

SERTP Southeastern Regional Transmission Planning

Economic Planning Studies Final Results

Associated Electric
Cooperative Inc.



Dalton
UTILITIES



DUKE
ENERGY



Georgia Transmission



LGE & KU



November 27, 2024

Table of Contents

Overview of Economic Planning Studies	1
1. MISO South/FRCC to SOCO – Summer 2029	5
Study Request 1 Results	8
2. PJM to DEC/DEP – Summer 2026	11
Study Request 2 Results	11
3. MISO North to SOCO – Summer 2034	17
Study Request 3 Results	20
4. SPP/MISO North to AECI - Summer 2029	38
Study Request 4 Results	41
5. DEC/SOCO to Santee Cooper – Winter 2034	44
Study Request 5 Results	47

Overview of Economic Planning Studies

Executive Summary

The Regional Planning Stakeholder Group (“RPSG”) identified five (5) economic planning studies to be evaluated under the Southeastern Regional Transmission Planning (“SERTP”) process. The SERTP Sponsors have performed analyses to assess potential constraints on the transmission systems of the participating transmission owners for the stakeholder requested economic planning studies selected by the RPSG. The assessments include the identification of potentially limiting facilities, the impact of the transfers on these facilities, and the contingency conditions causing the limitations. The assessments also identify potential transmission enhancements within the footprint of the participating transmission owners necessary to accommodate the economic planning study requests, planning-level cost estimates, and the projected need-date for projects to accommodate the economic planning study requests. The information contained in this report does not represent a commitment to proceed with the recommended enhancements nor implies that the recommended enhancements could be implemented by the study dates. The assessment cases model the currently projected improvements to the transmission system. However, changes to system conditions and/or the transmission system expansion plans could also impact the results of this study. 1898 & Co. was contracted to perform the assessments and, along with sponsors, develop potential strategic solutions for these studies. The results are summarized in this report.

Study Assumptions

The specific assumptions selected for these evaluations were:

- Each request was evaluated for the year identified below, as selected by the RPSG
- The following economic planning studies were assessed:

1) MISO South/FRCC to SOCO – 4,000 MW

- Year: 2029
- Load Level: Summer Peak
- Type of Transfer: Generation to Generation
- Source: Generation within MISO South (2,000 MW) and FRCC (2,000 MW)
- Sink: Generation within SOCO

2) PJM to DEC/DEP – 2,000 MW

- Year: 2026
- Load Level: Summer Peak
- Type of Transfer: Generation to Generation
- Source: Generation within PJM
- Sink: Generation within DEC (1,000 MW) and DEP (1,000 MW)

3) MISO North to SOCO – 10,000 MW

- Year: 2034
- Load Level: Summer Peak
- Type of Transfer: Generation to Generation
- Source: Generation within MISO North
- Sink: Generation within SOCO

4) SPP/MISO North to AECI – 2,500 MW

- Year: 2029
- Load Level: Summer Peak
- Type of Transfer: Generation to Generation
- Source: Generation within SPP (1,000 MW) and MISO North (1,500 MW)
- Sink: Generation within AECI

5) DEC/SOCO to Santee Cooper – 2,400 MW

- Year: 2034
- Load Level: Winter Peak
- Type of Transfer: Load/Generation to Generation
- Source: Load within DEC (1,200 MW) and Generation within SOCO (1,200 MW)
- Sink: Generation within Santee Cooper

Case Development

- For all evaluations, the **2024 Series Version 1 SERTP Regional Models** were used as a starting point load flow cases for the analysis of the Economic Planning Scenarios. These models can be found on the Secure Area of the [SERTP website](#).

Study Criteria

The study criteria with which results will be evaluated will include each individual sponsors' planning criteria (voltage, thermal, stability, and short circuit) which is posted on the [SERTP website](#).

Methodology

Initially, power flow analyses were performed based on the assumption that thermal limits were the controlling limit for the reliability plan. Voltage, stability, and short circuit studies were performed if circumstances warranted.

Technical Analysis and Study Results

The technical analysis was performed in accordance with the study methodology. Results from the technical analysis were reported throughout the study area to identify transmission elements approaching their limits such that all participating transmission owners and stakeholders would be aware of any potential issues and, as such, suggest appropriate solutions to address the potential issues if necessary. The SERTP reported, at a minimum, results for monitored transmission elements within the participating transmission owners' footprint based on:

- Thermal loadings greater than 90% for facilities that are negatively impacted by the proposed transfers and change by +5% of applicable rating with the addition of the transfer(s)
- Voltages appropriate to each participating transmission owner's planning criteria (with potential solutions if criteria were violated)

Assessment and Problem Identification

1898 & Co. ran assessments to identify any constraints within the participating transmission owners' footprint as a result of the economic planning study requests. Each participating transmission owner applied their respective reliability criteria for its facilities and any constraints identified were documented and reviewed by each participating transmission owner.

Solution Development

- The participating transmission owners, with input from the SERTP stakeholders and 1898 & Co., will develop potential solution alternatives due to the economic planning studies requested by the RPSG.
- The participating transmission owners will test the effectiveness of the potential solution alternatives using the same cases, methodologies, assumptions and criteria described above.
- The participating transmission owners will develop general, planning-level cost estimates and in-service dates for the selected solution alternatives.

Report on the Study Results

The participating transmission owners compiled all the study results and prepared a report for the SERTP stakeholder review. The report contains the following:

- A description of the study approach and key assumptions for the Economic Planning Scenarios
- For each economic planning study request, the results of that study including:
 1. Limit(s) to the transfer
 2. Selected solution alternatives to address the limit(s)
 3. General, planning-level cost estimates and in-service dates for the selected transmission solution alternatives

1. Study Request 1 Results

MISO South/FRCC to SOCO – Summer 2029
4,000 MW

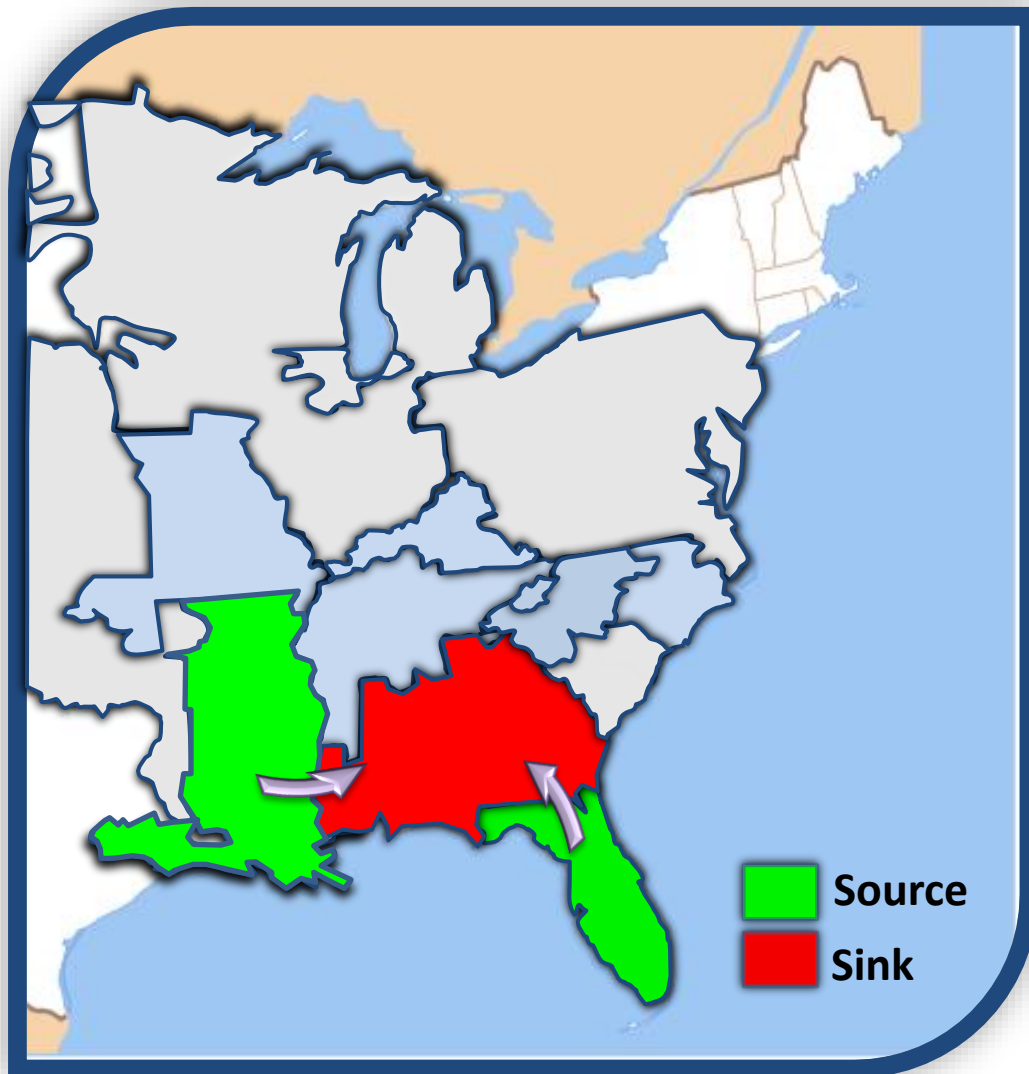
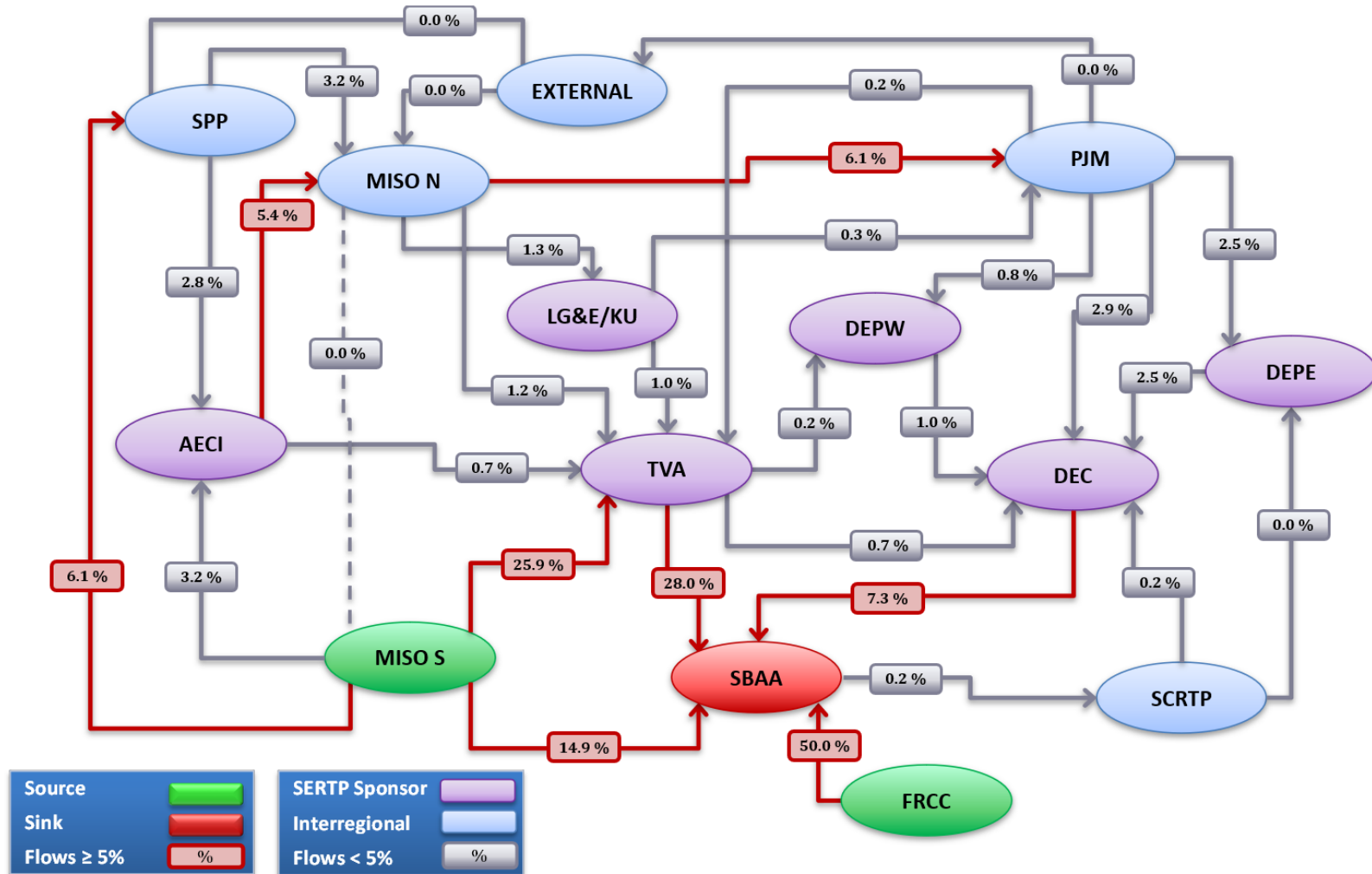


Table I.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	\$0
Duke Carolinas (DEC)	\$0
Duke Progress East (DEPE)	\$0
Duke Progress West (DEPW)	\$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	\$0
Southern (SBAA)	\$0
Tennessee Valley Authority (TVA)	\$321,000
TOTAL (\$2024)	\$321,000

Diagram I.1. Transfer Flow Diagram (% of Total Transfer)



Study Request 1 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
MISO South/FRCC to SOCO	4,000 MW	MISO South FRCC	SOCO	2029
Load Flow Cases				
2024 Series Version 1 SERTP Models: Summer Peak				

Transmission System Impacts

The following tables below identify any constraints attributable to the requested transfer for the contingency that resulted in the most significant loadings for the conditions studied. These constraints could be seen for other contingencies.

