Southeastern Regional TRANSMISSION PLANNING

2025 Economic Planning Studies

SERTP Southeastern Regional Transmission Planning

Economic Planning Studies
Final Results

November 26, 2025

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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.

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. **SPP to TVA – 800 MW**
   - Year: 2030
   - Load Level: Winter Peak
   - Type of Transfer: Generation to Load
   - Source: Generation within SPP (+800 MW)
   - Sink: Load within TVA (+800 MW)
     (1) 300 MW near Memphis, TN
     (2) 300 MW near Middle Tennessee and Nashville, TN
     (3) 200 MW near Huntsville, AL and Chattanooga, TN

2. **FRCC to SOCO – 1500 MW**
   - Year: 2030
   - Load Level: Shoulder
   - Type of Transfer: Generation to Load
   - Source: Generation within FRCC (+1500 MW)
   - Sink: Load within SOCO (+1500 MW)
     (1) 600 MW near West Metro Atlanta, GA
     (2) 550 MW near South Metro Atlanta, GA
     (3) 150 MW near East Metro Atlanta, GA
     (4) 100 MW near Northwest GA
     (5) 100 MW near Northeast GA

3. **MISO South to DEP/DEC – 1000 MW**
   - Year: 2030
   - Load Level: Winter Peak
   - Type of Transfer: Generation to Generation
   - Source: Generation within MISO South (+1000 MW)
   - Sink: Generation within DEC (-600 MW) and DEP (-400 MW)

4. **MISO South to DEP/DEC – 2000 MW**
   - Year: 2030
   - Load Level: Winter Peak
   - Type of Transfer: Generation to Generation
   - Source: Generation within MISO South (+2000 MW)
   - Sink: Generation within DEC (-1200 MW) & DEP (-800 MW)

5. **MISO South to DEP/DEC – 2000 MW**
    - Year: 2030
    - Load Level: Summer Peak
    - Type of Transfer: Generation to Generation
    - Source: Generation within MISO South (+2000 MW)
    - Sink: Generation within DEC (-1200 MW) & DEP (-800 MW)

Case Development

For all evaluations, the ***2025 Series Version 2 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.

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.

