Southeastern Regional TRANSMISSION PLANNING

2026 Economic Planning Studies

SERTP Southeastern Regional Transmission Planning

Economic Planning Studies
Preliminary Results



September 11, 2026

PRELIMINARY

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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.

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Study Assumptions

Each Economic Planning Study request was evaluated for the year, season, and megawatt (MW) as identified below, as selected by the RPSG:

1. **MISO-South to TVA – 5,000 MW**
   - Year: 2031
   - Load Level: Winter Peak
   - Type of Transfer: Generation to Load
   - Source: Generation within MISO-South (+5,000 MW)
   - Sink: Load within TVA (+5,000 MW)
     (1) Paducah, KY – 1,000 MW
     (2) Knoxville, TN – 1,000 MW
     (3) Chattanooga, TN – 1,000 MW
     (4) Huntsville, AL – 1,000 MW
     (5) Memphis, TN – 1,000 MW

2. **Southern Company to Duke Energy – 3,000 MW**
   - Year: 2031
   - Load Level: Winter Peak
   - Type of Transfer: Generation to Load
   - Source: Generation within Southern Company (+3,000 MW)
   - Sink: Load within Duke Energy
     - DEC (+1,800 MW)
       a) Morning Star Tie 230 kV – 500 MW
       b) Rest of DEC – 1,300 MW
     - DEP (+1,200 MW)
       a) Fayetteville East 230 kV – 500 MW
       b) Rest of DEP – 700 MW

3. **Duke Energy to SBAA/South Alabama – 3,000 MW**
   - Year: 2031
   - Load Level: Winter Peak
   - Type of Transfer: Generation to Load
   - Source: Generation within Duke Energy, DEC (+2,000) and DEP (+1,000)
   - Sink: Load within SBAA (+3,000)
     (1) Southern Alabama
       a) Eastern Shore No. 1 230 kV bus – 500 MW
       b) Seminole 230 kV bus – 500 MW
     (2) Rest of SBAA – 2,000 MW

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4. FRCC to TVA – 5,000 MW

- Year: 2031
- Load Level: Winter Peak
- Type of Transfer: Generation to Load
- Source: Generation within FRCC (+5,000 MW)
- Sink: Load within TVA (+5,000 MW)
    (1) Paducah, KY – 1,000 MW
    (2) Knoxville, TN – 1,000 MW
    (3) Chattanooga, TN – 1,000 MW
    (4) Huntsville, AL – 1,000 MW
    (5) Memphis, TN – 1,000 MW

5. Southern Company to TVA – 2,000 MW

- Year: 2031
- Load Level: Winter Peak
- Type of Transfer: Generation to Load
- Source: Generation within Southern Company (+2,000 MW)
- Sink: Load within TVA (+2,000 MW)
    (1) Chattanooga, TN – 1,000 MW
    (2) Huntsville, AL – 1,000 MW

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Case Development

For all evaluations, the ***2026 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); or
- 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 planning criteria for its facilities and any constraints identified were documented and reviewed by each participating transmission owner.

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Solution Development

The participating transmission owners, with input from the SERTP stakeholders and 1898 & Co., developed potential solution alternatives due to the Economic Planning Studies requested by the RPSG. The participating transmission owners tested the effectiveness of the potential solution alternatives using the same cases, methodologies, assumptions and criteria described above. The participating transmission owners developed 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; and
- For each economic planning study request, the results of that study include:
    1. Limit(s) to the transfer;
    2. Selected solution alternatives to address the limit(s); and
    3. General, planning-level cost estimates and in-service dates for the selected transmission solution alternatives.

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1. Study Request 1 Results

MISO South to TVA – Winter 2031

5,000 MW

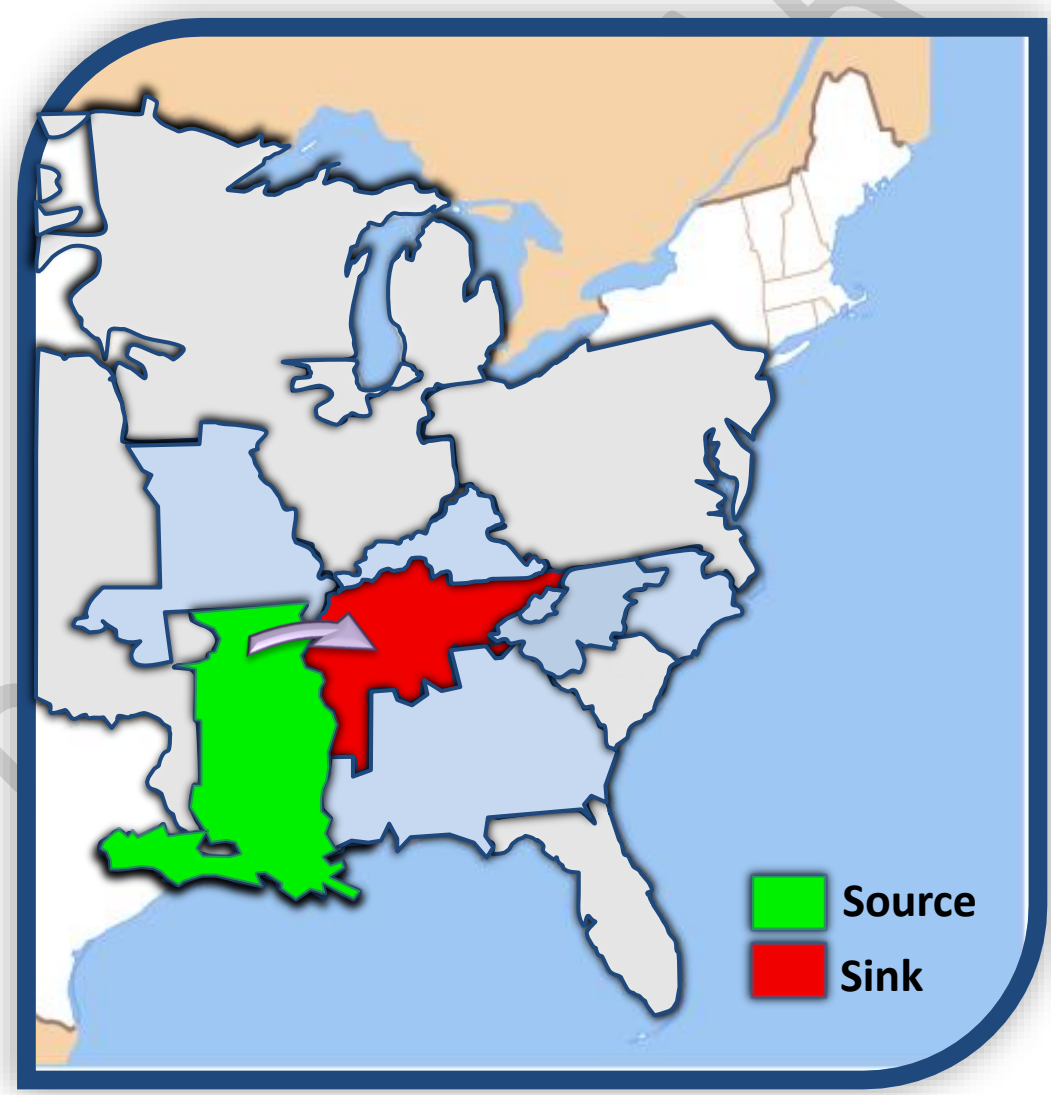
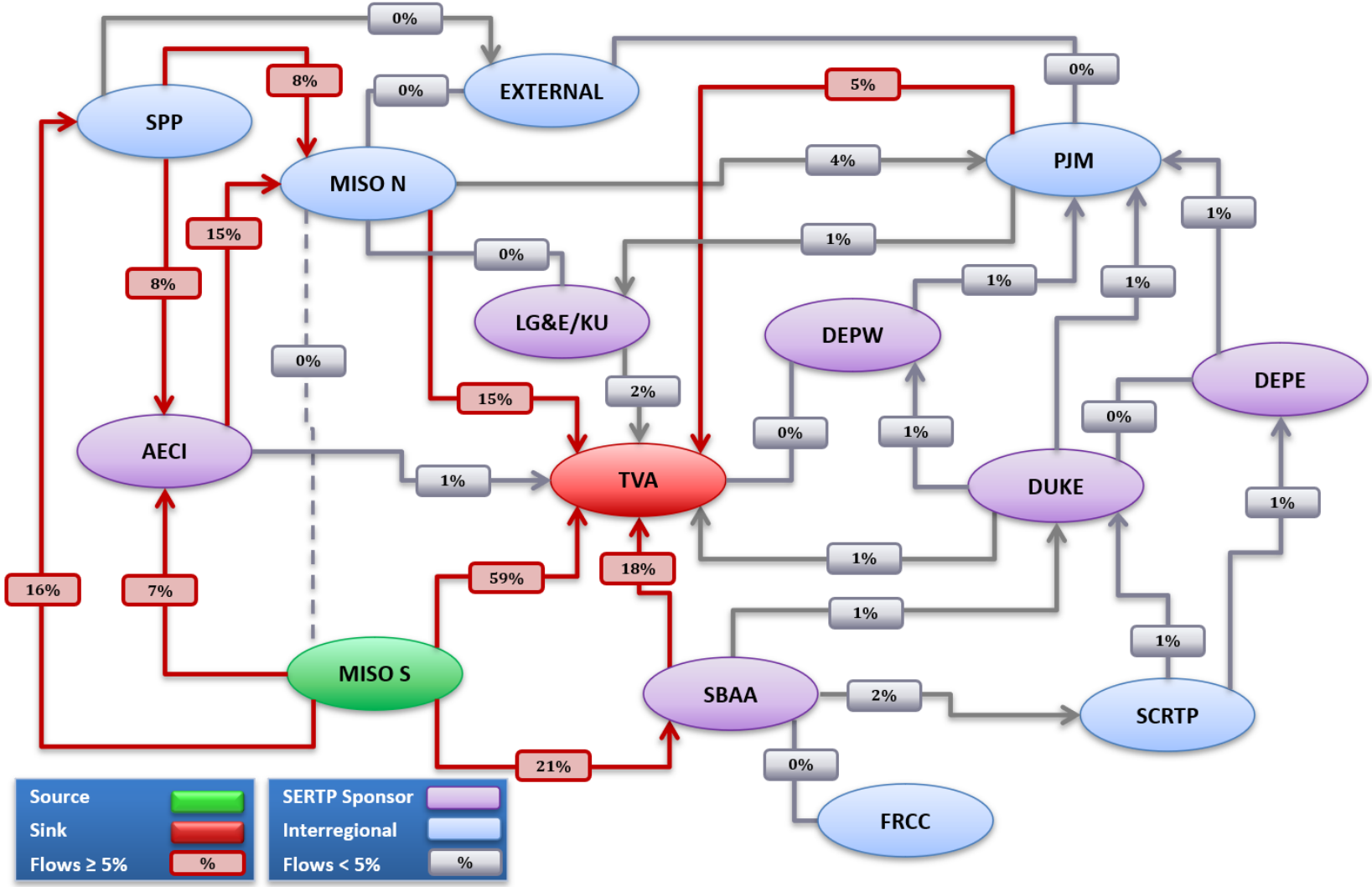