Table I.2. Pass 0 – Transmission System Impacts with No Enhancements

The following table identifies significant **SERTP** thermal constraints without any enhancements to the transmission system. Any constraints that have known operating procedures were not included since those would not be considered attributable.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
SBAA	380149 6S MACON 230 380767 3S MACON B1 115 1	298.0	102.2	107.4	380149 6S MACON 230 382348 3S MACON B2 115 1	*
SBAA	380149 6S MACON 230 382348 3S MACON B2 115 1	298.0	102.0	107.3	380149 6S MACON 230 380767 3S MACON B1 115 1	*
SBAA	380892 3E DALTON B2 115 382428 3DALTON FRA 115 1	180.0	96.4	107.5	381122 6DALTON 6 230 382498 6LOOPERS DU 230 1	*
SBAA	381679 3LANGSTN RD 115 381693 3PPG J2 115 1	124.0	105.5	113.1	382319 3PCH BLOSSOM 115 382351 3BONAIRE B2 115 1	*
SBAA	384924 3MTVMILTP 115 385947 3THURLOW B2 115 1	138.0	96.6	104.0	382500 8RACCOON CK 500 384600 8FARLEY 8 500 1	*
TVA	360425 5CHARLESTON 161 361632 5HIWASSEE RI 161 1	289.5	85.8	105.2	DUK_P1-2_TVA5B	P1

Notes:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2024 Final Expansion Plan.

Table I.3. Pass 1 – Potential Future Transmission System Impacts

The following table depicts thermal loadings of *SERTP* transmission facilities that could become potential constraints in future years or with different queuing assumptions but are not overloaded in the study year with all proposed enhancements to the transmission system.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)
			Without Request	With Request	
SBAA	380335 6DAWSON CROS 230 382032 3DAWSON CROS 115 1	344	88.8	94.2	380011 8S HALL 500 382035 6S HALL LS 230 1
SBAA	380434 3LAWRENCEVL 115 381363 3LAWRNCEVL 3 115 1	188	85.5	91.0	380438 3FIVE FORKS 115 380442 3SNELLVIL PR 115 1
SBAA	380604 3W PT DAM 115 380605 3PITTMAN RD 115 1	124	87.7	94.4	380603 3W POINT 2 115 384459 3W PT DS 115 1
SBAA	380796 3W WARN ROB 115 381657 3RUSS PKY J 115 1	188	91.1	99.1	380799 3S WARN ROB 115 380800 3WELLSTON SS 115 1
SBAA	380858 3HI HAT 115 380867 3COLERAIN 115 1	155	83.1	96.9	382167 3KINLAW 115 382276 3CAMDEN IND 115 1
SBAA	380858 3HI HAT 115 382167 3KINLAW 115 1	155	76.2	90.1	382167 3KINLAW 115 382276 3CAMDEN IND 115 1
SBAA	380859 3KINGSLND B1 115 380867 3COLERAIN 115 1	155	83.1	96.9	382167 3KINLAW 115 382276 3CAMDEN IND 115 1
SBAA	381080 3LAKELAND GA 115 381872 3N LAKELAND 115 1	47	84.7	90.6	380225 6KETTLECK PR 230 381085 3KETTLECK B1 115 1
SBAA	381331 3SIGMAN RD 115 381914 3CORNISH MTN 115 1	188	93.6	98.6	380097 6HONEY CRK 230 382669 6KLONDIKE B2 230 1
SBAA	381679 3LANGSTN RD 115 382350 3SANDEFUR J 115 1	124	86.2	93.8	382319 3PCH BLOSSOM 115 382351 3BONAIRE B2 115 1
SBAA	382319 3PCH BLOSSOM 115 382351 3BONAIRE B2 115 1	187	87.5	92.6	380807 3PERRY 115 381693 3PPG J2 115 1
SBAA	382408 3ETOWAH 115 382435 3REAVIS MTN 115 1	124	86.6	93.9	380011 8S HALL 500 382035 6S HALL LS 230 1
SBAA	382491 3M HORNET 115 382772 3THUMBS UP 115 1	301	90.7	95.7	382491 3M HORNET 115 382772 3THUMBS UP 115 2
SBAA	382491 3M HORNET 115 382772 3THUMBS UP 115 2	301	90.7	95.7	382491 3M HORNET 115 382772 3THUMBS UP 115 1
SBAA	384924 3MTVMILTP 115 385116 3TUSK TAP 115 1	138	92.0	99.4	382500 8RACCOON CK 500 384600 8FARLEY 8 500 1
SBAA	384924 3MTVMILTP 115 385947 3THURLOW B2 115 1	138	92.2	99.0	385256 3AU HEMLK 115 385469 3SHUG JOR TP 115 1
SBAA	388000 6MDN NE6 230 388007 6LAUDRD L W 230 1	502	82.1	91.3	388006 6LAUDRD L E 230 388008 6RAT TRANS 230 1
SBAA	388006 6LAUDRD L E 230 388009 6LAUDR E SLR 230 1	64	85.0	90.2	388000 6MDN NE6 230 388007 6LAUDRD L W 230 1
TVA	360420 5E CLEVELAND 161 361632 5HIWASSEE RI 161 1	289.5	79.6	99.1	DUK_P1-2_TVA5B

Table I.4. Potential Solutions for Identified Problems

The following table lists any potential solutions that were identified to address the attributable constraints based on the assumptions used in this study and would have an estimated need date of the year of this study. It must be noted that changes to the load forecast, and/or changes in the expansion plan could occur and would impact the results of this study. In addition, the currently projected improvements to the transmission system were modeled in the cases. Changes to system conditions and/or the transmission expansion plans could also impact the results of this study.

Item	Potential Solution	Area	Planning Level Cost Estimate
P1	Uprate the jumper at the Charleston 161kV substation.	TVA	\$321,000
TOTAL (\$2024)			\$321,000 ⁽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.

2. Study Request 2 Results

PJM to DEC/DEP – Summer 2026
2,000 MW

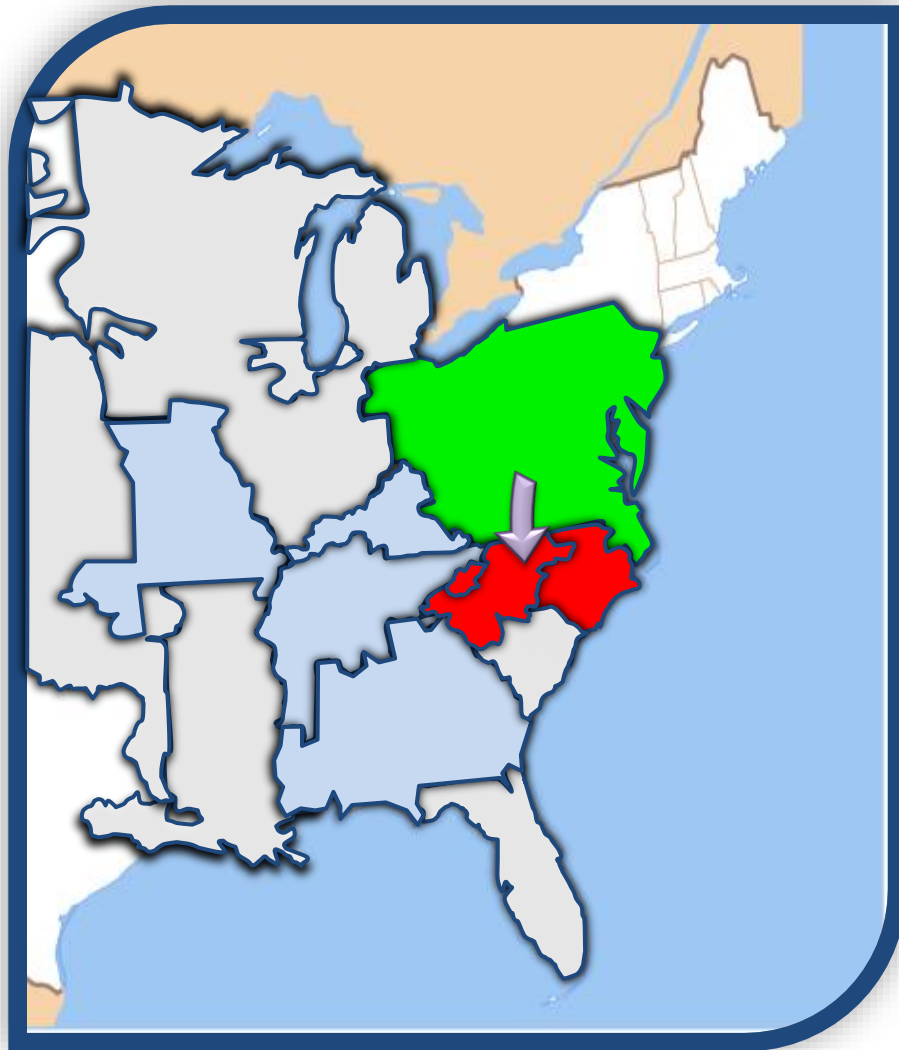
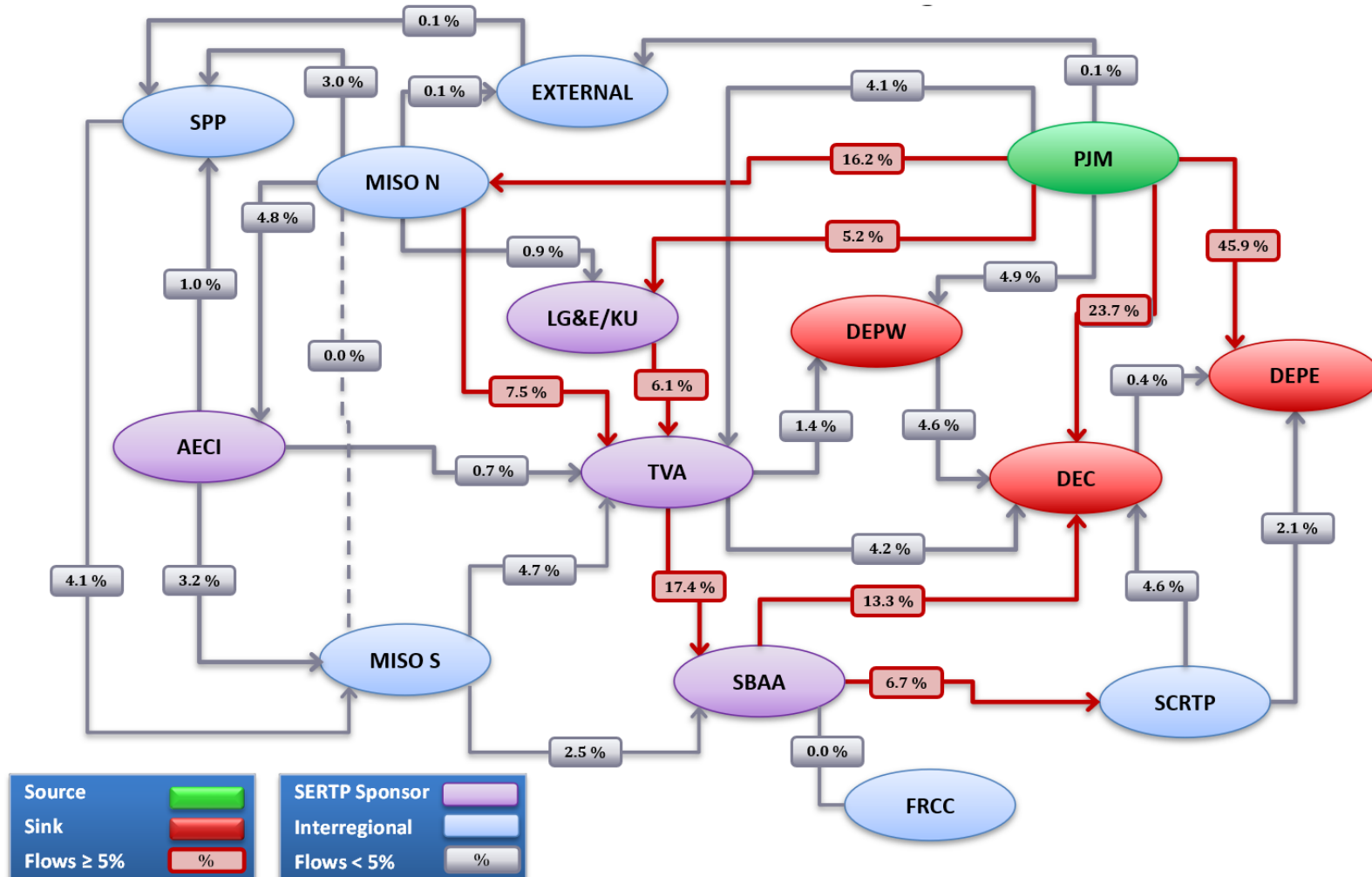


Table II.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	\$0
Duke Carolinas (DEC)	\$0
Duke Progress East (DEPE)	\$0
Duke Progress West (DEPW)	\$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	\$0
Southern (SBAA)	\$7,000,000
Tennessee Valley Authority (TVA)	\$0
TOTAL (\$2024)	\$7,000,000

Diagram II.1. Transfer Flow Diagram (% of Total Transfer)



Study Request 2 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
PJM to DEC/DEP	2,000 MW	PJM	DEC/DEP	2026
Load Flow Cases				
2024 Series Version 1 SERTP Models: Summer Peak				

Transmission System Impacts

The following tables below identify any constraints attributable to the requested transfer for the contingency that resulted in the most significant loadings for the conditions studied. These constraints could be seen for other contingencies.