1. Study Request 1 Results

SPP to TVA – Winter 2030

800 MW

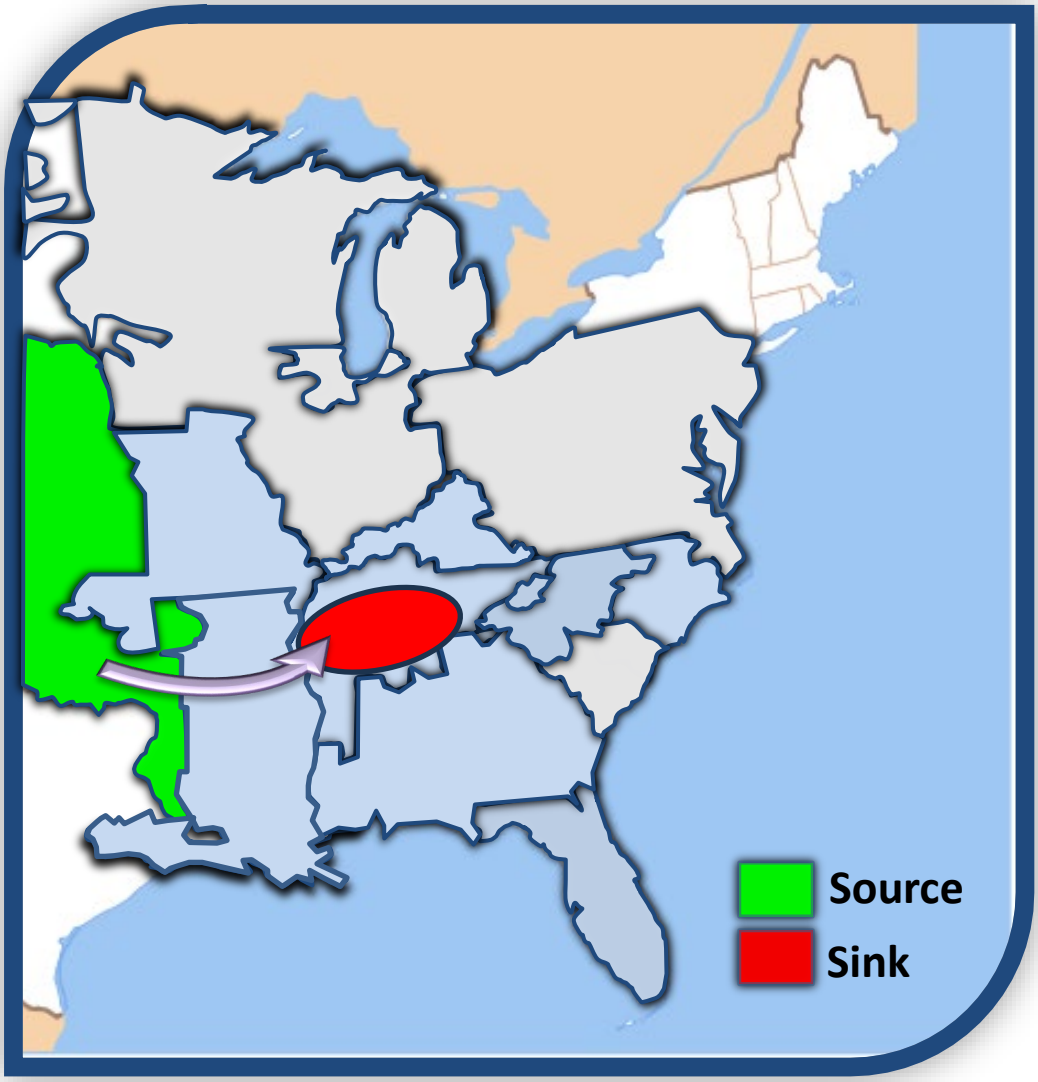
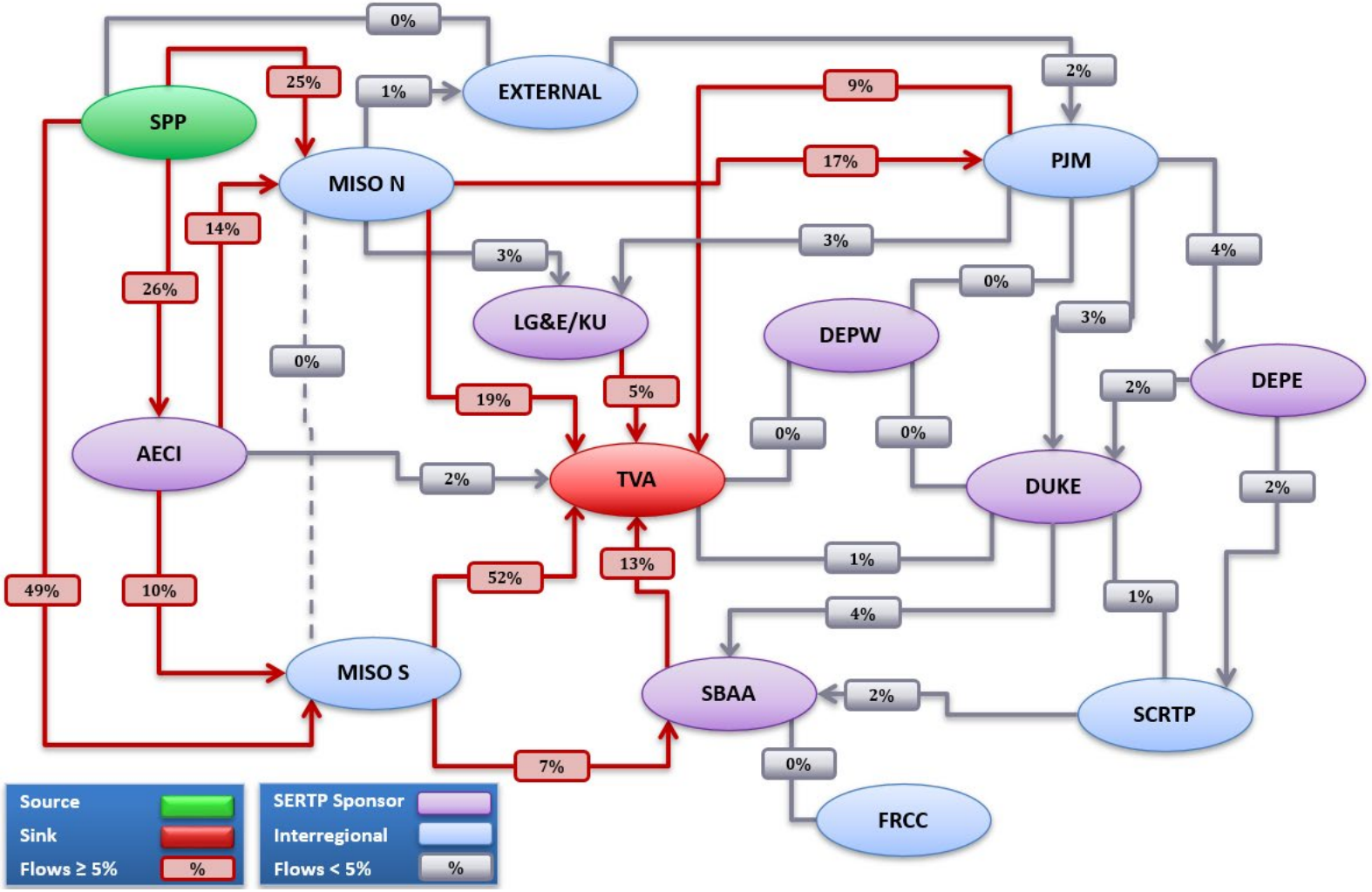


Table I.1. Total Cost Identified by the SERTP Sponsors

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)	$0
TOTAL ($2025)	**$0**

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



Study Request 1 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
SPP to TVA	800 MW	SPP	TVA	2030
Load Flow Cases				
2025 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.

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

Notes:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2025 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.

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

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
--	**None Required**	--	$0
TOTAL ($2025)			**$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.