Table I.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$27,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
Southern (SBAA)	$85,400,000
Tennessee Valley Authority (TVA)	$0
TOTAL ($2026)	**$112,400,000**

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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 to TVA	5,000 MW	MISO South	TVA	2031
Load Flow Cases				
2026 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 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 (%) Without Request	Thermal Loadings (%) With Request	Contingency (With Request)	Project
DUK	306132 CAMPOBEL 100 306163 HNDRSNVL 100 1	83.0	112.0	118.9	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306132 CAMPOBEL 100 307053 BREC32 100 2	83.0	114.1	121.0	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306147 DUK 306147 100 306190 PISGAH 100 1	120.0	100.1	107.5	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306147 DUK 306147 100 306230 BLREC23 100 1	120.0	100.2	107.6	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306163 HNDRSNVL 100 307053 BREC32 100 2	83.0	111.3	118.2	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306177 MARIETTA 100 306230 BLREC23 100 1	120.0	109.4	116.7	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306190 PISGAH 100 308761 MARIETBL 100 1	120.0	97.2	104.6	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 2	386.0	92.2	104.7	308487 5TUCKASE 161 308489 6TUCKASE 230 3	P2
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 3	386.0	92.1	104.6	308487 5TUCKASE 161 308489 6TUCKASE 230 2	P2
SOCO	384132 5OAKMAN 161 384137 5JASPERTS 161 1	213.0	95.3	109.5	384104 5GOODSPRNGS1 161 385492 5WINONADS 161 1	P3
SOCO	384311 3GS STEEL 115 384331 3ATTALLA3 115 1	170.0	67.7	102.7	384854 3BLACK CK TP 115 385935 3GADSDEN B2 115 1	*
SOCO	384658 3BLAKELEY 115 384660 3SPAN FT 115 1	313.0	98.4	110.9	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P4
SOCO	384660 3SPAN FT 115 384661 3BELFORST 115 1	233.0	87.7	103.1	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P4
SOCO	388711 3MOSSPT E3 115 388713 3MSPT E T 115 1	162.0	78.3	107.7	384642 6BIG CK 6 230 388702 6DANIEL6 230 1	P5

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Area	Limiting Element	Rating (MVA)	Thermal Loadings (%) Without Request	With Request	Contingency (With Request)	Project
SOCO	388713 3MSPT E T 115 388827 3ESCTAW S 115 1	171.0	74.2	102.0	384642 6BIG CK 6 230 388702 6DANIEL6 230 1	P5
TVA	360055 5TRINITY AL 161 361755 5MORGAN ALTP 161 1	398.5	105.2	111.4	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*

Notes:

* All projects marked with an asterisk are addressed by existing solutions that will be considered in the 2026 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 (%) Without Request	With Request	Contingency (With Request)
MISO_S/TVA	318301 5BATESVL 161 360214 5BATESVILLE 161 1	836.0	69.6	91.7	318301 5BATESVL 161 360214 5BATESVILLE 161 2
MISO_S/TVA	318301 5BATESVL 161 360214 5BATESVILLE 161 2	836.0	69.6	91.7	318301 5BATESVL 161 360214 5BATESVILLE 161 1
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 1	386.0	86.5	98.4	DUK_P1-2_SHULERW
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 2	386.0	86.5	98.4	DUK_P1-2_SHULERB
DUK	308487 5TUCKASE 161 308488 5WEBSTER 161 1	386.0	82.1	94.1	DUK_P1-2_NANT_L03
SOCO	384137 5JASPERTS 161 384138 5JASPERDS 161 1	213.0	79.0	92.0	384137 5JASPERTS 161 384147 5PARKLAND 161 1
SOCO	384187 3FULSP SS 115 385933 3BOYLES3 B2 115 2	232.0	87.3	96.8	384771 3FUL SPDS 115 385933 3BOYLES3 B2 115 1
SOCO	384329 3LOOK MTN 115 384331 3ATTALLA3 115 1	130.0	57.3	94.7	384311 3GS STEEL 115 384331 3ATTALLA3 115 1
SOCO	384638 6CHICK 6 230 384642 6BIG CK 6 230 1	847.0	75.1	91.2	384638 6CHICK 6 230 384700 6BARRY 6 230 1
SOCO	384638 6CHICK 6 230 384700 6BARRY 6 230 1	872.0	87.2	93.2	384638 6CHICK 6 230 384642 6BIG CK 6 230 1
SOCO	384644 6N THEO 6 230 388710 6MOSSPT E6 230 1	663.0	62.3	99.4	384642 6BIG CK 6 230 388702 6DANIEL6 230 1
SOCO	384771 3FUL SPDS 115 385933 3BOYLES3 B2 115 1	232.0	87.2	96.7	384187 3FULSP SS 115 385933 3BOYLES3 B2 115 2
SOCO	388702 6DANIEL6 230 388705 6MPT EFR6 230 1	1002.0	74.1	94.7	384642 6BIG CK 6 230 388702 6DANIEL6 230 1
SOCO	388705 6MPT EFR6 230 388710 6MOSSPT E6 230 1	1002.0	71.7	92.2	384642 6BIG CK 6 230 388702 6DANIEL6 230 1
SOCO	388820 3CMBST BF 115 388825 3SR HELENA 115 1	171.0	66.5	94.1	384642 6BIG CK 6 230 388702 6DANIEL6 230 1
SOCO	388825 3SR HELENA 115 388827 3ESCTAW S 115 1	171.0	71.4	99.2	384642 6BIG CK 6 230 388702 6DANIEL6 230 1
TVA	360688 8CLAY 500 997968 8CLAY 161 1	1344.0	38.8	91.8	360035 8WEST POINT 500 360688 8CLAY 500 Z1
TVA	360689 5CLAY 161 997968 8CLAY 161 1	1344.0	38.8	90.8	360035 8WEST POINT 500 360688 8CLAY 500 Z1
TVA	360226 5OKOLONA MS 161 361900 5SHANNON MS 161 1	334.6	50.4	91.9	360035 8WEST POINT 500 360688 8CLAY 500 Z1

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Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)
			Without Request	With Request	
TVA	360055 5TRINITY AL 161 361291 5NEEL AL 161 1	548.5	74.3	91.1	360058 8E POINT AL 500 360059 5E POINT AL 161 1
TVA	360276 5DECATUR AL 161 361689 5S LIMESTONE 161 1	355.0	87.4	98.1	360697 5SEWELL AL 161 361637 5CTY LINE RD 161 1
TVA	360621 6MOSSLAKE GA 230 360622 3MOSSLAKE GA 115 1	200.0	59.6	90.4	360533 6CENTER PNT 230 361519 3CENTER PNT 115 1
TVA/SOCO	360283 5ALBERTVILLE 161 384332 5ATTALLA5 161 1	213.0	47.7	92.5	360058 8E POINT AL 500 384157 8MILLER8 500 1

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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	Install 3% switchable reactors on the North Greenville – Pisgah 100 kV TL.	DEC	$12,000,000
P2	Install 3% switchable reactor on the Jocassee – Tuckaseegee 230 kV TLs.	DEC	$15,000,000
P3	Rebuild approximately 10 miles of 161 kV TL from Oakman to Jasper TS with 795 ACSS rated at 200°C.	SOCO	$26,000,000
P4	Rebuild approximately 19.87 miles of 115 kV TL from Blakeley Island to Silverhill SS with 1351 ACSS rated at 200°C. Upgrade switch at Belforest with minimum 2000A rating.	SOCO	$47,688,000
P5	Rebuild approximately 4.88 miles of 115 kV TL from Moss Point East to Wade SS with 1351 ACSS rated at 200°C. Upgrade jumper at Moss Point East with minimum 2000 A rating.	SOCO	$11,712,000
TOTAL ($2026)			**$112,400,000** (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.

