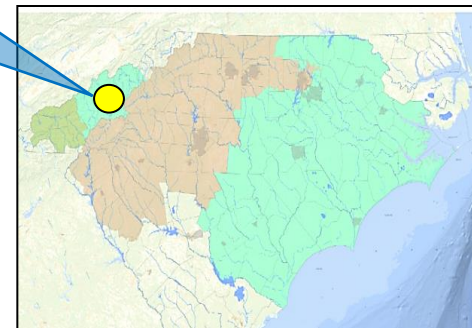
• 2026

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.

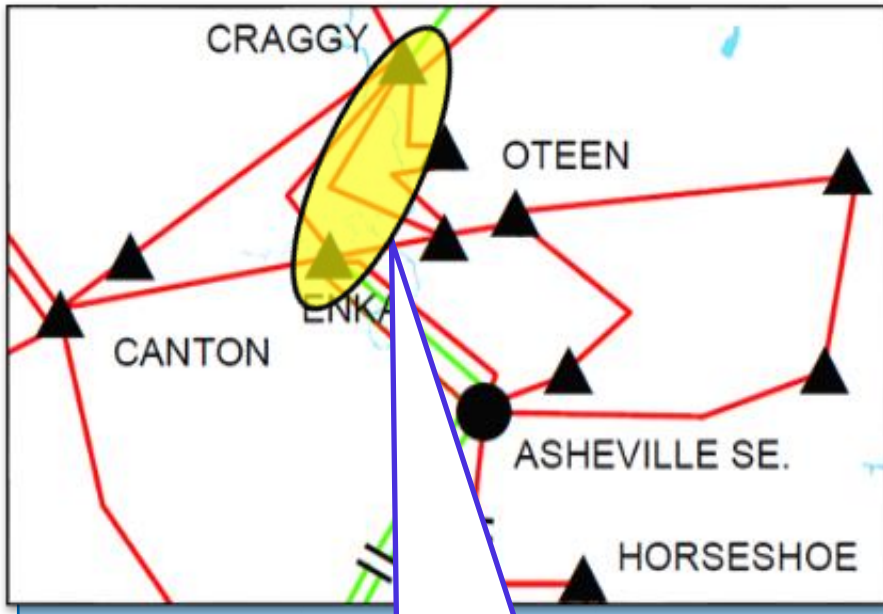
- **DESCRIPTION:**
 - Construct approximately 2.2 miles of new 115 kV transmission line from the Asheville Plant – Oteen West 115 kV transmission line to the Asheville Plant – Oteen East 115 kV transmission line with 795 ACSR. The Baldwin 115 kV substation will be reconnected to this new tap line.
-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



DUKE PROGRESS WEST – 2

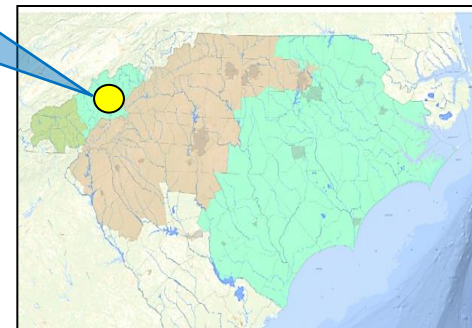
• 2026

CRAGGY-ENKA 230 KV T.L., CONSTRUCT



CONSTRUCT APPROXIMATELY 10.0 MILES OF 230 KV TRANSMISSION LINE FROM THE CRAGGY 230 KV SUB TO THE ENKA 230 KV SUB WITH 3-954 ACSS-TW OR EQUIVALENT CONDUCTOR RATED FOR 710 MVA.

- **DESCRIPTION:**
 - Construct approximately 10.0 miles of new 230 kv transmission line from the Craggy 230 kv substation to the Enka 230 kv substation with 3-954 ACSS-TW or equivalent conductor rated for 710 MVA.
- **SUPPORTING STATEMENT:**
 - The Enka–West Asheville 115 kv line overloads under contingency.



LG&E/KU Balancing Authority Area Generation Assumptions

LG&E/KU – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Ashwood	Solar	0	86	86	86	86	86	86	86	86	86

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.

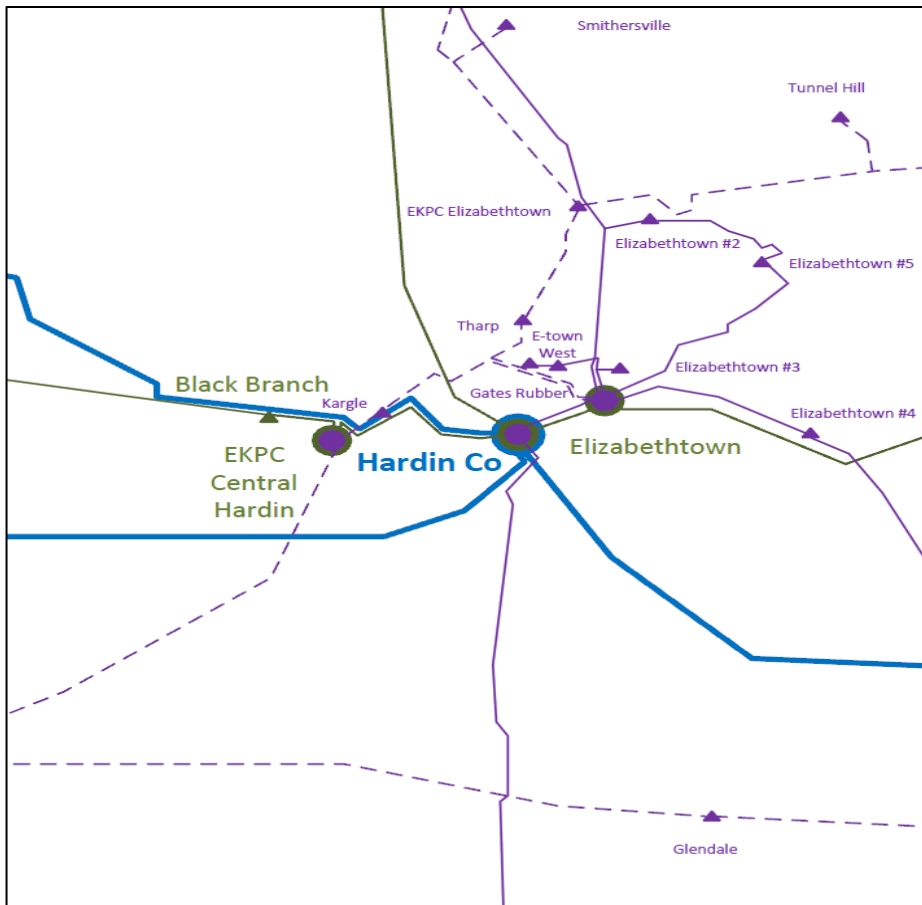
SITE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
TRIMBLE COUNTY	324	324	324	324	324	324	324	324	324	324

LG&E/KU Balancing Authority Area Preliminary Transmission Expansion Plan

LG&E/KU - 1

• 2022

HARDIN CO SUBSTATION ADDITIONS

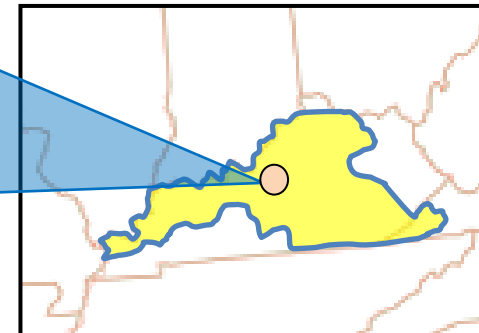


• **DESCRIPTION:**

- 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:**

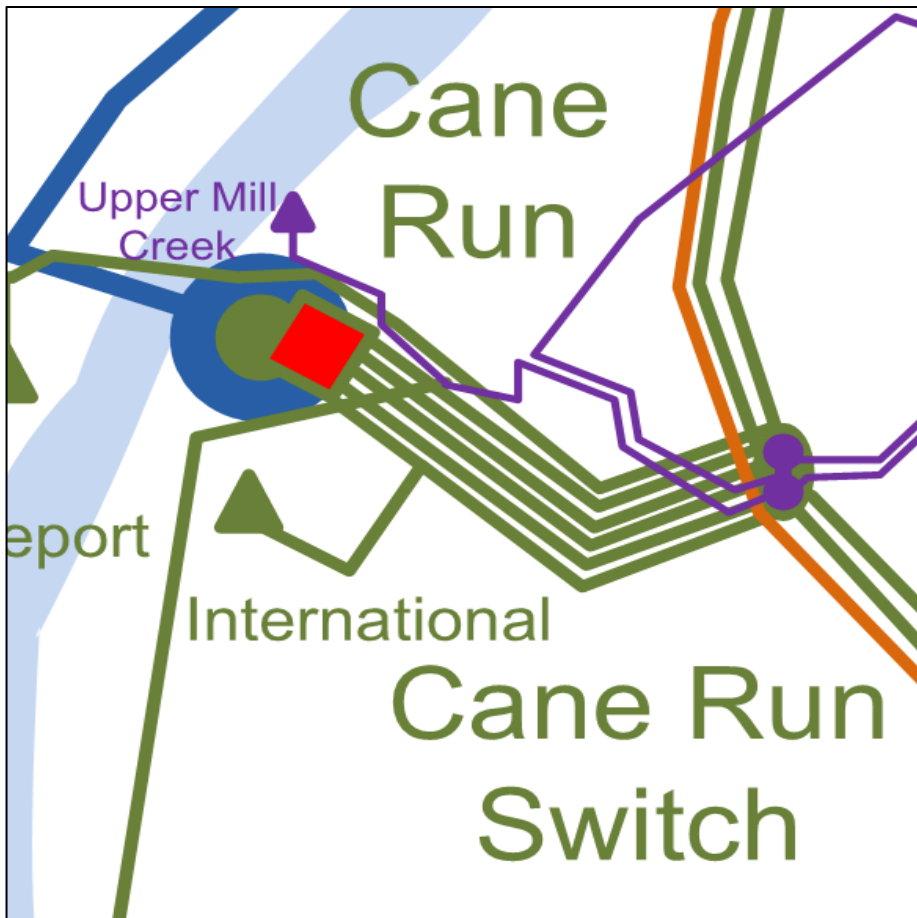
- Additional voltage support is needed in the Hardin Co/Elizabethtown area under contingency.



LG&E/KU - 2

• 2022

CANE RUN SWITCHING – CANE RUN 11 TAP 138KV

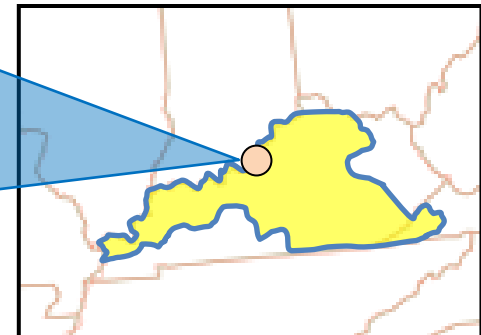


- **DESCRIPTION:**

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

- **SUPPORTING STATEMENT:**

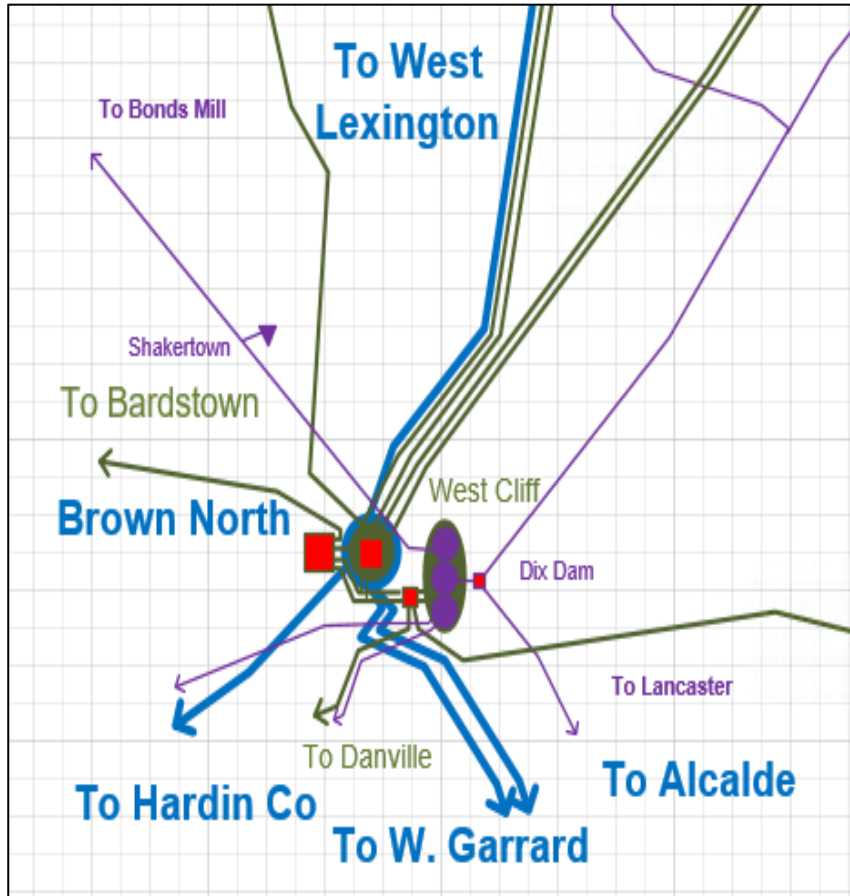
- The Cane Run Switching to Cane Run 11 Tap 138kV transmission line overloads under contingency.



LG&E/KU - 3

• 2023

BROWN NORTH 345/138 KV #2 TRANSFORMER

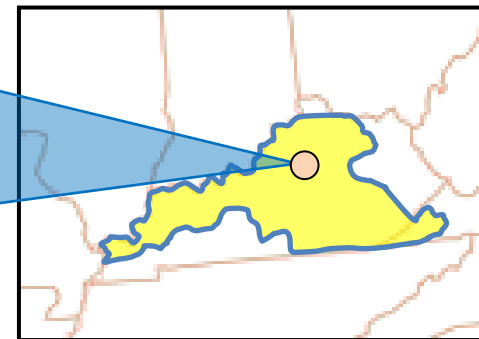


- **DESCRIPTION:**

- Install a second Brown North 450 MVA, 345/138 kV transformer.

- **SUPPORTING STATEMENT:**

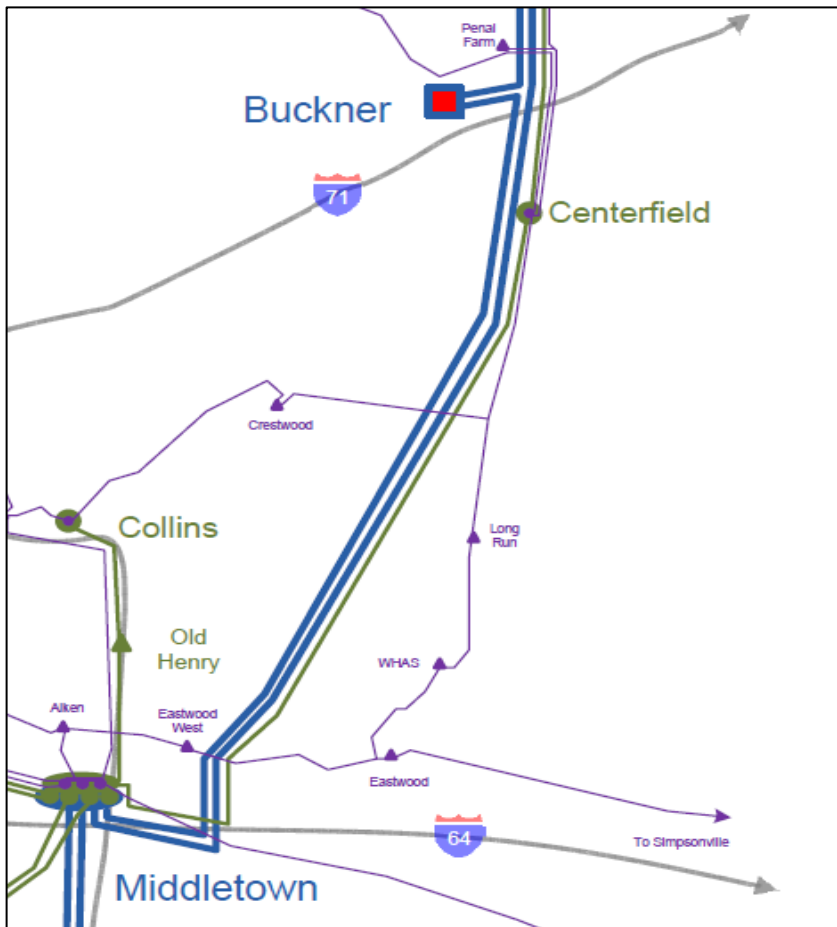
- The Brown North 345/138 kV Transformer #1 overloads under contingency.
- Additional voltage support is need in the Lexington area under contingency.



LG&E/KU - 4

• 2025

MIDDLETOWN – BUCKNER 345 KV

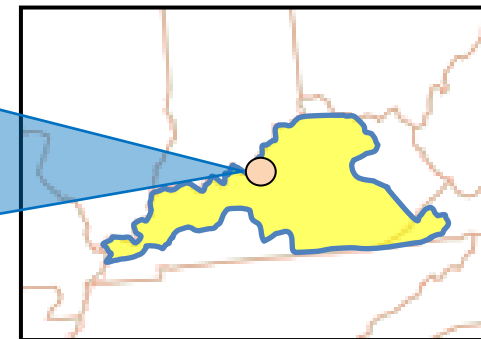


- **DESCRIPTION:**

- Replace the 345kV 2000A breakers associated with the Middletown – Buckner 345kV line with 3000A breakers.

- **SUPPORTING STATEMENT:**

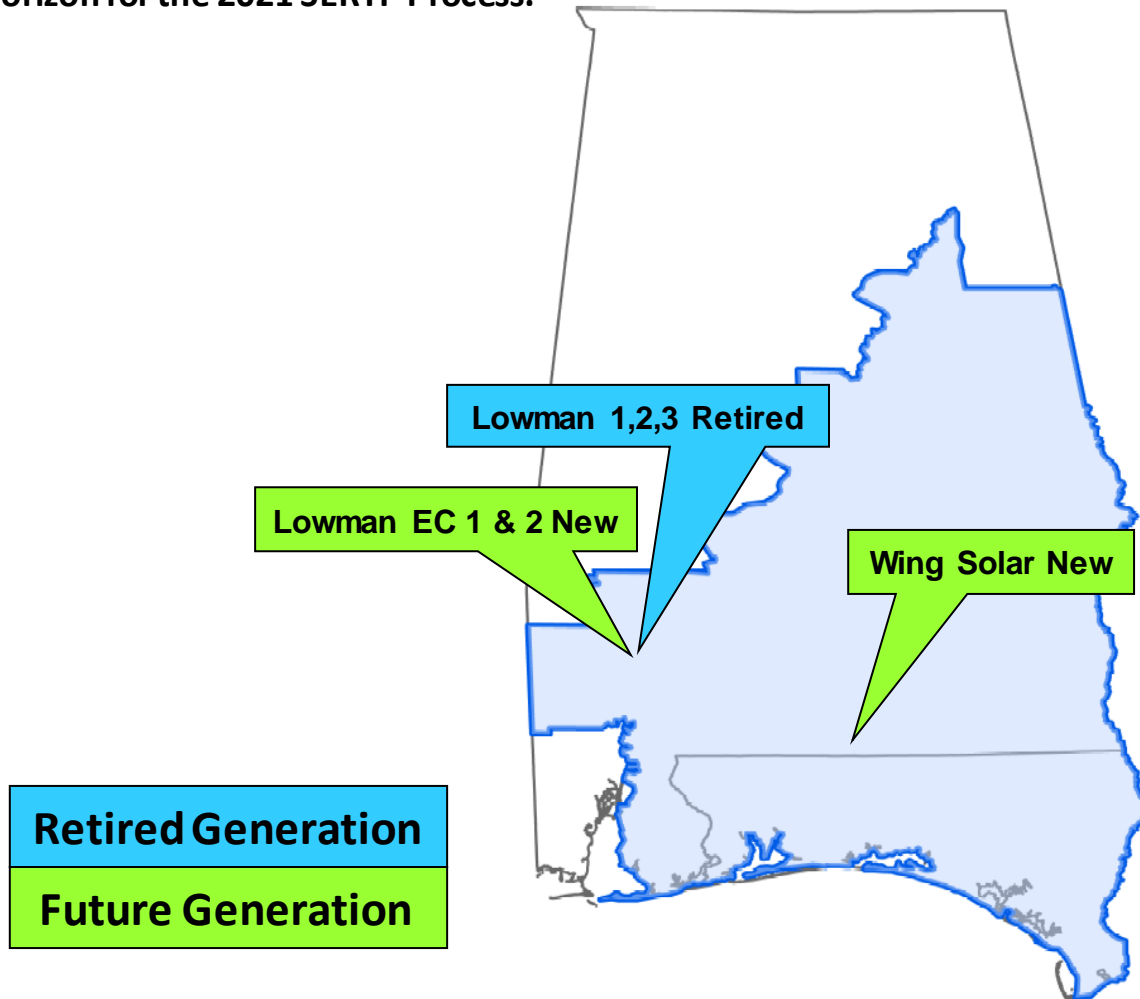
- The Middletown – Buckner 345 kV transmission line overloads under contingency.



POWERSOUTH Balancing Authority Area Generation Assumptions

POWERSOUTH – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process.



POWERSOUTH – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

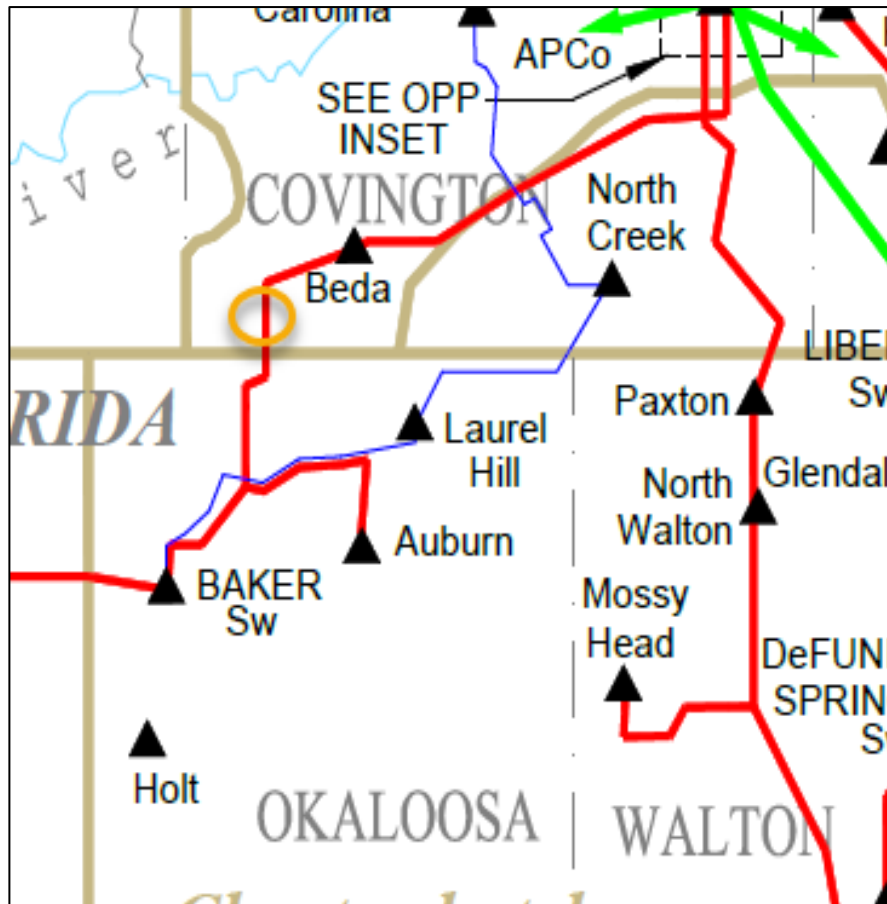
SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Lowman 1,2,3	Coal	0	--	--	--	--	--	--	--	--	--
Lowman EC 1 & 2	Gas	--	632	632	632	632	632	632	632	632	632
Wing	Solar		80	80	80	80	80	80	80	80	80

POWERSOUTH Balancing Authority Area Preliminary Transmission Expansion Plan

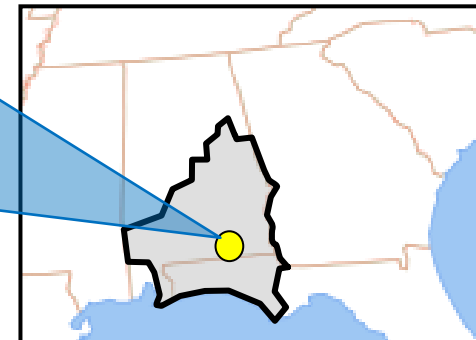
POWERSOUTH – 1

• 2022

Wing 115kV Switching Station



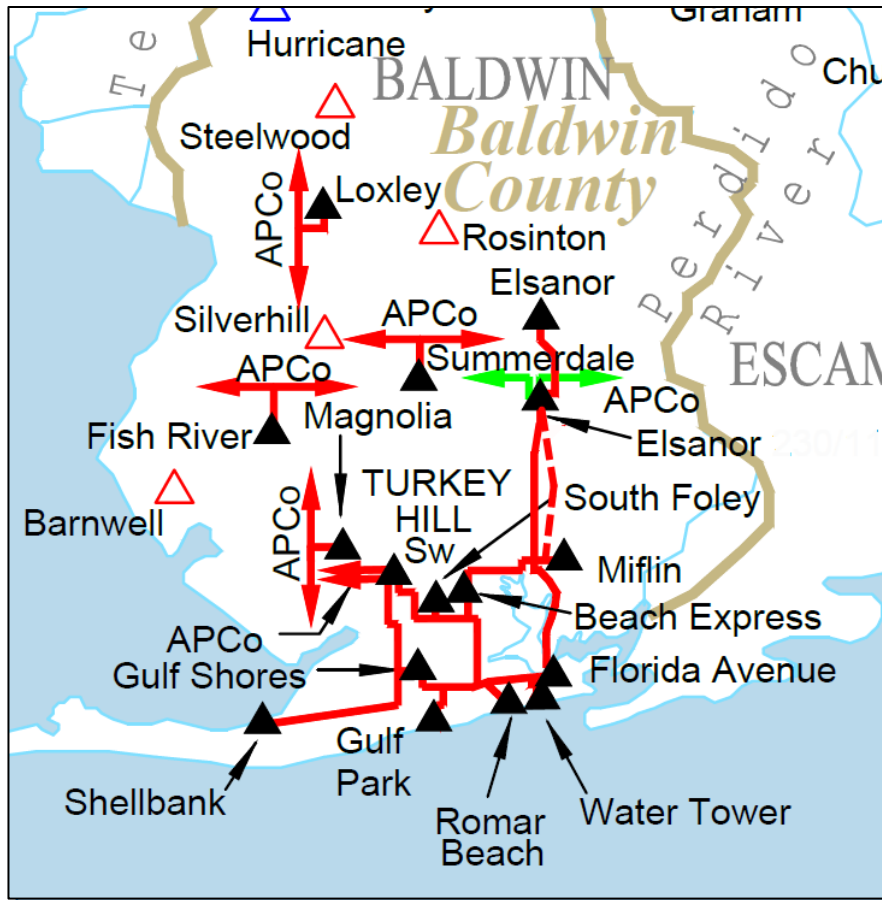
- **DESCRIPTION:**
 - New 3 Terminal 115kV Switching Station
 - Ring Bus Configuration
- **SUPPORTING STATEMENT:**
 - This new station will serve as the POI for the Wing Solar facility in southern Covington County, AL.