Table II.2. Pass 0 – Transmission System Impacts with No Enhancements

The following table identifies significant *SERTP* thermal constraints without any enhancements to the transmission system. Any constraints that have known operating procedures were not included since those would not be considered attributable.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
SBAA	382032 3DAWSON CROS 115 382408 3ETOWAH 115 1	124.0	98.5	104.0	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	P1

Table II.3. Pass 1 – Potential Future Transmission System Impacts

The following table depicts thermal loadings of *SERTP* transmission facilities that could become potential constraints in future years or with different queuing assumptions but are not overloaded in the study year with all proposed enhancements to the transmission system.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)
			Without Request	With Request	
DEC	306001 3CLARK H 115 306022 CLARK HL 100 4	135	83.1	90.8	Base Case
DEC	306001 3CLARK H 115 339150 3JST-SC 115 1	120	92.0	98.3	380018 8SCHERER 500 383052 8WARTHEN 500 1

Table II.4. Potential Solutions for Identified Problems

The following table lists any potential solutions that were identified to address the attributable constraints based on the assumptions used in this study and would have an estimated need date of the year of this study. It must be noted that changes to the load forecast, and/or changes in the expansion plan could occur and would impact the results of this study. In addition, the currently projected improvements to the transmission system were modeled in the cases. Changes to system conditions and/or the transmission expansion plans could also impact the results of this study.

Item	Potential Solution	Area	Planning Level Cost Estimate
P1	Advancement of Existing Project: (DU) Rebuild the Dawson Crossing-Nelson (White) 115kV line from Dawson Crossing-Etowah-Reavis Mountain with 200C 1351 ACSS conductor and replace limiting elements in substations along the line.	SBAA	\$7,000,000
TOTAL (\$2024)			\$7,000,000 ⁽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.

3. Study Request 3 Results

MISO North to SOCO – Summer 2034
10,000 MW

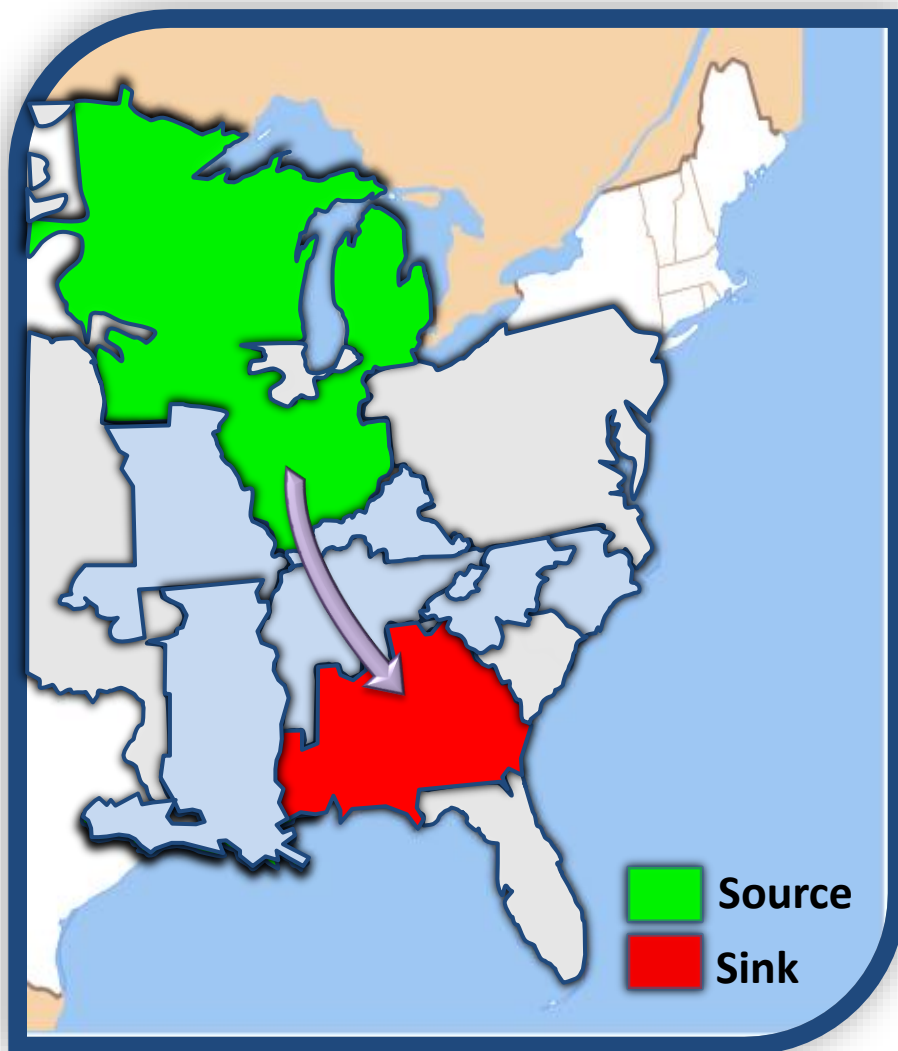
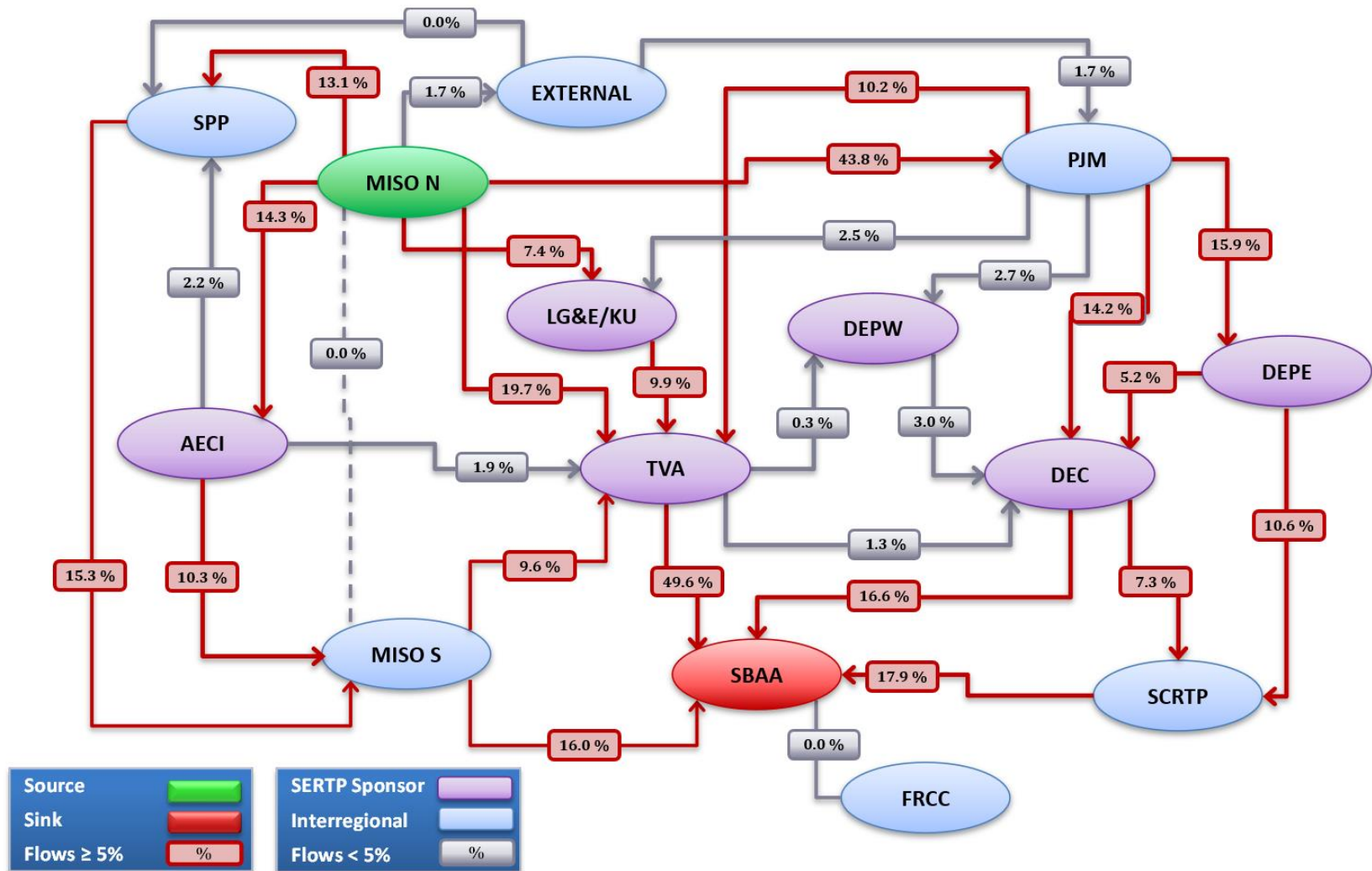


Table III.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	\$0
Duke Carolinas (DEC)	\$1,637,060,000
Duke Progress East (DEPE)	\$302,200,000
Duke Progress West (DEPW)	\$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	\$0
Southern (SBAA)	\$1,721,384,000
Tennessee Valley Authority (TVA)	\$980,817,000
TOTAL (\$2024)	\$4,641,461,000

Diagram III.1. Transfer Flow Diagram (% of Total Transfer)



Study Request 3 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
MISO North to SOCO	10,000 MW	MISO North	SOCO	2034
Load Flow Cases				
2024 Series Version 1 SERTP Models: Summer Peak				

Transmission System Impacts

The following tables below identify any constraints attributable to the requested transfer for the contingency that resulted in the most significant loadings for the conditions studied. These constraints could be seen for other contingencies.

Table III.2. Pass 0 – Transmission System Impacts with No Enhancements

The following table identifies significant **SERTP** thermal constraints without any enhancements to the transmission system. Any constraints that have known operating procedures were not included since those would not be considered attributable.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
DEC	306198 TIGER 100 306211 DUK 306211 100 1	132.0	94.3	103.1	DUK_P2-1_TAYLORSW-TIG_P21	P2
DEC	306198 TIGER 100 306212 DUK 306212 100 1	132.0	92.7	113.7	DUK_P2-1_TAYLORSB-TIG_P21	P2
DEC	306226 BRDRVR16 100 306245 CLIFSID 100 1	65.0	87.0	115.5	DUK_P1-2_LDNCRKB_RCTR	P4
DEC	306236 6PEACH V 230 309165 6LDNCKB_RTR 230 SR	422.0	82.8	104.3	DUK_P1-2_LDNCRKW_RCTR	P5
DEC	306236 6PEACH V 230 309165 6LDNCKB_RTR 230 Z1	422.0	125.0	157.4	DUK_P1-2_LONDONCREEKW	P5
DEC	306236 6PEACH V 230 309166 6LDNCKW_RTR 230 SR	422.0	82.8	104.3	DUK_P1-2_LDNCRKB_RCTR	P5
DEC	306236 6PEACH V 230 309166 6LDNCKW_RTR 230 Z2	422.0	125.0	157.4	DUK_P1-2_LONDONCREEKB	P5
DEC	306244 CHESNEE 100 306297 SPARTN T 100 1	65.0	98.9	125.6	DUK_P1-2_LDNCRKB_RCTR	P6
DEC	306245 CLIFSID 100 306313 DUK 306313 100 1	65.0	99.1	115.1	Base Case	P3
DEC	306252 ENOLA RT 100 309168 MAYO T 100 1	65.0	123.0	123.8	DUK_P2-1_CHEROKEW-CLI_P21	P6
DEC	306265 6RIVERVW 230 309165 6LDNCKB_RTR 230 1	422.0	125.4	157.9	306265 6RIVERVW 230 309166 6LDNCKW_RTR 230 2	P5
DEC	306265 6RIVERVW 230 309166 6LDNCKW_RTR 230 2	422.0	125.4	157.9	306265 6RIVERVW 230 309165 6LDNCKB_RTR 230 1	P5