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2. Study Request 2 Results

SOCO to DEC/DEP – Winter 2031

3,000 MW

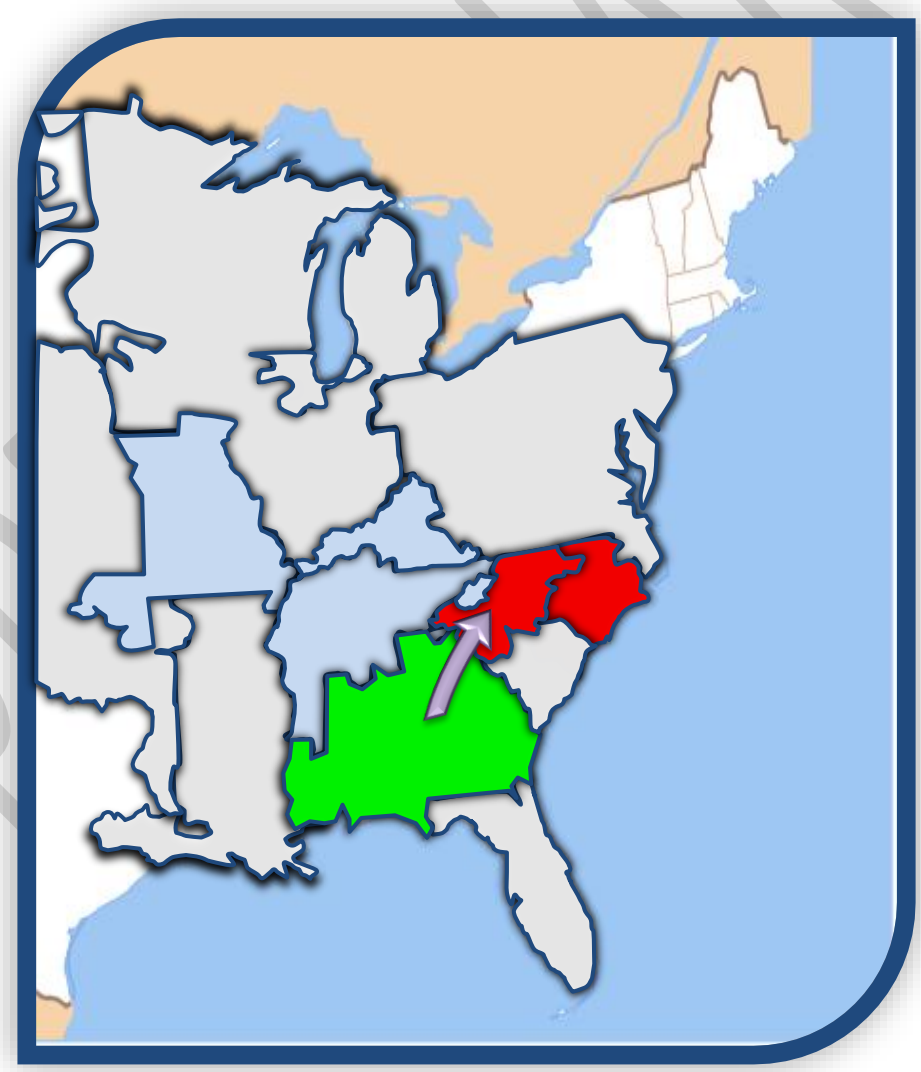
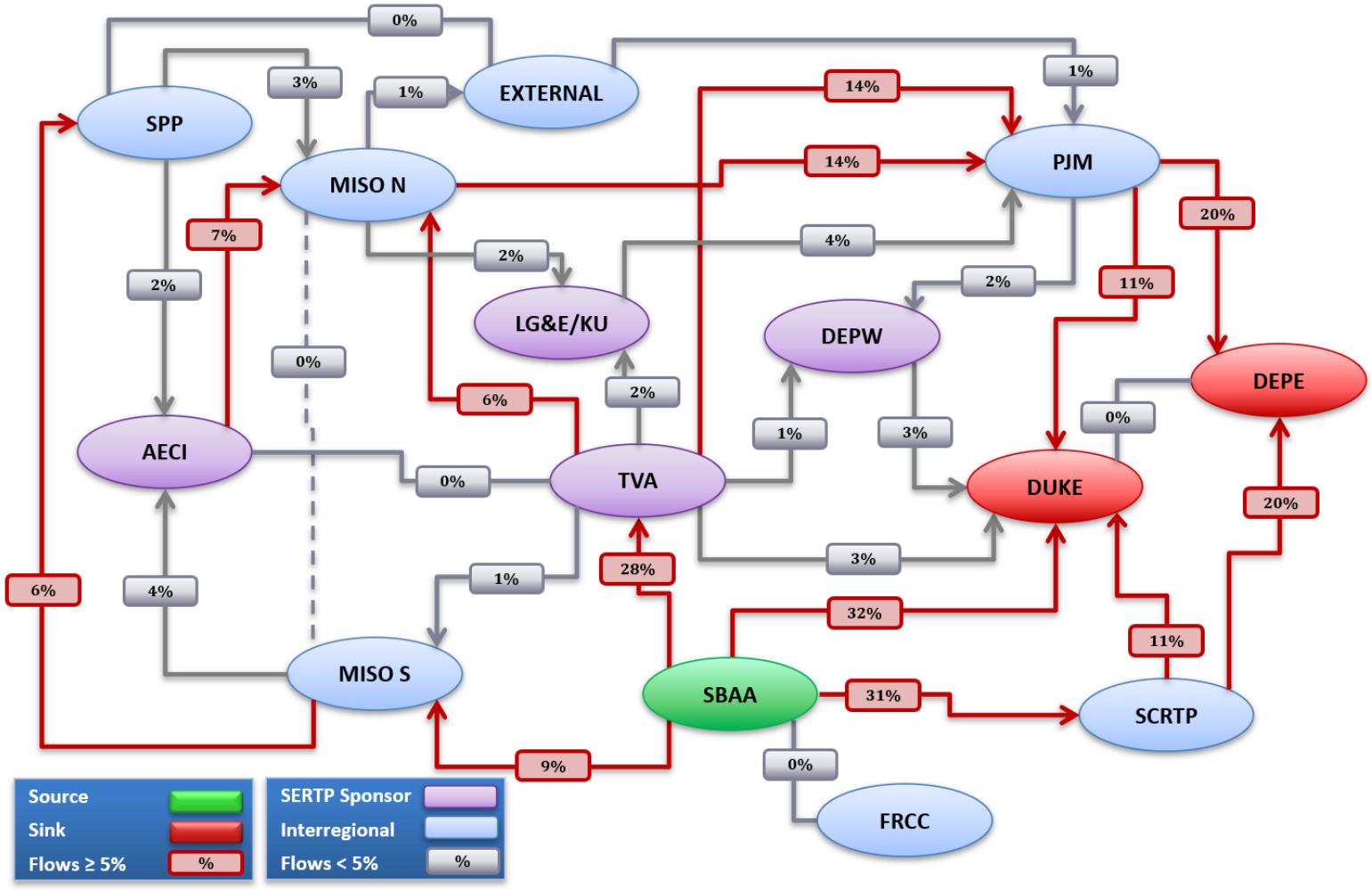


Table II.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$62,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
Southern (SBAA)	$129,600,000
Tennessee Valley Authority (TVA)	$7,000,000
TOTAL ($2026)	**$198,600,000**

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



Study Request 2 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
SOCO to DEC/DEP	3,000 MW	SOCO	DEC/DEP	2031
Load Flow Cases				
2026 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 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.

			Thermal Loadings (%)			
Area	**Limiting Element**	**Rating (MVA)**	**Without Request**	**With Request**	**Contingency (With Request)**	**Project**
DUK	306062 SENCA TB 100 306078 DUK 306078 100 1	157.0	97.2	105.3	306061 SENC2 TW 100 306168 DUK 306168 100 1	P1
DUK	306078 DUK 306078 100 309747 BREC35 100 1	157.0	95.8	103.8	306061 SENC2 TW 100 306168 DUK 306168 100 1	P1
DUK	306160 LAUEC39 100 306310 WOODRUFF 100 1	103.0	103.6	111.0	DUK_P2-1_GLENSPB-PAC_P21	P2/P3
DUK	306310 WOODRUFF 100 308478 LAUEC36 100 1	103.0	111.8	120.1	DUK_P2-1_GLENSPW-PAC_P21	P2/P3
DUK	306472 LOOKOUT 100 309286 ENGR U18 W 100 1	166.0	102.8	109.7	DUK_P2-1_BEULAHBL-STA_P21	*
DUK	306541 6MORN ST 230 306542 6OAKBORO 230 1	299.0	49.6	104.8	DUK_P1-2_AB_MORNBK4_S	*
SOCO	380196 6CARTERVL B1 230 381171 6VALLEY CRK 230 1	900.0	121.6	128.0	380195 6BOWEN 230 381192 6BRNDN FM RD 230 1	*
SOCO	380246 3S DAHLONE J 115 380384 3DAW FOREST 115 1	137.0	103.2	108.6	380411 3CLERMONT J 115 380412 3CLERMONT 115 1	*
SOCO	380954 3NELSON 115 381164 3MCCLAIN MTN 115 1	137.0	100.4	105.5	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	*
SOCO	381125 6CARTERVL B2 230 381171 6VALLEY CRK 230 1	900.0	122.5	129.0	380195 6BOWEN 230 381192 6BRNDN FM RD 230 1	*
SOCO	381164 3MCCLAIN MTN 115 381762 3BIG CANOE 115 1	137.0	96.7	101.8	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	*
SOCO	384132 5OAKMAN 161 384137 5JASPERTS 161 1	213.0	95.3	102.1	384104 5GOODSPRNGS1 161 385492 5WINONADS 161 1	P4

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%) Without Request	Thermal Loadings (%) With Request	Contingency (With Request)	Project
SOCO	388006 6LAUDRDL E 230 388008 6RAT TRANS 230 1	794.0	96.3	101.8	388007 6LAUDRDL W 230 388008 6RAT TRANS 230 1	P5
SOCO	388007 6LAUDRDL W 230 388008 6RAT TRANS 230 1	794.0	96.3	101.8	388006 6LAUDRDL E 230 388008 6RAT TRANS 230 1	P6
TVA	360055 5TRINITY AL 161 361755 5MORGAN ALTP 161 1	398.5	105.2	110.6	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*
TVA	360115 5MTN HOME 161 361202 5CADDO AL TP 161 1	315.4	120.9	127.7	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	P7
TVA	361202 5CADDO AL TP 161 361755 5MORGAN ALTP 161 1	398.5	100.8	106.2	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*

Notes:

* All projects marked with an asterisk are addressed by existing solutions that will be considered in the 2026 final expansion plan.

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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	
DUK	306071 WESTMNS+ 100 306081 BLREC26 100 1	157.0	88.5	94.7	DUK_P2-1_WESTMINB-CE_P21
DUK	306132 CAMPOBEL 100 309309 CAMPOBE2 100 Z1	207.0	78.5	90.2	306163 HNDRSNVL 100 309312 HNDRSNV2 100 Z1
DUK	306286 PACOLET 100 308478 LAUEC36 100 1	143.0	84.2	90.5	DUK_P2-1_GLENSPW-PAC_P21
DUK	306377 HILLTOP 100 307010 CHERYVIL2 100 1	154.0	83.9	90.1	DUK_P2-1_EARLW-SHEL_P21
DUK	306333 6NEWPORT 230 306541 6MORN ST 230 1	553.0	59.5	91.3	DUK_P1-3_AB_MORNBK3_L
DUK	306725 BANNERTN 100 306825 RUTLDUM 100 1	138.0	85.4	94.4	DUK_P2-1_PINNACLN2-RH_P21
DUK	306763 MITCHL R 100 306835 SRYYDKN7 100 1	111.0	89.1	99.8	DUK_P2-1_PINNACLN2-RH_P21
DUK	306763 MITCHL R 100 308027 WH PLAIN 100 1	111.0	85.1	95.5	DUK_P2-1_PINNACLN2-RH_P21
DUK	306918 HR JCT W 100 306935 LINDENST 100 1	166.0	86.3	92.8	DUK_P2-1_HIGHPTW-HR_P21
DUK	306918 HR JCT W 100 308926 ENRGU32W 100 1	166.0	86.3	92.8	DUK_P2-1_HIGHPTW-HR_P21
DUK	306935 LINDENST 100 308070 FAIRGRO 100 1	166.0	82.2	92.7	306918 HR JCT W 100 308926 ENRGU32W 100 1
SOCO	380335 6DAWSON CROS 230 382032 3DAWSON CROS 115 1	344.0	94.1	99.5	380208 6NELSON 230 381135 6MCGRAU F B1 230 1
SOCO	380383 3DAHLONEGA 115 382043 3BURNT STAND 115 1	137.0	86.9	92.3	380411 3CLERMONT J 115 380412 3CLERMONT 115 1
TVA	360445 5BRAYTOWN TN 161 360450 5HUNTSVL TN 161 1	281.1	92.1	97.4	360341 5BANGHAM TN 161 360344 5WCOOKEVL TN 161 1

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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	Install 3% switchable reactors on the North Greenville – Pisgah 100 kV TL.	DEC	$12,000,000
P2	Rebuild approximately 13 miles of 100 kV TL from Pacolet Tie to Woodruff Tie with 1158 ACSS rated at 200°C.	DEC	$40,000,000
P3	Install 50 MVAR capacitor bank at Woodruff Tie 100 kV.	DEC	$10,000,000
P4	Rebuild approximately 10 miles of 161 kV TL from Oakman to Jasper TS with 795 ACSS rated at 200°C.	SOCO	$26,000,000
P5	Rebuild approximately 17.7 miles of 230 kV TL from Plant Ratcliffe to Lauderdale East with 1351 ACSS rated at 200°C.	SOCO	$49,560,000
P6	Rebuild approximately 19.3 miles of 230 kV TL from Plant Ratcliffe to Lauderdale West with 1351 ACSS rated at 200°C.	SOCO	$54,040,000
P7	Rebuild approximately 4.78 miles of 161 kV TL from Mountain Home to Caddo AL Tap to achieve required rating.	TVA	$7,000,000
SERTP TOTAL ($2026)			**$198,600,000** (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.