2. Study Request 2 Results

FRCC – SOCO Summer Shoulder 2030

1,500 MW

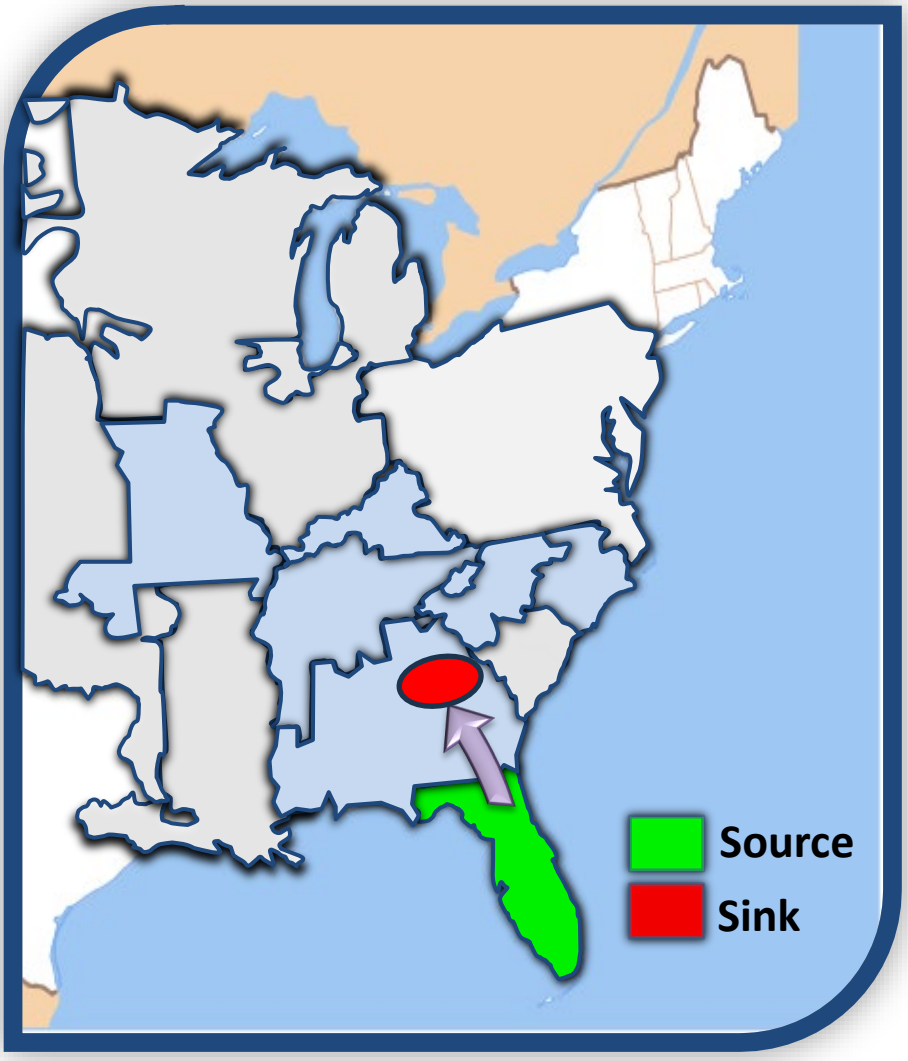
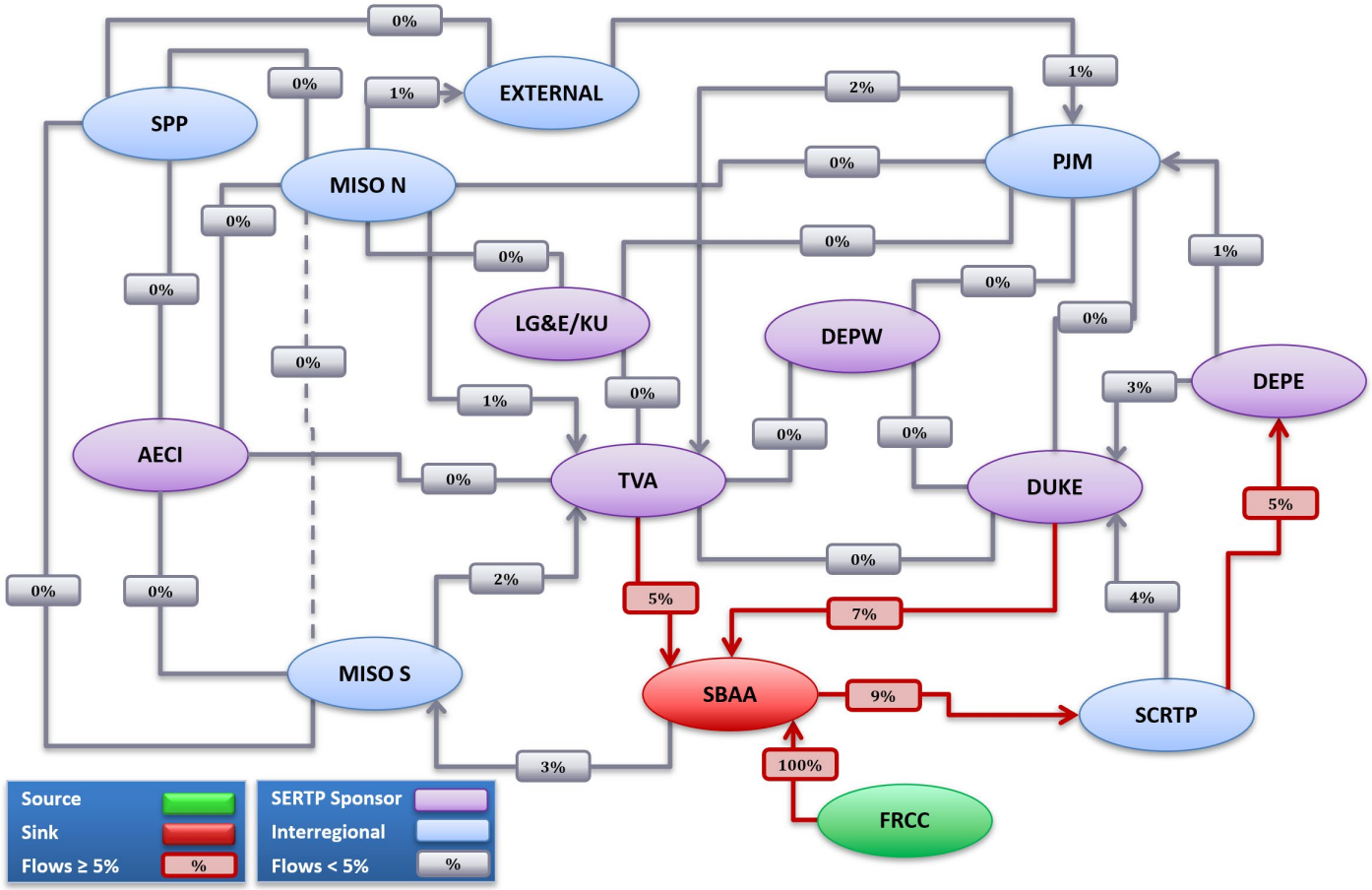