2024 Economic Planning Studies

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
DEC	306297 SPARTN T 100 307308 DUK 307308 100 1	65.0	98.9	125.6	DUK_P1-2_LDNCRKB_RCTR	P6
DEC	308792 CHESNEE T WH 100 308803 SPARTAN T WH 100 1	65.0	123.3	124.1	DUK_P2-1_CHEROKEW-CLI_P21	P6
DEC	308792 CHESNEE T WH 100 309168 MAYO T 100 1	65.0	123.2	124.0	DUK_P2-1_CHEROKEW-CLI_P21	P6
DEC	306453 CLARMNTB 100 306472 LOOKOUT 100 1	166.0	92.9	101.1	DUK_P2-1_HICKORYW-LOO_P21	P7
DEC	306454 ENRG U18 100 306472 LOOKOUT 100 1	166.0	91.5	112.1	DUK_P2-1_BEULAHWH-STAY_P21	P8
DEC	306469 LINCOLNT 100 306488 RUEMC20 100 1	120.0	94.9	101.5	DUK_P2-1_MULLWH-OT_P21	P9
DEC	306472 LOOKOUT 100 306504 CLARMNTW 100 1	166.0	89.6	105.5	DUK_P1-2_HICKORYB_CS	P7
DEC	306472 LOOKOUT 100 309286 ENGR U18 W 100 1	166.0	111.9	132.4	DUK_P2-1_BEULAHBL-STAY_P21	P7
DEC	308589 ORCHARD 100 308833 RUTH20WH 100 1	132.0	94.7	100.7	DUK_P2-1_MULLB-LIN_P21	P8
DEC	306690 WOODLAWN 100 309832 CHASTAINR 100 1	166.0	97.7	103.3	Base Case	P9
DEC	306763 MITCHL R 100 306835 SRYYDKN7 100 1	93.0	93.9	103.0	DUK_P2-1_BANNERT1-MR_P21	P10
DEC	306769 NWINSTNW 100 306782 DUK 306782 100 1	93.0	88.3	101.7	DUK_P2-1_SHERWOODW-SHA_P21	P11
DEC	306852 ASHE ST 100 306875 DURHAM 100 1	152.0	103.7	111.3	DUK_P2-1_ASHESTB-DUR_P21	P12
DEC	306642 POPLR TN 100 306687 WINECOFF 100 1	93	99.8	108.8	DUK_P1-2_HOPEWELLWL	P14
DEC/SBAA	306008 8OCONEE 500 380011 8S HALL 500 1	2707.0	80.2	156.7	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1,P13
DEPE/DVP	304089 3HENDER 115T 115 304100 3HEND NTH TA 115 1	201.0	58.3	107.2	DUK_P1-2_CPLE3A	P16
DEPE/DVP	304100 3HEND NTH TA 115 305640 3BULLOKSOLTA 115 1	201.0	67.2	116.2	DUK_P1-2_CPLE3A	P16
DEPE/DVP	304102 3GW KING TAP 115 314702 3KERR 115 1	199.0	53.6	102.8	DUK_P1-2_CPLE3A	P16
DEPE/DVP	305580 3NUTBHSOLTA 115 305640 3BULLOKSOLTA 115 1	201.0	55.0	103.8	DUK_P1-2_CPLE3A	P16
DEPE/DVP	304223 3ROCKYMT115T 115 314554 3BTLEBRO 115 1	164.0	224.7	287.5	RKYMT-RMPOD4230_&_RKYMT-HATHWY230	P17
DEPE/DVP	304222 6ROCKYMT230T 230 313845 6HATHAWAY 230 1	478.0	98.6	131.9	304226 6PA-RMOUNT#4 230 314591 6NASH 230 1	P18
DEPE/DVP	304222 6ROCKYMT230T 230 304226 6PA-RMOUNT#4 230 1	478.0	88.3	121.8	ROCKY-MOUNT-VP-HATHAWAY-230KV-EAST-LINE	P19
DEPE/DVP	304226 6PA-RMOUNT#4 230 314591 6NASH 230 1	478.0	100.8	134.3	ROCKY-MOUNT-VP-HATHAWAY-230KV-EAST-LINE	P19
DEPE	304105 3FRANKLIN T 115 305173 3E18-POCOMOK 115 1	170.0	84.3	104.4	304096 3YOUNGSVILLE 115 304105 3FRANKLIN T 115 1	P20
DEPE	304116 3NASHVILLE 115 304223 3ROCKYMT115T 115 1	201.0	77.4	103.0	RKYMT-WILS230_&_RKYMT-SHARPB115	P21
DEPE	304219 3W-SHARPB 115 304223 3ROCKYMT115T 115 1	239.0	101.0	129.4	ROCKY-MOUNT-WILSON-230KV-LINE	P22
DEPE	304230 3WILSON115 T 115 305310 3ELMCTYSOLTA 115 1	239.0	100.9	128.3	ROCKY-MOUNT-WILSON-230KV-LINE	P22
DEPE	304222 6ROCKYMT230T 230 304228 6WILSON230 T 230 1	621.0	88.2	116.3	GREENVILLE-VP-EVERETTS-230KV-LINE	P23
DEPE	304047 3WSP00N115 T 115 305092 3E10-HOG SWM 115 1	97.0	38.2	101.8	304046 6WSP00N230 T 230 304682 6DILLONMPTA 230 1	P24
SBAA	380003 8NORCROSS 500 380011 8S HALL 500 1	2701.0	63.1	117.1	380011 8S HALL 500 382035 6S HALL LS 230 1	P1

2024 Economic Planning Studies

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
SBAA	380003 8NORCROSS 500 382620 6NORCROS LS2 230 1**	2016.0	86.2	107.4	380003 8NORCROSS 500 380065 6NORCROS LS1 230 1	P43
SBAA	380011 8S HALL 500 382035 6S HALL LS 230 1	2016.0	84.8	130.5	380003 8NORCROSS 500 380011 8S HALL 500 1	P25
SBAA	380020 8BOWEN 500 380021 8MOSTELLER 500 1	2927.0	39.9	106.0	380021 8MOSTELLER 500 380025 8MCGRAU FORD 500 1	P1
SBAA	380021 8MOSTELLER 500 382499 8CONASAUGA 500 1	3429.0	43.8	104.7	380003 8NORCROSS 500 380011 8S HALL 500 1	P1
SBAA	380025 8MCGRAU FORD 500 380088 6MCGRAU F LS 230 1	2016.0	60.0	110.2	380020 8BOWEN 500 380021 8MOSTELLER 500 1	P1
SBAA	380030 6NORTHWEST 230 380036 6JACK MCD B2 230 1	602.0	94.5	102.3	380030 6NORTHWEST 230 382711 6JACK MCD B1 230 1	*
SBAA	380030 6NORTHWEST 230 382711 6JACK MCD B1 230 1	602.0	94.3	102.1	380030 6NORTHWEST 230 380036 6JACK MCD B2 230 1	P1
SBAA	380047 6SANDY SPR 230 382626 6BULL SLU B1 230 1	596.0	79.1	102.3	380050 6BULL SLU LS 230 382627 6BULL SLU B2 230 Z1	P26
SBAA	380095 6WINDER P B1 230 380499 6WINDER 230 1	509.0	40.4	147.6	380003 8NORCROSS 500 380011 8S HALL 500 1	P27
SBAA	380149 6S MACON 230 380767 3S MACON B1 115 1	298.0	102.6	119.1	380149 6S MACON 230 382348 3S MACON B2 115 1	*
SBAA	380149 6S MACON 230 382348 3S MACON B2 115 1	298.0	102.4	118.8	380149 6S MACON 230 380767 3S MACON B1 115 1	*
SBAA	380181 6ROCKY MTN 230 381155 6JUDY MTN 230 1	807.0	65.3	107.6	380181 6ROCKY MTN 230 381155 6JUDY MTN 230 2	P1
SBAA	380181 6ROCKY MTN 230 381155 6JUDY MTN 230 2	828.0	63.6	104.9	380181 6ROCKY MTN 230 381155 6JUDY MTN 230 1	P1
SBAA	380270 3ATKINSON B1 115 381273 3AWW-AC J 115 1	332.0	98.2	106.0	380040 3NORTHWEST 115 382696 3N WEST LS 115 1	*
SBAA	380277 3CHATTAHOOC 115 381976 3AWW-BD J 115 1	199.0	91.7	106.9	380270 3ATKINSON B1 115 381273 3AWW-AC J 115 1	*
SBAA	380330 6SPOUT SP 230 382063 6SANDY HILL 230 1	596.0	83.4	101.4	380003 8NORCROSS 500 380011 8S HALL 500 1	*
SBAA	380330 6SPOUT SP 230 382068 6CHESTNUT MT 230 1	596.0	96.8	112.4	380003 8NORCROSS 500 380011 8S HALL 500 1	*
SBAA	380390 3OAKWOOD_GA 115 380391 3CHICOPEE 115 1**	188.0	97.3	103.6	382068 6CHESTNUT MT 230 382766 6S HALL B1 230 1	P44
SBAA	380391 3CHICOPEE 115 382002 3GVILLE 2 B2 115 1**	180.0	98.5	110.0	380003 8NORCROSS 500 380011 8S HALL 500 1	P45
SBAA	380420 3GVILLE 2 B1 115 381945 3EUREKA J 115 1**	188.0	92.2	105.2	381377 3PARKWAY GA 115 382002 3GVILLE 2 B2 115 1	P46
SBAA	380466 3ANTHONY SHL 115 381420 3DELHITAP 115 1	216.0	72.0	101.3	380104 6LEXINGTON 230 383208 6GOOSE POND 230 1	P1
SBAA	380466 3ANTHONY SHL 115 381786 6ANTHONY SHL 230 1	162.0	78.1	116.6	380104 6LEXINGTON 230 383208 6GOOSE POND 230 1	P1
SBAA	380471 3N LAVONIA 115 382212 3POOLES CRK 115 1	216.0	93.8	105.4	380094 6BIO 230 380105 6VANNA 230 1	*
SBAA	380499 6WINDER 230 382294 6HOSCHTON 230 1	509.0	44.2	151.7	380003 8NORCROSS 500 380011 8S HALL 500 1	P28
SBAA	380520 3EVANS 115 381415 3EUCHEE CRK 115 1	155.0	48.1	125.3	339153 3JST-GA 115 380520 3EVANS 115 1	P29
SBAA	380756 3ARKWRGHT B1 115 381659 3BASS RD J 115 1	145.0	40.1	105.7	380787 3DORSETT 115 382261 3HARTLY BR J 115 1	*
SBAA	380817 3SINCLAIRDAM 115 382324 3LK SINCLAIR 115 1	104.0	75.8	100.2	380317 8ROCKVILLE 500 383052 8WARTHEN 500 1	P1
SBAA	380892 3E DALTON B2 115 382428 3DALTON FRA 115 1	180.0	94.7	147.4	381122 6DALTON 6 230 382498 6LOOPERS DU 230 1	*
SBAA	380954 3NELSON 115 381164 3MCCLAIR MTN 115 1	124.0	92.8	103.3	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	P1
SBAA	381122 6DALTON 6 230 381141 6S DALTON 230 1	866.0	41.4	103.3	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1

2024 Economic Planning Studies

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
SBAA	381122 6DALTON 6 230 382498 6LOOPERS DU 230 1	776.0	59.0	123.5	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
SBAA	381135 6MCGRAU F B1 230 381994 6TRIN CHRCH 230 1	509.0	64.0	113.5	380020 8BOWEN 500 380021 8MOSTELLER 500 1	P1
SBAA	381273 3AWW-AC J 115 382660 3TILFORD 115 1	325.0	98.2	106.2	380040 3NORTHWEST 115 382696 3N WEST LS 115 1	*
SBAA	381379 3GUMLOG J 115 382406 3TNS JN 115 1	188.0	92.2	105.7	380094 6BIO 230 380105 6VANNA 230 1	*
SBAA	381377 3PARKWAY GA 115 382002 3GVILLE 2 B2 115 1**	188.0	97.8	110.2	380420 3GVILLE 2 B1 115 381945 3EUREKA J 115 1	P47
SBAA	381377 3PARKWAY GA 115 382093 3S GAINESVIL 115 1**	188.0	91.8	104.0	380420 3GVILLE 2 B1 115 381945 3EUREKA J 115 1	P48
SBAA	381420 3DELHITAP 115 381488 3GRABALL 115 1	216.0	70.9	100.1	380104 6LEXINGTON 230 383208 6GOOSE POND 230 1	P1
SBAA	381432 3WASHCTY2 115 382112 3WASHINGTON3 115 1	114.0	53.3	105.2	380104 6LEXINGTON 230 383208 6GOOSE POND 230 1	*
SBAA	381591 6BARRETT PY 230 381992 6B SHANTY B2 230 1	596.0	70.0	103.4	380004 8BULL SLUICE 500 380019 8BIG SHANTY 500 1	P1
SBAA	381783 3RIDGE RD 115 381954 3LITTLERIVER 115 1	188.0	10.8	118.1	380020 8BOWEN 500 380021 8MOSTELLER 500 1	*
SBAA	381783 3RIDGE RD 115 381956 3BLANKETS CK 115 1	188.0	17.0	126.0	380020 8BOWEN 500 380021 8MOSTELLER 500 1	*
SBAA	381931 6R_HOPEWL 230 381994 6TRIN CHRCH 230 1	509.0	61.4	110.7	380020 8BOWEN 500 380021 8MOSTELLER 500 1	P1
SBAA	381976 3AWW-BD J 115 382702 3ATKINSON B2 115 1	199.0	97.1	112.5	380270 3ATKINSON B1 115 381273 3AWW-AC J 115 1	*
SBAA	382003 3AIRLINE 2 115 382212 3POOLES CRK 115 1	216.0	95.9	107.5	380094 6BIO 230 380105 6VANNA 230 1	*
SBAA	382032 3DAWSON CROS 115 382408 3ETOWAH 115 1	124.0	93.6	110.9	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	*
SBAA	382035 6S HALL LS 230 382766 6S HALL B1 230 Z1	1659.0	71.0	110.1	382035 6S HALL LS 230 382767 6S HALL B2 230 Z1	P32
SBAA	382035 6S HALL LS 230 382767 6S HALL B2 230 Z1	1659.0	70.9	109.9	382035 6S HALL LS 230 382766 6S HALL B1 230 Z1	P32
SBAA	382068 6CHESTNUT MT 230 382766 6S HALL B1 230 1	596.0	104.7	119.0	380003 8NORCROSS 500 380011 8S HALL 500 1	*
SBAA	382294 6HOSCHTON 230 383073 6BRASELTON 230 1	509.0	49.4	157.4	380003 8NORCROSS 500 380011 8S HALL 500 1	P28
SBAA	382622 6NORCROSS B2 230 380329 3NORCROSS B1 115 1**	298.0	92.0	106.0	382623 6NORCROSS B3 230 382625 3NORCROSS B3 115 1	P49
SBAA	382623 6NORCROSS B3 230 382625 3NORCROSS B3 115 1**	298.0	93.4	107.7	382622 6NORCROSS B2 230 380329 3NORCROSS B1 115 1	P49
SBAA	382766 6S HALL B1 230 382767 6S HALL B2 230 Z1**	1244	69.5	102.3	382035 6S HALL LS 230 382766 6S HALL B1 230 Z1	P50
SBAA	382408 3ETOWAH 115 382435 3REAVIS MTN 115 1	124.0	98.1	115.1	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	*
SBAA	382766 6S HALL B1 230 383067 6CANDLER 230 1	509.0	67.0	176.5	380003 8NORCROSS 500 380011 8S HALL 500 1	P28
SBAA	383067 6CANDLER 230 383073 6BRASELTON 230 1	509.0	62.1	171.0	380003 8NORCROSS 500 380011 8S HALL 500 1	P28
SBAA/SEPA	339153 3JST-GA 115 380520 3EVANS 115 1	155.0	75.3	151.7	339153 3JST-GA 115 381415 3EUCHEE CRK 115 1	*
SBAA/SEPA	339153 3JST-GA 115 381415 3EUCHEE CRK 115 1	155.0	80.5	156.2	339153 3JST-GA 115 380520 3EVANS 115 1	*
TVA/SBAA	360283 5ALBERTVILLE 161 384332 5ATTALLA5 161 1	193.0	21.8	111.2	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA/SBAA	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	2598.0	36.7	113.8	382499 8CONASAUGA 500 383045 8CONASAUG CC 500 1	P1
AEP/TVA	242732 05NBRSTL 138 360490 4NBRISTOL VA 138 Z1	248.0	68.9	117.6	242511 05BROADF 765 290422 05BROADFD6EQ 999 6	P33