PRELIMINARY

3. Study Request 3 Results

DEP/DEC to SBAA/South Alabama – Winter 2031

3,000 MW

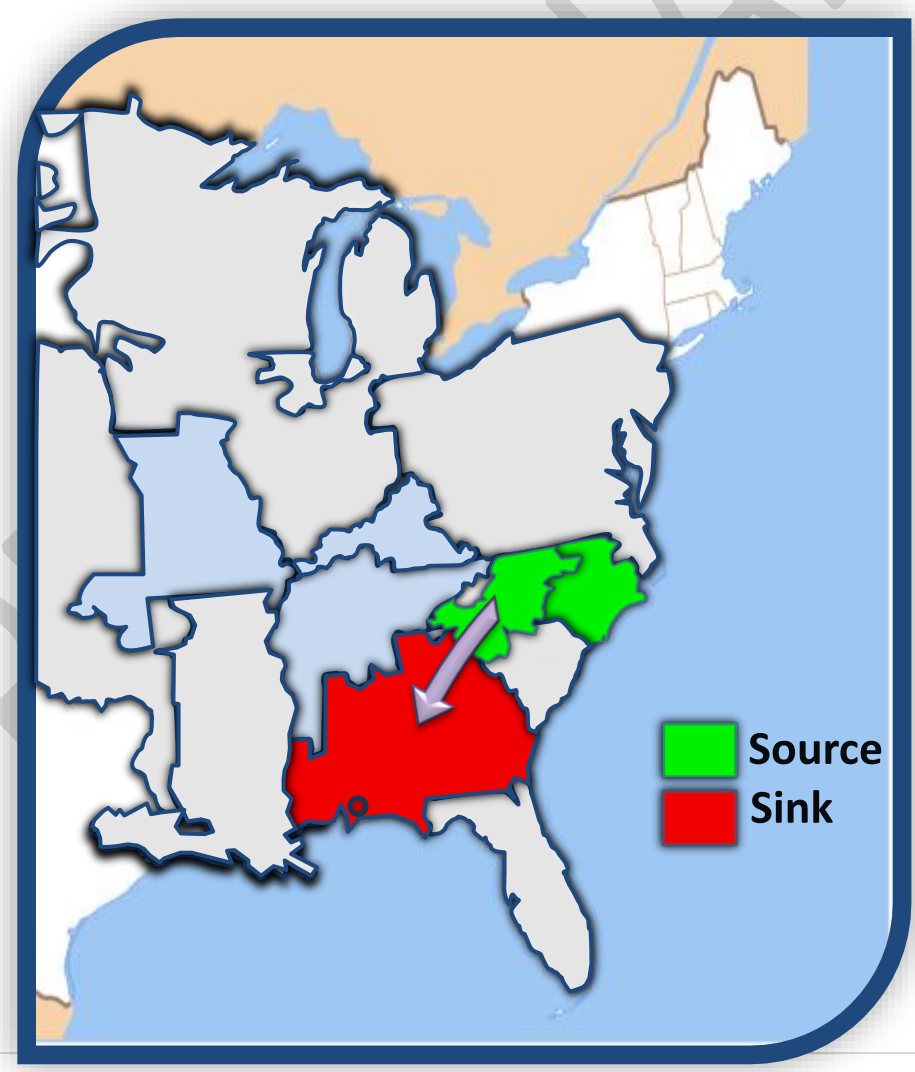
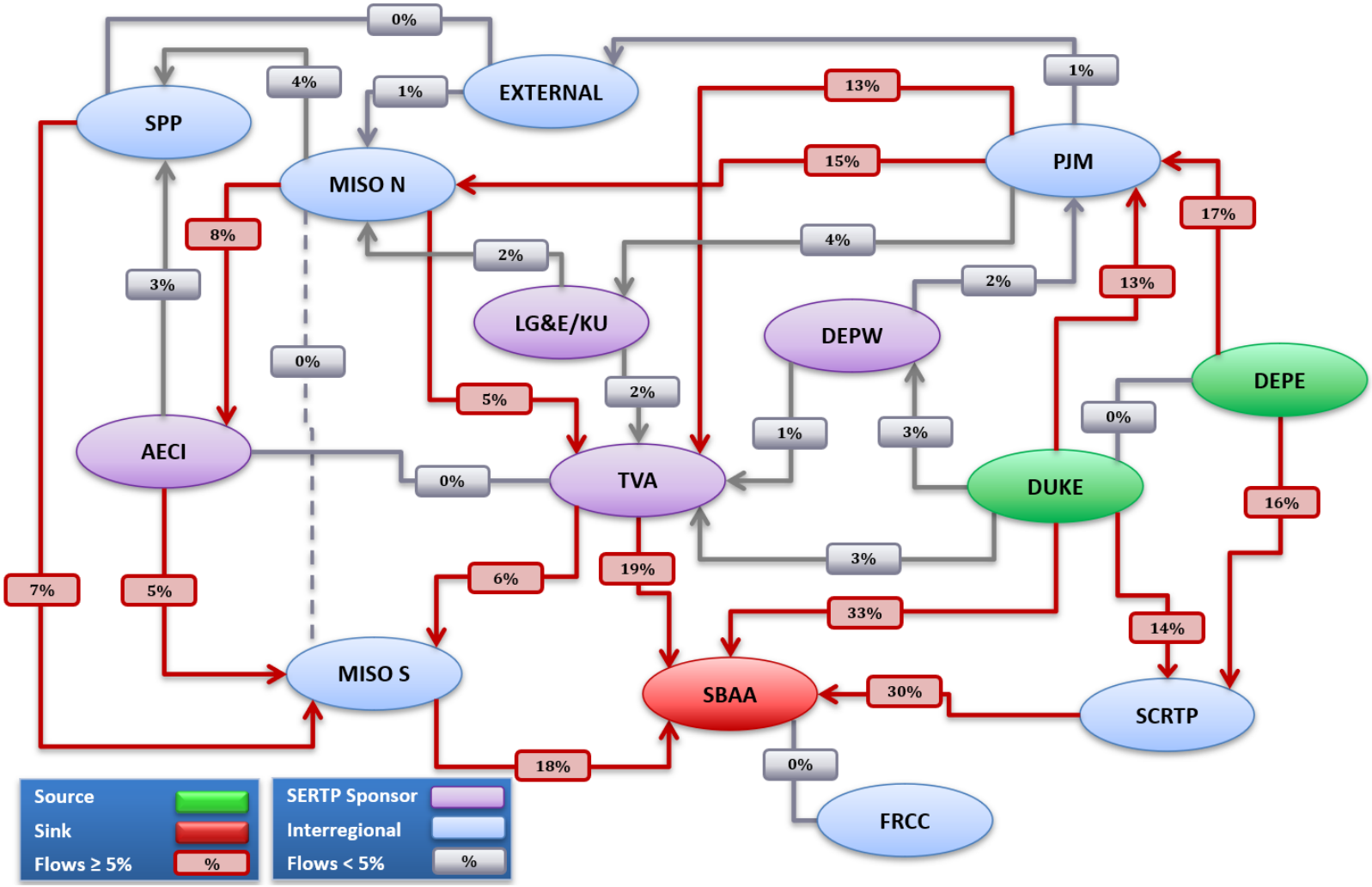


Table III.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$28,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
Southern (SBAA)	$550,653,000
Tennessee Valley Authority (TVA)	$0
TOTAL ($2026)	**$578,653,000** (1)

PRELIMINARY

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



Study Request 3 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
DEP/DEC to SBAA/South Alabama	3,000 MW	DEP/DEC	SBAA	2031
Load Flow Cases				
2026 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 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		
DUK	306132 CAMPOBEL 100 306163 HNDRSNVL 100 1	83.0	112.0	126.4	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306132 CAMPOBEL 100 307053 BREC32 100 2	83.0	114.1	128.5	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306147 DUK 306147 100 306190 PISGAH 100 1	120.0	100.1	116.3	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306147 DUK 306147 100 306230 BLREC23 100 1	120.0	100.2	116.4	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306163 HNDRSNVL 100 307053 BREC32 100 2	83.0	111.3	125.7	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306177 MARIETTA 100 306230 BLREC23 100 1	120.0	109.3	125.6	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306190 PISGAH 100 308761 MARIETBL 100 1	120.0	97.2	113.5	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306198 TIGER 100 308709 NEWCUTRET 100 2	126.0	94.7	101.1	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 1	386.0	86.5	110.3	DUK_P1-2_SHULERW	P2
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 2	386.0	86.5	110.3	DUK_P1-2_SHULERB	P2
DUK	306454 ENRG U18 100 306472 LOOKOUT 100 1	166.0	82.3	113.6	DUK_P2-1_BEULAHWH-STA_P21	*
DUK	306454 ENRG U18 100 306490 STAMEY 100 1	249.0	83.1	106.6	DUK_P1-2_BEULAHW	*