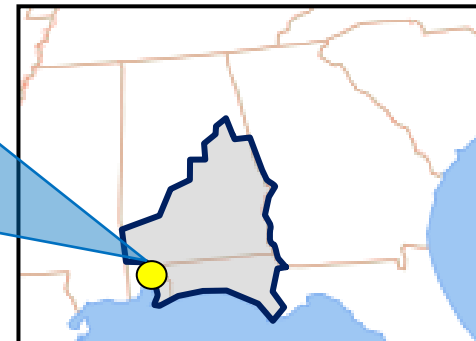
POWERSOUTH - 2

• 2022

ELSANOR-MIFLIN 2ND 115 KV TRANSMISSION LINE



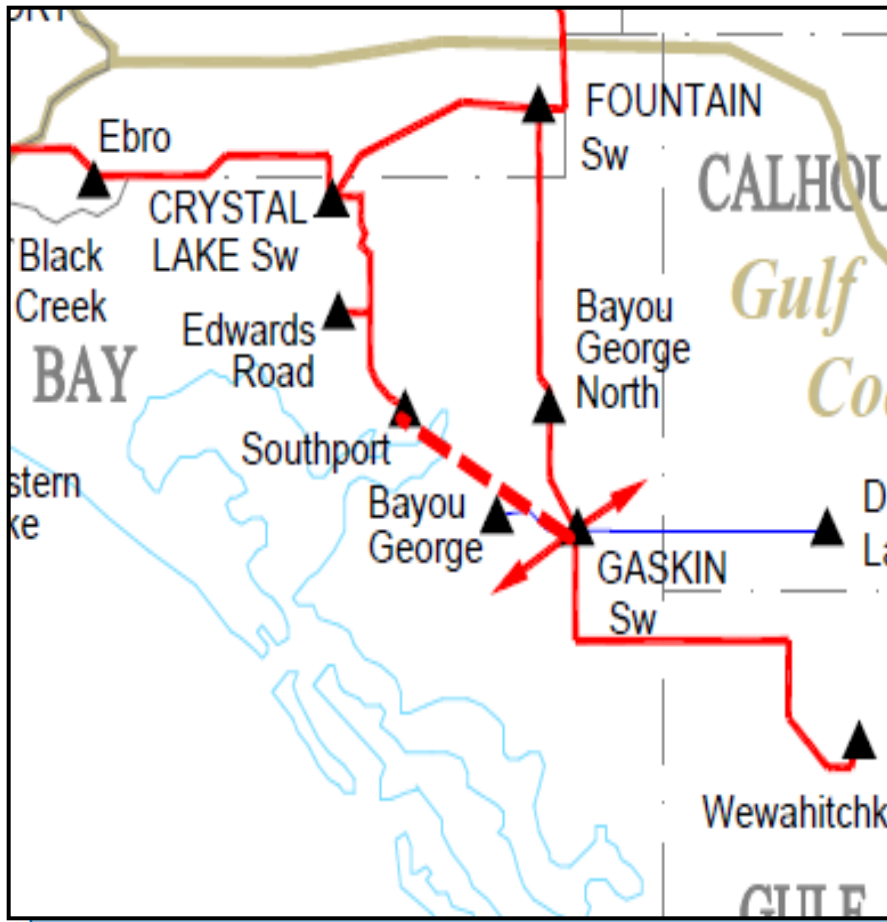
- **DESCRIPTION:**
 - Construct approximately 12.0 miles of new 115 kV transmission line from Elsanor Switching to Miflin Substation with 795 ACSR at 100°C.
- **SUPPORTING STATEMENT:**
 - The existing Elsanor-Miflin 115kV line overloads under contingency.



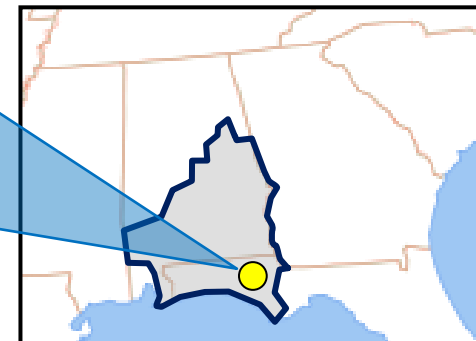
POWERSOUTH - 3

• 2023

GASKIN – SOUTHPORT 115 KV TRANSMISSION LINE



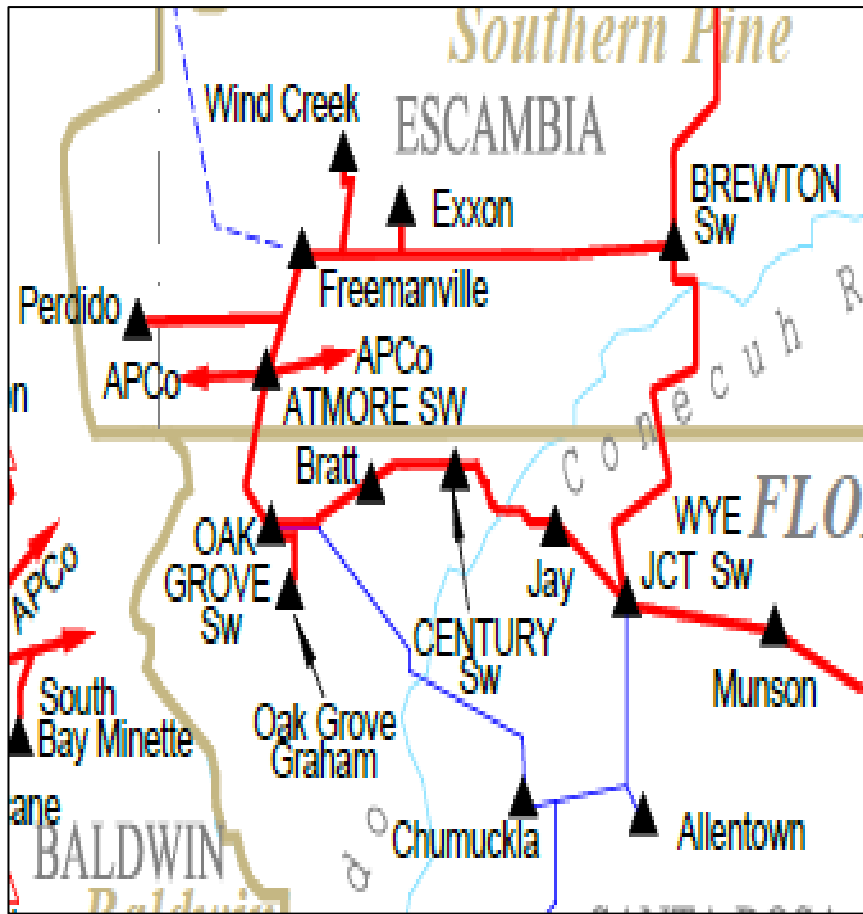
- **DESCRIPTION:**
 - Construct approximately 9.0 miles of new 115 kV transmission line from Gaskin Switching Station to Southport Substation with 795 ACSR at 100°C.
- **SUPPORTING STATEMENT:**
 - Improve the reliability of Gulf Coast Electric's substations by providing a looped service feed.



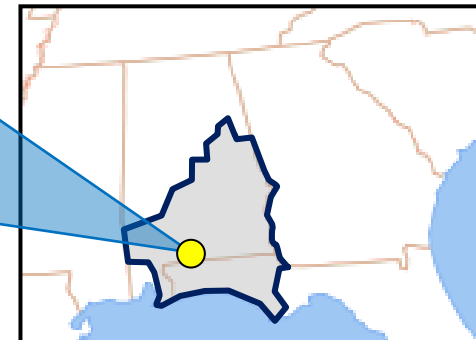
POWERSOUTH - 4

• 2023

Brewton – Exxon – Freemanville 115 KV TRANSMISSION LINE



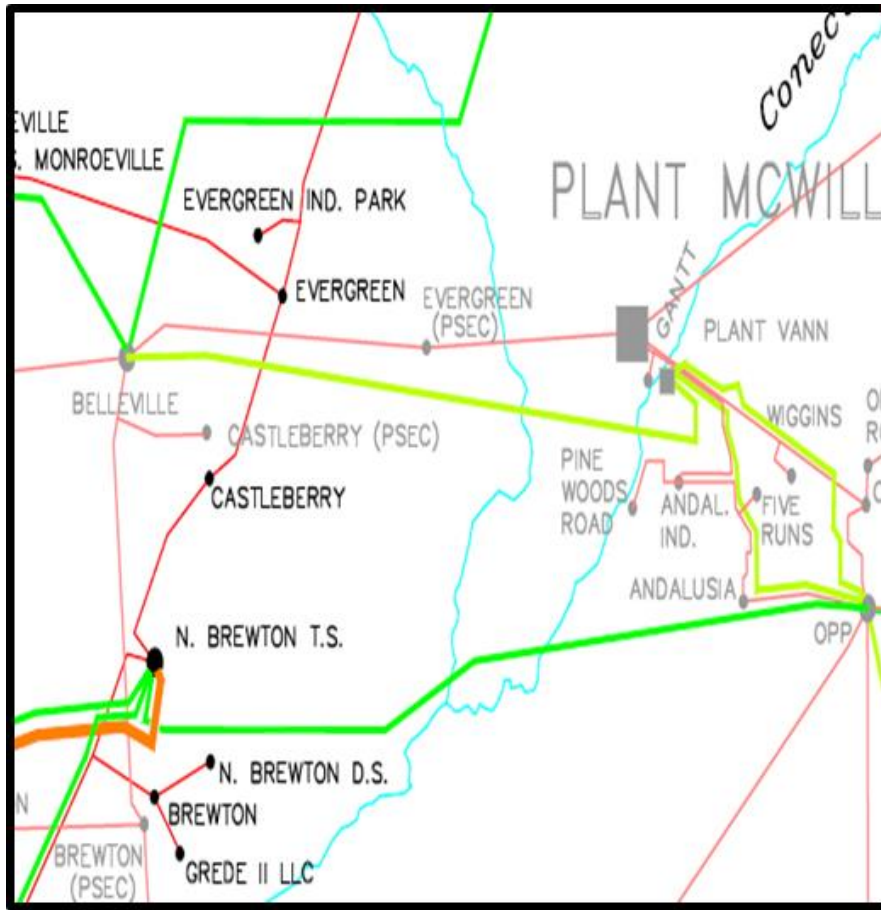
- **DESCRIPTION:**
 - Operating temperature upgrade on approximately 25.0 miles of 115 kV transmission line from Brewton 115kV Station to Freemanville Substation to 75°C.
- **SUPPORTING STATEMENT:**
 - The existing 115kV transmission line overloads under contingency. Project will double line capacity from 68 MVA to 134 MVA.



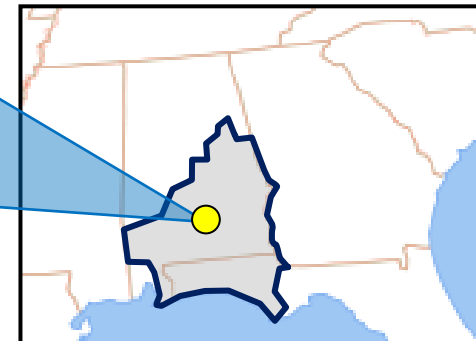
POWERSOUTH - 5

• 2023

Belleville – Gantt 230 KV TRANSMISSION LINE



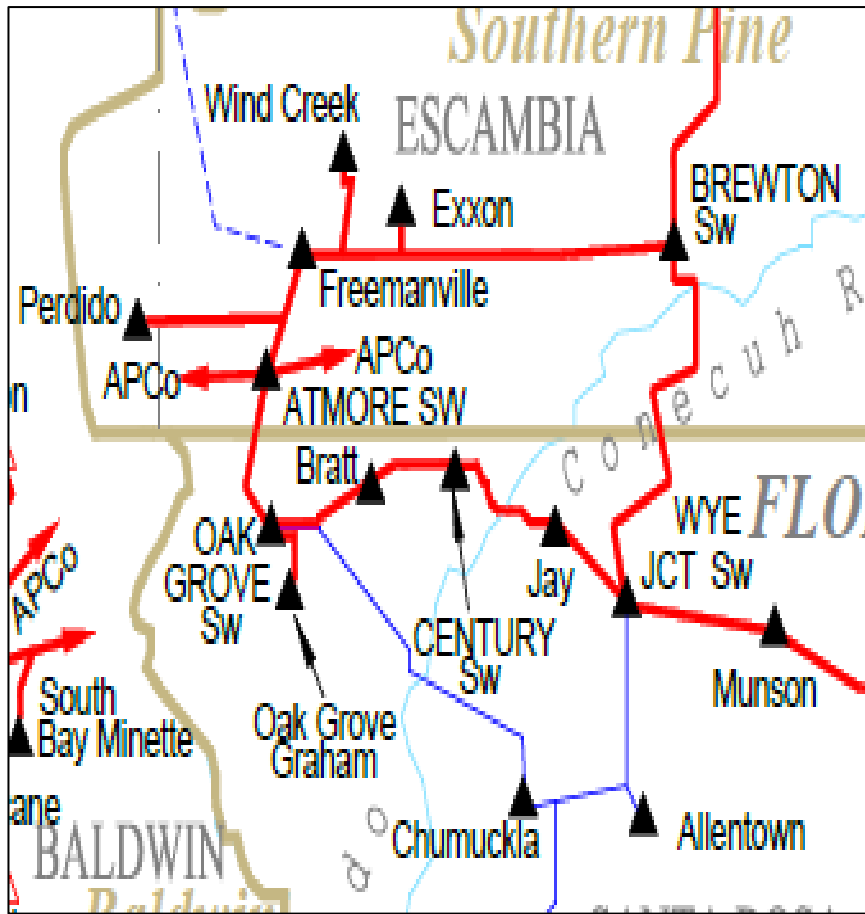
- **DESCRIPTION:**
 - Operating temperature upgrade on approximately 40.0 miles of 230 kV transmission line from Belleville 230kV Station to Gantt 230kV Substation to 100°C. Project will increase line capacity from 469 MVA to 586 MVA.
- **SUPPORTING STATEMENT:**
 - The existing 230kV transmission line overloads under contingency.



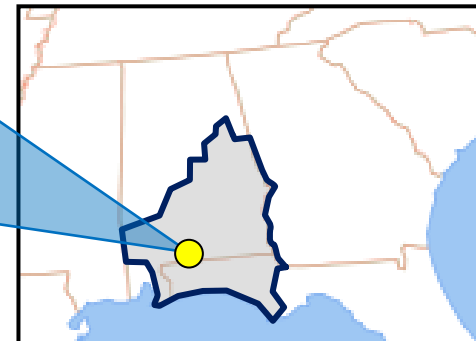
POWERSOUTH - 6

• 2024

Wye Switching – Oak Grove Switching 115 KV Conversion



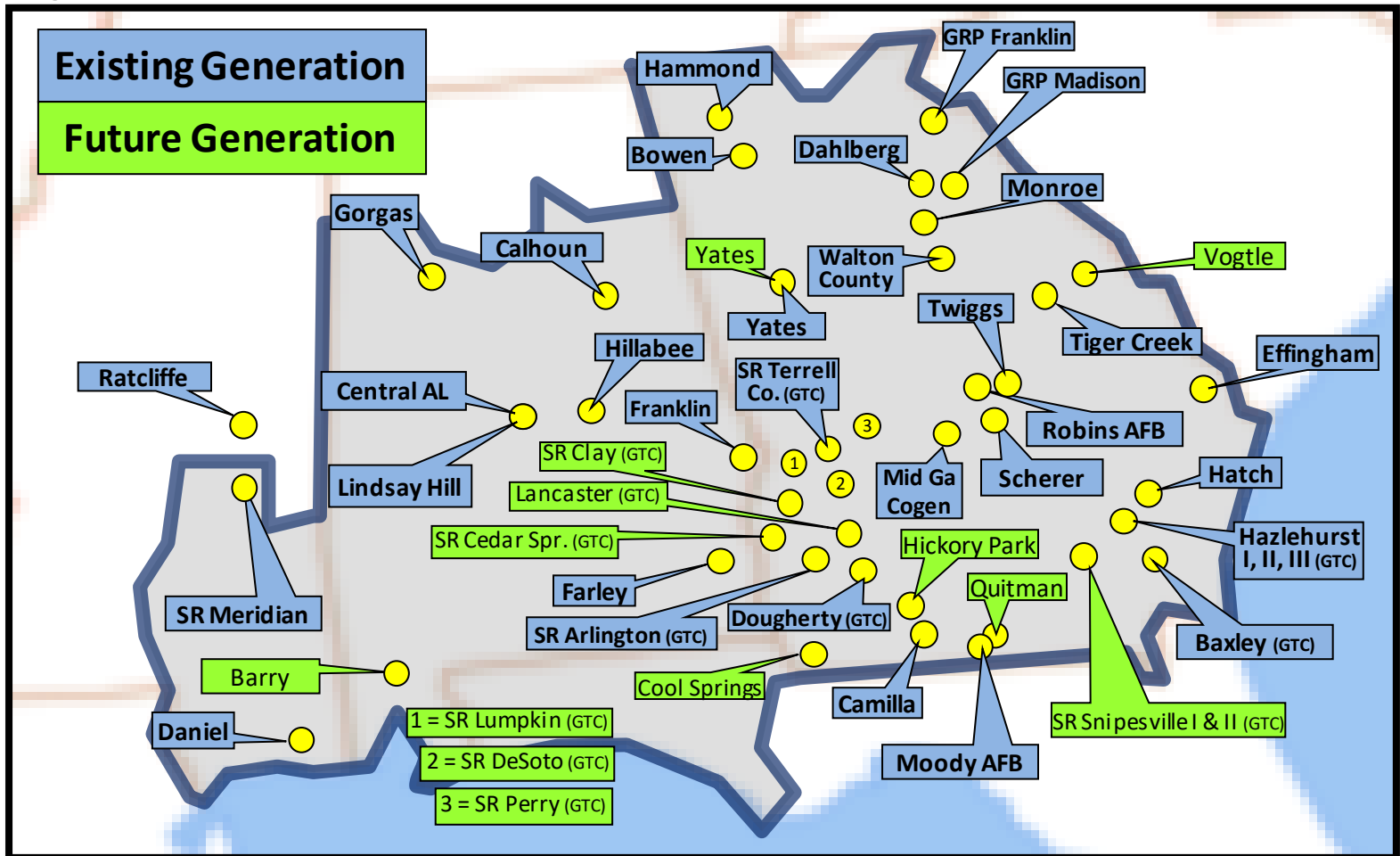
- **DESCRIPTION:**
 - Conversion of approximately 35.0 miles of 46 kV transmission line from Oak Grove Sw 115kV Station to Wye 115kV Sw station and 3 delivery points to 115kV service.
- **SUPPORTING STATEMENT:**
 - The existing 46kV transmission line lacks thermal capacity and voltage support during contingency to accommodate future load growth in the area.



SOUTHERN Balancing Authority Area Generation Assumptions

SOUTHERN – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process.



Southern Company – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
ADDISON 1&3	Gas	305	305	305	305	305	305	305	305	0	--
CALHOUN 1-4	Gas	632	0	--	--	--	--	--	--	--	--
DAHLBERG 2, 6, 8, 10	Gas	298	298	298	0	--	--	--	--	--	--
DAHLBERG 4	Gas	75	75	75	75	75	75	75	75	0	--
Harris 1	Gas	640	640	640	640	640	640	640	640	0	--
MID GA COGEN	Gas	300	300	300	300	300	300	0	--	--	--
MONROE POWER	Gas	309	309	0	--	--	--	--	--	--	--
TIGER CREEK 1&4	Gas	313	313	0	--	--	--	--	--	--	--
TENASKA HEAR 1-6	Gas	945	945	945	945	945	945	945	945	0	--
WALTON COUNTY	Gas	465	465	0	--	--	--	--	--	--	--

Southern Company – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
BARRY ¹	Gas	--	685	685	685	685	685	685	685	685	685
FARLEY 1	Nuclear	898	898	898	898	898	898	898	898	898	898
FARLEY 2	Nuclear	901	901	901	901	901	901	901	901	901	901
GASTON 1-4	Gas	465	465	515	515	515	515	515	515	515	515
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	504
YATES 6-7	Gas	649	649	714	714	714	714	714	714	714	714
CENTRAL ALABAMA	Gas	--	890	890	890	890	890	890	890	890	890

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

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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
BIRD DOG SOLAR	Solar	--	40	40	40	40	40	40	40	40	40
BROKEN SPOKE	Solar	195	195	195	195	195	195	195	195	195	195
BULLDOG SOLAR	Solar	--	80	80	80	80	80	80	80	80	80
COOL SPRINGS	Solar	213	213	213	213	213	213	213	213	213	213
QUITMAN 2	Solar	150	150	150	150	150	150	150	150	150	150
SONNY SOLAR	Solar	--	40	40	40	40	40	40	40	40	40

⁽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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
BOWEN	159	159	159	159	159	159	159	159	159	159
CENTRAL ALABAMA	885	0	--	--	--	--	--	--	--	--
DAHLBERG	494	494	494	494	494	494	494	494	494	494
DANIEL	650	650	600	600	600	600	600	600	600	600
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

GTC – Generation Assumptions

The following table depicts the generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
LANCASTER	SOLAR	80	80	80	80	80	80	80	80	80	80
SR CEDAR SPRINGS	SOLAR	--	70	70	70	70	70	70	70	70	70
SR CLAY	SOLAR	--	106	106	106	106	106	106	106	106	106
SR DESOTO	SOLAR	250	250	250	250	250	250	250	250	250	250
SR LUMPKIN	SOLAR	100	100	100	100	100	100	100	100	100	100
SR PERRY	SOLAR	68	68	68	68	68	68	68	68	68	68
SR SNIPESVILLE I	SOLAR	103	103	103	103	103	103	103	103	103	103
SR SNIPESVILLE II	SOLAR	107	107	107	107	107	107	107	107	107	107
VOGTLE 4	NUCLEAR	330	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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
VOGTLE 4	NUCLEAR	250	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.