2024 Economic Planning Studies

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
MISO/TVA	340624 5BRTAP 161 360843 5PARADISE KY 161 1	446.0	24.6	122.7	360744 5PARADS CC34 161 360843 5PARADISE KY 161 1	P34
TVA	360138 5PARIS TN 161 361200 5BIG SANDY T 161 1	289.5	19.9	100.1	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	360003 5SHAWNEE FP1 161 360549 5SHAW REACT2 161 1	237.3	43.8	100.3	360001 8SHAWNEE FP 500 360015 8MARSHALL KY 500 1	P35
TVA	360128 5BENTON KY 161 361490 5HARDIN KY 161 1	307.0	65.1	104.3	360717 5MARSHALL #2 161 361707 5OAK LEVEL 161 1	P35
TVA	360130 5MAYFIELD KY 161 361480 5GOLO KY 161 1	414.7	66.3	112.3	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	360132 5MURRAY KY 161 361829 5RACER KY 161 1	243.7	52.1	101.9	360717 5MARSHALL #2 161 361707 5OAK LEVEL 161 1	P35
TVA	360132 5MURRAY KY 161 361835 5KEN LAKE TP 161 1	289.5	64.4	106.0	360717 5MARSHALL #2 161 361707 5OAK LEVEL 161 1	P35
TVA	360549 5SHAW REACT2 161 360717 5MARSHALL #2 161 1	237.3	43.8	100.2	360001 8SHAWNEE FP 500 360015 8MARSHALL KY 500 1	P35
TVA	360717 5MARSHALL #2 161 361707 5OAK LEVEL 161 1	353.0	81.6	135.7	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	361480 5GOLO KY 161 361707 5OAK LEVEL 161 1	414.7	68.0	114.0	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	361490 5HARDIN KY 161 361835 5KEN LAKE TP 161 1	307.0	61.3	100.5	360717 5MARSHALL #2 161 361707 5OAK LEVEL 161 1	P35
TVA	360130 5MAYFIELD KY 161 360138 5PARIS TN 161 1	289.5	38.1	133.3	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	360068 6WID CRK FP 230 360067 5WID CRK FP2 161 16	557.7	38.3	103.1	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA	360278 5GUNTERS PRI 161 361451 5GRGIAMTN AL 161 1	289.5	72.3	113.3	360285 5GOOSE POND 161 360374 5N ALBERTVLE 161 1	P36
TVA	360280 3GUNTERS HP 115 360650 3BLOUNT AL 115 1	92.8	12.3	101.2	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	*
TVA	360281 5LIMESTONE 161 360697 5SEWELL AL 161 1	472.1	99.6	104.7	360276 5DECATUR AL 161 361689 5S LIMESTONE 161 1	*
TVA	360051 5MAURY TN 161 360310 5MONSANTO TN 161 1	273.3	79.7	111.1	360050 8MAURY TN 500 3WXFMR 8MAURY TN 1	P37
TVA	360323 5INTERCHCITY 161 365460 5HURRICAN CR 161 1	299.2	82.6	107.0	360365 5PIN HOOK TN 161 361868 5SANFORD RD 161 1	P38
TVA	360160 5DOVER TN 161 361473 5INDIAN MND 161 1	181.8	44.9	129.2	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	360657 5OAKWOOD TN 161 361473 5INDIAN MND 161 1	181.8	41.1	125.5	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	360160 5DOVER TN 161 360326 5BARKLEY HP 161 1	237.3	37.3	106.5	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P35
TVA	360325 5HOPKINSV KY 161 361327 5CADIZ KY TP 161 1	348.6	42.0	106.1	360015 8MARSHALL KY 500 360040 8CUMBERLAND 500 1	P39
TVA	360082 5SEQUOYAH NP 161 360413 5CONCORD TN 161 1	350.0	70.3	158.3	DUK_P1-2_TVA5B	P1
TVA	360411 5CHICK HP 161 361421 5HAWTHORNE 161 1	226.7	95.0	149.1	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA	360413 5CONCORD TN 161 360416 5CATOOSA GA 161 1	299.2	41.8	113.5	DUK_P1-2_TVA5B	P1
TVA	360413 5CONCORD TN 161 361013 5JC EDWRD GA 161 1	273.3	29.2	109.5	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA	360413 5CONCORD TN 161 361218 5HAMIL CHATT 161 1	391.2	52.3	120.9	DUK_P1-2_TVA5B	P1
TVA	360413 5CONCORD TN 161 361586 5WOOLTEWAH 161 1	299.2	42.0	104.8	DUK_P1-2_TVA5B	P1
TVA	360414 5OGLETHORPE 161 361367 5N GA OGLETH 161 Z1	446.2	28.8	102.9	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA	360711 5CHICK HP B2 161 361218 5HAMIL CHATT 161 1	391.2	63.1	131.9	DUK_P1-2_TVA5B	P1

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
TVA	361502 6ALPHA GA 230 361504 6WRINGOLD GA 230 1	530.6	23.4	103.8	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA	361504 6WRINGOLD GA 230 361509 6CONCORD TN 230 1	530.6	29.1	101.9	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA	361505 6OGLETHORPE 230 360414 5OGLETHORPE 161 2	289.5	46.1	127.0	361509 6CONCORD TN 230 360413 5CONCORD TN 161 2	P1
TVA	361505 6OGLETHORPE 230 361530 6BATTLFLD GA 230 1	339.0	39.0	109.4	361509 6CONCORD TN 230 360413 5CONCORD TN 161 2	P1
TVA	361509 6CONCORD TN 230 360413 5CONCORD TN 161 2	501.0	31.2	107.8	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	P1
TVA	360081 8SEQUOYAH NP 500 360662 8BRADLEY TN 500 1	2598.1	42.6	116.5	382499 8CONASAUGA 500 383045 8CONASAUG CC 500 1	P1
TVA	360420 5E CLEVELAND 161 361177 5SUGARGROV T 161 1	289.5	33.2	200.5	DUK_P1-2_TVA5B	P1
TVA	360420 5E CLEVELAND 161 361632 5HIWASSEE RI 161 1	289.5	77.1	175.5	DUK_P1-2_TVA5B	P1
TVA	360424 5APALACHIA 161 361009 5BASIN TN 161 1	198.0	134.6	143.0	360423 5HIWASSEE HP 161 361230 5CHEROKEE NC 161 1	*
TVA	360425 5CHARLESTON 161 361632 5HIWASSEE RI 161 1	289.5	83.9	182.4	DUK_P1-2_TVA5B	P1
TVA	360663 5BRADLEY TN 161 361177 5SUGARGROV T 161 1	391.2	21.0	143.8	DUK_P1-2_TVA5B	P1
TVA	361365 5YOUNG CN GA 161 361366 5TOCCOA GA 161 1	299.2	94.2	101.5	360423 5HIWASSEE HP 161 361230 5CHEROKEE NC 161 1	*
TVA	360100 5J SEVIER #1 161 360483 5PERSIA TN 161 1	334.6	82.0	109.1	360101 5J SEVIER #2 161 361061 5GREENVL TP1 161 1	P40
TVA	360469 5WHITE PINE 161 361807 5W GREENE TP 161 1	181.8	76.2	115.6	360100 5J SEVIER #1 161 360483 5PERSIA TN 161 1	P41
TVA	361061 5GREENVL TP1 161 361807 5W GREENE TP 161 1	181.8	97.3	136.5	360100 5J SEVIER #1 161 360483 5PERSIA TN 161 1	P42

Notes:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2024 Final Expansion Plan.

**New constraints driven by P1

Table III.3. Pass 1 – Potential Future Transmission System Impacts

The following table depicts thermal loadings of *SERTP* transmission facilities that could become potential constraints in future years or with different queuing assumptions but are not overloaded in the study year with all proposed enhancements to the transmission system.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
SEHA/SBAA	339086 6HARTWEL 230 382096 6R_HARTWELL 230 1	662	41.5	98.7	380011 8S HALL 500 382035 6S HALL LS 230 1	
SETH/SBAA	339153 3JST-GA 115 380520 3EVANS 115 1	155	45.0	99.7	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	
SETH/SBAA	339153 3JST-GA 115 381415 3EUCHEE CRK 115 1	155	55.6	100.0	382098 6E WALTON 230 382799 6JACKS CREEK 230 1	
SBAA	380046 6IDLEWOOD 230 380047 6SANDY SPR 230 1	596	71.7	95.4	380050 6BULL SLU LS 230 382627 6BULL SLU B2 230 Z1	
SBAA	380047 6SANDY SPR 230 382626 6BULL SLU B1 230 1	596	76.7	93.5	380036 6JACK MCD B2 230 380041 6PEACHTREE 230 1	
SBAA	380055 6DERING CIR 230 382621 6NORCROSS B1 230 1	539	76.6	97.4	380052 6N SPRINGS 230 382627 6BULL SLU B2 230 1	
SBAA	380330 6SPOUT SP 230 382068 6CHESTNUT MT 230 1	718	81.6	97.6	380003 8NORCROSS 500 380011 8S HALL 500 1	
SBAA	380331 6SHOAL CREEK 230 382088 6BUFORD 4 230 1	596	76.7	97.7	380003 8NORCROSS 500 380011 8S HALL 500 1	
SBAA	380335 6DAWSON CROS 230 382032 3DAWSON CROS 115 1	344	84.4	97.9	380011 8S HALL 500 382035 6S HALL LS 230 1	
SBAA	380348 3DAWSON FOR 115 380385 3DAWSONVL 115 1	201	58.8	90.4	380011 8S HALL 500 382035 6S HALL LS 230 1	
SBAA	380348 3DAWSON FOR 115 382032 3DAWSON CROS 115 1	207	61.2	90.2	380011 8S HALL 500 382035 6S HALL LS 230 1	
SBAA	380390 3OAKWOOD_GA 115 380391 3CHICOPEE 115 1	188	84.3	99.7	380003 8NORCROSS 500 380011 8S HALL 500 1	
SBAA	380954 3NELSON 115 381164 3MCCLAIN MTN 115 1	124	78.2	90.5	380011 8S HALL 500 382035 6S HALL LS 230 1	
SBAA	380956 3HOLLY SP 115 381722 3NEWLIGHT CH 115 1	207	87.1	92.1	381135 6MCGRAU F B1 230 381994 6TRIN CHRCH 230 1	
SBAA	381155 6JUDY MTN 230 381156 3JUDY MTN 115 1	400	67.5	95.8	380182 6HAMMOND 230 381155 6JUDY MTN 230 1	
SBAA	381591 6BARRETT PY 230 381992 6B SHANTY B2 230 1	596	70.3	97.4	380022 8VILLA RICA 500 380185 6VIL RICA LS 230 1	
SBAA	382063 6SANDY HILL 230 382088 6BUFORD 4 230 1	596	78.3	99.2	380003 8NORCROSS 500 380011 8S HALL 500 1	
SBAA	382623 6NORCROSS B3 230 382625 3NORCROSS B3 115 1	298	84.2	98.0	380011 8S HALL 500 382035 6S HALL LS 230 1	
SBAA	384171 3BOYLES3 B1 115 384172 6BOYLESM1 230 1	398	69.9	90.8	384172 6BOYLESM1 230 384173 6BOYLESGA 230 Z1	
SBAA	384173 6BOYLESGA 230 385933 3BOYLES3 B2 115 1	398	85.7	91.6	384171 3BOYLES3 B1 115 384172 6BOYLESM1 230 1	
SBAA	388006 6LAUDRDL E 230 388009 6LAUDR E SLR 230 1	64	89.7	95.7	388008 6RAT TRANS 230 388043 6KEMPER1A_N 230 1	
DEC	306007 6OCONEE 230 306106 6JOCASSE 230 1	772	51.8	90.1	306008 8OCONEE 500 309002 8KATRTRT 500 Z1	
DEC	306007 6OCONEE 230 306106 6JOCASSE 230 2	772	51.8	90.1	306008 8OCONEE 500 309002 8KATRTRT 500 Z1	
DEC	306164 6HORSESHO 100 308471 6NIXRDTAP 100 1	132	81.7	93	306171 6UPWARDRD 100 308740 6ASHVHWYW 100 1	
DEC	306198 6TIGER 100 309520 6TIG5 100 Z1	360	85.9	91.9	DUK_P1-3_TIGER3	