Table II.1. Total Cost Identified by the SERTP Sponsors

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)	$48,714,200
Tennessee Valley Authority (TVA)	$0
TOTAL ($2025)	**$48,714,200**

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



Study Request 2 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
FRCC TO SOCO	1500 MW	FRCC	SOCO (North Georgia)	2030
Load Flow Cases				
2025 Series Version 1 SERTP Models: Summer Shoulder				

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**
SBAA	380366 3RAINBOW DR 115 382655 3COLUMBIA WD 115 1	298	104.3	109.8	380368 3ELLENWOOD 115 382707 3MORROW B3 115 1	*
SBAA	381900 3LINE CREEK 115 381932 6LINE CREEK 230 #1/#2	400	90.1	101.0	381900 3LINE CREEK 115 381932 6LINE CREEK 230 #2/#1	*
SBAA	380652 3MADRAS 115 382721 3AMLAJACK 115 1	155	94.2	105.5	380129 6S COWETA 230 380719 3S COWETA B1 115 1	P1
SBAA	380652 3MADRAS 115 382731 3DYER ROAD 115 1	155	99.9	112.6	380129 6S COWETA 230 380719 3S COWETA B1 115 1	P1
SBAA	380661 3NEWNAN PR 115 381219 3JCT 20A 115 1	138	86.3	107.4	382208 3ROSCOE RD 115 382731 3DYER ROAD 115 1	P2
SBAA	381219 3JCT 20A 115 382225 3CORN CRIB 115 1	138	86.3	107.4	382208 3ROSCOE RD 115 382731 3DYER ROAD 115 1	P2
SBAA	380743 3MCDONOUGH 115 380770 3LOCUST GR 115 1	124	89.0	109.0	380746 3S GRIFFIN 115 380749 3DBL CABINS 115 1	P3

Notes:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2025 Final Expansion Plan.

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	
SBAA	380169 6THOMASTN B1 230 382280 3THOMASTN B2 115 1	285	75.7	92.8	380169 6THOMASTN B1 230 382269 6THOMASTN B2 230 Z1
SBAA	380170 6S GRIFFIN 230 380746 3S GRIFFIN 115 1	298	77.4	90.4	381528 3N ZEBULON 115 381549 3BARNESVL PR 115 1
SBAA	380240 3E POINT B1 115 380303 3COL PK 3 JN 115 1	138	76.4	90.5	380260 3JC PENNEY 115 380300 3BARNETT RD 115 1
SBAA	380621 3YATES B1 115 381266 3N COWETA 115 #1/#2	155	86.1	92.9	381900 3LINE CREEK 115 381932 6LINE CREEK 230 #2/#1
SBAA	380736 3OHARA B2 115 382736 3OHARA B1 115 Z1	415	85.0	92.0	380171 6OHARA LS 230 382771 6OHARA B1 230 Z1
SBAA	380743 3MCDONOUGH 115 380770 3LOCUST GR 115 1	124	74.1	93.4	380749 3DBL CABINS 115 381968 3LUELLA J 115 1
SBAA	380751 3JACKSON_GA 115 380752 3LLOYD SHL 115 1	89	77.5	93.6	382747 3RIVER PARK 115 383197 3CABIN CREEK 115 1
SBAA	381528 3N ZEBULON 115 381549 3BARNESVL PR 115 1	187	80.2	93.0	380168 6BARNESVL PR 230 380170 6S GRIFFIN 230 1
SBAA	382478 3S VILLA J 115 382486 3HICK LVL B1 115 1	255	84.4	91.9	381126 6HICK LVL B2 230 382485 6HICK LVL B1 230 Z1
SBAA	382478 3S VILLA J 115 382486 3HICK LVL B1 115 1	255	84.4	91.9	381126 6HICK LVL B2 230 381182 6VIL RICA230 230 1
SBAA	382773 6OHARA B2 230 380736 3OHARA B2 115 1	300	86.6	98.9	380171 6OHARA LS 230 382771 6OHARA B1 230 Z1
SBAA	382773 6OHARA B2 230 380736 3OHARA B2 115 1	300	85.4	97.6	380171 6OHARA LS 230 382771 6OHARA B1 230 Z1

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	Rebuild 12.6 miles of the Dyer Road - Yamaha 115 kV transmission line with 200°C 1351 ACSS Martin.	SBAA	$28,602,000
P2	Rebuild 3.06 miles of the Newman Primary - Corn Crib 115 kV transmission line with 200°C 1351 ACSS Martin.	SBAA	$6,946,200
P3	Rebuild 5.8 miles of the McDonough - Locust Grove 115 kV transmission line with 200°C 1351 ACSS Martin.	SBAA	$13,166,000
SERTP TOTAL ($2025)			**$48,714,200** (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 South to DEP/DEC – Winter 2030