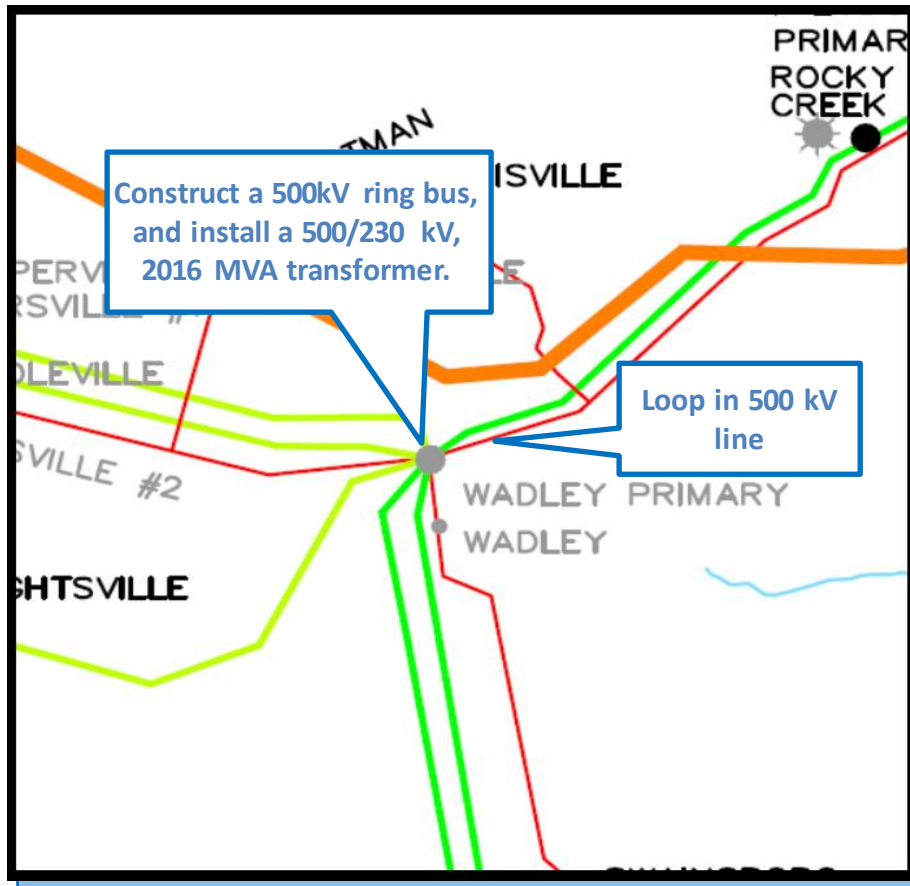
SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
VOGTLE 4	NUCLEAR	19	19	19	19	19	19	19	19	19	19

SOUTHERN (EAST) Balancing Authority Area Preliminary Transmission Expansion Plan

SOUTHERN – 1E

• 2021

WADLEY PRIMARY 500/230 KV PROJECT

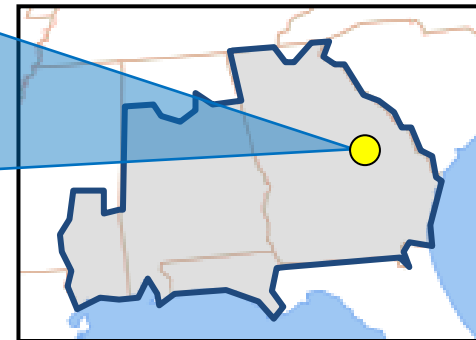


DESCRIPTION:

- MEAG: Construct a new 500 kV ring bus and install a 500/230 kV, 2016 MVA transformer
- GPC: Loop in the Vogtle – Warthen 500 kV line.

SUPPORTING STATEMENT:

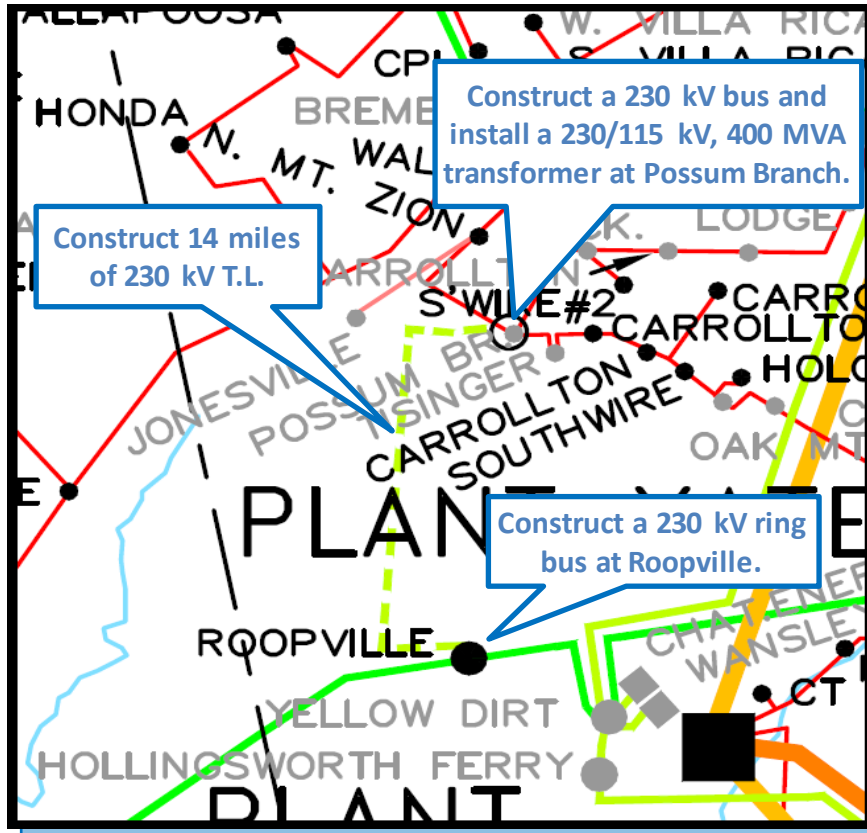
- Project to enhance reliability in the Augusta area and to support the expansion of Plant Vogtle.



SOUTHERN – 2E

• 2022

POSSUM BRANCH 230/115 KV PROJECT

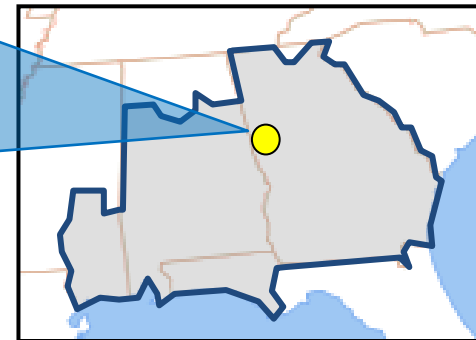


DESCRIPTION:

- GTC: Construct a new, approximately 14 mile, 1351 ACSR 230 kV line at 100°C from Possum Branch to Ropoville. Install a 230/115 kV, 400 MVA transformer at Possum Branch.
- GPC: Construct a 230 kV ring bus switching station at Ropoville.

SUPPORTING STATEMENT:

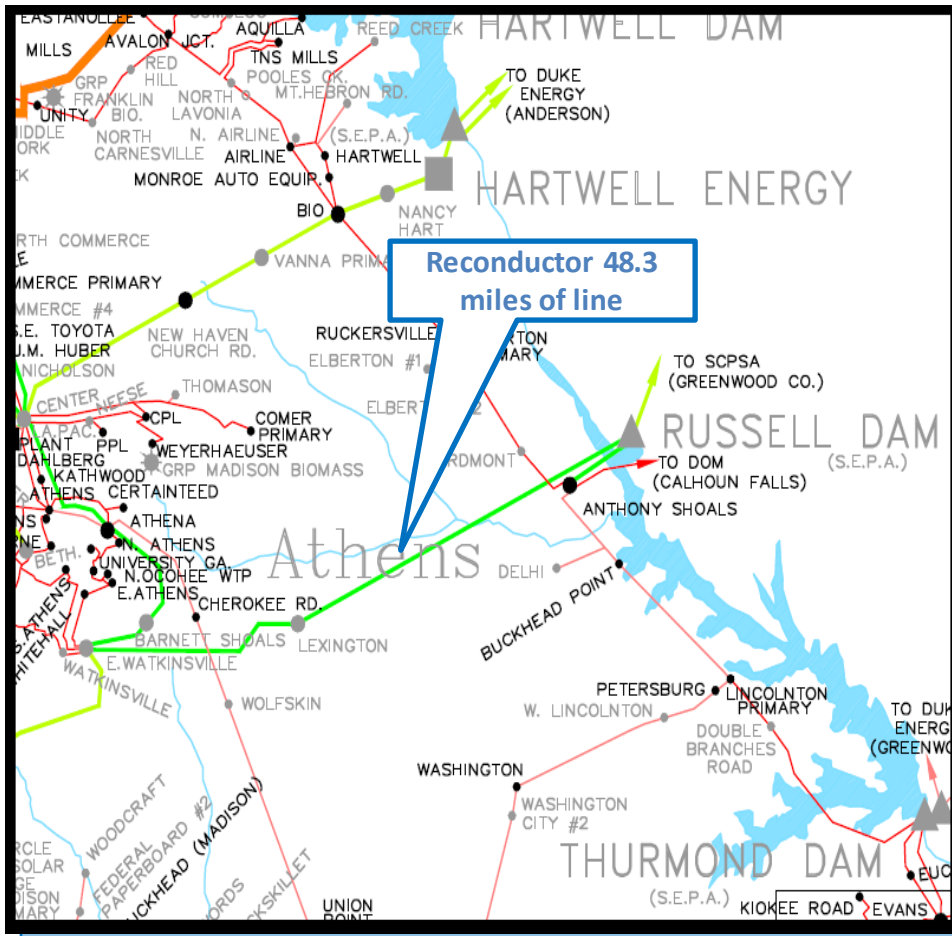
- Project is necessary to facilitate planned maintenance in the Bremen area.



SOUTHERN – 3E

• 2023

EAST WATKINSVILLE - RUSSELL DAM 230 KV TRANSMISSION LINE

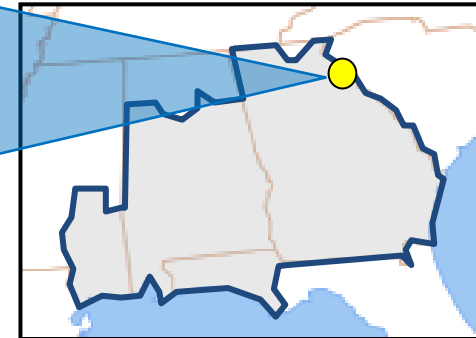


DESCRIPTION:

- Reconductor approximately 48.3 miles of 100°C 1351.5 ACSR/SD conductor with 200°C 1351.5 ACCR conductor. Replace the Overhead Ground Wire.

SUPPORTING STATEMENT:

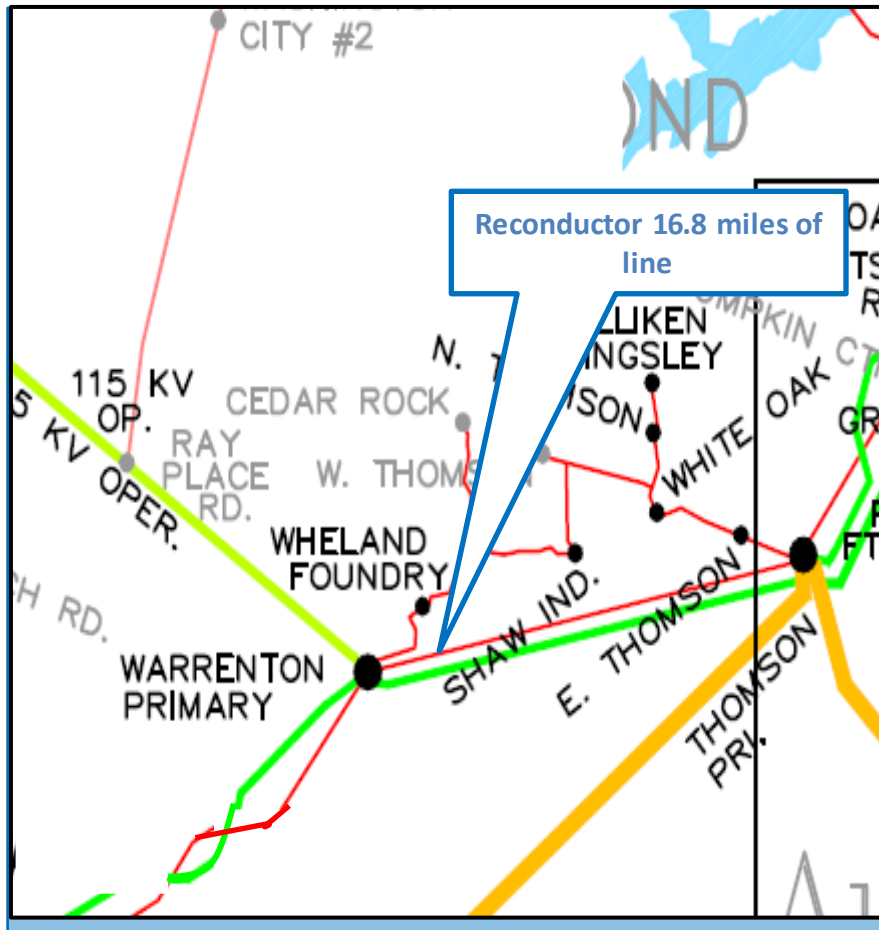
- The existing self-damping conductor has reached the end of its service life. Also, the existing rating is exceeded under contingency in import scenarios.



SOUTHERN – 4E

• 2023

THOMSON PRI – WARRENTON PRI (WHITE) 115KV TRANSMISSION LINE

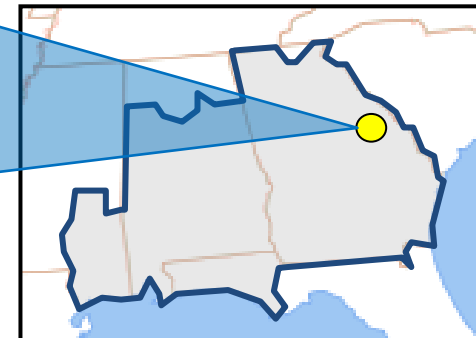


DESCRIPTION:

- Reconductor approximately 16.8 miles of 336 ACSR at 100°C on the Thomson Primary - Warrenton Primary 115 kV (White) transmission line with 795 ACSR at 100°C.

SUPPORTING STATEMENT:

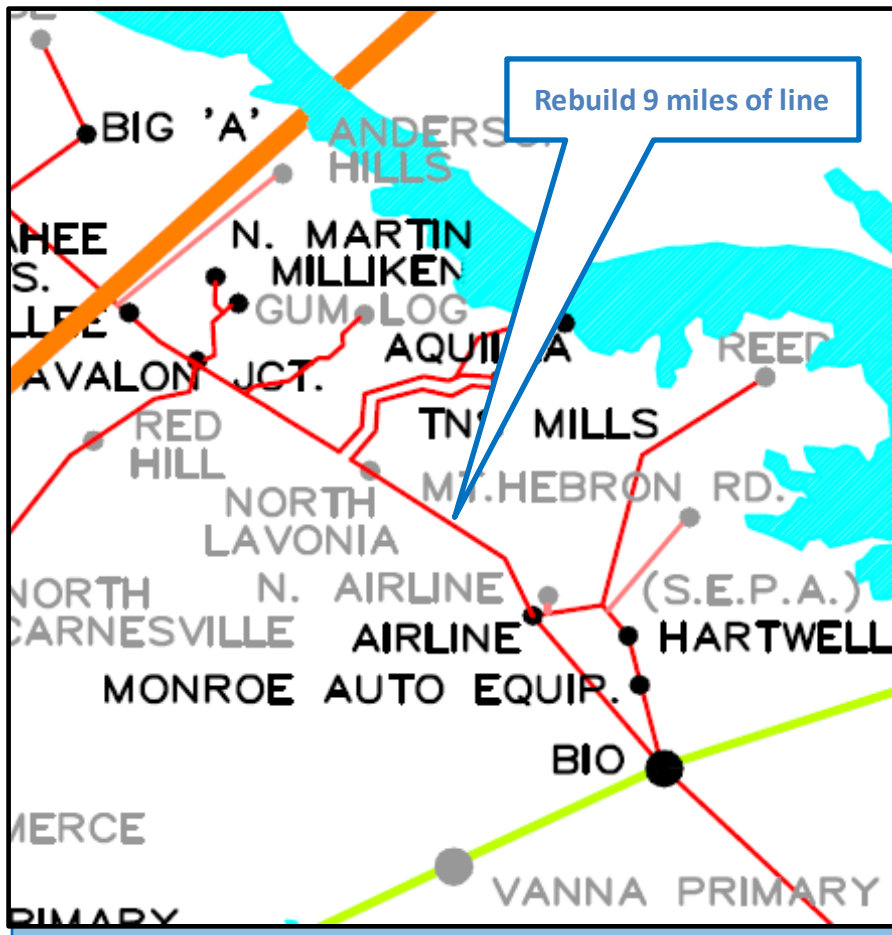
- The Thomson Primary - Warrenton Primary line overloads under contingency.



SOUTHERN – 5E

• 2024

AVALON JUNCTION – BIO 115 KV TRANSMISSION LINE

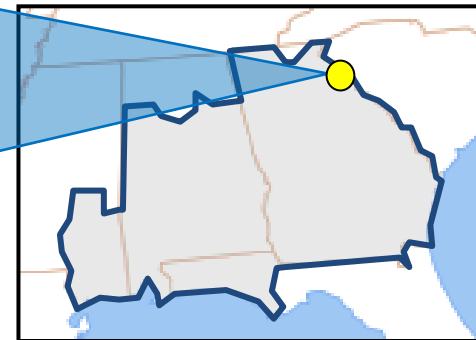


DESCRIPTION:

- Rebuild approximately 9 miles of the Avalon Junction - Bio 115 kV transmission line (636 ACSR/795 ACSR) with 100°C 1351 ACSR and replace the terminal equipment at various substations.

SUPPORTING STATEMENT:

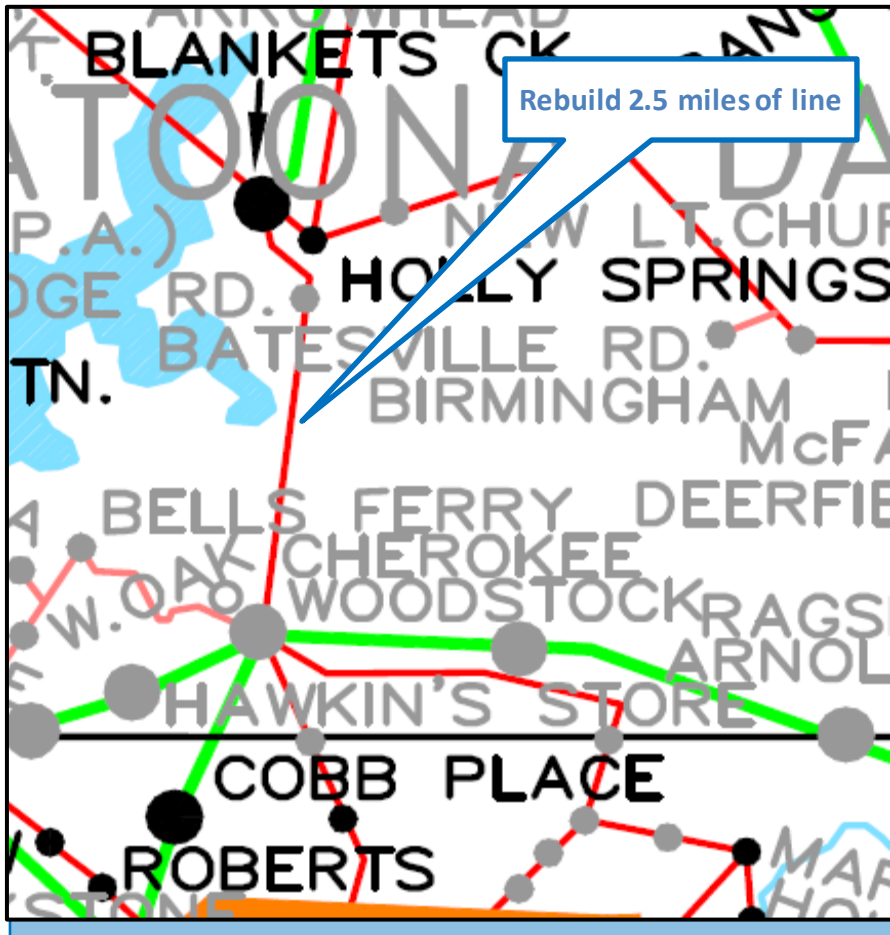
- The Avalon Junction-Bio 115 kV transmission line overloads under contingency in import scenarios.



SOUTHERN – 6E

• 2026

BLANKETS CREEK-WOODSTOCK 115 KV TRANSMISSION LINE

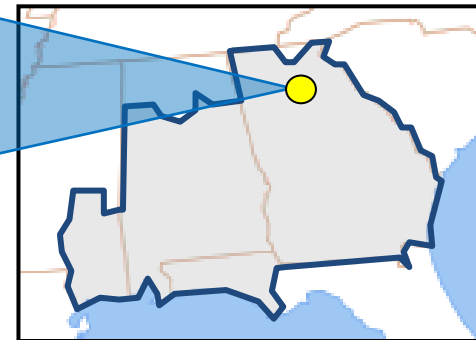


DESCRIPTION:

- Rebuild approximately 2.5 miles of the Blankets Creek – Woodstock 115 kV transmission line with 1351 ACSR conductor at 100°C.

SUPPORTING STATEMENT:

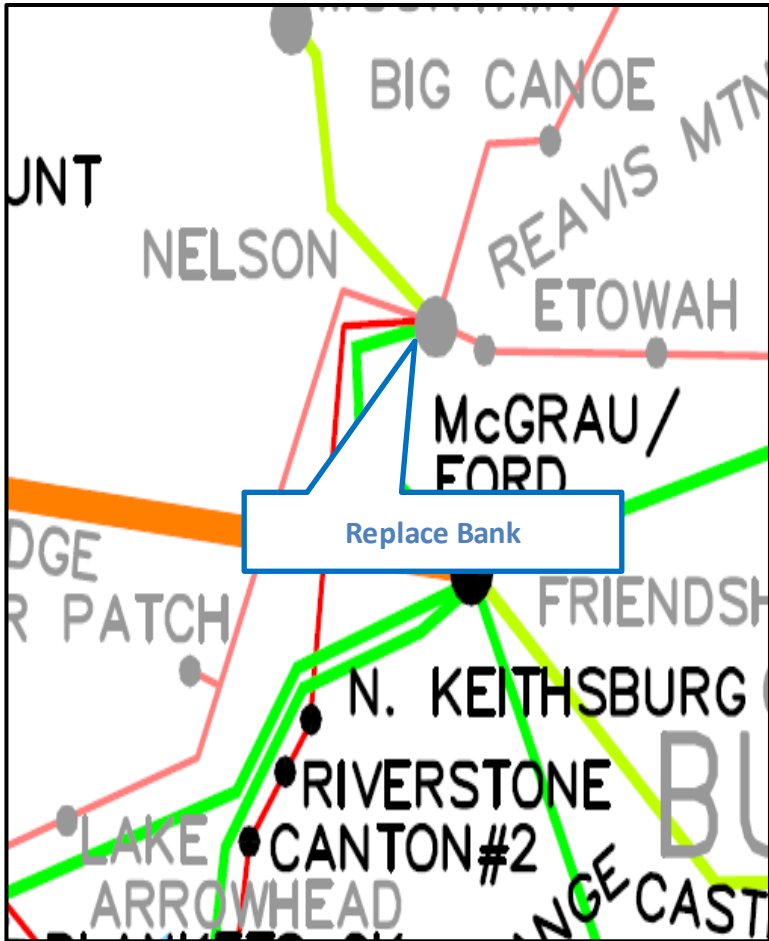
- The Blankets Creek – Woodstock 115 kV transmission line overloads under contingency.



SOUTHERN – 7E

• 2028

NELSON 230/115 KV SUBSTATION

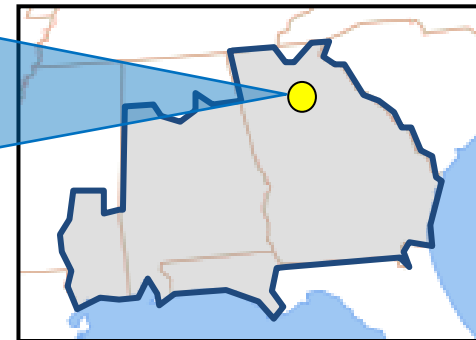


DESCRIPTION:

- Replace both existing 230/115 kV autotransformers at Nelson substation with two new 300 MVA 230/115 kV autotransformers.