PRELIMINARY

2026 Economic Planning Studies

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%) Without Request	Thermal Loadings (%) With Request	Contingency (With Request)	Project
DUK	306472 LOOKOUT 100 309286 ENGR U18 W 100 1	166.0	102.8	134.6	DUK_P2-1_BEULAHBL-STA_P21	*
DUK	306709 DUK 306709 100 306758 MADISON 100 1	143.0	100.3	109.1	DUK_P2-1_PINEHB-MAD_P21	P3
DUK	306758 MADISON 100 308021 DUK 308021 100 1	143.0	94.2	102.9	DUK_P2-1_PINEH2W-MAD_P21	P3
DUK	308487 5TUCKASE 161 308488 5WEBSTER 161 1	386.0	82.1	105.8	DUK_P1-2_NANT_L03	P2
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 2	386.0	92.2	116.7	308487 5TUCKASE 161 308489 6TUCKASE 230 3	P2
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 3	386.0	92.1	116.6	308487 5TUCKASE 161 308489 6TUCKASE 230 2	P2
SOCO	317264 6ELSNRSW6 230 317246 3ELSNRSW3 115 1	186.0	98.3	104.3	317264 6ELSNRSW6 230 317246 3ELSNRSW3 115 2	P4
SOCO	317264 6ELSNRSW6 230 317246 3ELSNRSW3 115 2	186.0	98.3	104.3	317264 6ELSNRSW6 230 317246 3ELSNRSW3 115 1	P4
SOCO	317264 6ELSNRSW6 230 384640 6SILVER 6 TS 230 1	743.0	28.2	133.5	397000 BELLVIEW6 230 397266 6MOBILE HWY 230 1	P5
SOCO	317264 6ELSNRSW6 230 385173 6SEMINOL6 230 1	743.0	3.9	101.5	397000 BELLVIEW6 230 397266 6MOBILE HWY 230 1	P5
SOCO	380466 3ANTHONY SHL 115 381420 3DELHITAP 115 1	195.0	63.6	102.2	380104 6LEXINGTON 230 383208 6GOOSE POND 230 1	P14
SOCO	380515 3THOMSON 115 382109 3PUMPKIN CTR 115 1	137.0	95.1	100.1	380520 3EVANS 115 381460 3PATRIOTS PK 115 1	P15
SOCO	382766 6S HALL B1 230 383067 6CANDLER 230 1	561.0	63.0	102.1	380003 8NORCROSS 500 380011 8S HALL 500 1	P6
SOCO	384638 6CHICK 6 230 384642 6BIG CK 6 230 1	847.0	75.1	121.6	384638 6CHICK 6 230 384700 6BARRY 6 230 1	P7
SOCO	384638 6CHICK 6 230 384700 6BARRY 6 230 1	872.0	87.2	133.5	384638 6CHICK 6 230 384642 6BIG CK 6 230 1	P8
SOCO	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	940.0	75.3	131.3	384638 6CHICK 6 230 385644 6EST SHR #2 230 1	P9
SOCO	384638 6CHICK 6 230 385644 6EST SHR #2 230 1	940.0	73.7	123.6	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P10
SOCO	384640 6SILVER 6 TS 230 385644 6EST SHR #2 230 1	940.0	72.2	121.7	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P10
SOCO	384641 3SILVER 3 SS 115 384661 3BELFORST 115 1	233.0	91.7	111.7	384658 3BLAKELEY 115 384660 3SPAN FT 115 1	P11
SOCO	384658 3BLAKELEY 115 384660 3SPAN FT 115 1	313.0	98.4	159.4	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P11
SOCO	384659 3KIMCLARK 115 385934 3CHICK 3 B1 115 1	276.0	76.8	106.2	384656 3ONE MILE TP 115 384658 3BLAKELEY 115 1	P12
SOCO	384660 3SPAN FT 115 384661 3BELFORST 115 1	233.0	87.7	153.2	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P11
SOCO	385341 6EST SHR TAP 230 385342 6EST SHR CTR 230 Z1	477.0	6.0	144.1	385173 6SEMINOL6 230 397266 6MOBILE HWY 230 1	P13
SOCO/FRCC	385173 6SEMINOL6 230 397266 6MOBILE HWY 230 1	602.0	35.0	138.5	317264 6ELSNRSW6 230 384640 6SILVER 6 TS 230 1	**
SERU/SOCO	339100 6RUSSEL 230 383208 6GOOSE POND 230 1	637.0	67.9	102.7	DUK_P1-2_SOUTHHALL	**

Notes:

* All projects marked with an asterisk are addressed by existing solutions that will be considered in the 2026 final expansion plan.

** All projects marked with a double asterisk may require additional solutions outside of the SERTP footprint. Estimated costs presented are limited to the SERTP region.

PRELIMINARY

Notes:

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.

			Thermal Loadings (%)		
Area	**Limiting Element**	**Rating (MVA)**	**Without Request**	**With Request**	**Contingency (With Request)**
CPLW	304762 3ENKA115SSWT 115 304810 3ASHVLE115WT 115 1	398.0	88.3	96.3	ASHVL-BLTFRM230_&_ASHVL-AVRYCRK115
CPLW/DUK	305196 3E8-CRADLE 115 309681 3PISGAH 115 1	248.0	73.5	90.2	ASHVL-PISGAH230_CKTS_1&2
DUK	306132 CAMPOBEL 100 306198 TIGER 100 1	126.0	90.7	97.1	PISGAH-SHILOH230_CKTS_1&2
DUK	306490 STAMEY 100 309286 ENGR U18 W 100 1	249.0	75.5	98.9	DUK_P2-1_BEULAHBL-STA_P21
SOCO	317213 3SHILLAEC 115 384641 3SILVER 3 SS 115 1	233.0	73.1	99.3	385173 6SEMINOL6 230 397266 6MOBILE HWY 230 1
SOCO	380011 8S HALL 500 382035 6S HALL LS 230 1	2016.0	67.0	93.9	380003 8NORCROSS 500 380011 8S HALL 500 1
SOCO	380089 6GVILLE 2 B1 230 380420 3GVILLE 2 B1 115 1	400.0	86.2	94.3	380092 6GVILLE 2 B2 230 382767 6S HALL B2 230 1
SOCO	380092 6GVILLE 2 B2 230 382002 3GVILLE 2 B2 115 1	400.0	85.7	93.8	380089 6GVILLE 2 B1 230 382766 6S HALL B1 230 1
SOCO	380411 3CLERMONT J 115 381309 6CLERMONT J 230 1	300.0	88.4	93.8	380387 3GAINESVL 1 115 380413 3DUNCAN ML J 115 1
SOCO	380420 3GVILLE 2 B1 115 381945 3EUREKA J 115 1	207.0	86.1	95.0	381377 3PARKWAY GA 115 382002 3GVILLE 2 B2 115 1
SOCO	381106 3BLKSHEAR J 115 382577 3OFFERMAN B1 115 1	137.0	80.9	91.9	381085 3KETTLECK B1 115 382547 3KETTLECK B2 115 Z1
SOCO	381377 3PARKWAY GA 115 382002 3GVILLE 2 B2 115 1	207.0	89.5	98.2	380420 3GVILLE 2 B1 115 381945 3EUREKA J 115 1
SOCO	381377 3PARKWAY GA 115 382093 3S GAINESVIL 115 1	207.0	84.4	92.8	380420 3GVILLE 2 B1 115 381945 3EUREKA J 115 1
SOCO	382730 6DYER ROAD 230 382731 3DYER ROAD 115 1	400.0	85.6	92.6	382224 6CORN CRIB 230 382225 3CORN CRIB 115 1
SOCO	383067 6CANDLER 230 383073 6BRASELTON 230 1	561.0	58.0	96.9	380003 8NORCROSS 500 380011 8S HALL 500 1
SOCO	384656 3ONE MILE TP 115 384658 3BLAKELEY 115 1	353.0	66.9	92.1	384659 3KIMCLARK 115 385934 3CHICK 3 B1 115 1
SOCO	388711 3MOSSPT E3 115 388713 3MSPT E T 115 1	162.0	78.3	94.9	384642 6BIG CK 6 230 388702 6DANIEL6 230 1
SOCO	389044 6MELDRIM 230 389029 3MELDRIM 115 1	300.0	93.2	98.4	389021 3MCINTOSH 115 389157 3EFACEC TP 115 1

PRELIMINARY

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	Install 3% switchable reactors on the North Greenville – Pisgah 100 kV TL.	DEC	$12,000,000
P2	Install 3% switchable reactor on the Jocassee – Tuckaseegee 230 kV TLs.	DEC	$15,000,000
P3	Replace ancillary equipment on the Madison Tie to Walnut Cove 100 kV TL rated at 110°C.	DEC	$1,000,000
P4	Add a new 150 MVA 230/115 kV transformer at Elsanor Switching substation. Complete station upgrades.	SOCO	$8,120,000
P5	Loop Silverhills to Beulah 230 kV TL into the Seminole 230 kV substation with 1351 ACSS at 200°C or equivalent.	SOCO	$1,800,000
P6	Rebuild approximately 0.76 miles of 230 kV TL from South Hall to Winder Primary with 1351 ACSS rated at 200°C.	SOCO	$2,128,000
P7	Rebuild approximately 16.8 miles of 230 kV TL from Big Creek to Chickasaw with bundled 1351 ACSS rated at 200°C.	SOCO	$94,080,000
P8	Rebuild approximately 18.6 miles of 230 kV TL from Barry to Chickasaw with bundled 1351 ACSS rated at 200°C.	SOCO	$104,160,000
P9	Rebuild approximately 18.0 miles of 230 kV TL from Chickasaw to Easter Shore Center Tap with bundled 1351 ACSS rated at 200°C.	SOCO	$101,920,000
P10	Rebuild approximately 29.7 miles of 230 kV TL from Chickasaw to Silverhill #2 with bundled 1351 ACSS rated at 200°C.	SOCO	$166,320,000
P11	Rebuild approximately 19.87 miles of 115 kV TL from Blakeley Island to Silverhill SS with 1351 ACSS rated at 200°C. Upgrade switch at Belforest to a minimum rating of 2000 A.	SOCO	$47,688,000
P12	Rebuild approximately 3.38 miles of 115 kV TL from Chickasaw to Kimberly Clark with 1351 ACSS rated at 200°C.	SOCO	$8,112,000
P13	Rebuild approximately 0.03 miles of 230 kV TL from Chickasaw to Silverhill SS #1 with 1351 ACSS rated at 200°C.	SOCO	$84,000
P14	Rebuild approximately 5.62 miles of 115 kV TL from Anthony Shoals to Delhi Tap with 1351 ACSS at 200°C. Replace the jumper with 1590 AAC.	SOCO	$8,373,800
P15	Upgrade approximately 5.28 miles of 115 kV TL from Thomson to Pumpkin Center with 336.4 ACSR Linnet 26/7 at 125°C or higher.	SOCO	$7,867,200
SERTP TOTAL ($2026)			**$578,653,000** (1)

PRELIMINARY

(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.