1,000 MW

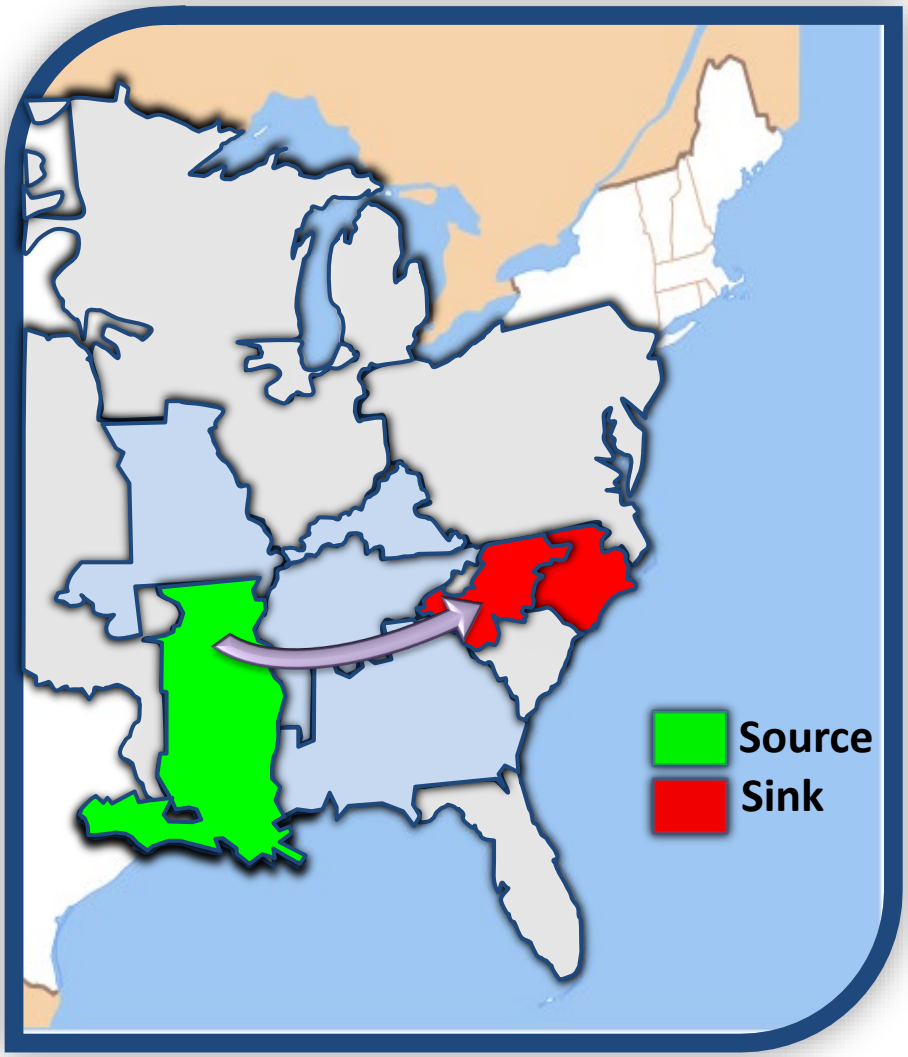
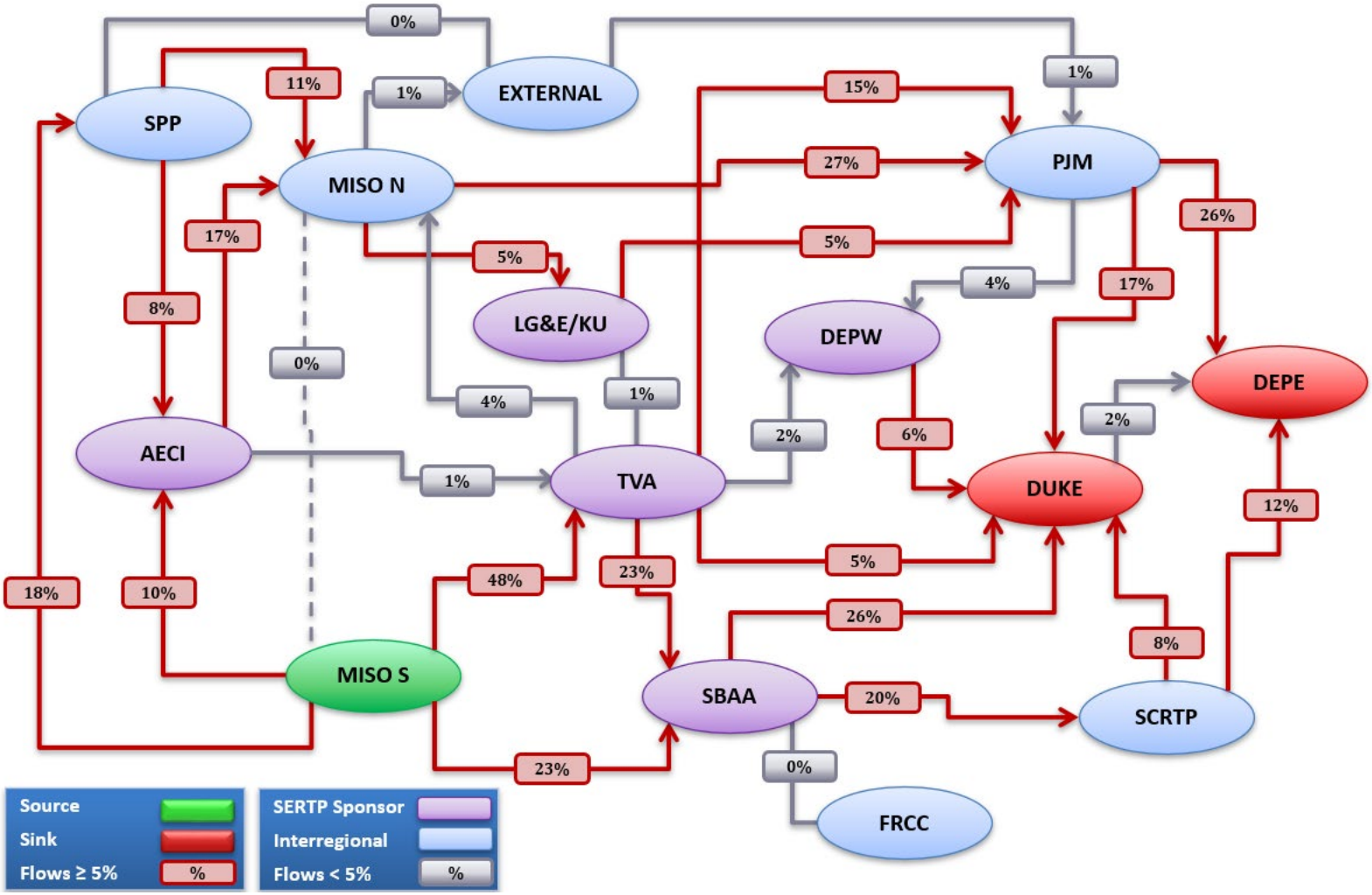