SUPPORTING STATEMENT:

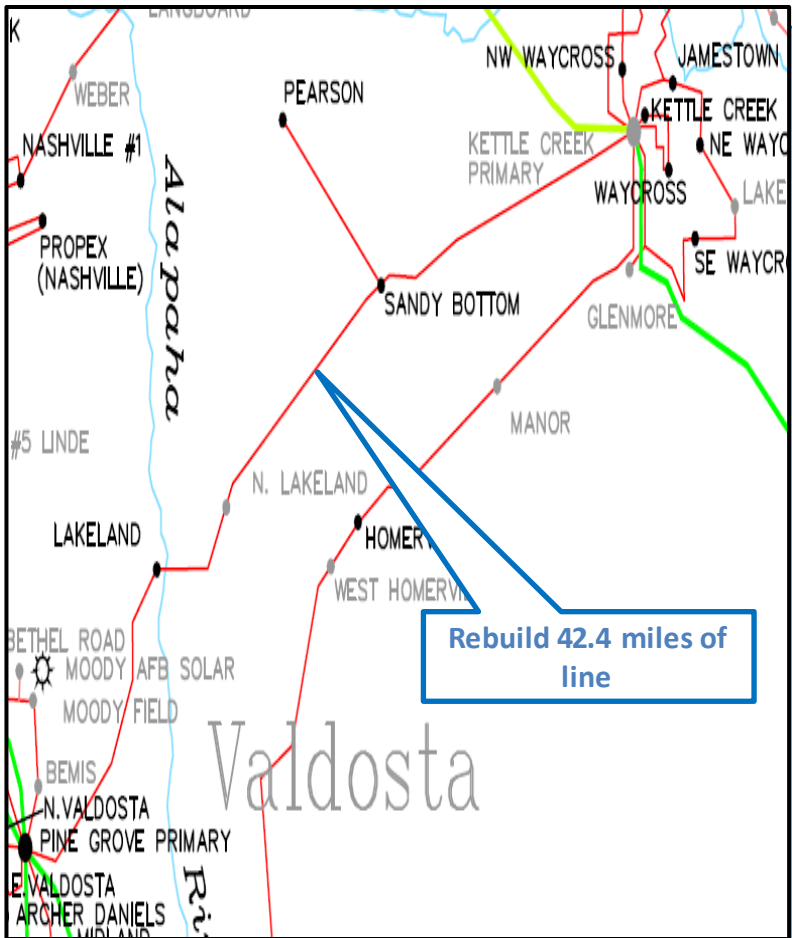
- The existing 230/115 kV autobanks overload under contingency.



SOUTHERN – 8E

• 2030

KETTLE CREEK - PINE GROVE 115 KV TRANSMISSION LINE

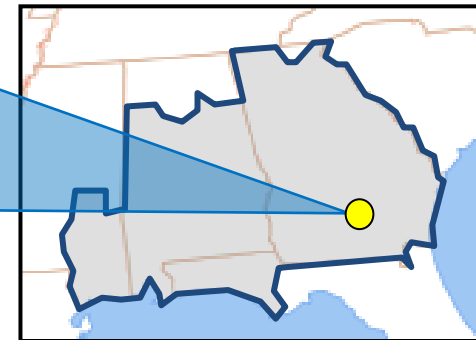


DESCRIPTION:

- Rebuild approximately 42.2 miles of 50°C 4/0 ACSR along the Kettle Creek - Pine Grove 115 kV line, from Kettle Creek Primary to North Lakeland, using 100°C 795 ACSR conductor.

SUPPORTING STATEMENT:

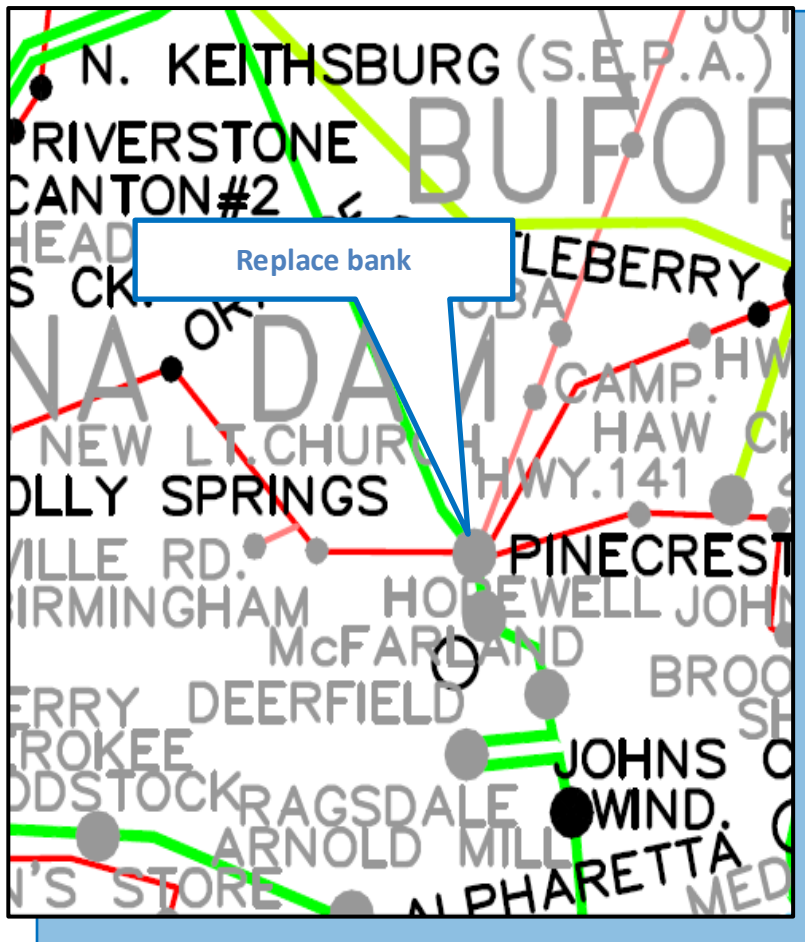
- The Kettle Creek Primary – Pine Grove 115 kV transmission line overloads under contingency.



SOUTHERN – 9E

• 2031

HOPEWELL 230/115 KV SUBSTATION

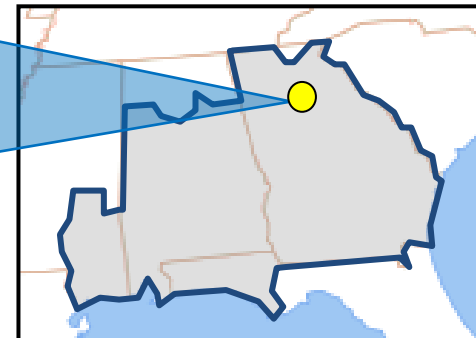


DESCRIPTION:

- Replace the 280 MVA 230/115 kv autobank at Hopewell with a 400MVA bank.

SUPPORTING STATEMENT:

- The Hopewell 230/115kv autobank A overloads under contingency.



SOUTHERN (WEST) Balancing Authority Area Preliminary Transmission Expansion Plan

SOUTHERN – 1W

• 2022

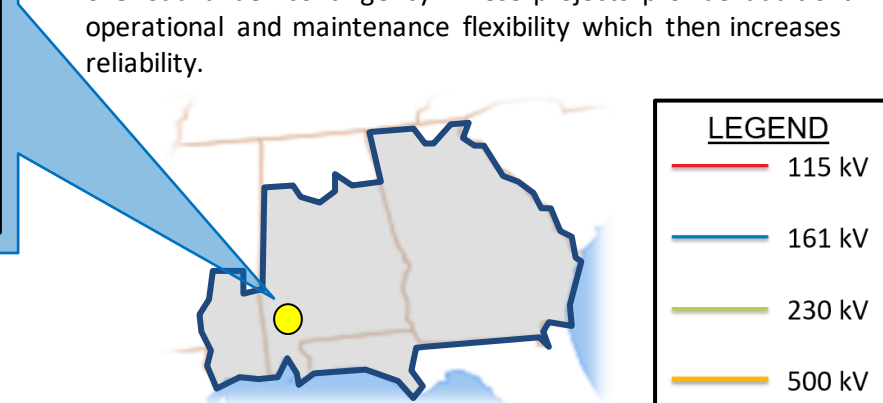
BASSETT CREEK CORRIDOR PROJECTS

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. (Complete)
2. Reconductor approximately 46.0 miles along the Bassett Creek to McIntosh 115 kV transmission line with 1033.5 ACSS at 200°C. (Complete)
3. Construct approximately 61.0 miles of 1351 ACSS 230 kV transmission line at 200°C from Bassett Creek to Tensaw then Calvert to Ellicott.

SUPPORTING STATEMENT:

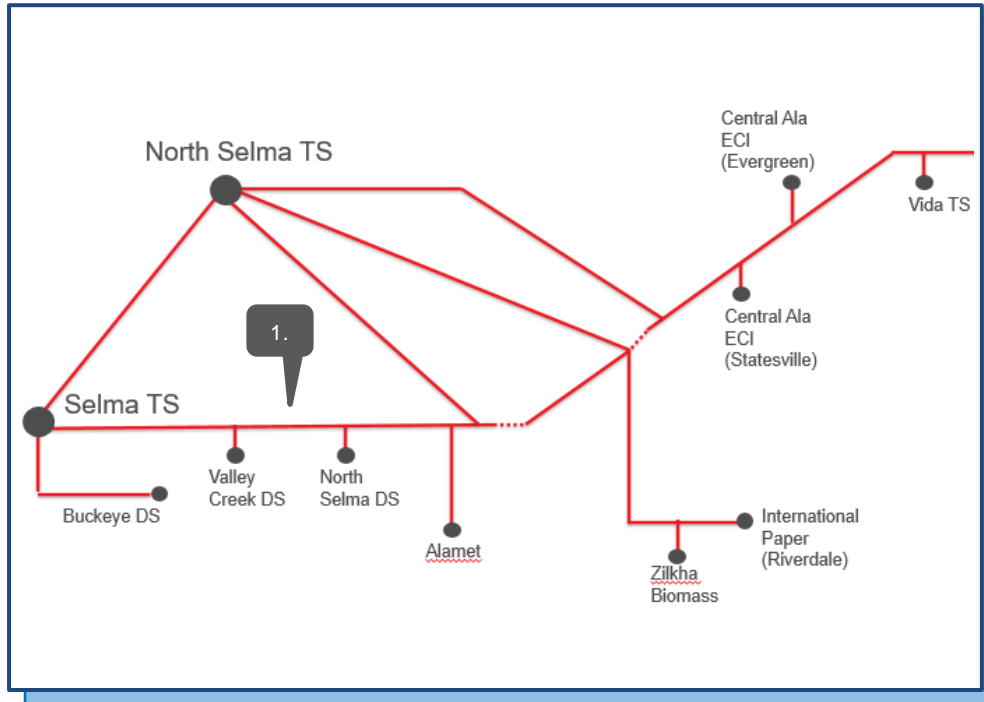
- There are multiple transmission lines in the local area that overload under contingency. These projects provide additional operational and maintenance flexibility which then increases reliability.



SOUTHERN – 2W

• 2023

NORTH SELMA – SELMA #2 115 KV TRANSMISSION LINE

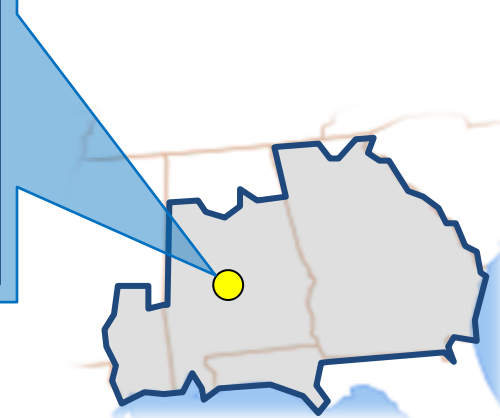


PROJECT DESCRIPTION:

1. Rebuild ~27 miles of 397 ACSR at 100 °C of Selma TS – Vida TS 115 kV TL to 795 ACSS at 200° C

SUPPORTING STATEMENT:

- The Selma TS – Vida TS 115 kV transmission line overloads under contingency.

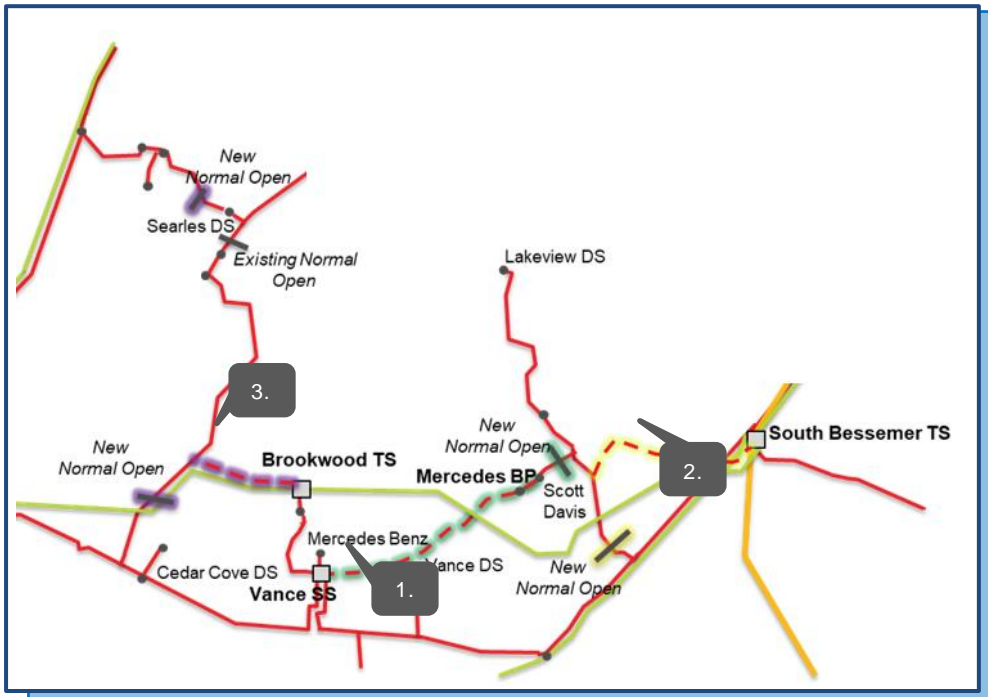


LEGEND	
	115 kV
	161 kV
	230 kV
	500 kV

SOUTHERN – 3W

• 2023

HWY 11 BROOKWOOD AREA SOLUTION

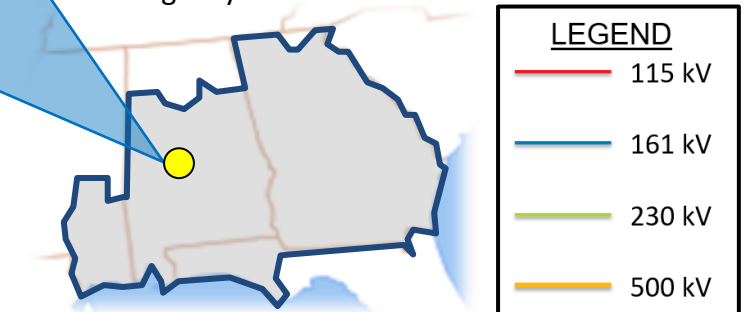


PROJECT DESCRIPTION:

1. Construct approximately 6.0 miles of 795 ACSR from Vance SS to Scott Davis DS 115 kV transmission line.
2. Construct a new approximately 6.5-mile 115 kV TL South Bessemer to Scott Davis Tap with 795 26/7 ACSR at 100°C.
3. Construct a new approximately 4 mile 115 kV TL from Brookwood TS to Warrior Met Area with 795 26/7 ACSR at 100°C.

SUPPORTING STATEMENT:

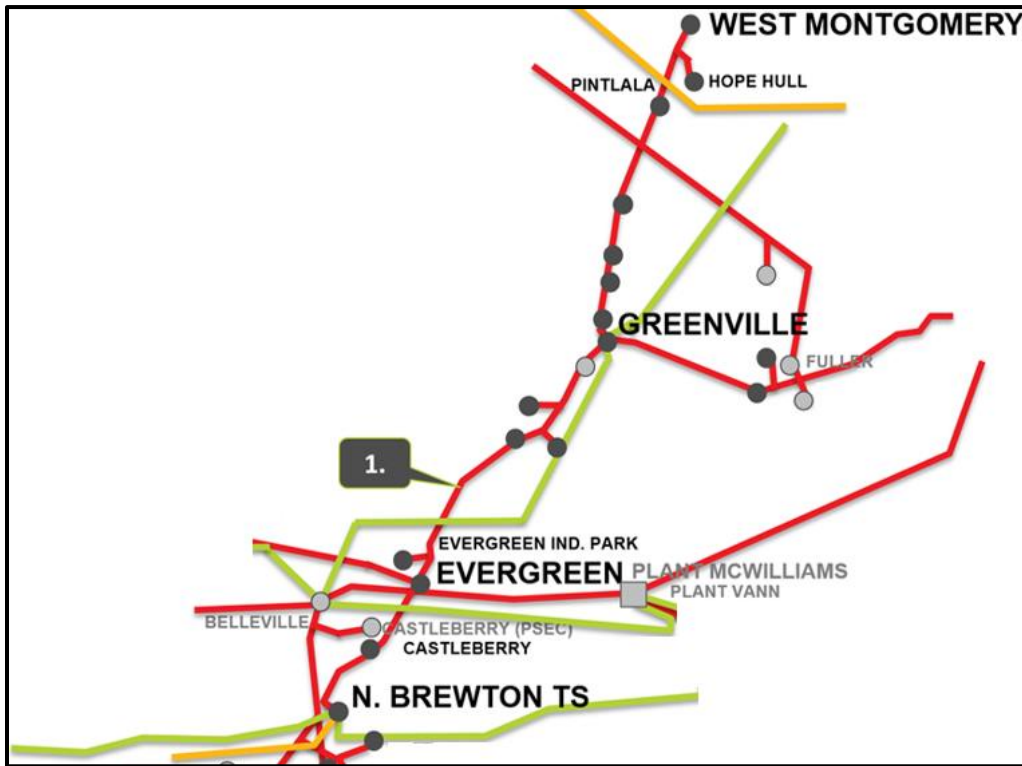
- The Vance SS – South Bessemer TS 115 kV transmission line overloads under contingency. This project also addresses voltage constraints under contingency.



SOUTHERN – 4W

• 2023

CENTRAL CORRIDOR SOLUTION 115 KV PROJECT

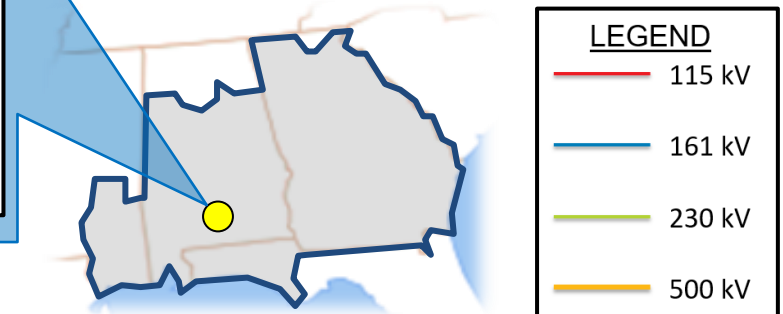


PROJECT DESCRIPTION:

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:

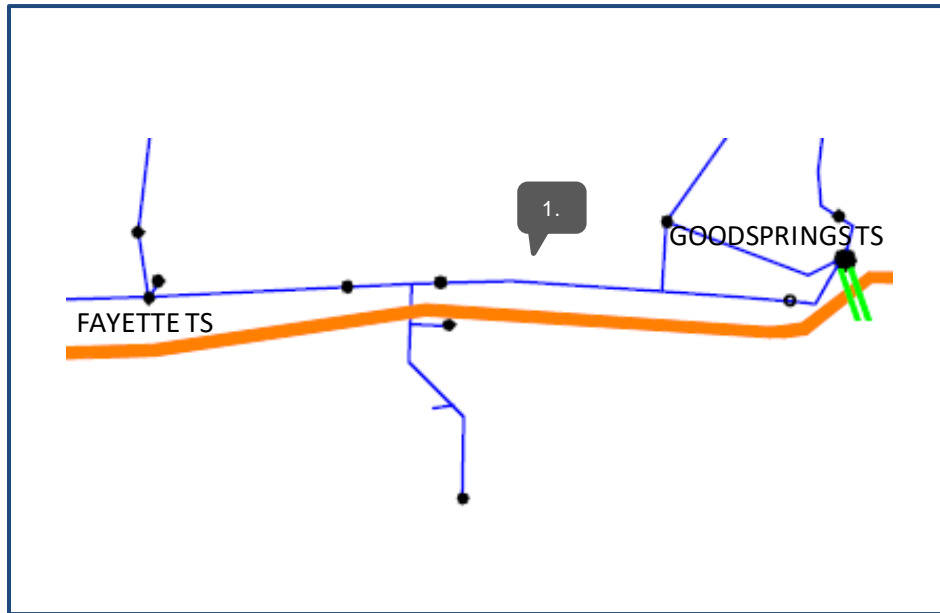
- Multiple sections of the central corridor overload under contingency. This project also provides additional operational and maintenance flexibility which then increases reliability.



SOUTHERN – 5W

• 2023

FAYETTE – GOODSPRINGS TS 161 KV TRANSMISSION LINE

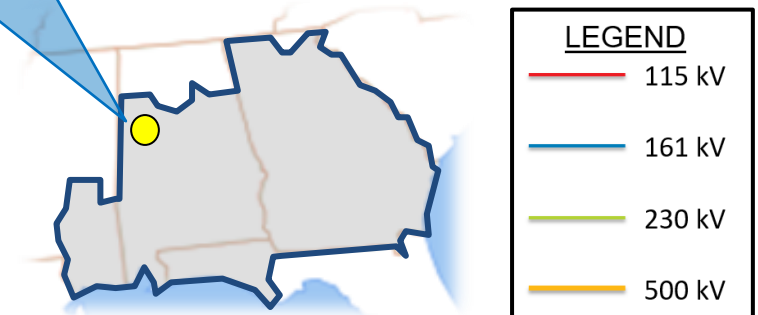


PROJECT DESCRIPTION:

1. Rebuild approximately 37.0 miles of 397 ACSR from Fayette to Goodsprings TS 161 kv transmission line with 795 ACSS at 200°C.

SUPPORTING STATEMENT:

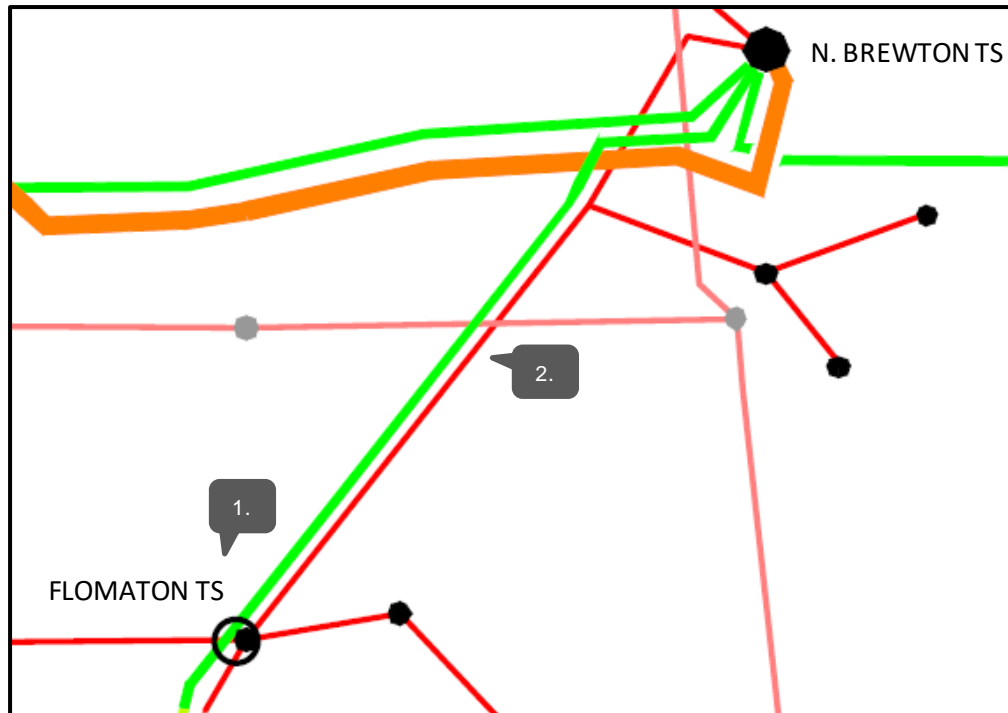
- The Fayette – Goodsprings TS 161 kv transmission line overloads under contingency.