PRELIMINARY

4. Study Request 4 Results

FRCC to TVA – Winter 2031

5,000 MW

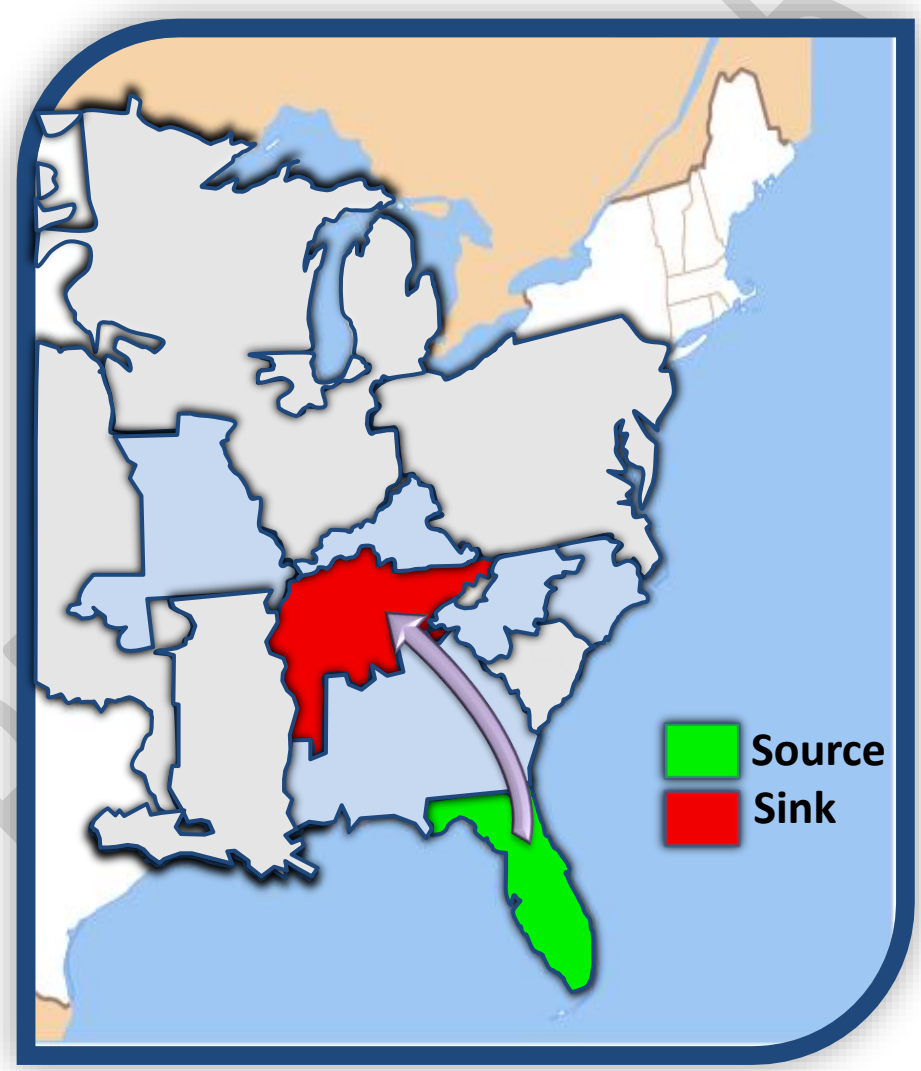
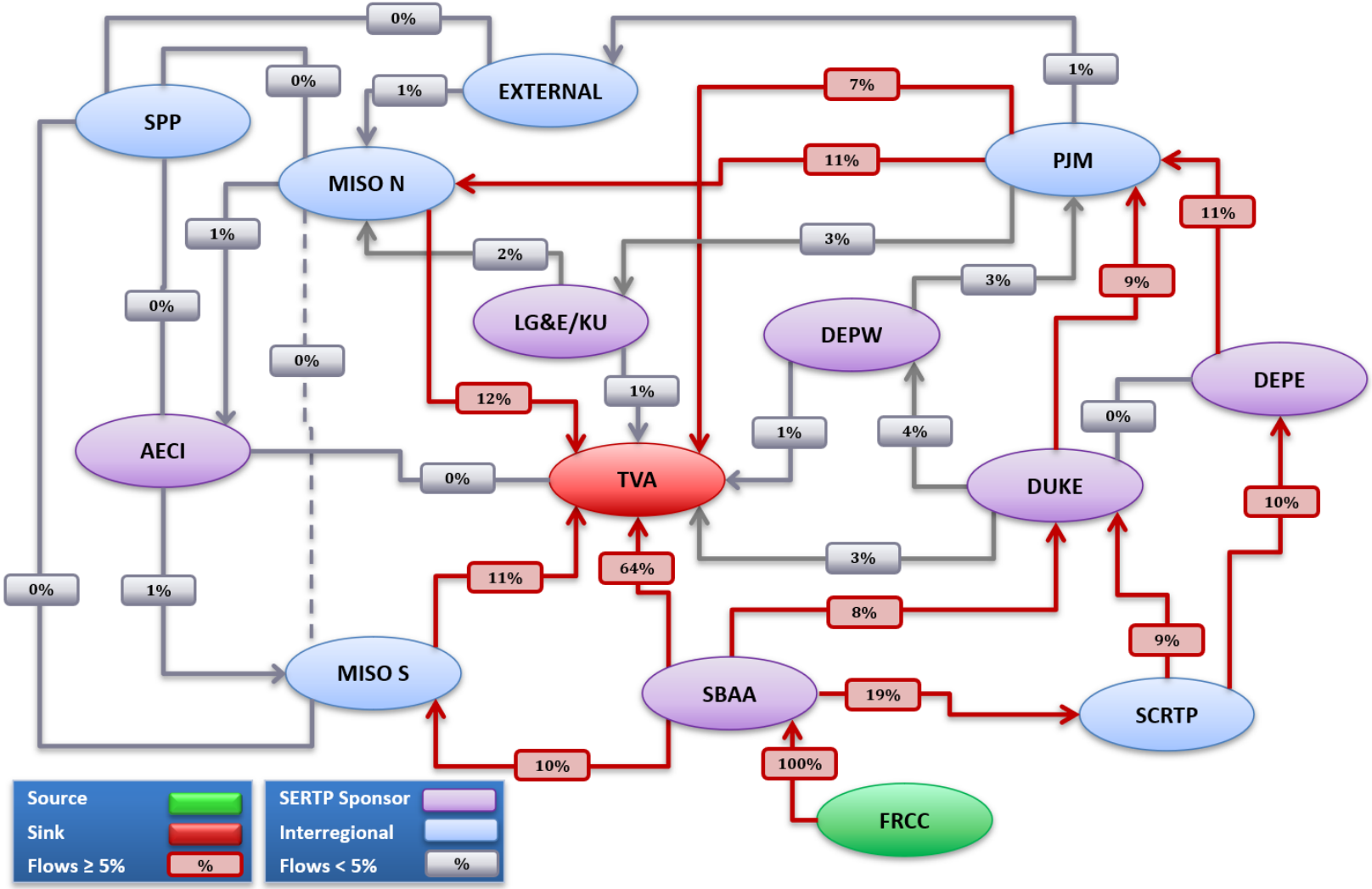


Table IV.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$35,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$115,000,000
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
Southern (SBAA)	$301,456,000
Tennessee Valley Authority (TVA)	$8,000,000
TOTAL ($2026)	$459,456,000

PRELIMINARY

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



Study Request 4 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
FRCC to TVA	5,000 MW	FRCC	TVA	2031
Load Flow Cases				
2026 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 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		
CPLW	304762 3ENKA115SSWT 115 304810 3ASHVLE115WT 115 1	398.0	88.3	104.0	ASHVL-BLTFRM230_&_ASHVL-AVRYCRK115	P17
CPLW/DUK	305196 3E8-CRADLE 115 309681 3PISGAH 115 1	248.0	73.5	105.2	ASHVL-PISGAH230_CKTS_1&2	P18
DUK	306108 6PISGAHR 230 309450 1PISGA 1 1.00 1	248.0	106.9	119.2	ASHVL-PISGAH230_CKTS_1&2	P1
DUK	306132 CAMPOBEL 100 306163 HNDRSNVL 100 1	83.0	112.0	139.5	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306132 CAMPOBEL 100 306198 TIGER 100 1	126.0	90.7	105.6	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306132 CAMPOBEL 100 307053 BREC32 100 2	83.0	114.1	141.6	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306147 DUK 306147 100 306190 PISGAH 100 1	120.0	100.1	131.3	PISGAH-SHILOH230_CKTS_1&2	P2
DUK	306147 DUK 306147 100 306230 BLREC23 100 1	120.0	100.2	131.4	PISGAH-SHILOH230_CKTS_1&2	P2
DUK	306163 HNDRSNVL 100 307053 BREC32 100 2	83.0	111.3	138.8	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306177 MARIETTA 100 306230 BLREC23 100 1	120.0	109.3	140.6	PISGAH-SHILOH230_CKTS_1&2	P2
DUK	306190 PISGAH 100 308761 MARIETBL 100 1	120.0	97.2	128.5	PISGAH-SHILOH230_CKTS_1&2	P2
DUK	306198 TIGER 100 308709 NEWCUTRET 100 2	126.0	94.7	109.7	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 1	386.0	86.5	125.3	DUK_P1-2_SHULERW	P3
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 2	386.0	86.5	125.3	DUK_P1-2_SHULERB	P3

2026 Economic Planning Studies

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%) Without Request	Thermal Loadings (%) With Request	Contingency	Project
DUK	308487 5TUCKASE 161 308488 5WEBSTER 161 1	386.0	82.1	121.1	DUK_P1-2_NANT_L03	P3
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 2	386.0	92.2	132.3	308487 5TUCKASE 161 308489 6TUCKASE 230 3	P3
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 3	386.0	92.1	132.1	308487 5TUCKASE 161 308489 6TUCKASE 230 2	P3
SOCO	380166 6KINGSLND B1 230 380859 3KINGSLND B1 115 1	400.0	24.7	100.1	380166 6KINGSLND B1 230 382566 6KINGSLND B2 230 Z1	*
SOCO	380182 6HAMMOND 230 381128 3HAMMOND B2 115 1	356.0	88.2	100.7	381155 6JUDY MTN 230 381156 3JUDY MTN 115 1	*
SOCO	380198 6PINSON 230 380915 3PINSON 115 1	280.0	89.5	103.5	380198 6PINSON 230 380199 6OOSTANAULA 230 1	P4
SOCO	380220 6PINE GRV B1 230 381870 6ERCO 230 1	561.0	27.9	100.0	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	**
SOCO	380858 3HI HAT 115 380867 3COLERAIN 115 1	162.0	69.7	170.3	380163 6COLERAIN 230 382566 6KINGSLND B2 230 1	P5
SOCO	380858 3HI HAT 115 382167 3KINLAW 115 1	162.0	68.0	168.5	380163 6COLERAIN 230 382566 6KINGSLND B2 230 1	P5
SOCO	380859 3KINGSLND B1 115 380867 3COLERAIN 115 1	171.0	66.0	161.3	380163 6COLERAIN 230 382566 6KINGSLND B2 230 1	P5
SOCO	380863 3ZUTA 115 380864 3W BRUNS B1 115 1	128.0	26.6	101.7	380015 8THALMANN 500 382157 8S_THAL_MCAL 500 Z1	*
SOCO	380903 3CHATSWORTH 115 380904 3COOSAWATTEE 115 1	137.0	69.3	113.3	380200 6E DALTON 230 380202 6CARTERS DAM 230 1	P6
SOCO	381155 6JUDY MTN 230 381156 3JUDY MTN 115 1	400.0	92.0	102.7	380182 6HAMMOND 230 381128 3HAMMOND B2 115 1	*
SOCO	382148 3HOMELAND 115 382149 3STGEORGE 115 1	137.0	29.6	125.9	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	P7
SOCO	382149 3STGEORGE 115 382812 3SPARKMAN CK 115 1	137.0	38.8	134.4	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	P7
SOCO	382155 3MACEDONIA 115 382355 3MACEDON SW 115 1	137.0	50.3	147.5	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	P7
SOCO	382155 3MACEDONIA 115 382812 3SPARKMAN CK 115 1	137.0	43.2	139.5	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	P7
SOCO	384132 5OAKMAN 161 384137 5JASPERTS 161 1	213.0	95.3	116.9	384104 5GOODSPRNGS1 161 385492 5WINONADS 161 1	P8
SOCO	384187 3FULSP SS 115 385933 3BOYLES3 B2 115 2	232.0	87.3	102.7	384771 3FUL SPDS 115 385933 3BOYLES3 B2 115 1	P9
SOCO	384329 3LOOK MTN 115 384331 3ATTALLA3 115 1	130.0	57.3	119.1	384311 3GS STEEL 115 384331 3ATTALLA3 115 1	P10
SOCO	384332 5ATTALLA5 161 384331 3ATTALLA3 115 1	117.0	42.5	112.7	384332 5ATTALLA5 161 384331 3ATTALLA3 115 2	P11
SOCO	384332 5ATTALLA5 161 384331 3ATTALLA3 115 2	131.0	42.1	104.2	384332 5ATTALLA5 161 384331 3ATTALLA3 115 1	P12
SOCO	384771 3FUL SPDS 115 385933 3BOYLES3 B2 115 1	232.0	87.2	102.6	384187 3FULSP SS 115 385933 3BOYLES3 B2 115 2	P13
SOCO/FRCC	380015 8THALMANN 500 400356 DUVAL 500 1	2598.0	22.0	159.9	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	**
SOCO/FRCC	380166 6KINGSLND B1 230 401145 YULEE 230 1	607.0	22.0	142.6	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	**
SOCO/FRCC	382355 3MACEDON SW 115 400406 MACLENNY 115 1	207.0	31.0	109.6	401772 HARVEY 230 401830 CLAUDE 230 1	**
SOCO/FRCC	381834 3LOCH LAUREL 115 403133 SUW TRANSM 115 1	152.0	23.0	143.0	381870 6ERCO 230 402945 TWINRIVRS SW 230 1	**
SOCO/FRCC	381870 6ERCO 230 402945 TWINRIVRS SW 230 1	561.0	22.0	101.3	382352 8S_HAT_DUVAL 500 400356 DUVAL 500 1	**
TVA	360055 5TRINITY AL 161 361755 5MORGAN ALTP 161 1	398.5	105.2	117.1	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*
TVA	360115 5MTN HOME 161 361202 5CADDO AL TP 161 1	315.4	120.9	131.9	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	P14
TVA	361202 5CADDO AL TP 161 361755 5MORGAN ALTP 161 1	398.5	100.8	111.2	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*
TVA/SOCO	360283 5ALBERTVILLE 161 384332 5ATTALLA5 161 1	213.0	48.6	110.5	360058 8E POINT AL 500 384157 8MILLER8 500 1	P15/P16