2024 Economic Planning Studies

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
DEC	306232 3BUSH R 115 309319 BUSH RI2 100 7	50	67.3	95.5	306232 3BUSH R 115 309319 BUSH RI2 100 8	
DEC	306269 LAWSONFK 100 306287 PEACH VY 100 1	166	85.6	95.4	DUK_P1-2_ELBERTAW	
DEC	306269 LAWSONFK 100 306287 PEACH VY 100 2	166	85.6	95.4	DUK_P1-2_ELBERTAW	
DEC	306475 MORGNC4 100 308839 VALDESE T BL 100 1	120	82.2	92.9	DUK_P2-1_AVERY2-LV_RMVCAP_P21	
DEC	306600 HARRISBG 100 306601 HCKRY GR 100 1	132	82.6	93.2	DUK_P2-1_SHARONB-WL_P21	
DEC	306611 LAKEWOOD 100 306649 REMOUNT 100 1	183	88.6	95.7	DUK_P1-2_AB_STEEL_B_S	
DEC	306687 WINECOFF 100 308871 POPLRT B 100 1	93	88.6	97.6	DUK_P1-2_HOPEWELLWL	DEC16
DEC	306453 CLARMNTB 100 309647 LYLECREEK 100 1	166	80.5	99	DUK_P2-1_HICKORYW-LOO_P21	DEC6
DEC	306245 CLIFSID 100 306248 CMPTN RT 100 1	65	70.8	99.8	DUK_P1-2_LDNCRKB_RCTR	DEC3
DEC	306226 BRDRVR16 100 308494 MUDCK R 100 1	65	66.9	95.8	DUK_P1-2_LDNCRKB_RCTR	DEC3
DEC	306204 FINGERVL 100 306245 CLIFSID 100 1	65	94.2	95.7	DUK_P2-1_CLIFSIDW-CLI_P21	DEC2
DEPE/DVP	304089 3HENDER 115T 115 304100 3HEND NTH TA 115 1	201	65.84	92.68	304068 6ROX BOWMAN 230 304070 6PERSON230 T 230 1	DEPE1
DEPE/DVP	304099 3WARREN TAP 115 304102 3GW KING TAP 115 1	201	50.78	99.38	DUK_P1-2_CPLE3A	
DEPE/DVP	304099 3WARREN TAP 115 305580 3NUTBSHSOLTA 115 1	201	47.09	95.43	DUK_P1-2_CPLE3A	
DEPE/DVP	304100 3HEND NTH TA 115 305640 3BULLOKSOLTA 115 1	201	67.56	99.29	RKYMT-RMPOD4230_&_RKYMT-HATHWY230	DEPE1
DEPE/DVP	304222 6ROCKYMT230T 230 313845 6HATHAWAY 230 1	478	70.63	95.68	GREENVILLE-VP-EVERETTS-230KV-LINE	DEPE4
DEPE/DVP	304222 6ROCKYMT230T 230 304226 6PA-RMOUNT#4 230 1	478	66.45	92.18	GREENVILLE-VP-EVERETTS-230KV-LINE	DEPE5
DEPE/DVP	304226 6PA-RMOUNT#4 230 314591 6NASH 230 1	478	76.78	99.2	ROCKY-MOUNT-VP-BATTLEBORO-115KV-LINE	DEPE5
DEPE	304091 6RAL BRIER C 230 304117 6DURHAM230 T 230 1	541	70.57	90.23	METHOD-PRISONF230_&_METHOD-BLUERDG230	*
DEPE	304096 3YOUNGSVILLE 115 304105 3FRANKLIN T 115 1	201	76.23	93.15	304105 3FRANKLIN T 115 305173 3E18-POCOMOK 115 1	
DEPE	304105 3FRANKLIN T 115 305173 3E18-POCOMOK 115 1	170	75.48	96.06	FALLS-FRANKLINTON-115KV-EAST-LINE	DEPE6
DEPE	305173 3E18-POCOMOK 115 305176 3E18-YOUNGSV 115 1	170	72.22	92.38	304096 3YOUNGSVILLE 115 304105 3FRANKLIN T 115 1	
DEPE	304089 3HENDER 115T 115 305171 3E18-KITTREL 115 1	201	77.98	92.3	FRANKLINTON-HENDERSON-115KV-WEST-LINE	
DEPE	304089 3HENDER 115T 115 304105 3FRANKLIN T 115 1	201	77.16	91.46	304089 3HENDER 115T 115 305171 3E18-KITTREL 115 1	
DEPE	304156 6IND 304156 230 304190 6WAKE 230 TT 230 1	795	82.03	92.99	DUK_P1-2_CPLE2B	
DEPE	304219 3W-SHARPB 115 304224 3PA-WRE-T 115 1	310	76.73	98.67	ROCKY-MOUNT-WILSON-230KV-LINE	
DEPE	304224 3PA-WRE-T 115 304227 3ELM CITY 115 1	310	71.23	93.33	ROCKY-MOUNT-WILSON-230KV-LINE	
DEPE	304227 3ELM CITY 115 305310 3ELMCTYSOLTA 115 1	310	71.43	92.72	ROCKY-MOUNT-WILSON-230KV-LINE	
DEPE	304222 6ROCKYMT230T 230 304228 6WILSON230 T 230 1	621	76.72	99.81	304219 3W-SHARPB 115 304223 3ROCKYMT115T 115 1	DEPE9

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
DEPE	304024 6ROXSEP230 T 230 304064 6ROXB STH TA 230 1	796	74.08	92.15	DUK_P7-1_ROXBOROBW	
DEPE	304047 3WSPOON115 T 115 305092 3E10-HOG SWM 115 1	97	38.31	97.86	WHITEVL-E1_CHADP230_ &_WHTVL_T-GAPA_T115	DEPE10
DEPE	304447 3FAIRMONT TA 115 304653 3DILLON TAP 115 1	97	27.14	90.36	304046 6WSPOON230 T 230 304682 6DILLONMP TA 230 1	
DEPE	304447 3FAIRMONT TA 115 305092 3E10-HOG SWM 115 1	97	34.26	97.81	304046 6WSPOON230 T 230 304682 6DILLONMP TA 230 1	*
LG&E/KU	324144 5GREEN RIVER 161 324255 4GREEN RIVER 138 1	120	46.35	90.64	324173 5MATANZAS 161 340553 5WLSNBR 161 1	
LG&E/KU	324144 5GREEN RIVER 161 324255 4GREEN RIVER 138 2	120	50.2	97.9	324173 5MATANZAS 161 340553 5WLSNBR 161 1	
LG&E/KU	324144 5GREEN RIVER 161 324255 4GREEN RIVER 138 3	120	50.2	97.9	324173 5MATANZAS 161 340553 5WLSNBR 161 1	
LG&E/KU	324275 4LOUDON AVE 138 342544 4AVON-R 138 1	203	83.09	92.58	325074 7W GARRARDKU 345 342841 7W GARRARDEK 345 Z1	
LG&E/KU	325077 5COLEMAN TAP 161 325078 5PADUCAH PRI 161 1	245	46.7	95.2	360001 8SHAWNEE FP 500 360015 8MARSHALL KY 500 1	
LG&E/KU	326998 5BULLITT TAP 161 361788 5SUM SHAD TP 161 1	130	16.18	91.09	324150 5LEBANON JCT 161 324154 5PADDYS RUN 161 1	
TVA	326998 5BULLITT TAP 161 361788 5SUM SHAD TP 161 1	130	18.7	91.8	242518 05BROADF 500 290422 05BROADFD6EQ 999 6	
TVA	340620 5MCRACK 161 360003 5SHAWNEE FP1 161 1	446	56.6	93.3	360001 8SHAWNEE FP 500 360015 8MARSHALL KY 500 1	
TVA	360214 5BATESVILLE 161 361623 5E BATESVILE 161 1	289.5	86.1	98.7	360214 5BATESVILLE 161 361402 5TALLHACH IP 161 1	
TVA	360278 5GUNTERS PRI 161 361133 5RABBIT TOWN 161 1	289.5	57.3	97.9	360285 5GOOSE POND 161 360374 5N ALBERTVLE 161 1	
TVA	360323 5INTERCHCITY 161 360384 5SMYRNA TN 161 1	299.2	69.9	99.8	360365 5PIN HOOK TN 161 361868 5SANFORD RD 161 1	
TVA	360325 5HOPKINSV KY 161 360437 5LEWISBRG KY 161 1	181.8	65.9	96.9	360540 5LOSTCITY KY 161 360843 5PARADISE KY 161 1	
TVA	360361 5RADNOR TN 161 365375 5OLDSMYRN RD 161 1	237.3	73.7	93.4	360010 8RUTHERFORD 500 360050 8MAURY TN 500 1	
TVA	360365 5PIN HOOK TN 161 361868 5SANFORD RD 161 1	410.5	75	94.9	360365 5PIN HOOK TN 161 365460 5HURRICAN CR 161 1	
TVA	360365 5PIN HOOK TN 161 365460 5HURRICAN CR 161 1	472.1	75.3	93.2	360365 5PIN HOOK TN 161 361868 5SANFORD RD 161 1	
TVA	360366 5RESERVATION 161 384864 5PHIL TAP 161 1	299	33.9	94.6	360662 8BRADLEY TN 500 382499 8CONASAUGA 500 1	
TVA	360437 5LEWISBRG KY 161 360540 5LOSTCITY KY 161 1	181.8	62	92.9	360540 5LOSTCITY KY 161 360843 5PARADISE KY 161 1	
TVA	360483 5PERSIA TN 161 361459 5BULLS GAP 161 1	363.6	72.6	97.5	360101 5J SEVIER #2 161 361061 5GREENVL TP1 161 1	
TVA	360697 5SEWELL AL 161 361637 5CTY LINE RD 161 1	472.1	85.5	90.6	360276 5DECATUR AL 161 361689 5S LIMESTONE 161 1	
TVA	361459 5BULLS GAP 161 361745 5SPRINGVALE 161 1	363.6	65.3	90.3	360101 5J SEVIER #2 161 361061 5GREENVL TP1 161 1	

Notes:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2024 Final Expansion Plan.

Table III.4. Potential Solutions for Identified Problems

The following table lists any potential solutions that were identified to address the attributable constraints based on the assumptions used in this study and would have an estimated need date of the year of this study. It must be noted that changes to the load forecast, and/or changes in the expansion plan could occur and would impact the results of this study. In addition, the currently projected improvements to the transmission system were modeled in the cases. Changes to system conditions and/or the transmission expansion plans could also impact the results of this study.

Item	Potential Solution	Area	Planning Level Cost Estimate
P1	<ul style="list-style-type: none"> (1) Build a new 110 mile, 500kV line from New South Hall – Hiwassee 500kV (SBAA – TVA) <ul style="list-style-type: none"> a. SOCO portion will be 55miles with 3-1113 ACSR rated for 100C b. TVA portion will be 55 miles (2) Build a new 75 miles, 500kV line from Widows Creek – Mosteller Springs 500kV (TVA – SBAA) <ul style="list-style-type: none"> a. SOCO portion will be 37.5 miles with 3-1113 ACSR rated for 100C b. TVA portion will be 37.5 miles (3) Build a new 220 mile, 500kV line from Newport - East Walton 500kV (DEC – SBAA Portion) <ul style="list-style-type: none"> a. SOCO portion will be 110 miles with 3-1113 ACSR rated for 100C b. DEC portion will be bundled 2505 ACSR rated at 120°C (4) Build a new 27 mile, 500kV line with 3-1113 ACSR rated for 100C from Klondike – East Walton 500kV (SBAA) (5) Build a new 14 mile, 500kV line with 3-1113 ACSR rated for 100C from McGrau Ford – Norcross 500kV (SBAA) 	<p>SBAA DEC TVA</p>	<p>\$1,530,593,000 \$1,207,500,000 \$426,500,000</p>
P2	Rebuild 2.68 miles of the Tiger Tie to East Greenville Tie 100 kV Transmission Lines with 1272 ACSR rated at 120°C	DEC	\$10,720,000
P3	Rebuild 29.62 miles of the Cliffside 5 to Campobello Tie 100 kV Transmission Lines with 954 ACSR rated at 120°C	DEC	\$118,480,000
P4	Rebuild 21.16 miles of the Cliffside 5 to Tiger Tie 100 kV Transmission Lines with 954 ACSR rated at 120°C	DEC	\$84,640,000
P5	Rebuild 19.20 miles (Full line rebuild) of the Peach Valley to Riverview 230 kV Transmission Lines 1158 ACSS/TW rated at 200°C	DEC	\$96,000,000
P6	Rebuild 4.77 miles of the Cliffside 5 to Peach Valley 100 kV Transmission Lines with 954 ACSR rated at 120°C	DEC	\$19,080,000