SOUTHERN – 6W

• 2024

FLOMATON 230/115 KV SUBSTATION

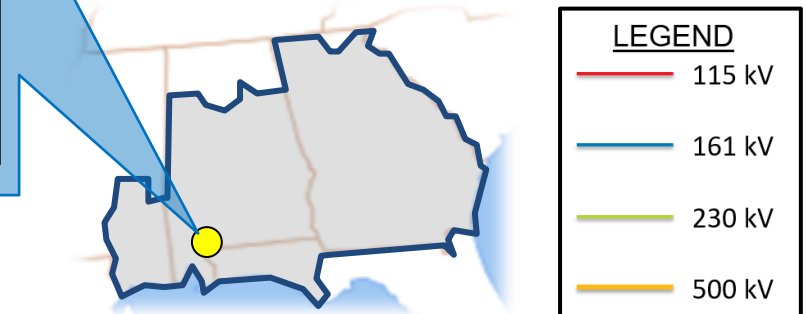


PROJECT DESCRIPTION:

1. Construct 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:

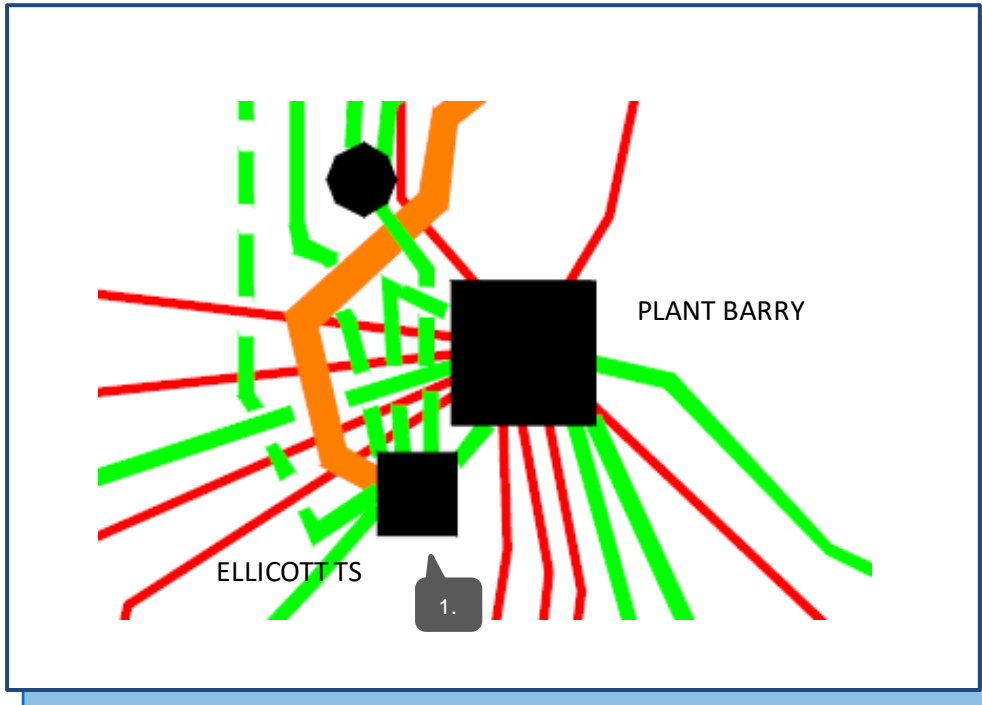
- Provides additional operational and maintenance flexibility which then increases reliability. This project also provides voltage support under contingency scenarios.



SOUTHERN – 7W

• 2024

ELLCOTT SUBSTATION EXPANSION PROJECT

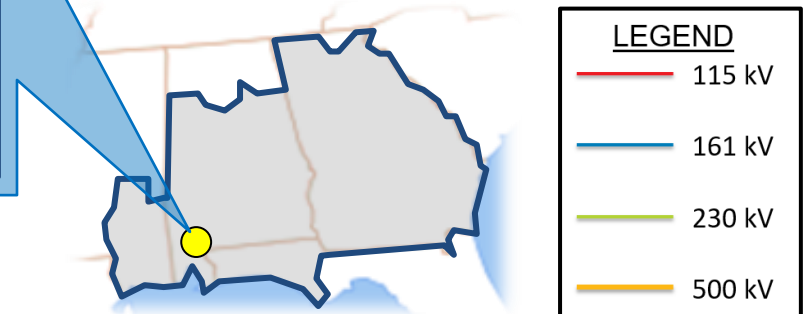


PROJECT DESCRIPTION:

1. Relocate existing 115 kV Lines to a new 115 kV substation

SUPPORTING STATEMENT:

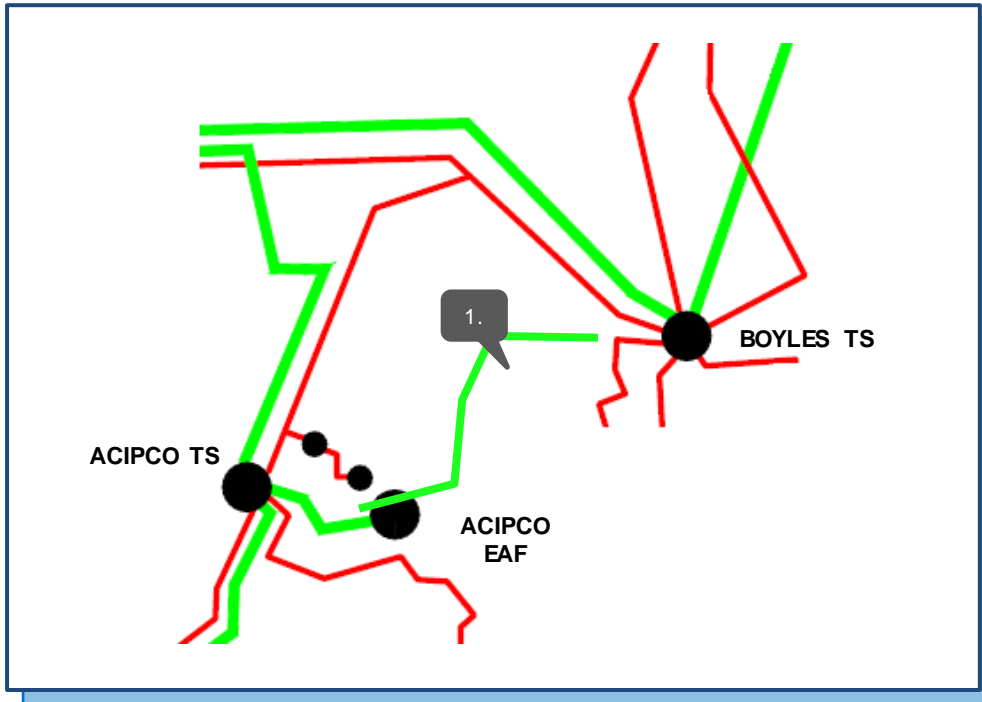
- Upgrade existing and construct new transmission facilities to provide additional operational and maintenance flexibility, which increases reliability.



SOUTHERN – 8W

• 2028

ACIPCO EAF – BOYLES 230 KV NEW TRANSMISSION LINE

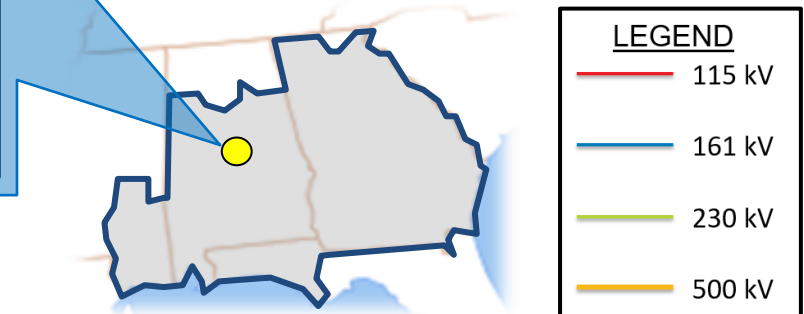


PROJECT DESCRIPTION:

1. Construct ~3 miles of 1351 54/19 ACSR at 100°C from ACIPCO EAF to Boyles TS.
Reconductor ~1.8 miles from ACIPCO TS to ACIPCO EAF from 795 ACSR to 1351 ACSR

SUPPORTING STATEMENT:

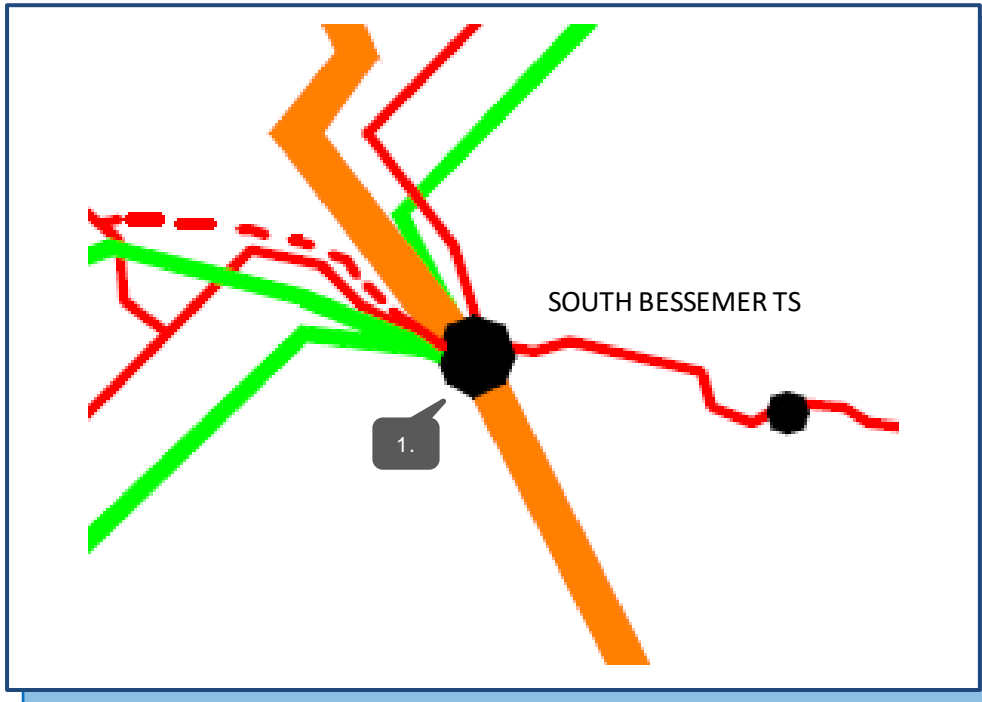
- The Boyles - Miller 230 kV transmission line overloads under contingency. Also Provides additional operational and maintenance flexibility, which increases reliability.



SOUTHERN – 9W

• 2030

2ND SOUTH BESSEMER 500/230 AUTOBANK

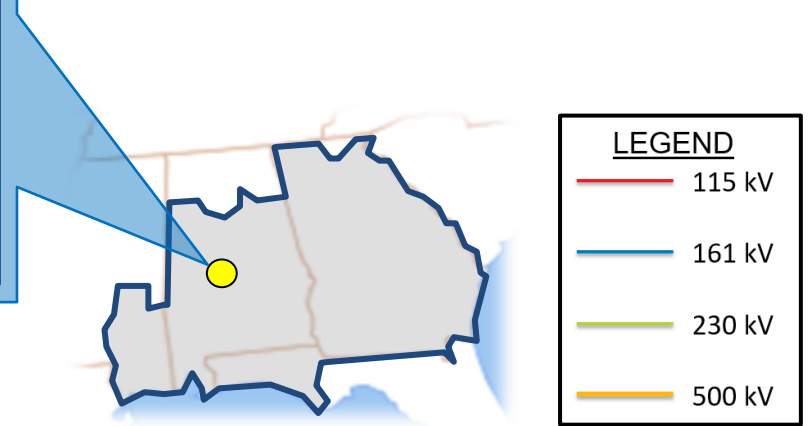


PROJECT DESCRIPTION:

1. Design and Construct to add a second 500/230 kV autobank at South Bessemer TS.

SUPPORTING STATEMENT:

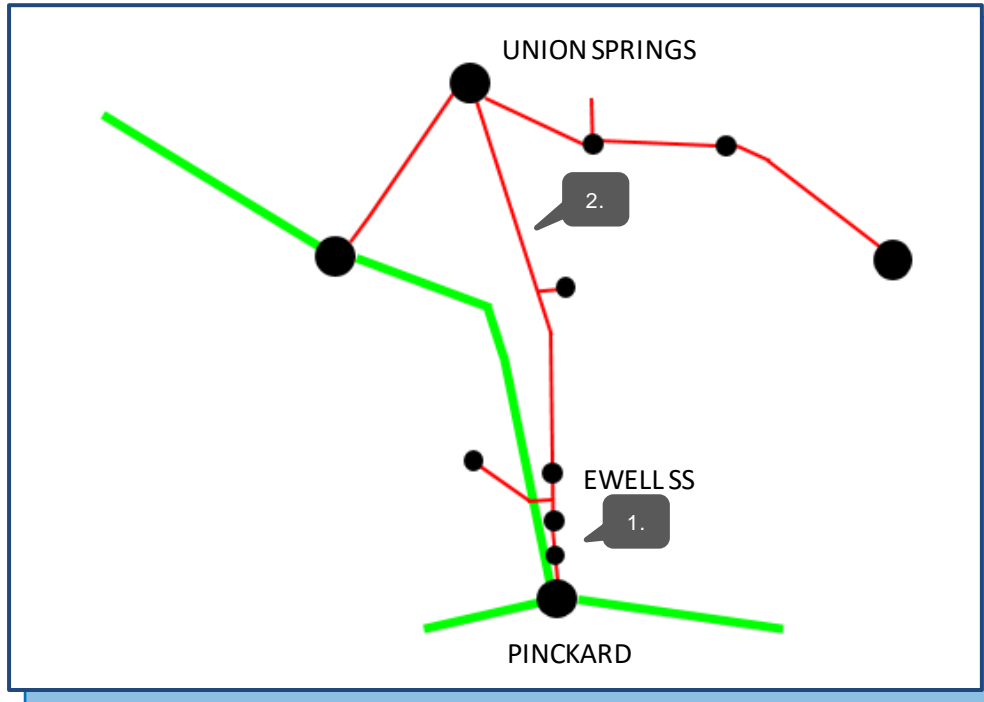
- Low voltage in the area under contingency. This project provides voltage support under contingency scenarios.



SOUTHERN – 10W

• 2030

UNION SPRINGS - PINCKARD 115 KV TRANSMISSION LINE

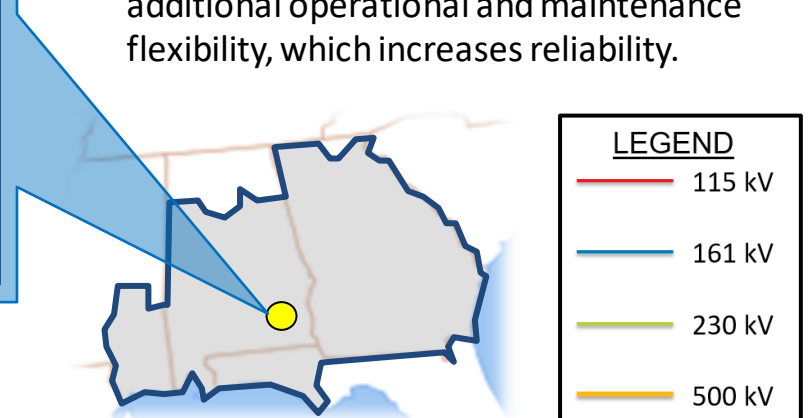


PROJECT DESCRIPTION:

1. Rebuild ~8.1 miles of 397 ACSR of the Pinckard – Ewell SS 115 kV TL from 397 ACSR at 49°C to 795 ACSR at 100°C
2. Reconductor ~50 miles of 397 ACSR at 50°C Union Springs – Ewell 115 kV TL to 795 ACSR at 100°C

SUPPORTING STATEMENT:

- The Union Springs - Pinckard 115 kV TL overloads under contingency. Provides additional operational and maintenance flexibility, which increases reliability.

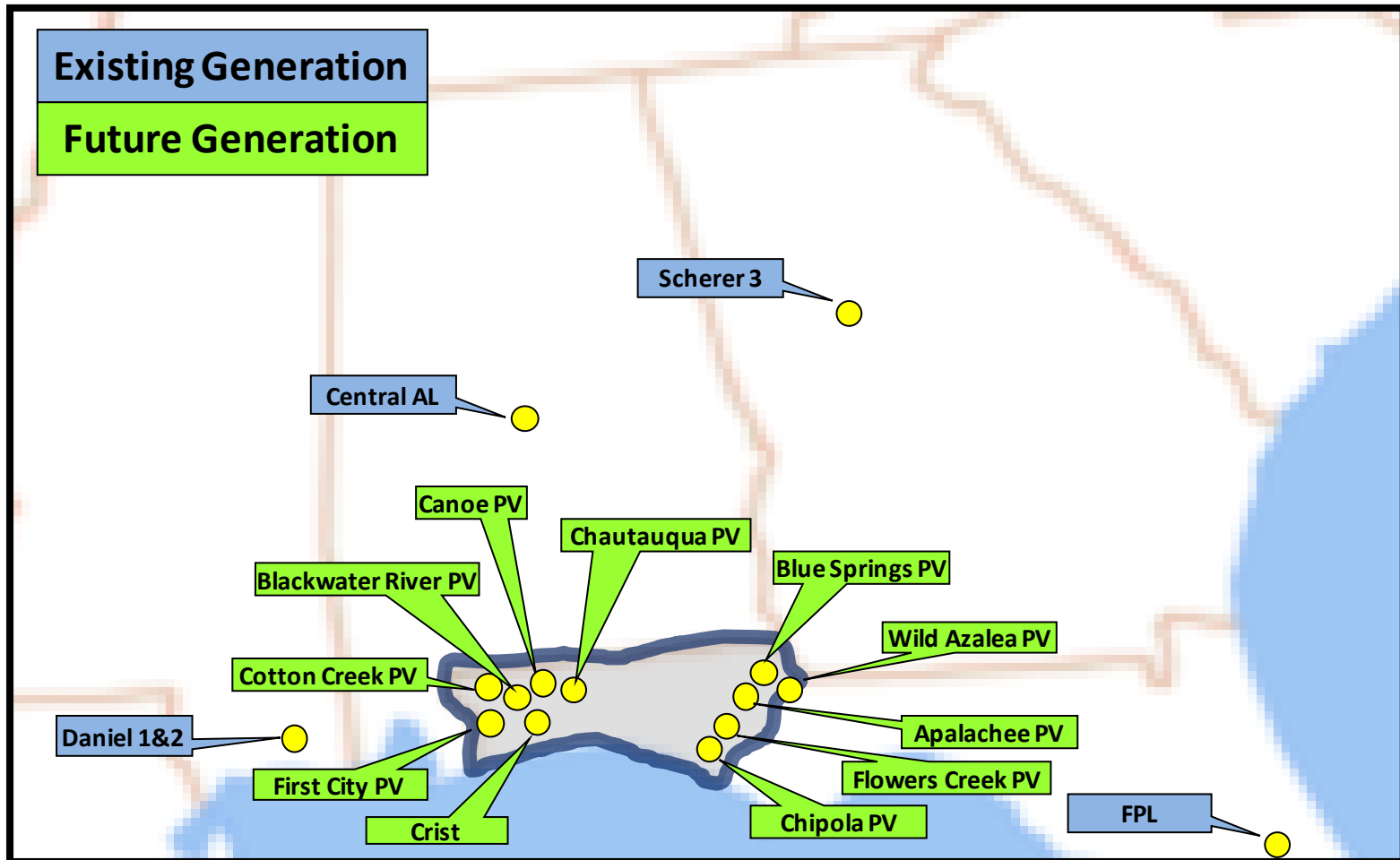


GULF POWER Balancing Authority Area Generation Assumptions

GULF POWER – Generation Assumptions

2022

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process.



GULF POWER – Generation Assumptions

The following table depicts future generation assumptions that change throughout the ten year planning horizon for the 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	FUEL TYPE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
CRIST	Gas	1862	1862	1862	1862	1862	1862	1862	1862	1862	1862
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
FLOWERS CREEK PV	Solar	--	75	75	75	75	75	75	75	75	75
WILD AZALEA PV	Solar	--	75	75	75	75	75	75	75	75	75
APALACHEE PV	Solar	--	75	75	75	75	75	75	75	75	75
BLACKWATER RIVER PV	Solar	--	75	75	75	75	75	75	75	75	75
CANOE PV	Solar	--	75	75	75	75	75	75	75	75	75
CHAUTAUQUA PV	Solar	--	75	150	150	150	150	150	150	150	150
CHIPOLA PV	Solar	--	75	75	75	75	75	75	75	75	75
FIRST CITY PV	Solar	--	75	75	75	75	75	75	75	75	75

Note: 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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
DANIEL	500	500	0	0	0	0	0	0	0	0
SCHERER	220	220	220	220	220	220	220	220	220	220
CENTRAL ALABAMA	885	--	--	--	--	--	--	--	--	--
FPL ¹	500	500	850	850	-600	-600	-700	-700	-850	-850

¹ Positive sign indicates Gulf receiving from FPL, negative sign indicates Gulf sending to FPL.

Note: Gulf Power is currently in the SBAA but has preliminary plans to leave the SBAA in December 2021

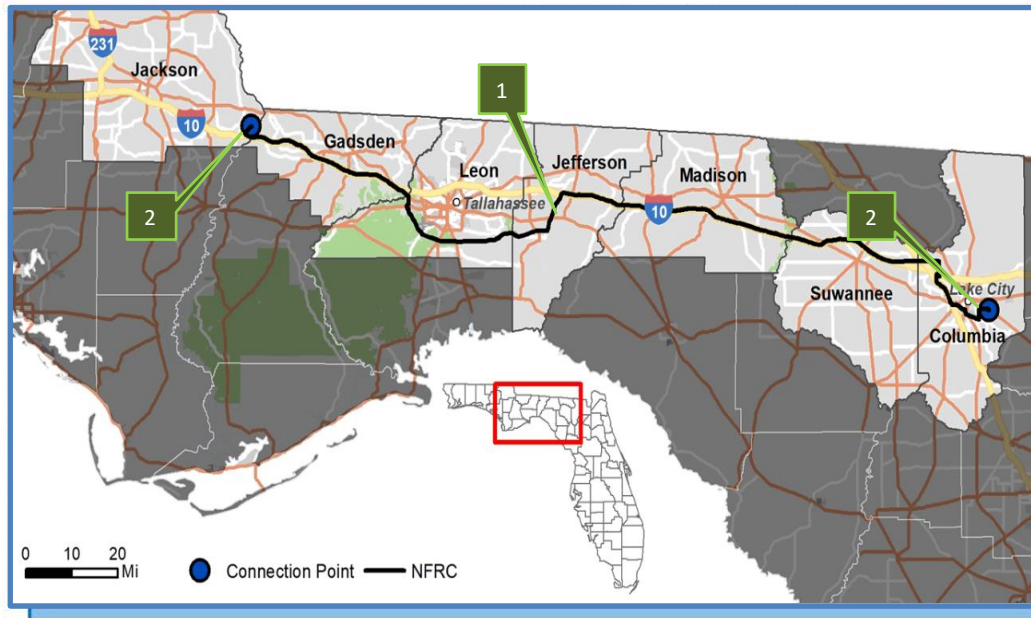
GULF POWER Balancing Authority Area

Preliminary Transmission Expansion Plan

GULF - 1

• 2022

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.