Table III.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$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 ($2025)	$0

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 South to DEP/DEC	1,000 MW	MISO South	DEC: 600 MW DEP: 400 MW	2030
Load Flow Cases				
2025 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.

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

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.

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)
			Without Request	With Request	
DEC	306198 TIGER 100 306271 LELIA TP 100 1	138	85.8	94.1	Parallel Tiger Tie – W Spartanburg Tie 100 kV T.L.

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
--	**None Required**	--	--
SERTP TOTAL ($2025)			**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.

4. Study Request 4 Results

MISO South to DEP/DEC – Winter 2030

2,000 MW

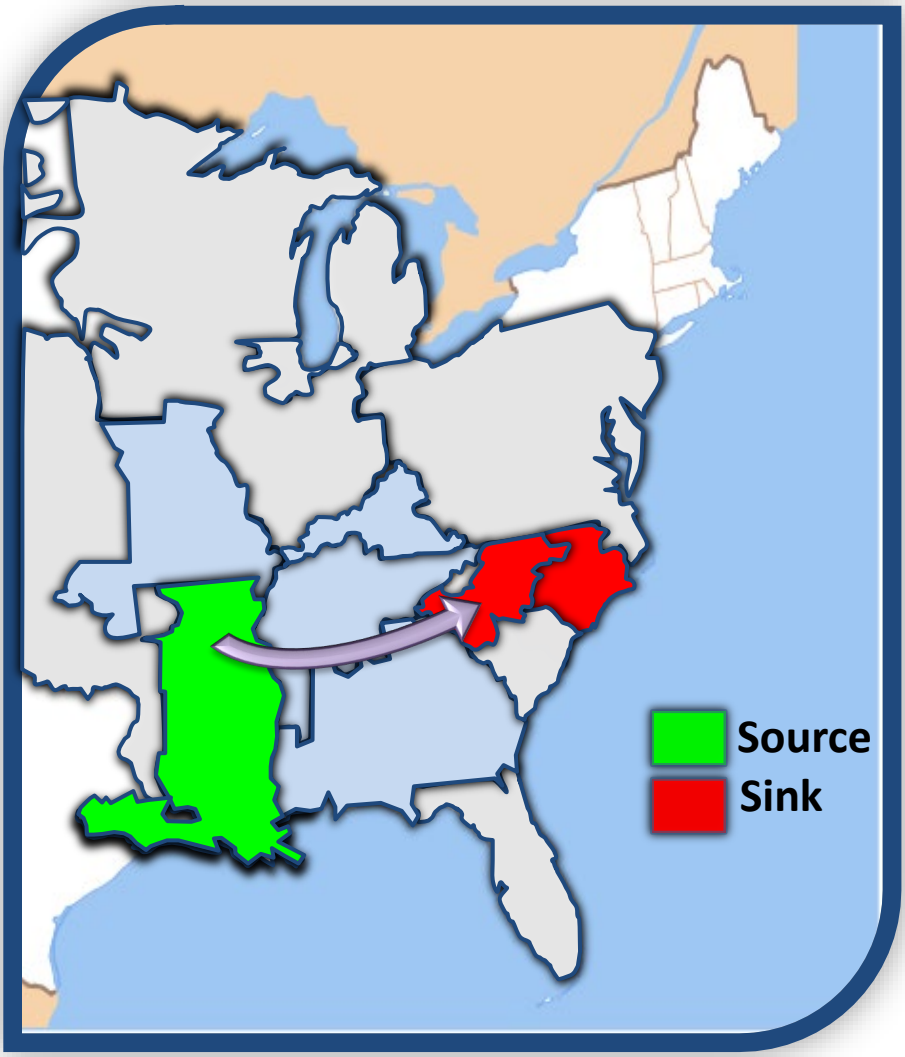
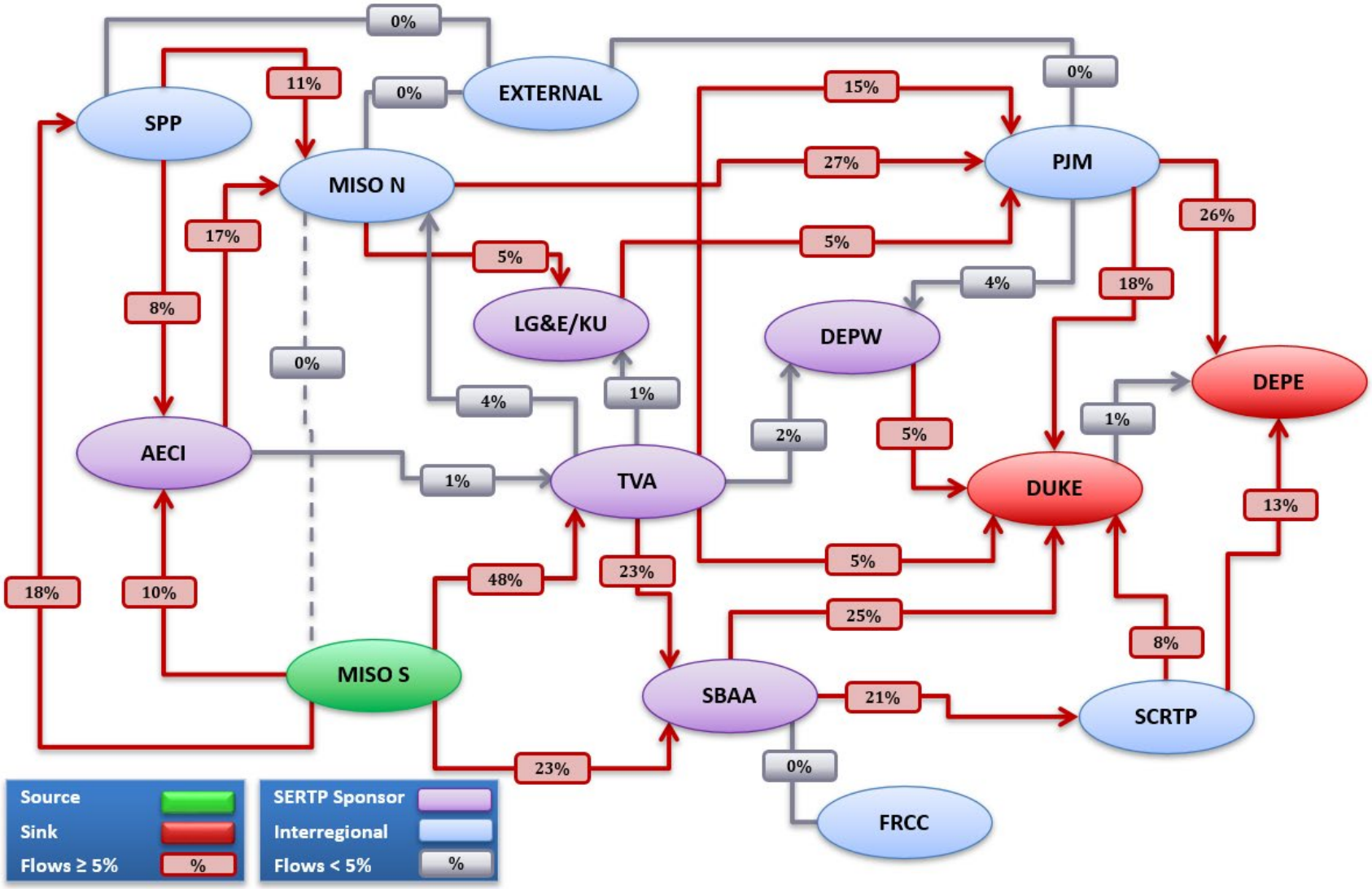


Table IV.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$47,000,000
Duke Progress East (DEPE)	$0
Duke Progress West (DEPW)	$0
Louisville Gas & Electric and Kentucky Utilities (LG&E/KU)	$0
Southern (SBAA)	$28,590,000
Tennessee Valley Authority (TVA)	$0
TOTAL ($2025)	$75,590,000

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