Item	Potential Solution	Area	Planning Level Cost Estimate
P7	Rebuild 5.43 miles of the Lookout Tie to Stamey Tie 100 kV Transmission Lines with bundled 954 ACSR rated at 120°C	DEC	\$21,720,000
P8	Rebuild 7.88 miles of the Orchard Tie to Lincolnnton Tie 100 kV Transmission Lines with 1272 ACSR rated at 120°C	DEC	\$31,520,000
P9	Rebuild/Reconductor 1500' of the Woodlawn to Wylie Switching Station 100 kV Transmission Lines with 1272 ACSR rated at 120°C	DEC	\$1,200,000
P10	Upgrade the Mitchel River Tie terminals of the Mitchel River Tie to Bannertown Tie 100 kV Transmission Lines	DEC	\$1,000,000
P11	Upgrade terminals at customer station along the Shattalon Switching Station to Winston Tie 100 kV Transmission Line to improve the line rating	DEC	\$1,000,000
P12	Rebuild 3.26 miles of the Durham Main to Ashe St 100 kV. Because of the configuration of the 100 kV lines in the area, this rebuild will include rebuilds of 1.35 miles of the Durham Main to E Durham Tie and 1.91 miles of the E Durham Tie to Ashe St 100 kV Transmission Lines. Any new conductor will be 1272 ACSR rated at 120°C	DEC	\$13,000,000
P13	Upgrade the Oconee Terminal of the Oconee to South Hall 500 kV T.L.	DEC	\$10,000,000
P14	Rebuild 5.3 miles of the Winecoff Tie to Conley Switching Station 100 kV Transmission Lines with 1272 ACSR rated at 120°C	DEC	\$21,200,000
P16	Rebuild 19.2 DEP miles of the Henderson - VP Kerr Dam 115 kV Line with 795 ACSS/TW (313 MVA) ²	DEPE	\$76,800,000
P17	Rebuild 8.51 DEP miles of the Rocky Mount - VP Battleboro 115 kV Line with 6-795 ACSS/TW (626 MVA) ²	DEPE	\$34,040,000
P18	Rebuild 4.73 DEP miles of the Rocky Mount - VP Hathaway 230 kV East Line with 6-1590 w/ 3kA equipment (1195 MVA) ²	DEPE	\$23,650,000
P19	Rebuild 4.44 DEP miles of the Rocky Mount - VP Hathaway 230 kV West Line with 6-1590 w/ 3kA equipment (1195 MVA) ²	DEPE	\$22,200,000

Item	Potential Solution	Area	Planning Level Cost Estimate
P20	Rebuild 2.5 miles of the Falls - Franklinton 115 kV West Line with 795 ACSS/TW (313 MVA)	DEPE	\$10,000,000
P21	Rebuild 7.11 miles of the Rocky Mount - Spring Hope SS 115kV Line with 795 ACSS/TW (313 MVA)	DEPE	\$28,440,000
P22	Rebuild 6.98 miles of the Rocky Mount - Wilson 115kV Line with 6-1272 ASCSR (541 MVA)	DEPE	\$27,920,000
P23	Rebuild 12.79 miles of the Rocky Mount - Wilson 230kV Line with 6-1590 w/ 3kA equipment (1195 MVA)	DEPE	\$63,950,000
P24	Rebuild 3.8 miles of the Weatherspoon Plant - Marion 115kV Line with 795 ACSS/TW (313 MVA)	DEPE	\$15,200,000
P25	Add a second 500/230kV, 2016MVA transformer at the South Hall 500/230kV substation.	SBAA	\$32,000,000
P26	Rebuild 3.52 miles between Bull Sluice and Sandy Springs of the Bull Sluice-Powers Ferry 230kV line with 200C 1351 ACSS conductor and replace limiting elements.	SBAA	\$12,750,000
P27	Rebuild 3.09 miles between Winder Primary and Winder of the South Hall - Winder Primary 230kV line with 200C 1351 ACSS conductor and replace limiting elements.	SBAA	\$14,505,000
P28	Rebuild of the South Hall-Winder Primary 230kV line approximately 17 miles with 200C 1351 ACSS conductor and replace limiting elements along the line.	SBAA	\$70,000,000
P29	Rebuild the Evans Primary-Thurmond Dam (USA) #5 115kV line from Evans to Euchee Creek (3.5 miles) with 200C 1351 ACSS conductor and replace limiting elements in substations.	SBAA	\$6,000,000
P32	Replace 2 4000A 230kV bus tie breakers with 5000A at South Hall.	SBAA	\$1,216,000
P33	Uprate the jumper and bus work at the N Bristol VA 138kV substation	TVA	\$449,000
P34	Reconductor 0.46 miles of the BR Tap – Paradise KY 161kV transmission line with 1351 ACSS conductor	TVA	\$200,000

Item	Potential Solution	Area	Planning Level Cost Estimate
P35	Construct a new Murray 500/161kV station along the Marshall - Cumberland 500 kV line. Construct a new Weakly – Shawnee 500kV line (62.5 miles). Construct a new Gleason – Murray 500kV line (35 miles)	TVA	\$534,762,000
P36	Uprate the jumper at the Guntersville, AL Primary 161kV substation	TVA	\$321,000
P37	Reconductor 5.1 miles of the Maury, TN – Monsanto, TN 161kV transmission line with 795 ACSS conductor. Uprate the jumper and bus work at the Monsanto, TN 161kV substation	TVA	\$2,670,000
P38	Reconductor 3.87 miles of the Interchange City, TN – Hurricane Creek, TN 161kV transmission line with 954 ACSS conductor.	TVA	\$1,818,000
P39	Uprate the jumper at the Hopkinsville, KY 161kV substation	TVA	\$321,000
P40	Reconductor 5.22 miles of the John Sevier FP – Persia, TN 161kV transmission line with 696 ACSS conductor. Uprate the jumper and secondary equipment and reverse trip settings at the John Sevier FP 161kV substation	TVA	\$2,722,000
P41	Reconductor 17.84 miles of the West Green, TN Tap – Greenville Tap 161kV transmission line with 636 ACSS conductor.	TVA	\$8,381,000
P42	Reconductor 5.69 miles of the West Green, TN Tap – Greenville Tap 161kV transmission line with 696 ACSS conductor.	TVA	\$2,673,000
P43 ⁽³⁾	Install a third 2016 MVA 500/230kV autobank at Norcross	SBAA	\$32,000,000
P44 ⁽³⁾	Rebuild 1.55 mile of line from 100C 636 ACSR to 200C 1351 ACSS on Oakwood GA – Chicopee 115kV	SBAA	\$2,700,000
P45 ⁽³⁾	Rebuild 3.16 mile of line from 100C 636 ACSR to 200C 1351 ACSS on Chicopee - Gainesville #2 115kV	SBAA	\$5,400,000
P46 ⁽³⁾	Rebuild 1.48 mile of line from 100C 636 ACSR to 200C 1351 ACSS on Gainesville #2 – Eureka J 115kV	SBAA	\$2,700,000

Item	Potential Solution	Area	Planning Level Cost Estimate
P47 ⁽³⁾	Rebuild 1.7 mile of line from 100C 636 ACSR to 200C 1351 ACSS on Parkway Ga – Gainesville #2 115kV	SBAA	\$3,000,000
P48 ⁽³⁾	Rebuild 1.7 mile of line from 100C 636 ACSR to 200C 1351 ACSS on Park way GA – South Gainesville 115kV	SBAA	\$1,300,000
P49 ⁽³⁾	Replace 2 285 MVA 230\115kV banks with 400 MVA banks at Norcross	SBAA	6,000,000
P50 ⁽³⁾	Replace two 3000A breakers with (2) 4000A at South Hall	SBAA	\$1,220,000
SERTP TOTAL (\$2024)			\$4,614,206,000 ⁽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.
- (2) Only DEPE miles are listed for tie lines. Neighboring utility may list their own constraints, upgrades, and costs if applicable.
- (3) Additional projects driven by strategic projects

4. Study Request 4 Results

SPP/MISO North to AECI - Summer 2029
2,500 MW

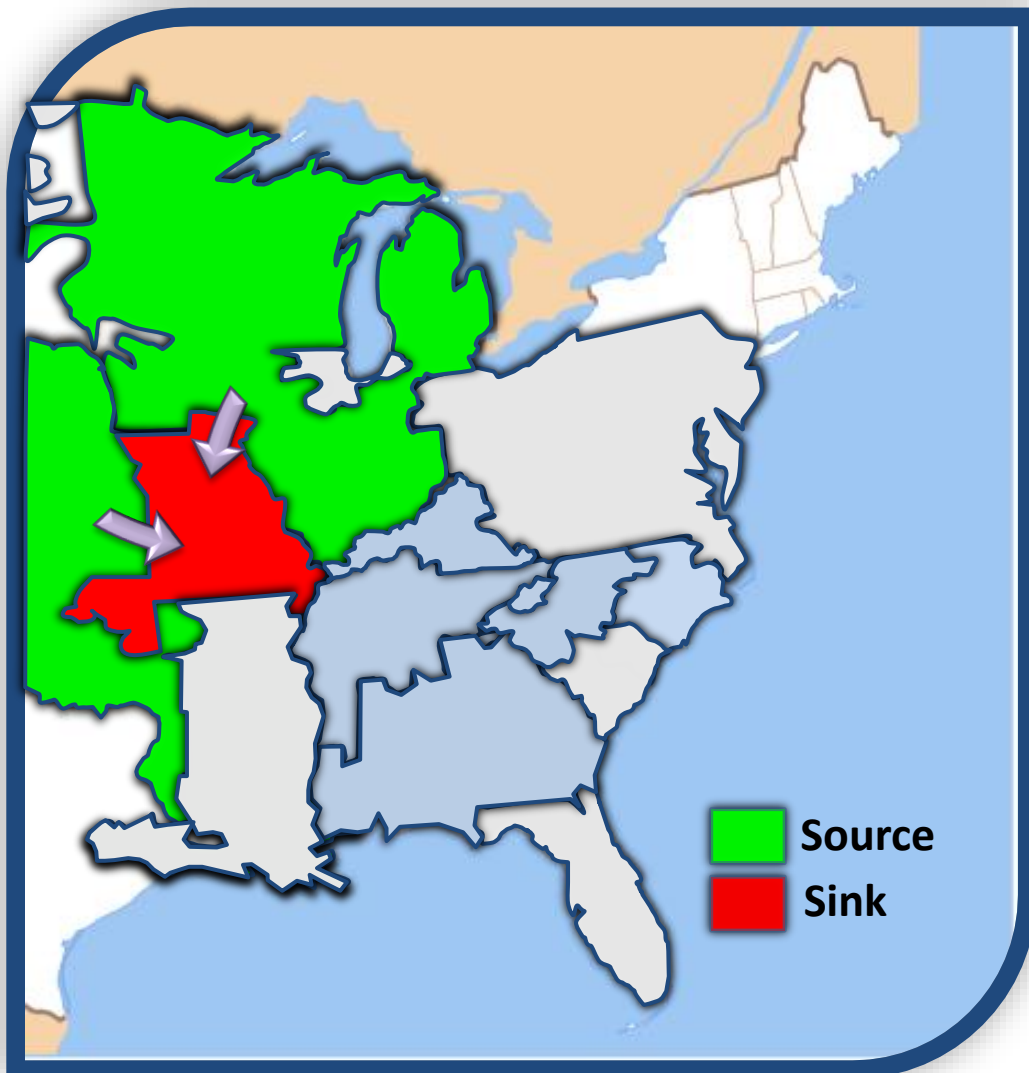
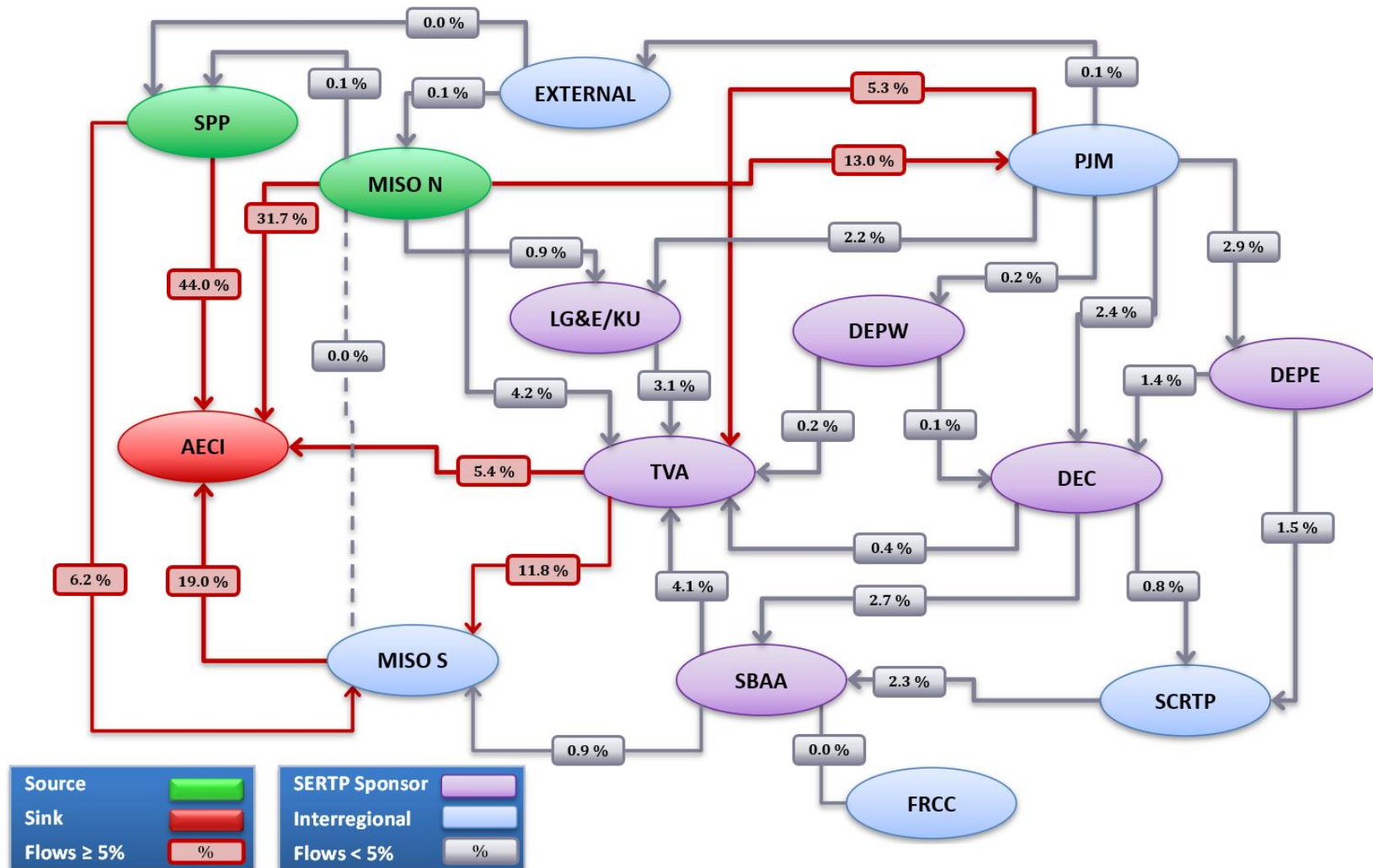


Table IV.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	\$0
Duke Carolinas (DEC)	\$0
Duke Progress East (DEPE)	\$0
Duke Progress West (DEPW)	\$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	\$0
Southern (SBAA)	\$0
Tennessee Valley Authority (TVA)	\$0
TOTAL (\$2024)	\$0

Diagram IV.1. Transfer Flow Diagram (% of Total Transfer)



Study Request 4 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
SPP/MISO North to AECI	2,500 MW	SPP/MISO North	AECI	2029
Load Flow Cases				
2024 Series Version 1 SERTP Models: Summer Peak				

Transmission System Impacts

The following tables below identify any constraints attributable to the requested transfer for the contingency that resulted in the most significant loadings for the conditions studied. These constraints could be seen for other contingencies.