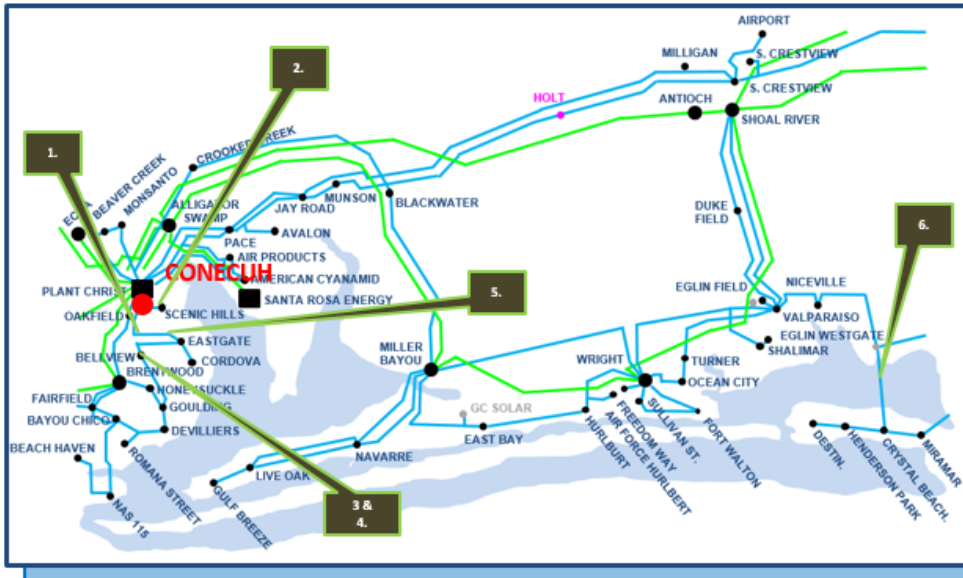
SUPPORTING STATEMENT:

- 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 - 2

• 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:

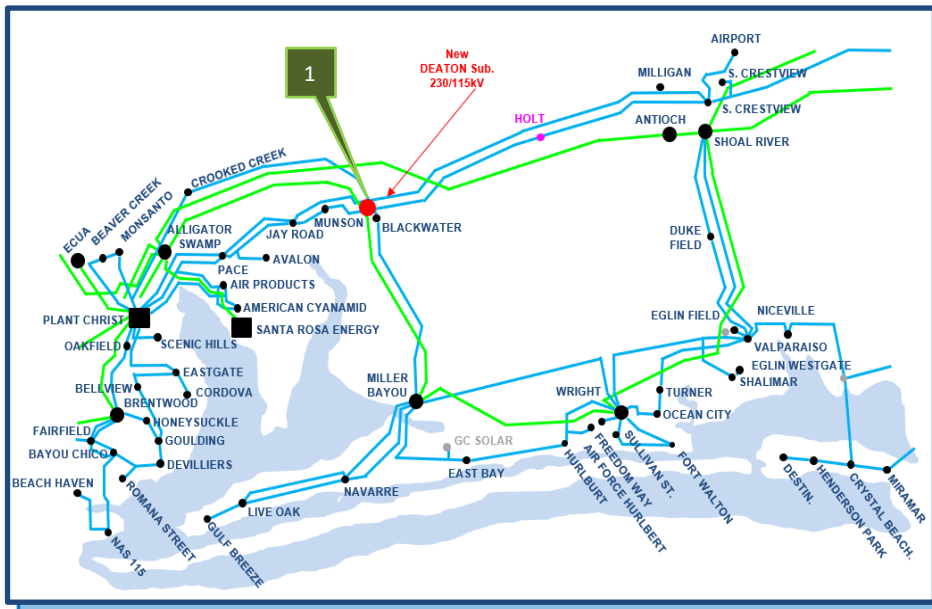
- Revised resource integration in Gulf Power Area.



GULF - 3

• 2022

DEATON INJECTION



PROJECT DESCRIPTION:

1. Build a new 230/115kV substation (Deaton) looping-in the existing Crist-South Crestview #1 & #2-115kV lines, Blackwater-Crooked Creek 115kV line and the Alligator Swamp-Miller Bayou 230kV line. Add a 230/115kV, 500MVA autotransformer.

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.

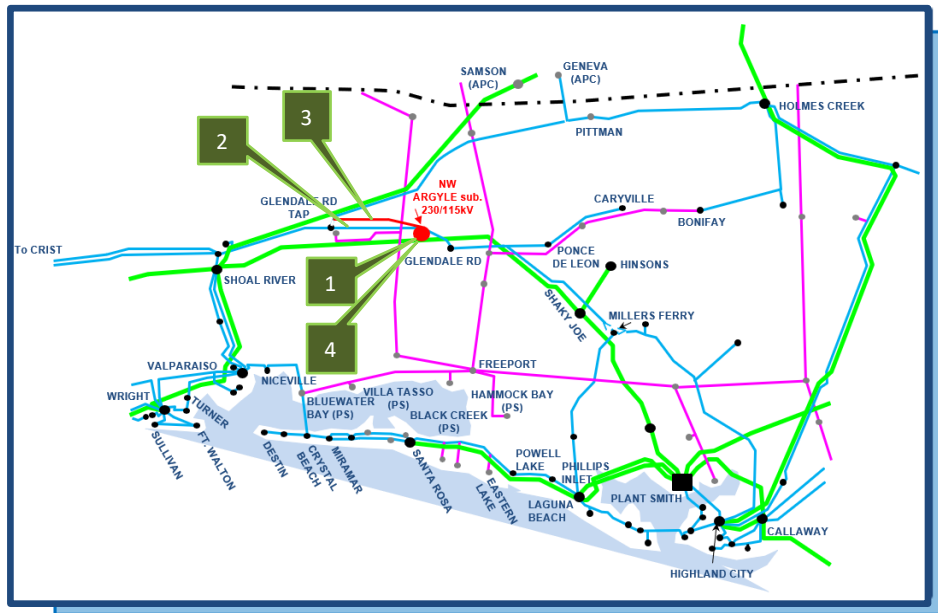
LEGEND

- 115 kV
- 230 kV
- PowerSouth

GULF - 4

• 2022

ARGYLE INJECTION

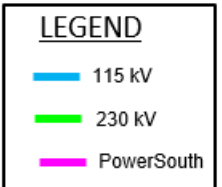
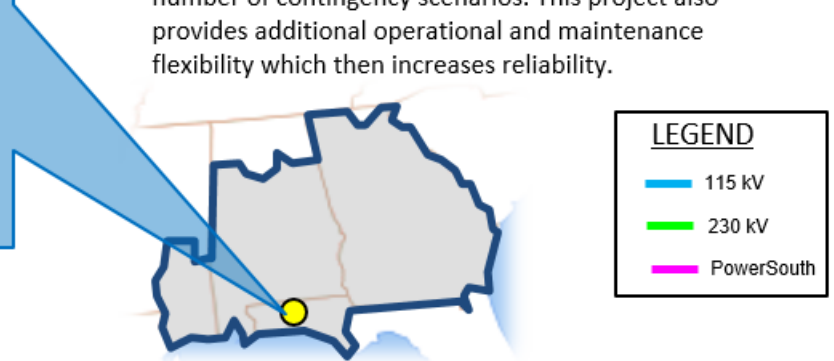


PROJECT DESCRIPTION:

1. Build a new 230/115kV substation (Argyle). Loop-in Shoal River-Smith 230kV line and Glendale Road Tap-Glendale Road 115kV line section.
2. Reconductor Glendale Road Tap-Argyle line section to a minimum of 1044 Amps (208 MVA).
3. Build a new 115kV line of approximately 5 miles rated at 1495 Amps (298 MVA) to Glendale Road Tap to create new Argyle-Holmes Creek 115kV line.
4. Install a 230/115kV, 500 MVA autotransformer at Argyle substation.

SUPPORTING STATEMENT:

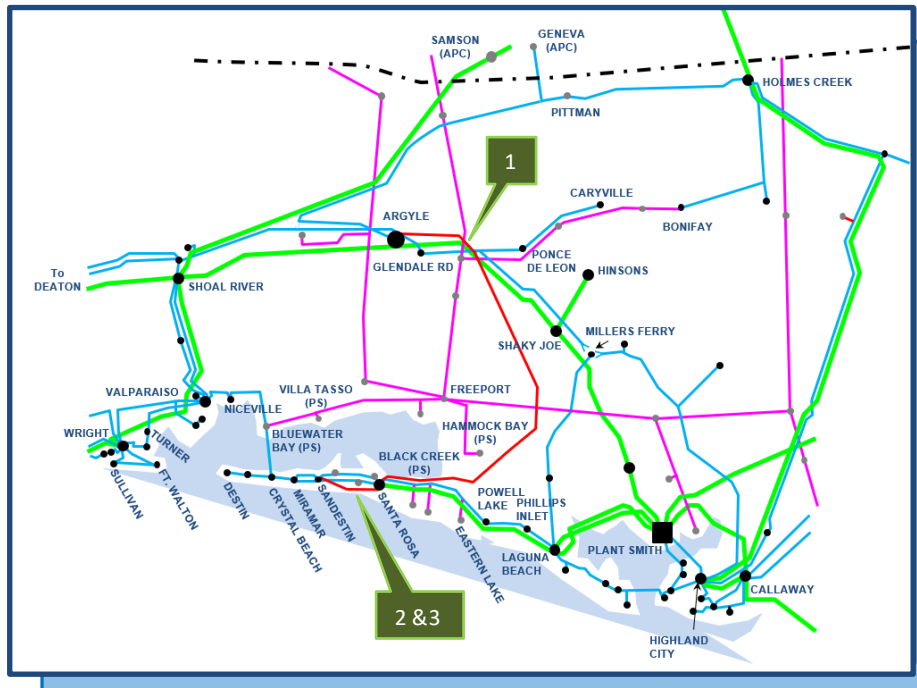
- This project eliminates several overloads under a number of contingency scenarios. This project also provides additional operational and maintenance flexibility which then increases reliability.



GULF - 5

• 2023

ARGYLE – SANTA ROSA 115 KV TRANSMISSION LINE

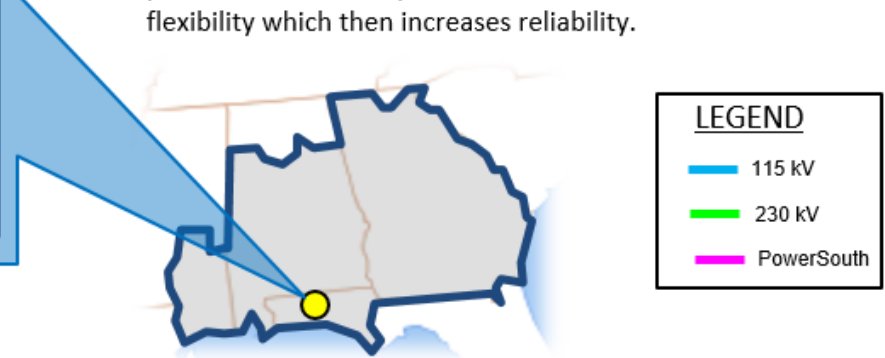


PROJECT DESCRIPTION:

1. Construct a new 115kV line of approximately 35 miles rated at 1495 Amps from new Argyle substation to Santa Rosa substation.
2. Build a new 115kV line of approximately 7.4 miles from Santa Rosa to Sandestin substation.
3. Build a 3-breaker ring bus substation at Sandestin site.

SUPPORTING STATEMENT:

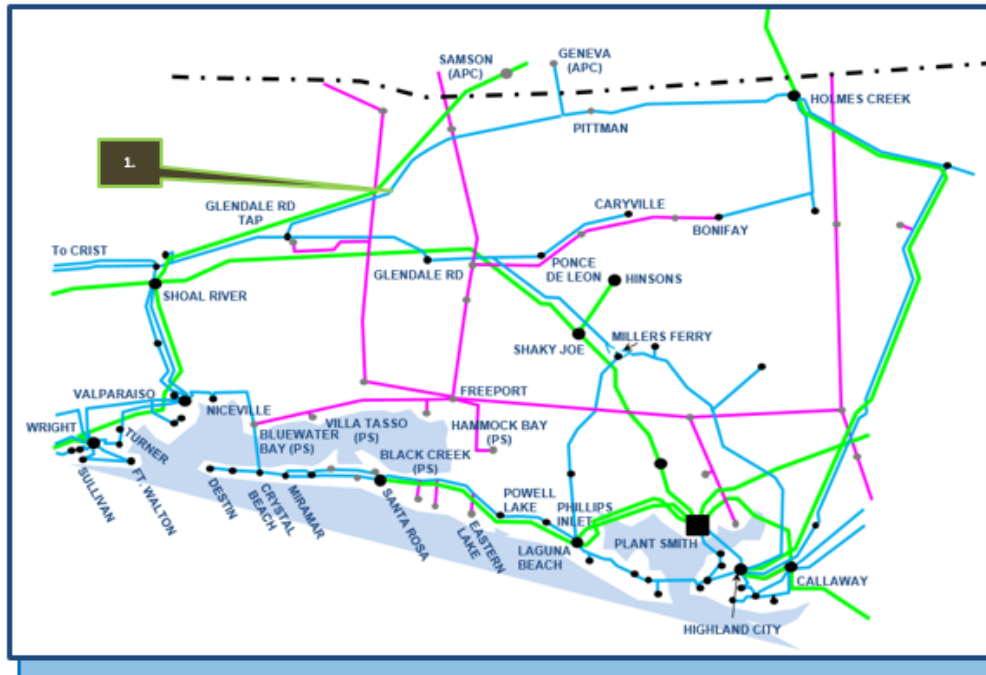
- This project eliminates several overloads under a number of contingency scenarios. This project also provides additional operational and maintenance flexibility which then increases reliability.



GULF - 6

• 2024

HOLMES CREEK – SOUTH CRESTVIEW 115 KV TRANSMISSION LINE

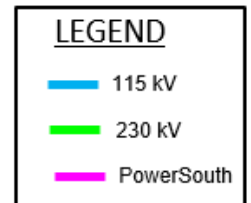


PROJECT DESCRIPTION:

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:

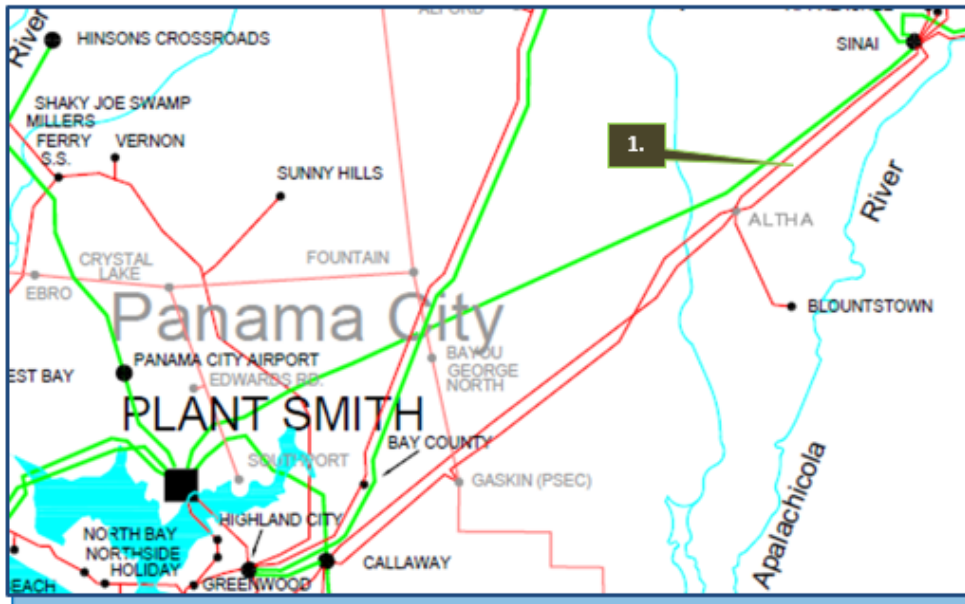
- This project eliminates high loadings under contingency scenarios. This project also provides additional operational and maintenance flexibility which then increases reliability.



GULF - 7

• 2027

SINAI-GASKIN 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.

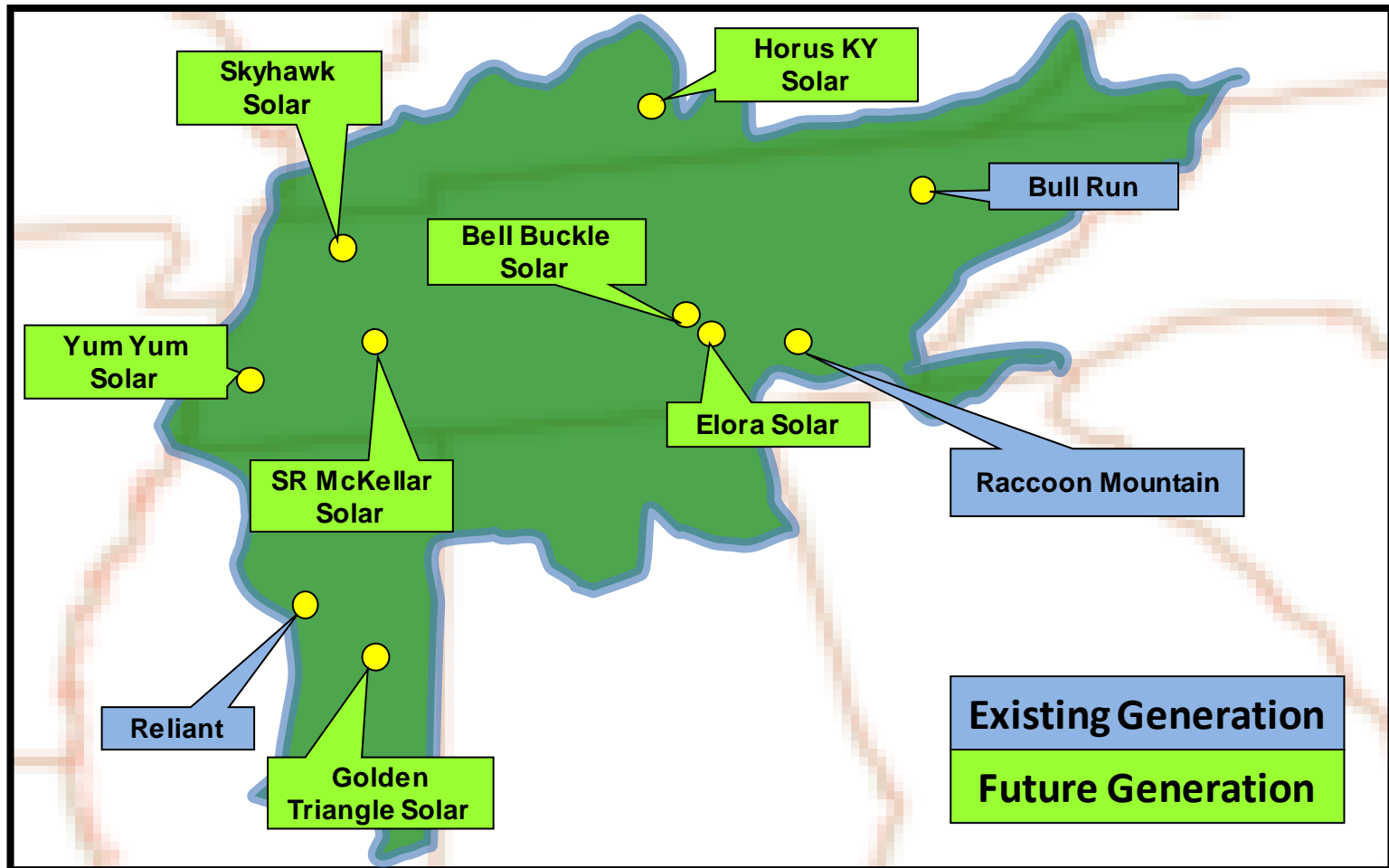


TVA Balancing Authority Area Generation Assumptions

TVA Balancing Authority Area

TVA – Generation Assumptions

The following diagram depicts the location of generation assumptions that change throughout the ten year planning horizon for the 2021 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 2021 SERTP Process. The years shown represent Summer Peak conditions.

SITE	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
RACoon MTN GEN 3	440	440	440	440	440	440	440	440	440	440
BULL RUN FP UNIT 1	870	870	870	0	--	--	--	--	--	--
ELORA SOLAR	150	150	150	150	150	150	150	150	150	150
GOLDEN TRIANGLE SOLAR	--	200	200	200	200	200	200	200	200	200
HORUS KY SOLAR	--	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3	69.3
YUM YUM SOLAR	147	147	147	147	147	147	147	147	147	147
SKYHAWK SOLAR	--	100	100	100	100	100	100	100	100	100
SR MCKELLAR SOLAR	--	80	80	80	80	80	80	80	80	80
BELL BUCKLE SOLAR	--	35	35	35	35	35	35	35	35	35

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	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
RELIANT	800	800	800	800	800	800	800	800	800	800

TVA Balancing Authority Area Preliminary Transmission Expansion Plan

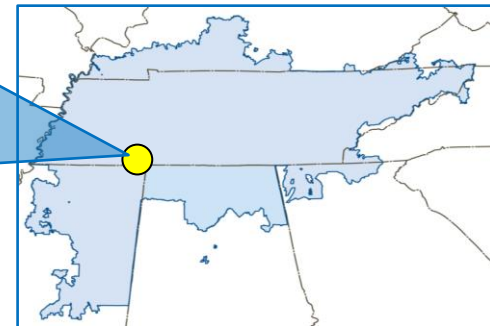
TVA – 1

• 2021

COUNCE 161 KV SUBSTATION



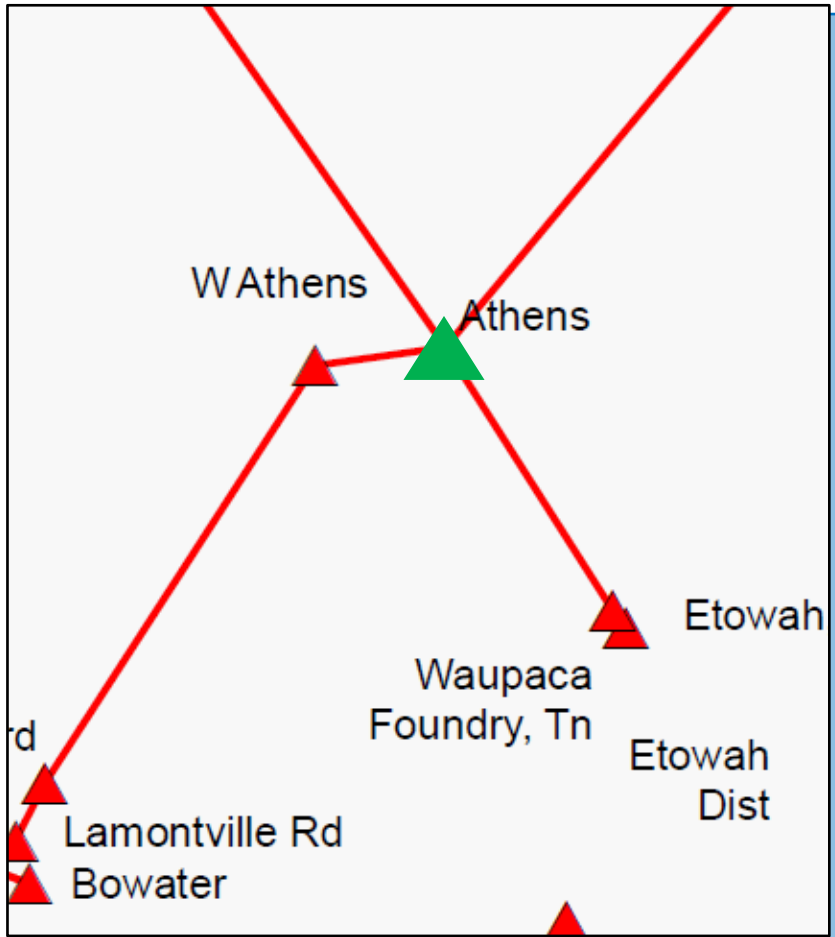
- **DESCRIPTION:**
 - Convert Counce 161 kV switchyard to a double breaker arrangement. Loop the existing Pickwick to Tri State Commerce Park 161 kV transmission line into the Counce 161 kV station.
- **SUPPORTING STATEMENT:**
 - Additional voltage support is needed in the Counce, TN area under contingency.



TVA – 2

• 2021

ATHENS, TN 161KV SUBSTATION

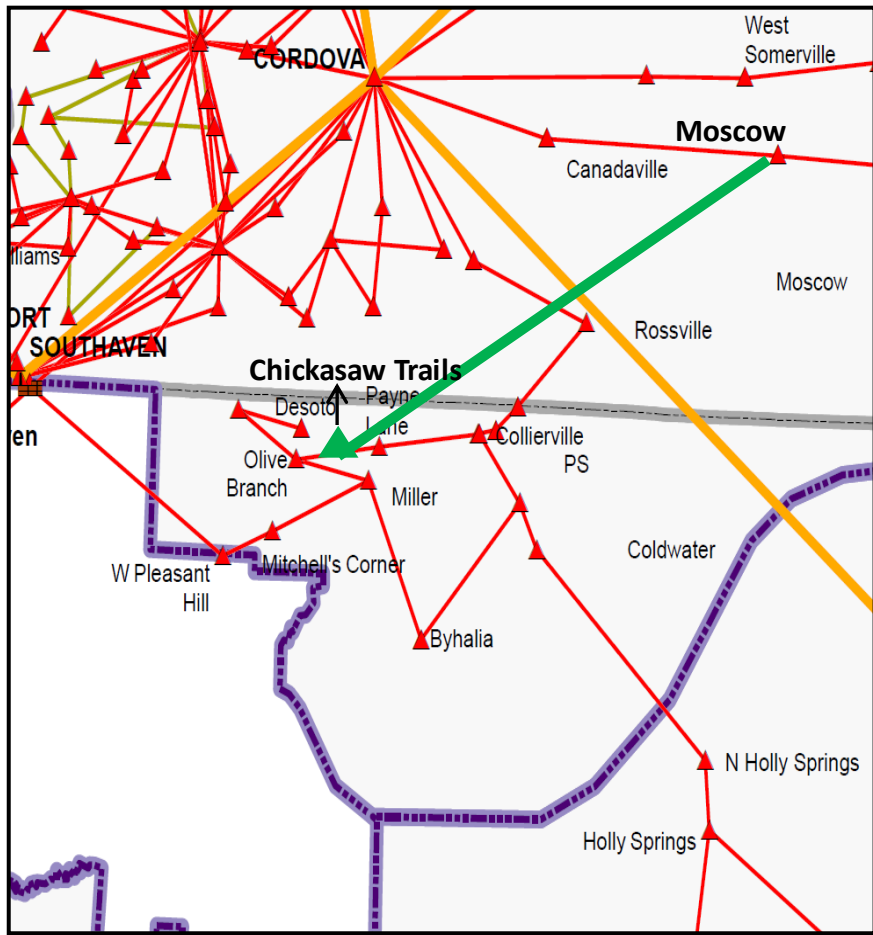


- **DESCRIPTION:**
 - Upgrade bus work and terminal equipment at the Athens, TN 161 kV substation to 836 MVA.
- **SUPPORTING STATEMENT:**
 - The terminal equipment and bus work at Athens TN 161 kV overloads under contingency.