Study Request 4 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
MISO South to DEP/DEC	2,000 MW	MISO South	DEC: 1200 MW DEP: 800 MW	2030
Load Flow Cases				
2025 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.

			Thermal Loadings (%)			
Area	**Limiting Element**	**Rating (MVA)**	**Without Request**	**With Request**	**Contingency**	**Project**
DEC	306198 TIGER 100 306271 LELIA TP 100 1	138	97.0	117.1	Parallel Tiger Tie – W Spartanburg Tie 100 kV T.L.	P1
DEC	306198 TIGER 100 306307 WALDEN T 100 1	138	97.0	117.1	Breaker at Tiger Tie of a Tiger Tie – W Spartanburg Tie 100 kV T.L.	P1
DEC	306305 W SPTBRG 100 306307 WALDEN T 100 1	108	85.1	102.8	Breaker at Tiger Tie of a Tiger Tie – W Spartanburg Tie 100 kV T.L.	P1
DEC	306472 LOOKOUT 100 309286 ENGR U18 W 100 1	166	90.7	106.3	Breaker at Stamey Tie of the Stamey Tie – Lookout Tie 100 kV T.L.	*
SBAA	384658 3BLAKELEY 115 384660 3SPAN FT 115 1	313	98.3	104.6	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P2
SBAA	384660 3SPAN FT 115 384661 3BELFORST 115 1	233	92.8	100.6	384638 6CHICK 6 230 385341 6EST SHR TAP 230 1	P3
SBAA	380954 3NELSON 115 381164 3MCCLAIN MTN 115 1	137	96.0	101.1	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	*

Notes:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2025 Final Expansion Plan.