Table IV.2. Pass 0 – Transmission System Impacts with No Enhancements

The following table identifies significant **SERTP** thermal constraints without any enhancements to the transmission system. Any constraints that have known operating procedures were not included since those would not be considered attributable.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency	Project
			Without Request	With Request		
--	--	--	--	--	--	--

Table IV.3. Pass 1 – Potential Future Transmission System Impacts

The following table depicts thermal loadings of *SERTP* transmission facilities that could become potential constraints in future years or with different queuing assumptions but are not overloaded in the study year with all proposed enhancements to the transmission system.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency
			Without Request	With Request	
--	--	--	--	--	--

Table IV.4. Potential Solutions for Identified Problems

The following table lists any potential solutions that were identified to address the attributable constraints based on the assumptions used in this study and would have an estimated need date of the year of this study. It must be noted that changes to the load forecast, and/or changes in the expansion plan could occur and would impact the results of this study. In addition, the currently projected improvements to the transmission system were modeled in the cases. Changes to system conditions and/or the transmission expansion plans could also impact the results of this study.

Item	Potential Solution	Area	Planning Level Cost Estimate
--	None Required	--	--
TOTAL (\$2024)			\$0 ⁽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.

5. Study Request 5 Results

DEC/SOCO to Santee Cooper - Winter 2034
2,400 MW

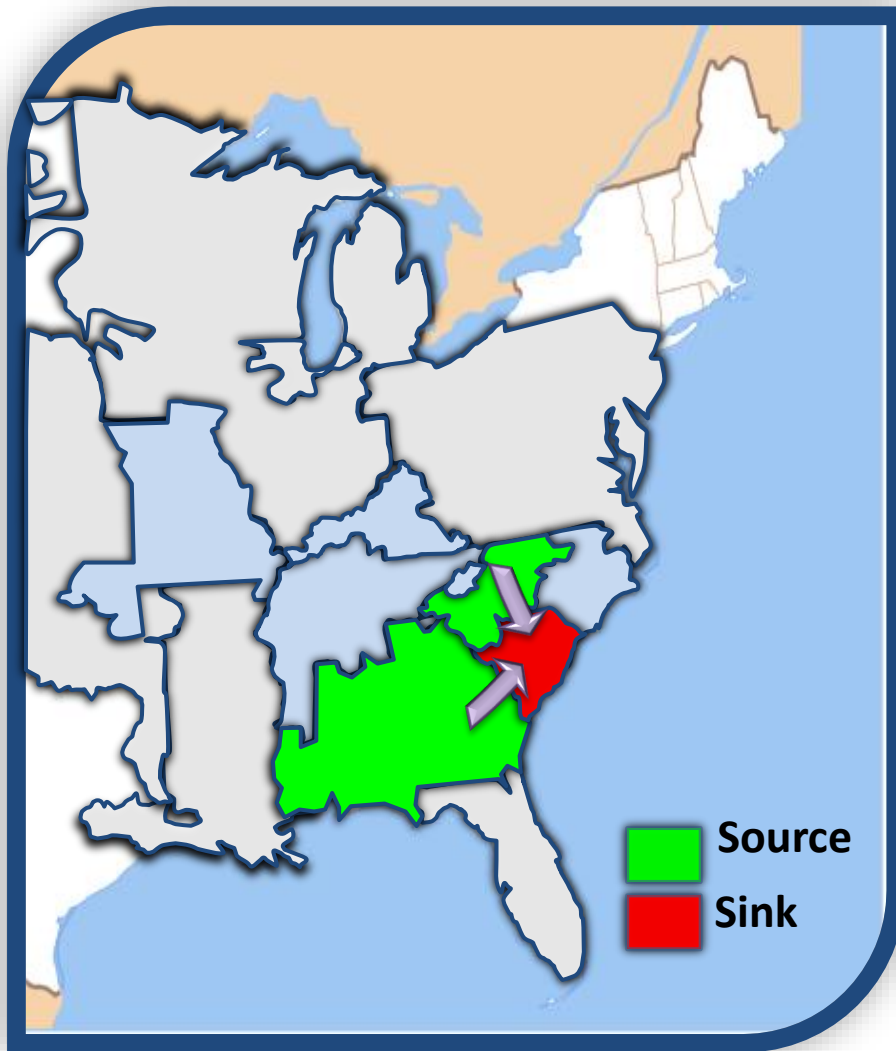
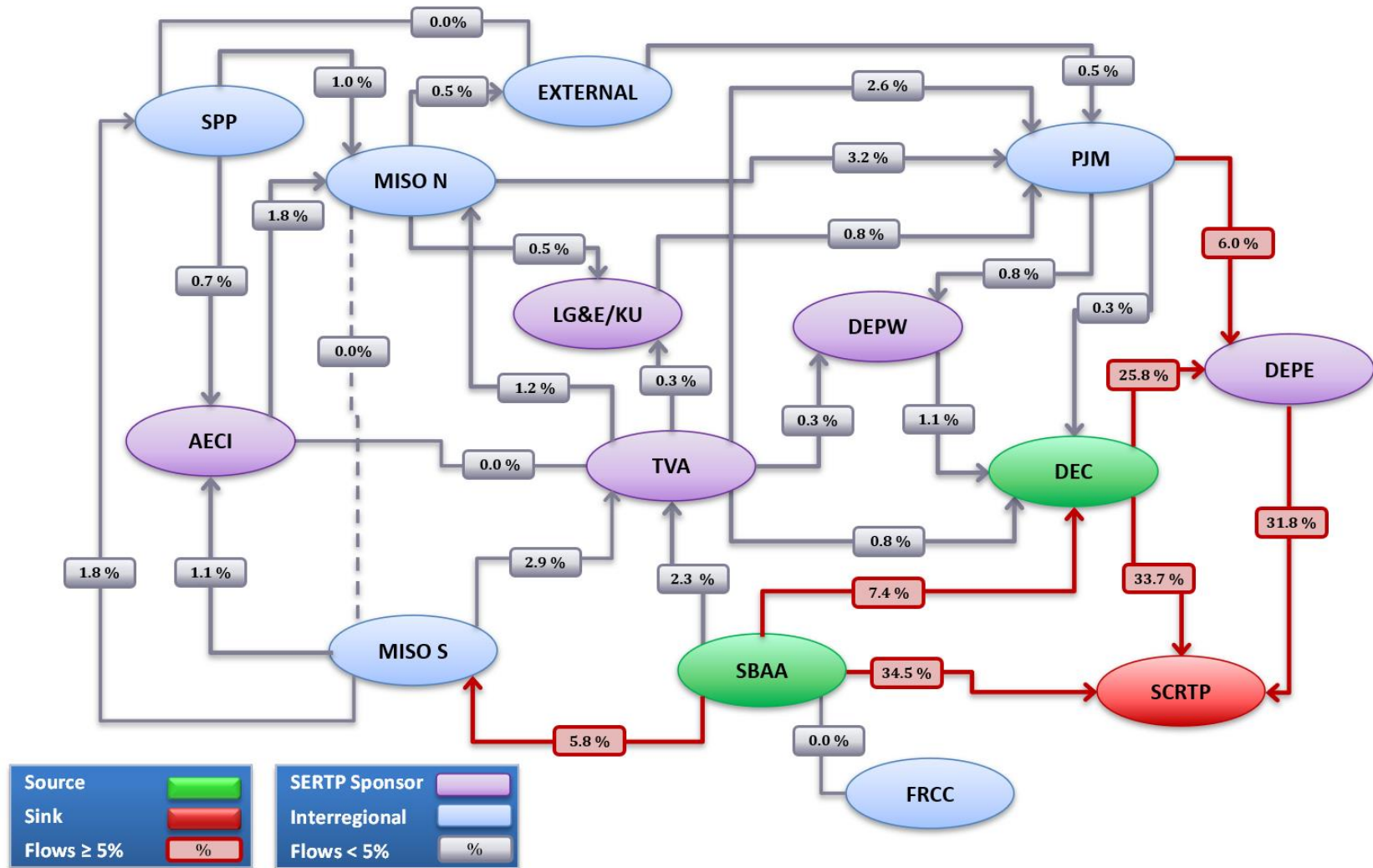


Table V.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	\$0
Duke Carolinas (DEC)	\$0
Duke Progress East (DEPE)	\$3,000,000
Duke Progress West (DEPW)	\$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	\$0
Southern (SBAA)	\$7,225,000
Tennessee Valley Authority (TVA)	\$0
TOTAL (\$2024)	\$10,225,000

Diagram V.1. Transfer Flow Diagram (% of Total Transfer)



Study Request 5 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
DEC/SOCO to Santee Cooper	2,400 MW	DEC/SOCO	Santee Cooper	2034
Load Flow Cases				
2024 Series Version 1 SERTP Models: Winter Peak				

Transmission System Impacts

The following tables below identify any constraints attributable to the requested transfer for the contingency that resulted in the most significant loadings for the conditions studied. These constraints could be seen for other contingencies.

Table V.2. Pass 0 – Transmission System Impacts with No Enhancements

The following table identifies significant **SERTP** thermal constraints without any enhancements to the transmission system. Any constraints that have known operating procedures were not included since those would not be considered attributable.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)	Project
			Without Request	With Request		
DEPE	304659 3FLOSUB115WT 115 304707 3FLOSUB115ET 115 Z1	239.0	102.6	111.1	FLOSUB230TT-FLOSUB115ETT-230-115-#2	P2
DEPE	304662 6FLO SUB230T 230 304707 3FLOSUB115ET 115 2	239.0	94.2	100.2	304659 3FLOSUB115WT 115 304707 3FLOSUB115ET 115 Z1	P3
SBAA	389001 6MCINTOSH 230 389021 3MCINTOSH 115 1	400.0	117.3	124.5	389004 3KRAFT 115 389151 3GODLEY J 115 1	P4
SBAA	389004 3KRAFT 115 389151 3GODLEY J 115 1	238.0	120.2	129.4	389001 6MCINTOSH 230 389021 3MCINTOSH 115 1	*

Note:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2024 Final Expansion Plan.

Table V.3. Pass 1 – Potential Future Transmission System Impacts

The following table depicts thermal loadings of *SERTP* transmission facilities that could become potential constraints in future years or with different queuing assumptions but are not overloaded in the study year with all proposed enhancements to the transmission system.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)
			Without Request	With Request	
DEC	306232 3BUSH R 115 309319 BUSH RI2 100 7	50	53.4	91.2	306232 3BUSH R 115 309319 BUSH RI2 100 8
DEPE	304731 3IND 304731 115 304732 3ELGIN TAP 115 1	115	44.58	90.54	CAMDEN-JUNCTION-DPC-WATEREE-PLANT-115KV-LINE
DEPE	304378 6RICHMOND230T 230 304423 6LAUREL HILL 230 1	796	76.41	99.92	ROB2230TT-ROBINSON#2-230-22-#1
SBAA	380515 3THOMSON 115 382109 3PUMPKIN CTR 115 1	148	79.7	99.6	380110 6EVANS 230 380520 3EVANS 115 1
SBAA	389151 3GODLEY J 115 389170 3RICE HOPE 115 1	238	81.4	90.3	389001 6MCINTOSH 230 389021 3MCINTOSH 115 1

Table V.4. Potential Solutions for Identified Problems

The following table lists any potential solutions that were identified to address the attributable constraints based on the assumptions used in this study and would have an estimated need date of the year of this study. It must be noted that changes to the load forecast, and/or changes in the expansion plan could occur and would impact the results of this study. In addition, the currently projected improvements to the transmission system were modeled in the cases. Changes to system conditions and/or the transmission expansion plans could also impact the results of this study.

Item	Potential Solution	Area	Planning Level Cost Estimate
P2	Upgrade Florence 230 kV Sub 115 kV bus tie breaker, including switches and CT ratio	DEPE	\$2,000,000
P3	Upgrade relay settings to get 336 MVA rating for Florence 230/115kV transformer #2	DEPE	\$1,000,000
P4	Install a second 400MVA 230/115kV auto transformer at McIntosh substation.	SBAA	\$7,225,000
SERTP TOTAL (\$2024)			\$10,225,000 ⁽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.