Notes:

* All projects marked with an asterisk are addressed by existing solutions that will be considered in the 2026 final expansion plan.

** All projects marked with a double asterisk may require additional solutions outside of the SERTP footprint. Estimated costs presented are limited to the SERTP region.

PRELIMINARY

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.

			Thermal Loadings (%)		
Area	**Limiting Element**	**Rating (MVA)**	**Without Request**	**With Request**	**Contingency**
CPLW	304743 3CANTON115 T 115 305196 3E8-CRADLE 115 1	286.0	63.6	91.1	ASHVL-PISGAH230_CKTS_1&2
CPLW	304768 3BEAVRDM TAP 115 304790 3VANDERBLT T 115 1	151.0	69.4	92.7	CRAGGY-ENKA230_&_BASF-ENKA115
DUK	306132 CAMPOBEL 100 308709 NEWCUTRET 100 2	126.0	82.8	97.7	PISGAH-SHILOH230_CKTS_1&2
DUK	306443 6MARSHAL 230 306445 6STAMEY 230 2	897.0	85.4	92.0	DUK_P1-2_STAMEYB
SOCO	380220 6PINE GRV B1 230 381065 3PINE GRV B1 115 1	285.0	66.8	94.1	380220 6PINE GRV B1 230 382548 6PINE GRV B2 230 Z1
SOCO	380420 3GVILLE 2 B1 115 381945 3EUREKA J 115 1	207.0	86.1	91.5	381377 3PARKWAY GA 115 382002 3GVILLE 2 B2 115 1
SOCO	380515 3THOMSON 115 381413 6THOMSON 230 1	300.0	72.7	91.1	380107 6WARRENTON 230 383156 6GOLDENS CRK 230 1
SOCO	380588 3LUDOWICI 115 382397 3TOWNSEND 115 1	137.0	21.5	91.5	380015 8THALMANN 500 382157 8S_THAL_MCAL 500 Z1
SOCO	380863 3ZUTA 115 382397 3TOWNSEND 115 1	128.0	23.5	98.4	380015 8THALMANN 500 382157 8S_THAL_MCAL 500 Z1
SOCO	380898 3ADAIRSVL J 115 381759 3CALHOUN 3 J 115 1	171.0	38.8	95.7	380198 6PINSON 230 380199 6OOSTANAULA 230 1
SOCO	380908 3ROME 115 381156 3JUDY MTN 115 1	281.0	85.7	92.6	380181 6ROCKY MTN 230 380198 6PINSON 230 1
SOCO	381106 3BLKSHEAR J 115 382577 3OFFERMAN B1 115 1	137.0	80.9	92.8	381085 3KETTLECK B1 115 382547 3KETTLECK B2 115 Z1
SOCO	382158 8MCCALL RD 500 383056 6MCCALL RD 230 1	600.0	92.0	98.3	380014 8HATCH 500 382352 8S_HAT_DUVAL 500 Z1
SOCO	384137 5JASPERTS 161 384138 5JASPERDS 161 1	213.0	79.0	97.5	384137 5JASPERTS 161 384147 5PARKLAND 161 1
SOCO	384304 3ANISTON3 B1 115 384305 6ANISTON6 B1 230 1	366.0	84.8	90.0	385930 3ANISTON3 B2 115 385931 6ANISTON6 B2 230 1
SOCO	384312 3ALEX XRD 115 384320 3JAXVILTP 115 1	198.0	74.1	92.2	384234 6CLAY 6 230 384247 6ONEONTA6 230 1
SOCO	385235 6E PELHM6 230 385534 6BESSEMERTS6 230 1	471.0	65.5	94.8	384375 8S.BESS 8 500 385123 8BILLNGSS 500 1
SOCO	389173 8BIG OGEECHE 500 389174 6BIG OGEECHE 230 1	2016.0	56.4	93.5	380009 8W MCINTOSH 500 383248 8ROJA CC 500 1
TVA	360276 5DECATUR AL 161 361689 5S LIMESTONE 161 1	355.0	87.4	95.7	360697 5SEWELL AL 161 361637 5CTY LINE RD 161 1
TVA	360621 6MOSSLAKE GA 230 360622 3MOSSLAKE GA 115 1	200.0	59.6	98.3	360533 6CENTER PNT 230 361519 3CENTER PNT 115 1

PRELIMINARY

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
P1	Replace 230/100 kV transformer 1 at Pisgah.	DEC	$8,000,000
P2	Install 3% switchable reactors on the North Greenville – Pisgah 100 kV TL.	DEC	$12,000,000
P3	Install 3% switchable reactor on the Jocassee – Tuckaseegee 230 kV TLs.	DEC	$15,000,000
P4	Upgrade Pinson 115 kV bus equipment with 1590 AAC.	SOCO	$1,000,000
P5	Rebuild approximately 3.33 miles of 115 kV TL from Kingsland to Kinlaw with 1351 ACSS rated at 200°C. Upgrade jumper at Kingsland and 115 kV bus at Hi Hat.	SOCO	$8,324,000
P6	Rebuild approximately 12 miles of 115 kV TL from Coosawattee to East Dalton with 1351 ACSS rated at 200°C. Upgrade jumper at Chatsworth with 1590 AAC.	SOCO	$28,920,000
P7	Rebuild approximately 51.6 miles of 115 kV TL from Homeland to Macedonia SW with 1351 ACSS rated at 200°C. Upgrade limiting elements along the line to a minimum rating of 2000A.	SOCO	$124,172,000
P8	Rebuild approximately 10 miles of 161 kV TL from Oakman to Jasper TS with 795 ACSS rated at 200C.	SOCO	$26,000,000
P9	Rebuild approximately 4.1 miles of 115 kV TL from Boyles to Fulton Springs #2 with 1351 ACSS rated at 200°C.	SOCO	$9,840,000
P10	Rebuild approximately 9 miles of 115 kV TL from Attalla to Gadsden with 1351 ACSS rated at 200°C.	SOCO	$21,600,000
P11	Replace Attala 161/115 kV bank #1 with new 400 MVA bank.	SOCO	$10,400,000
P12	Replace Attala 161/115 kV bank #2 with new 400 MVA bank.	SOCO	$10,400,000

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Item	Potential Solution	Area	Planning Level Cost Estimate
P13	Rebuild approximately 4.1 miles of 115 kV TL from Boyles to Fulton Springs #1 with 1351 ACSS rated at 200°C.	SOCO	$9,840,000
P14	Rebuild approximately 19.6 miles of 161 kV TL from Albertville (TVA) to Attalla (SOCO) with 1351 ACSS rated at 200°C.	SOCO	$50,960,000
P15	Rebuild approximately 0.05 miles of 161 kV TL from Albertville (TVA) to Attalla (SOCO) with 1351 ACSS rated at 200°C.	TVA	$1,000,000
P16	Rebuild approximately 4.78 miles of 161 kV TL from Mountain Home to Caddo AL Tap to achieve required rating.	TVA	$7,000,000
P17	Rebuild the entire 7.77 miles of the Asheville Plant – Enka West 115 kV TL with 795 ACSS TW rated at 365°F.	DEPW	$31,000,000
P18	Rebuild 21.12 miles of the Canton – DPC Pisgah Forest 115 kV TL with 795 ACSS TW rated at 365°F.	DEPW	$84,000,000
TOTAL ($2026)			**$459,456,000** (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.