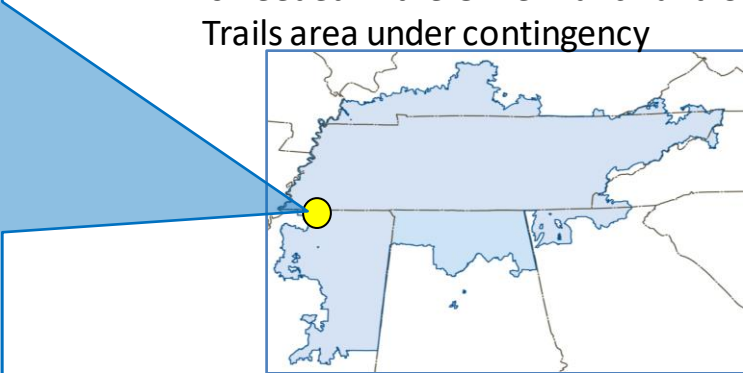
TVA – 3

• 2021

MOSCOW – CHICKASAW TRAILS 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
 - Construct the Chickasaw Trails 161 kV Substation and the Diffie 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

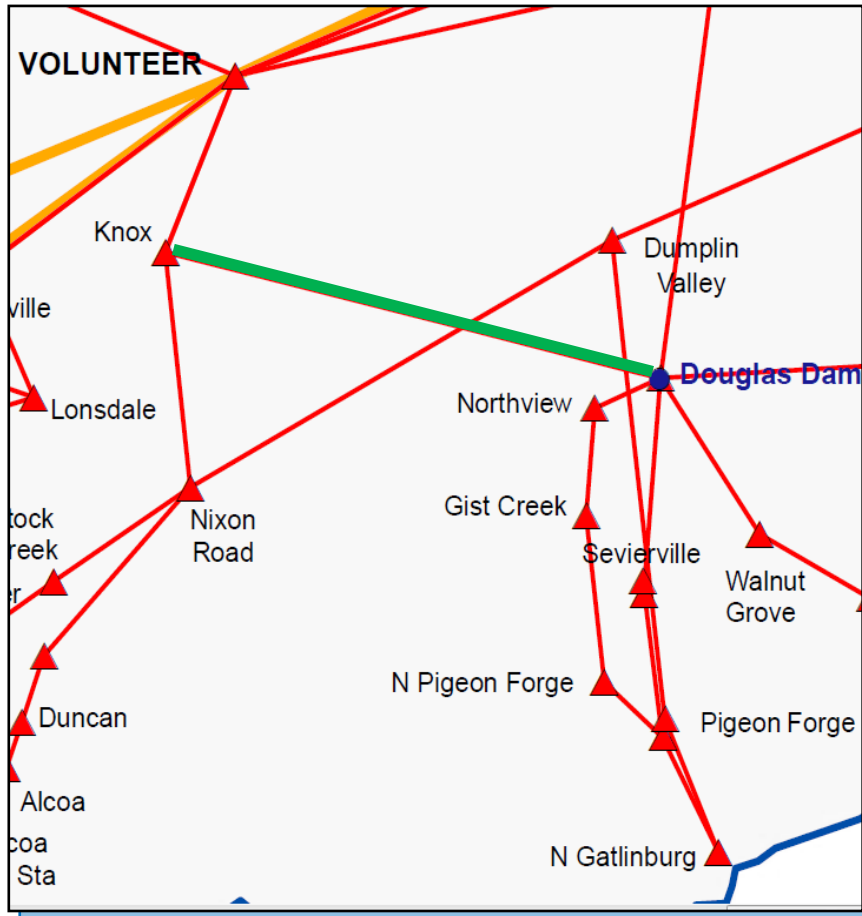


TVA Balancing Authority Area

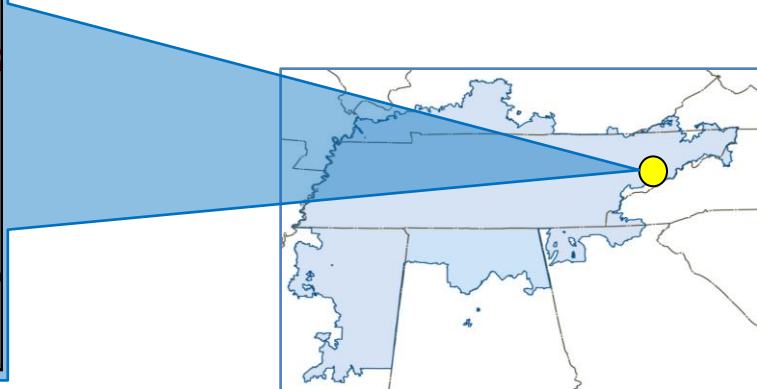
TVA – 4

• 2022

KNOX – DOUGLAS 161 KV TRANSMISSION LINE



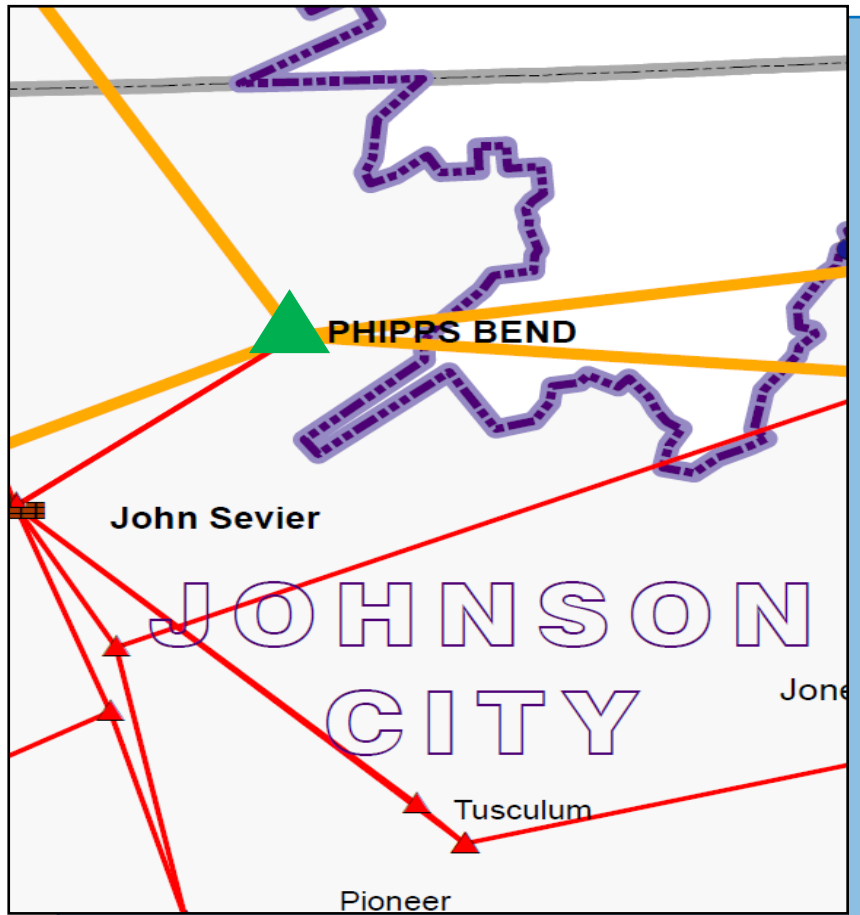
- **DESCRIPTION:**
 - Rebuild approximately 15.0 miles of the Knox to Douglas 161 kV transmission line with 954 ACSS at 125°C.
- **SUPPORTING STATEMENT:**
 - The Knox to Douglas 161 kV transmission line overloads under contingency.



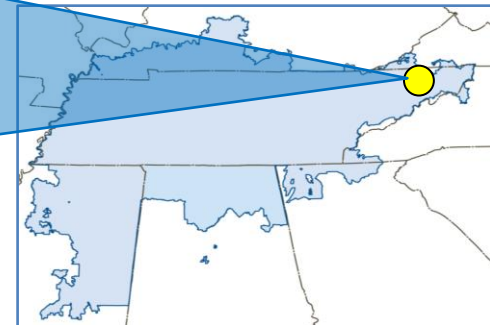
TVA – 5

• 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.

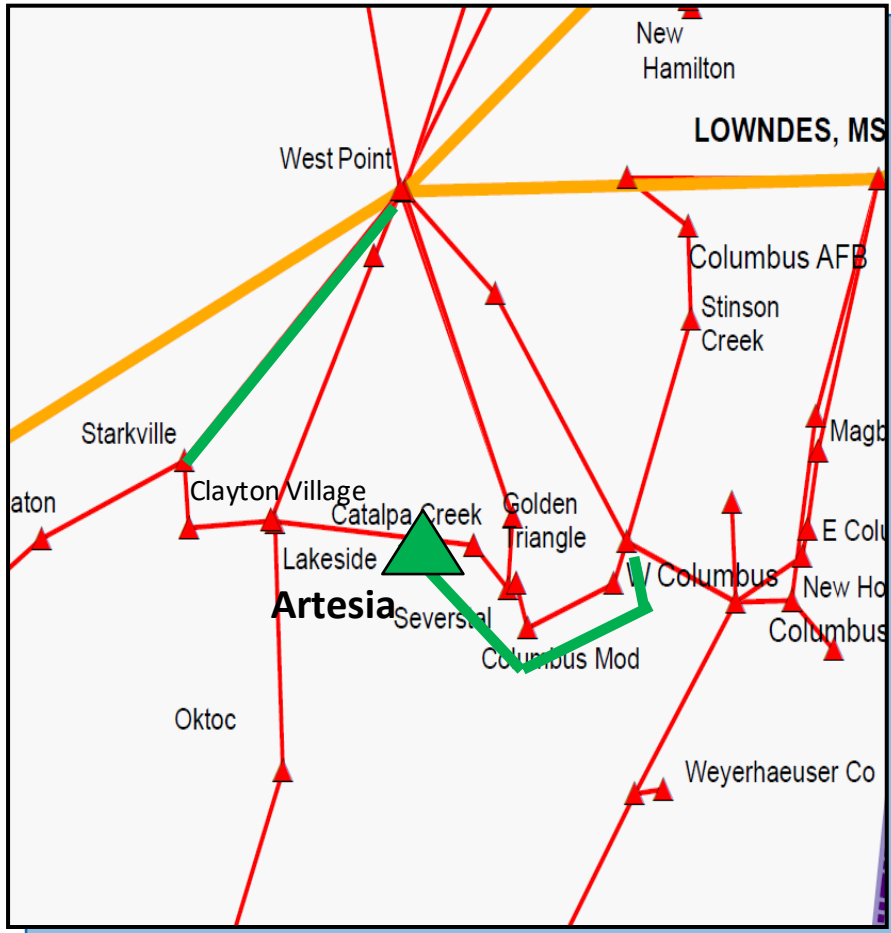


TVA Balancing Authority Area

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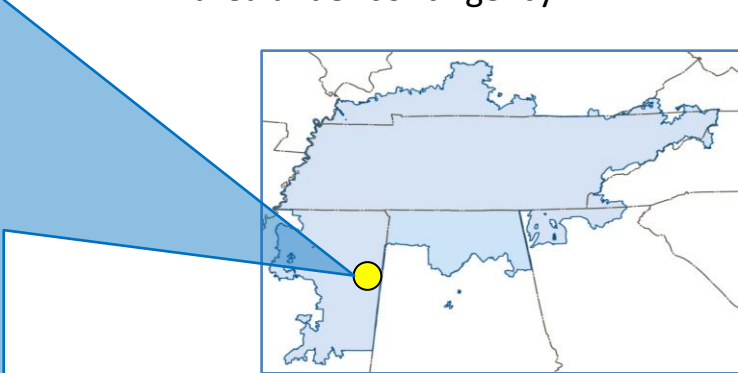
• 2022

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.

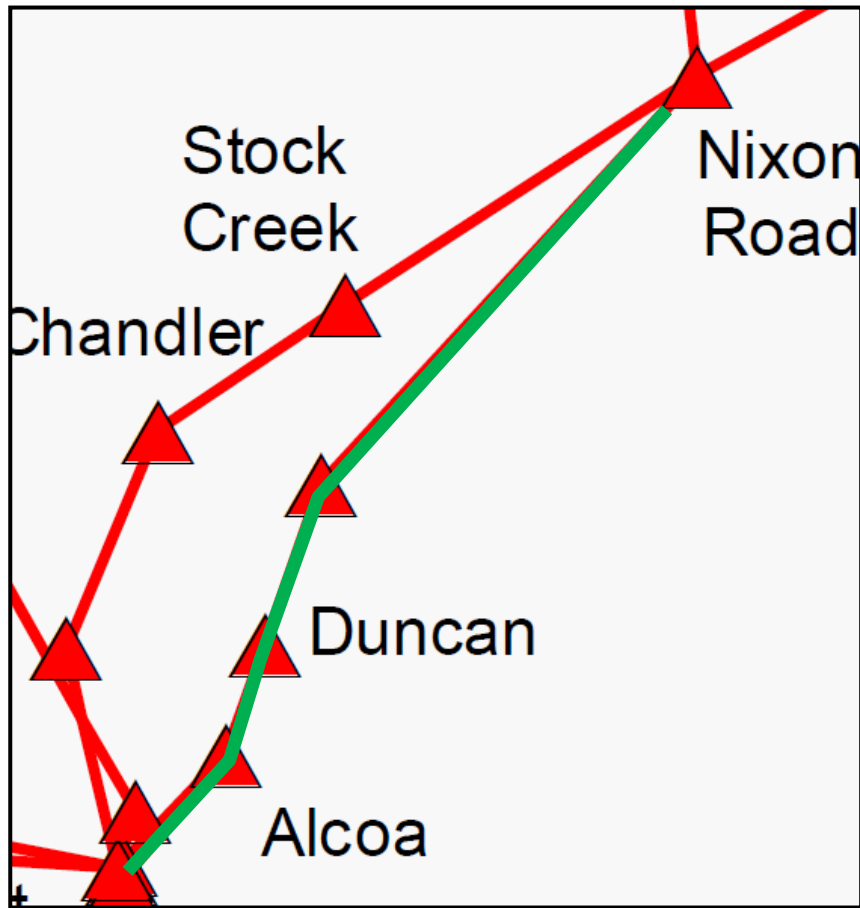
- **SUPPORTING STATEMENT:**
 - Thermal overloads occur and voltage support is needed in the West Point and Columbus area under contingency.



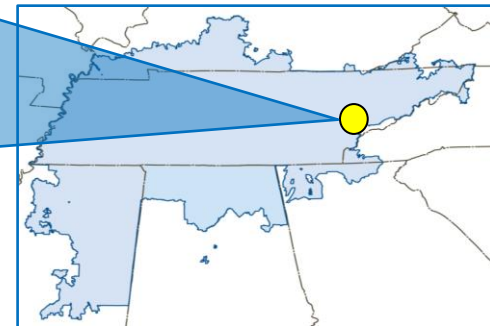
TVA – 7

• 2023

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.

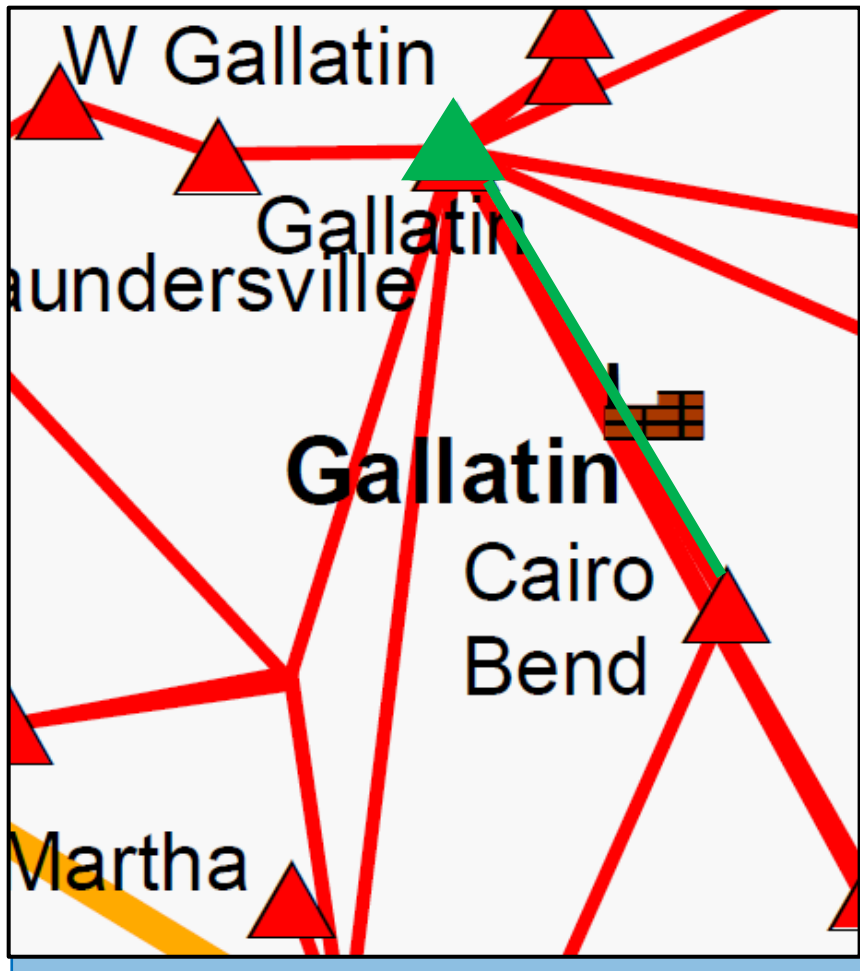


TVA Balancing Authority Area

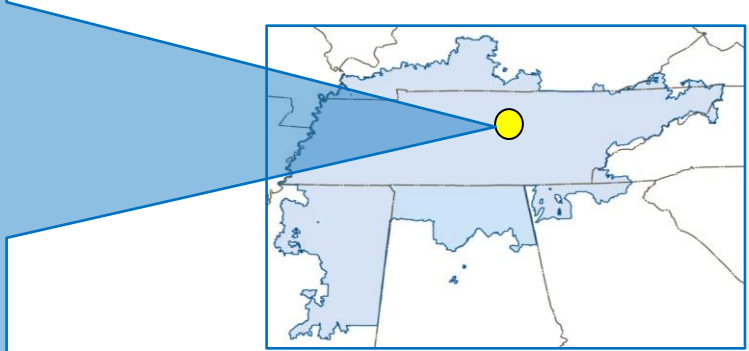
TVA – 8

• 2023

GALLATIN - CAIRO BEND 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
 - Reconductor approximately 2.2 miles of the Gallatin - Cairo Bend 161 kv transmission line section with 954 ACSS at 150°C and upgrade terminal equipment to 440 MVA at Gallatin 161 kv.
- **SUPPORTING STATEMENT:**
 - The Gallatin FP - Cairo Bend 161 kv transmission line section overloads under contingency.

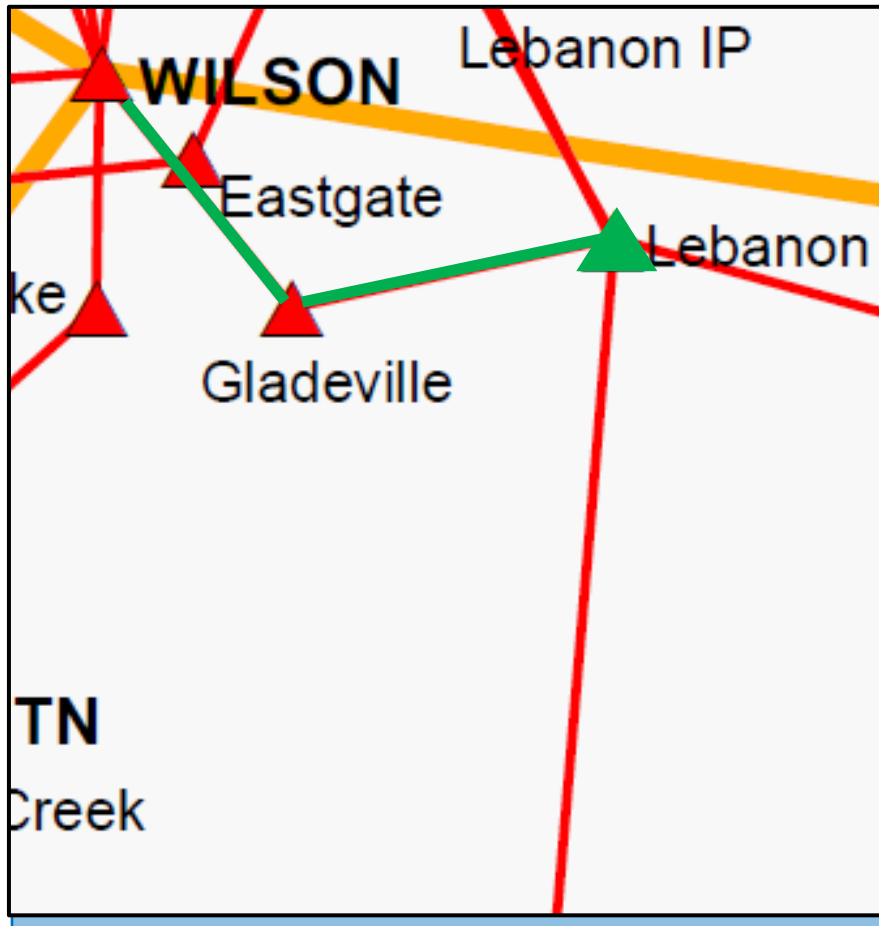


TVA Balancing Authority Area

TVA – 9

• 2023

WILSON - LEBANON 161 KV TRANSMISSION LINE

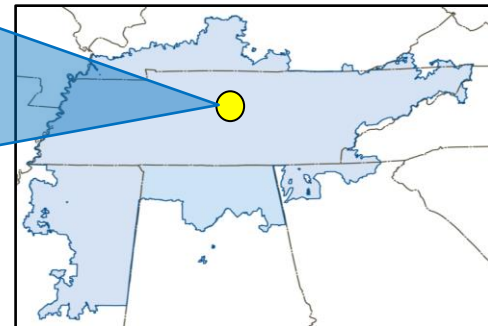


DESCRIPTION:

- Rebuild approximately 6.0 miles on the Wilson - Lebanon 161 kv transmission line with 636 ACSR at 100°C and upgrade terminal equipment to 230 MVA at Lebanon 161 kv substation.

SUPPORTING STATEMENT:

- The Wilson - Lebanon 161 kv transmission line overloads under contingency.

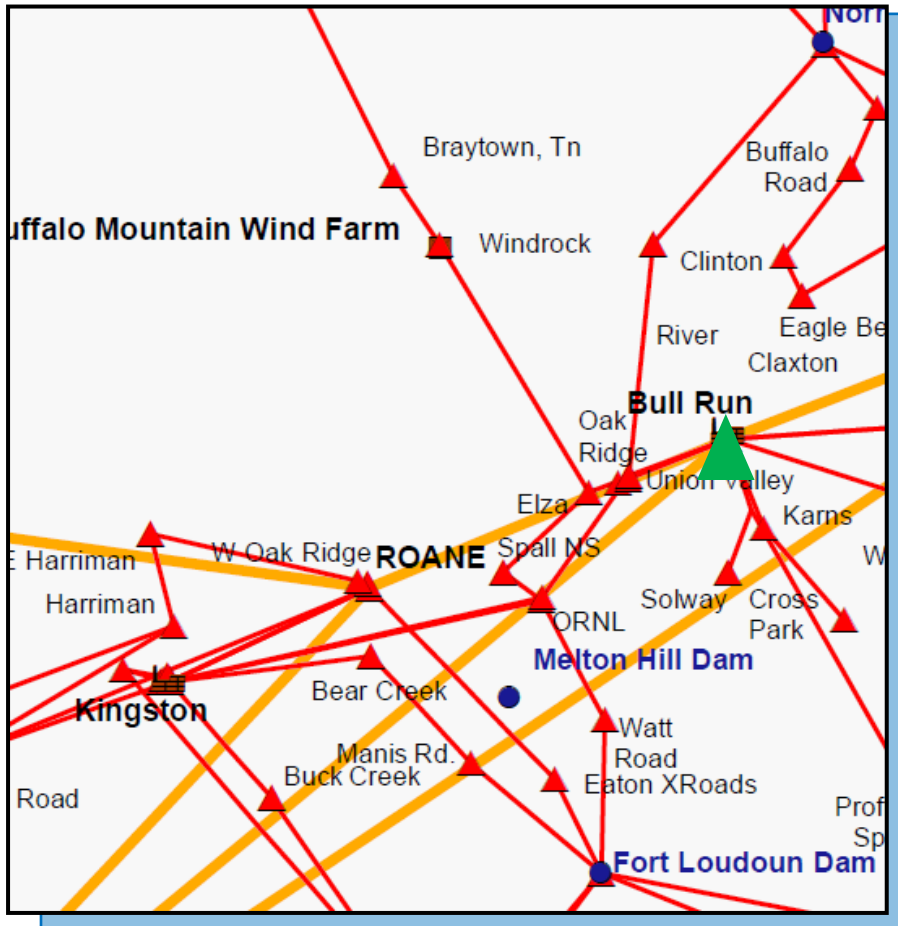


TVA Balancing Authority Area

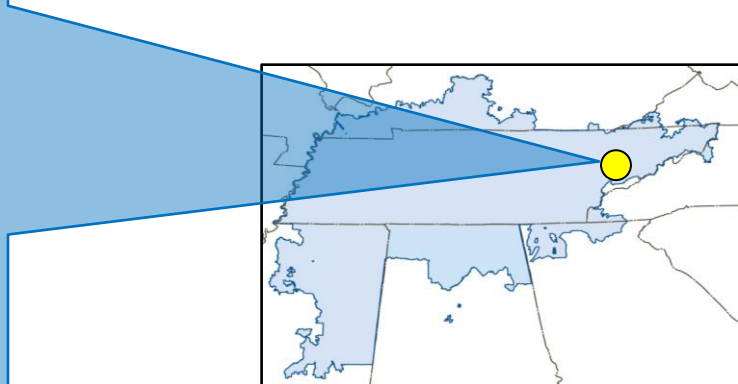
TVA – 10

• 2023

ANDERSON 500 KV SUBSTATION



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



TVA Balancing Authority Area

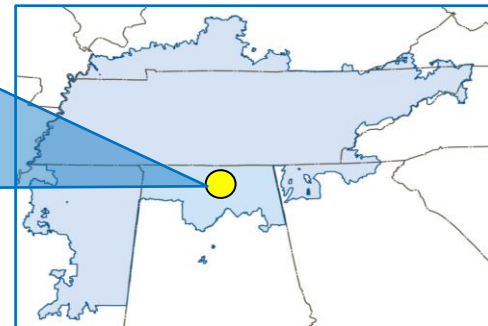
TVA – 11

• 2023

LIMESTONE – SEWELL 161 KV #2 TRANSMISSION LINE



- **DESCRIPTION:**
 - Construct approximately 2.1 miles of 161 kV transmission line with 2034 ACSR at 100°C on the existing Limestone - Sewell 161 kV double circuit towers.
- **SUPPORTING STATEMENT:**
 - Additional thermal capacity and voltage support is needed in the Huntsville, AL area under contingency.

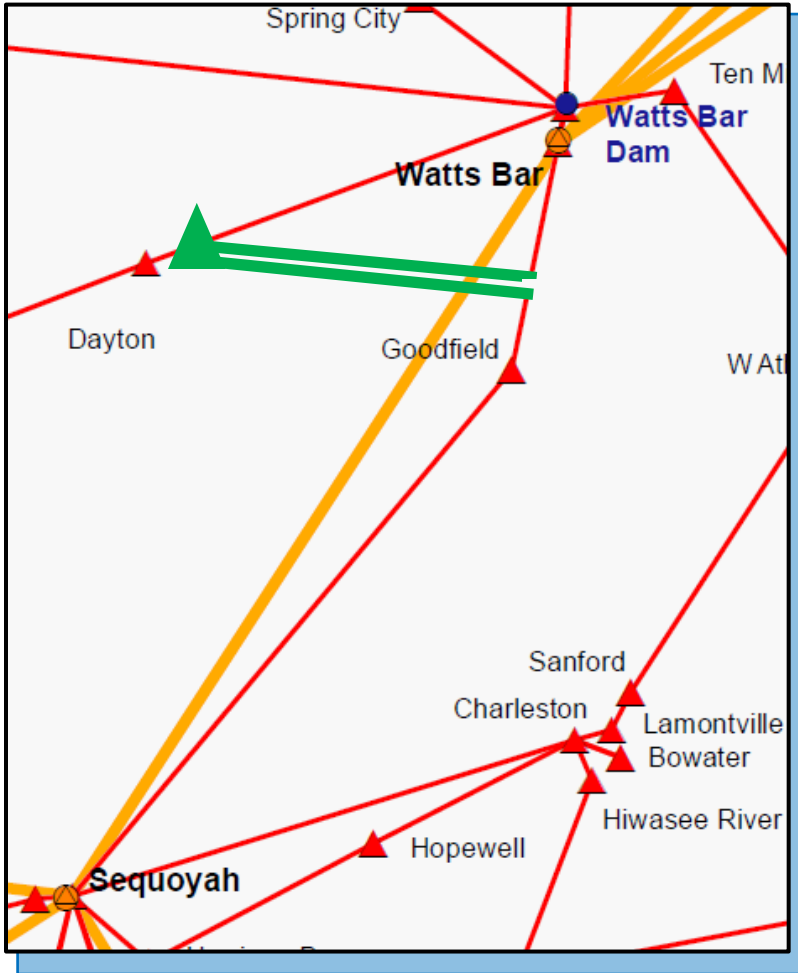


TVA Balancing Authority Area

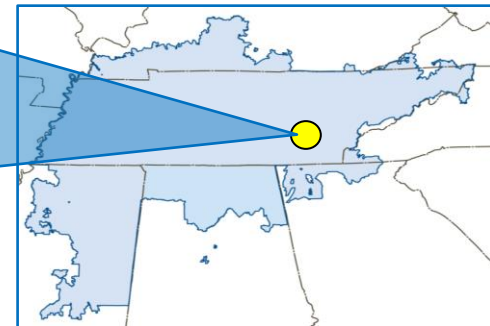
TVA – 12

• 2024

N. DAYTON SUBSTATION



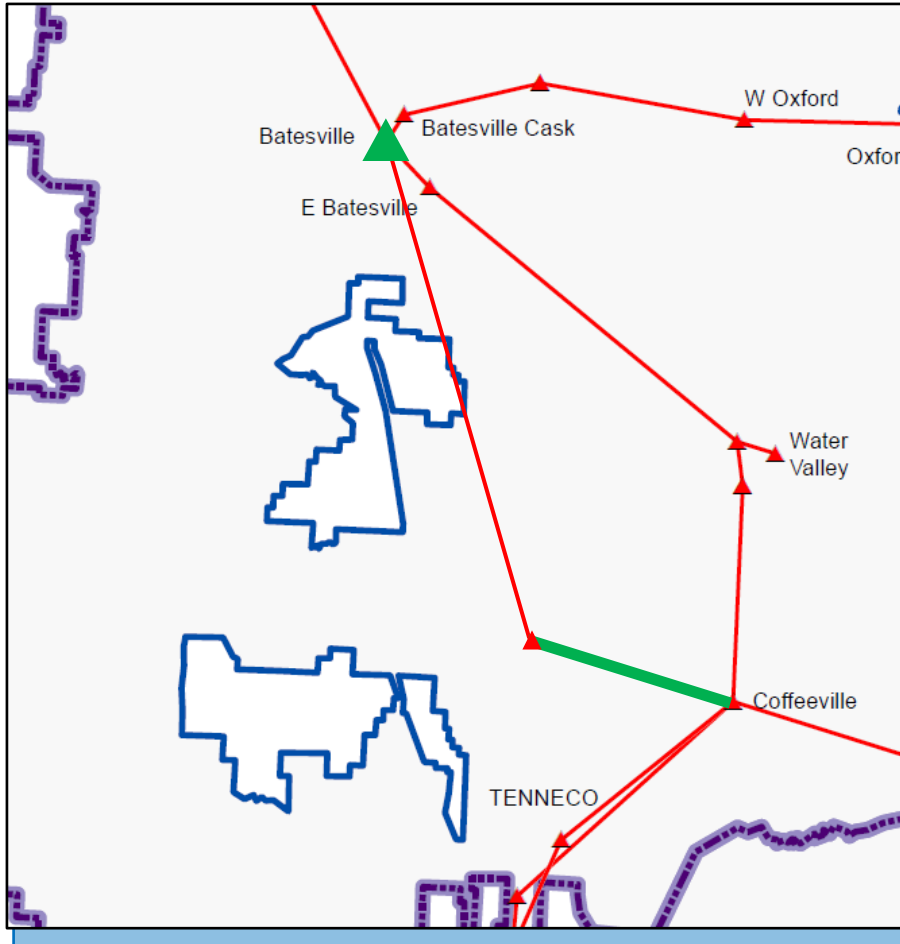
- **DESCRIPTION:**
 - Construct North Dayton 161 kV substation. Loop in Sequoyah - WBHP 161 kV transmission line into new substation by constructing approximately 27.0 miles of transmission line using 1351 ACSR.
- **SUPPORTING STATEMENT:**
 - Thermal overloads and voltage support is needed in the North Dayton, TN area under contingency.



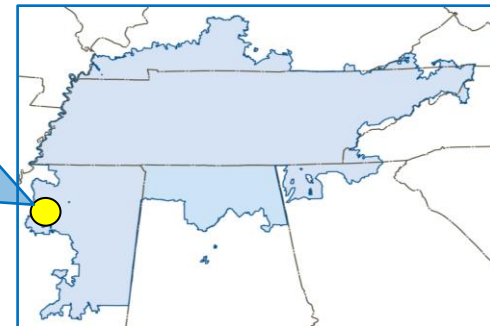
TVA – 13

• 2024

N. OAKLAND – COFFEEVILLE 161 KV TRANSMISSION LINE



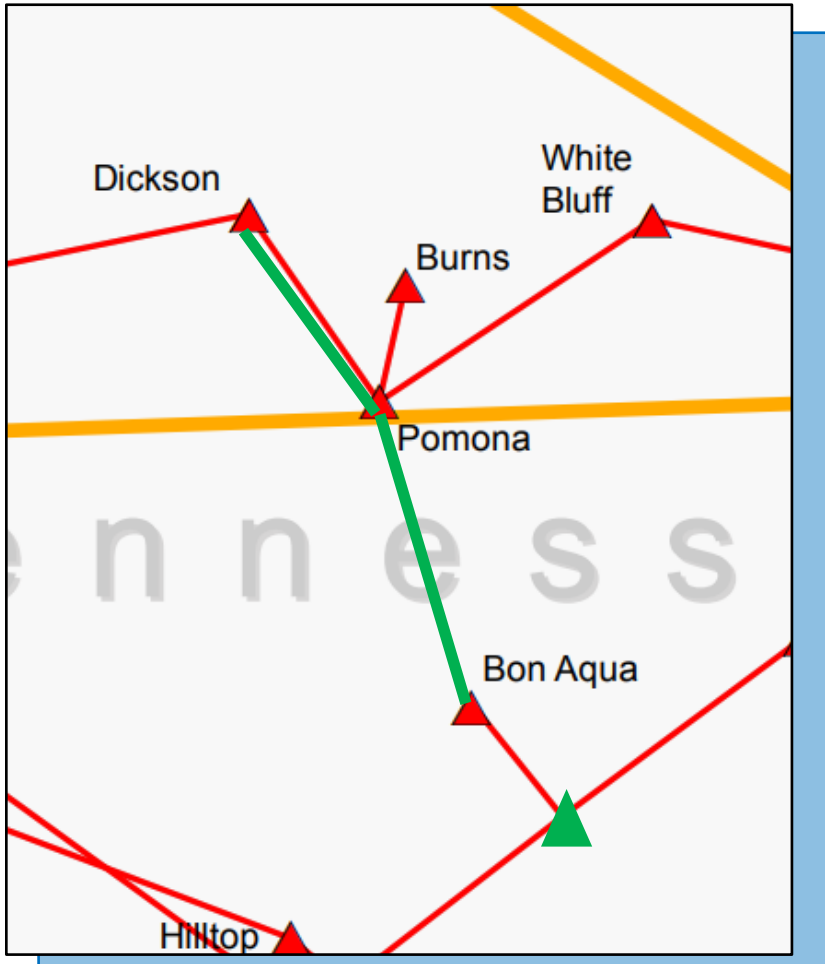
- **DESCRIPTION:**
 - Construct approximately 18.0 miles of new 161kV transmission line from North Oakland - Coffeeville using 954 at 100°C and upgrade terminal equipment to 472 MVA at Batesville 161 kv.
- **SUPPORTING STATEMENT:**
 - Multiple 161 kv transmission lines overload under contingency.



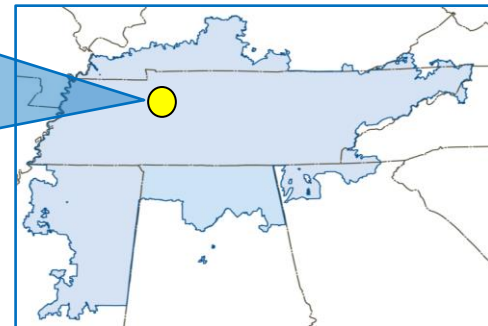
TVA – 14

• 2025

DICKSON 161 KV AREA IMPROVEMENT



- **DESCRIPTION:**
 - Construct approximately 19.5 miles of new 161 kV transmission line from Bon Aqua to Burns, construct approximately 4.3 miles new 161 kV double circuit into Dickson, and construct a new Locust Creek 161 kV
- **SUPPORTING STATEMENT:**
 - Voltage support is needed in the Dickson, TN area under contingency.

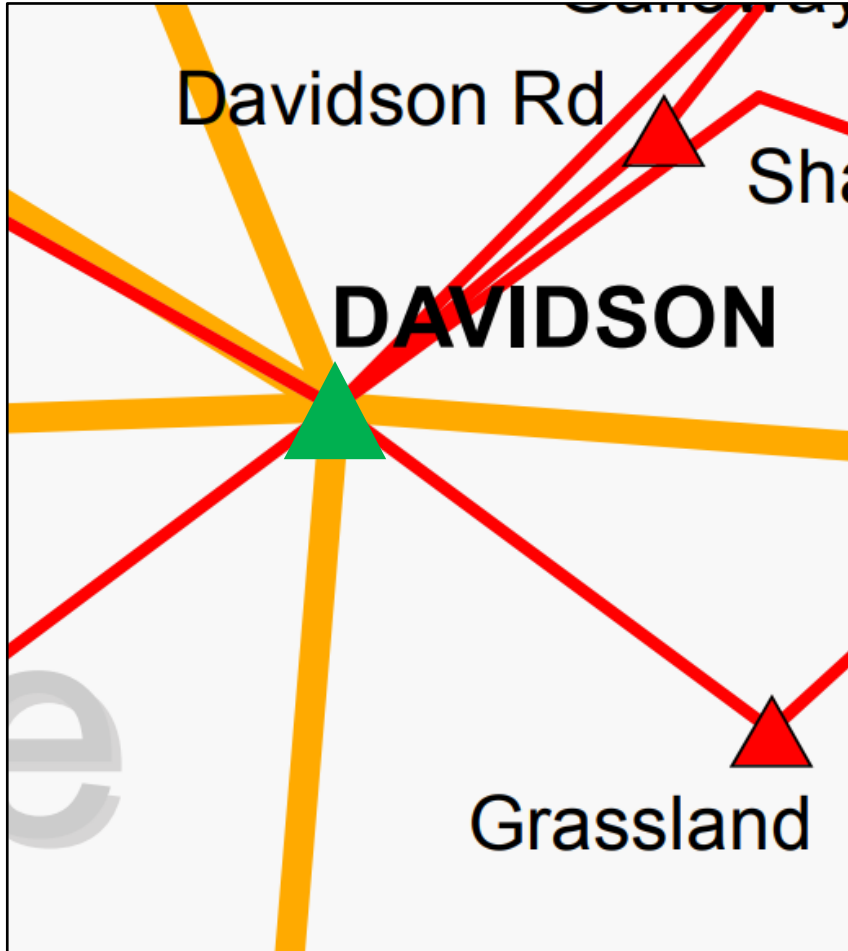


TVA Balancing Authority Area

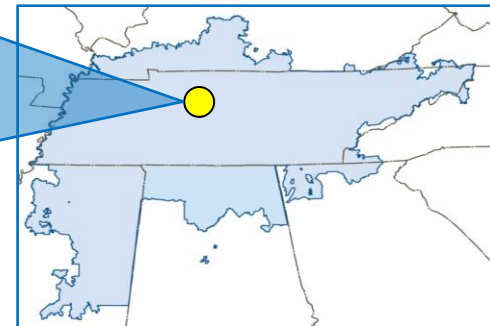
TVA – 15

• 2026

DAVIDSON 500 KV SWITCH HOUSE



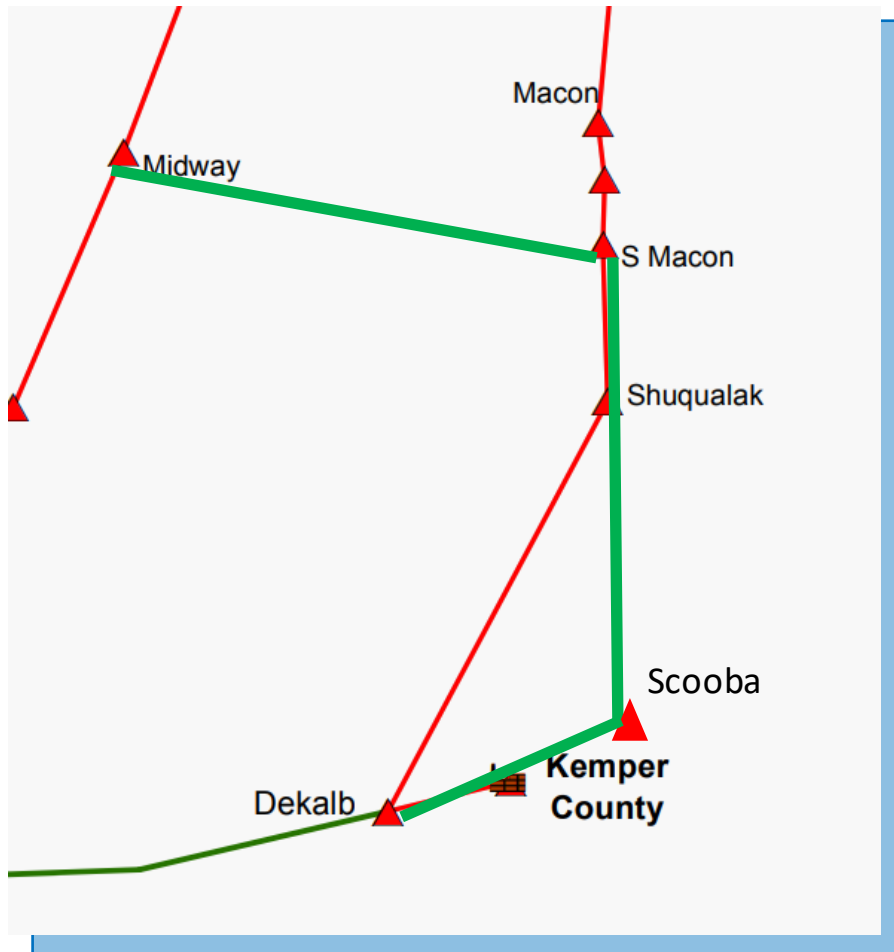
- **DESCRIPTION:**
 - Construct a new 500 kv switch house with all new assets and replace aging assets in the Davidson Yard.
- **SUPPORTING STATEMENT:**
 - Additional thermal capacity and voltage support is needed in the Davidson County, TN area under contingency.



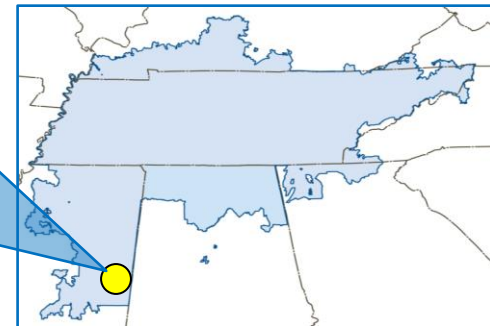
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• 2026

MIDWAY – S MACON – DEKALB 161 KV TRANSMISSION LINE



- **DESCRIPTION:**
 - Construct approximately 20 miles new 161 kV transmission line from Midway to S Macon and approximately 31.3 miles new 161 kV transmission line from S Macon to Dekalb via Scooba.
- **SUPPORTING STATEMENT:**
 - Voltage support is needed in TVA's Mississippi area under contingency.



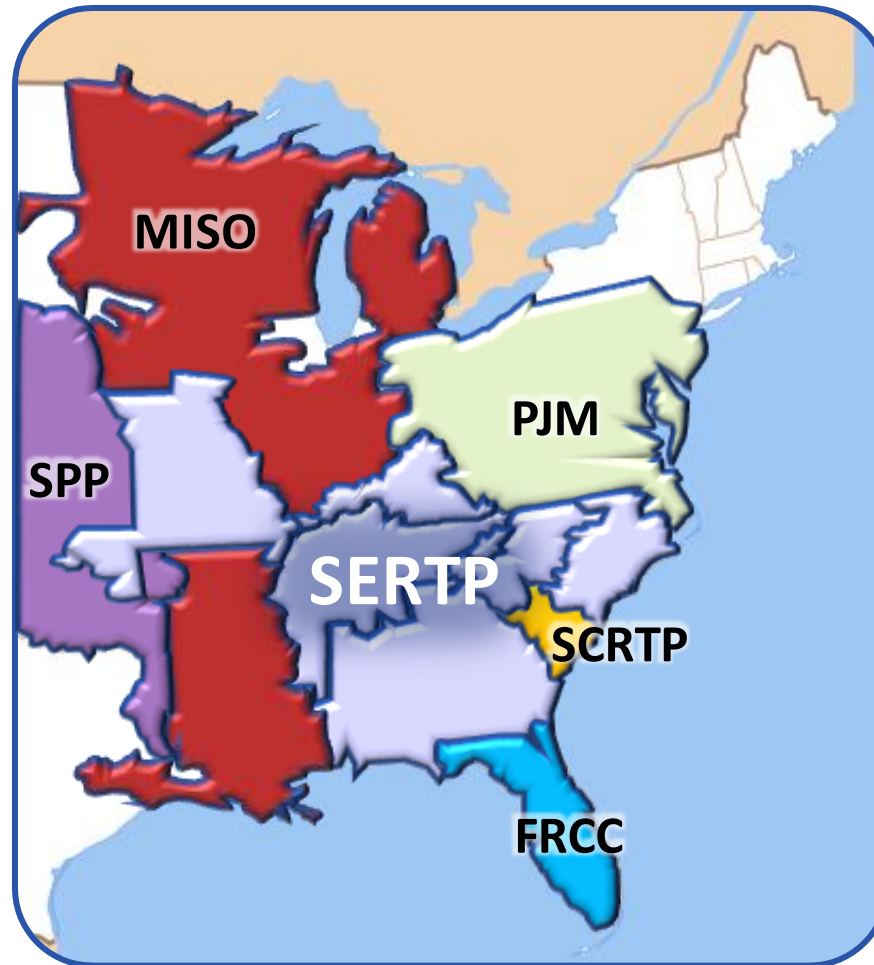
SERTP

Miscellaneous Updates

Regional Analyses Update

- SERTP Sponsors are currently developing a list of potential alternative transmission projects to evaluate during the 2021 planning process
- These projects are generally developed by identifying areas with multiple forecasted transmission projects which could be potentially displaced by a regional transmission project

Interregional Update



Interregional Update

- Latest interregional coordination procedures are posted on the [SERTP website](#)
- Interregional data exchange meetings are set to occur with SCRTP, MISO, PJM, FRCC and SPP.
- The interregional data exchange meetings have been scheduled and will occur during the 3rd Quarter.

Next Meeting Activities

- **2021 SERTP 3rd Quarter Meeting** – *Second RPSG Meeting*
 - **Location: Web Conference**
 - **Date: September 2021**
 - **Purpose:**
 - Discuss Preliminary Economic Planning Study Results
 - Discuss Previous Stakeholder Input on Transmission Expansion Plans



Questions?

www.southeasternrtp.com