PRELIMINARY

5. Study Request 5 Results

SOCO to TVA – Winter 2031

2,000 MW

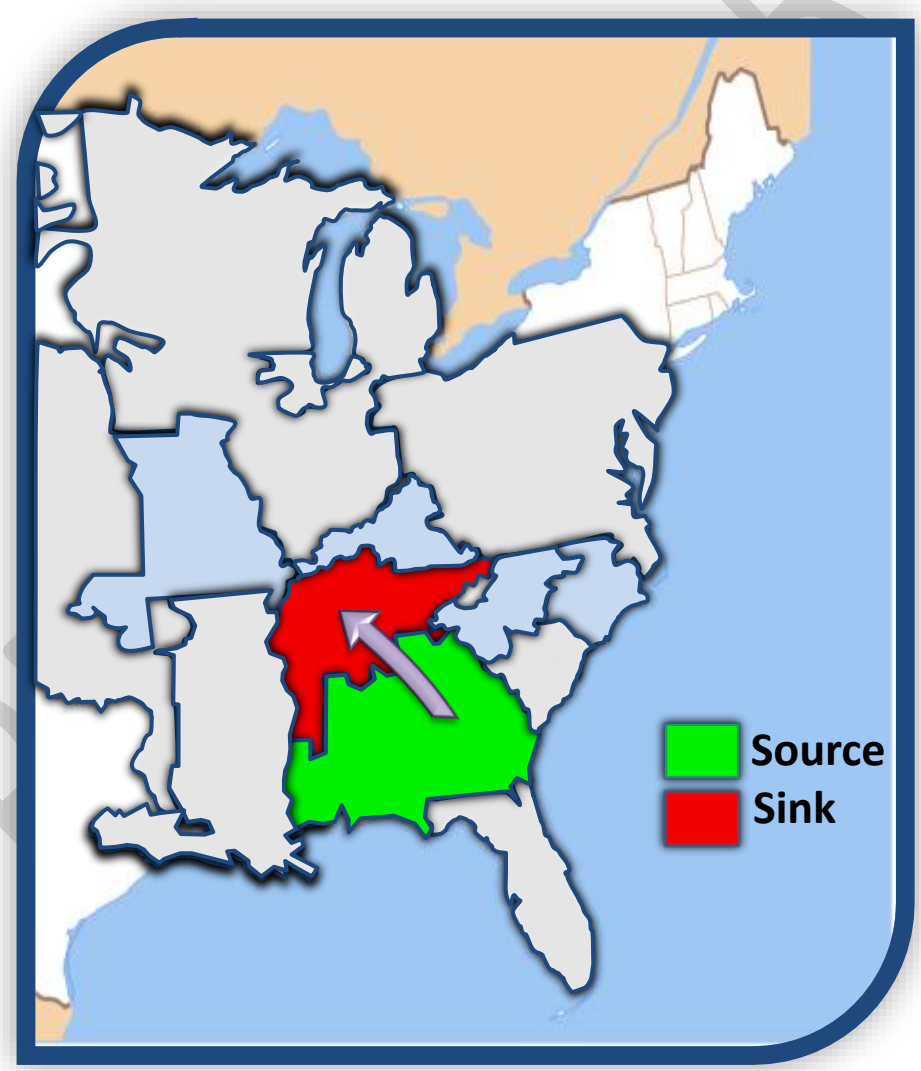
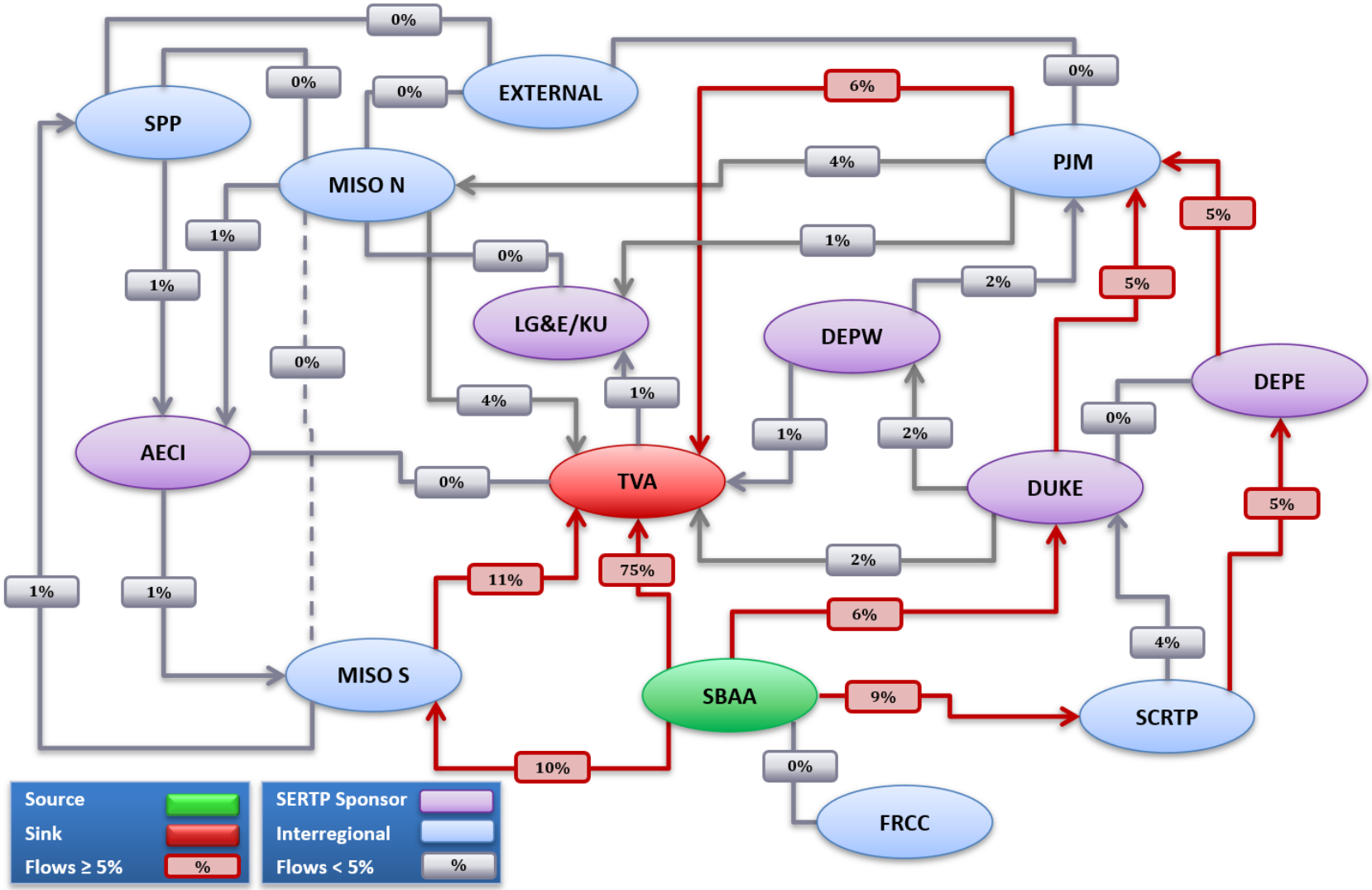


Table V.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$27,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
Southern (SBAA)	$26,000,000
Tennessee Valley Authority (TVA)	$0
TOTAL ($2026)	**$53,000,000**

PRELIMINARY

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



Study Request 5 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
SOCO to TVA	2,000 MW	SOCO	TVA	2031
Load Flow Cases				
2026 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 (%) Without Request	Thermal Loadings (%) With Request	Contingency (With Request)	Project
DUK	306132 CAMPOBEL 100 306163 HNDRSNVL 100 1	83.0	112.0	118.7	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306132 CAMPOBEL 100 307053 BREC32 100 2	83.0	114.1	120.8	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306147 DUK 306147 100 306190 PISGAH 100 1	120.0	100.1	107.7	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306147 DUK 306147 100 306230 BLREC23 100 1	120.0	100.2	107.8	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306163 HNDRSNVL 100 307053 BREC32 100 2	83.0	111.3	118.0	PISGAH-SHILOH230_CKTS_1&2	*
DUK	306177 MARIETTA 100 306230 BLREC23 100 1	120.0	109.3	117.0	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	306190 PISGAH 100 308761 MARIETBL 100 1	120.0	97.2	104.8	PISGAH-SHILOH230_CKTS_1&2	P1
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 2	386.0	92.2	103.6	308487 5TUCKASE 161 308489 6TUCKASE 230 3	P2
DUK	308487 5TUCKASE 161 308489 6TUCKASE 230 3	386.0	92.1	103.5	308487 5TUCKASE 161 308489 6TUCKASE 230 2	P2
SOCO	384132 5OAKMAN 161 384137 5JASPERTS 161 1	213.0	95.3	106.7	384104 5GOODSPRNGS1 161 385492 5WINONADS 161 1	P3
SOCO	384311 3GS STEEL 115 384331 3ATTALLA3 115 1	170.0	67.7	104.0	384854 3BLACK CK TP 115 385935 3GADSDEN B2 115 1	*

Note:

*All projects marked with an asterisk are addressed by existing solutions that will be considered in the 2026 final expansion plan.

Note:

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	
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 1	386.0	86.5	97.4	DUK_P1-2_SHULERW
DUK	306106 6JOCASSE 230 308489 6TUCKASE 230 2	386.0	86.5	97.4	DUK_P1-2_SHULERB
DUK	308487 5TUCKASE 161 308488 5WEBSTER 161 1	386.0	82.1	93.1	DUK_P1-2_NANT_L03
SOCO	380182 6HAMMOND 230 381128 3HAMMOND B2 115 1	356.0	88.2	95.3	381155 6JUDY MTN 230 381156 3JUDY MTN 115 1
SOCO	380903 3CHATSWORTH 115 380904 3COOSAWATTEE 115 1	137.0	69.3	93.6	380200 6E DALTON 230 380202 6CARTERS DAM 230 1
SOCO	380908 3ROME 115 381156 3JUDY MTN 115 1	281.0	83.0	90.6	380181 6ROCKY MTN 230 380198 6PINSON 230 1
SOCO	381155 6JUDY MTN 230 381156 3JUDY MTN 115 1	400.0	92.0	98.2	380182 6HAMMOND 230 381128 3HAMMOND B2 115 1
SOCO	384187 3FULSP SS 115 385933 3BOYLES3 B2 115 2	232.0	87.3	97.2	384771 3FUL SPDS 115 385933 3BOYLES3 B2 115 1
SOCO	384329 3LOOK MTN 115 384331 3ATTALLA3 115 1	130.0	57.3	96.4	384311 3GS STEEL 115 384331 3ATTALLA3 115 1
SOCO	384771 3FUL SPDS 115 385933 3BOYLES3 B2 115 1	232.0	87.2	97.0	384187 3FULSP SS 115 385933 3BOYLES3 B2 115 2
TVA	360055 5TRINITY AL 161 361291 5NEEL AL 161 1	548.5	74.3	90.7	360058 8E POINT AL 500 360059 5E POINT AL 161 1
TVA	360276 5DECATUR AL 161 361689 5S LIMESTONE 161 1	355.0	87.4	96.7	360697 5SEWELL AL 161 361637 5CTY LINE RD 161 1
TVA	360621 6MOSSLAKE GA 230 360622 3MOSSLAKE GA 115 1	200.0	59.6	93.9	360533 6CENTER PNT 230 361519 3CENTER PNT 115 1

PRELIMINARY

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
P1	Install 3% switchable reactors on the North Greenville – Pisgah 100 kV TL.	DEC	$12,000,000
P2	Install 3% switchable reactor on the Jocassee – Tuckaseegee 230 kV TLs.	DEC	$15,000,000
P3	Rebuild approximately 10 miles of 161 kV TL from Oakman to Jasper TS with 795 ACSS rated at 200°C.	SOCO	$26,000,000
SERTP TOTAL ($2026)			**$53,000,000** (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.

PRELIMINARY