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**
DEC	306029 CRETO 100 309800 WILSONBRPV 100 2	84	90.8	98.3	Loss of Greenwood County – Newberry 230 kV T.L.
DEC	306164 HORSESHO 100 308471 NIXRDTAP 100 1	166	78.6	90.2	Breaker on Horseshoe – Hendersonville Tie 100 kV T.L.
SBAA	384479 3BELAMYSS 115 384480 3LIVING TS 115 1	101	86.5	92.8	384470 3GREENCO3 115 385454 3ENVIVATP 115 1
SBAA	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1	663	82.1	91.3	380109 6S AUGUST B1 230 382143 6R_GOSHEN 230 1
SBAA	380160 6HATCH 230 382102 6HATCH SS 2 230 1	561	82.6	90.5	380115 6VOGTLE 230 383739 6VOGTLE 3 HS 230 1
SBAA	382102 6HATCH SS 2 230 382361 6VIDALIA B2 230 1	561	82.3	90.1	380115 6VOGTLE 230 383739 6VOGTLE 3 HS 230 1
SBAA	380246 3S DAHLONE J 115 380384 3DAW FOREST 115 1	137	91.1	96.6	380411 3CLERMONT J 115 380412 3CLERMONT 115 1
TVA	360052 8BR FERRY NP 500 360088 8LIMESTONE 500 1	2598	82.5	90.8	360052 8BR FERRY NP 500 360060 8MADISON AL 500 1

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	Rebuild 11.75 miles (entire line) of the Tiger Tie – West Spartanburg Tie 100 kV Transmission Lines with 1158 ACSS/TW rated at 200°C	DEC	$47,000,000
P2	Rebuild approximately 8 miles of 115 kV TL from Blakely Island to Spanish Fort to 1351 ACSS at 200°C Conductor	SBAA	$18,160,000
P3	Reconductor approximately 7 miles of 115 kV TL from Spanish Fort to Belforest with Southwire C7 973 ACCS 20/7 at 180°C	SBAA	$10,430,000
TOTAL ($2025)			**$75,590,000** (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.

5. Study Request 5 Results

MISO South to DEP/DEC – Summer 2030

2,000 MW

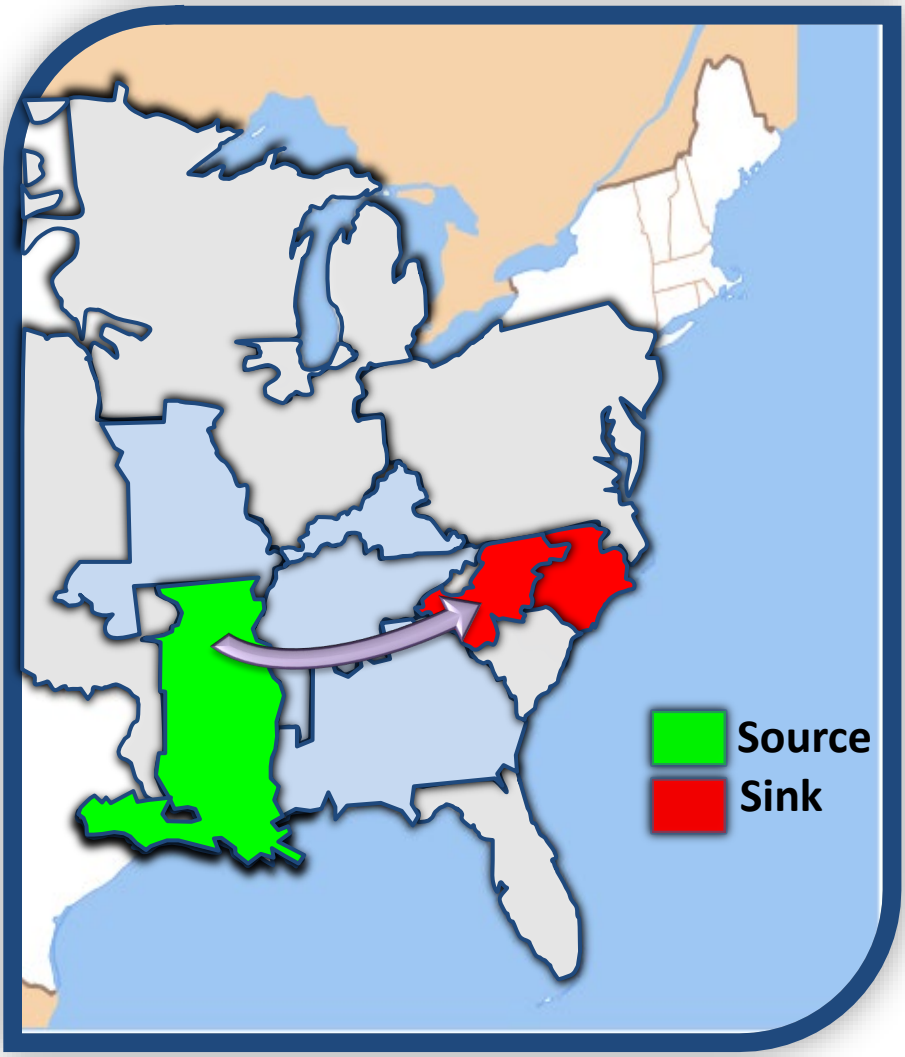
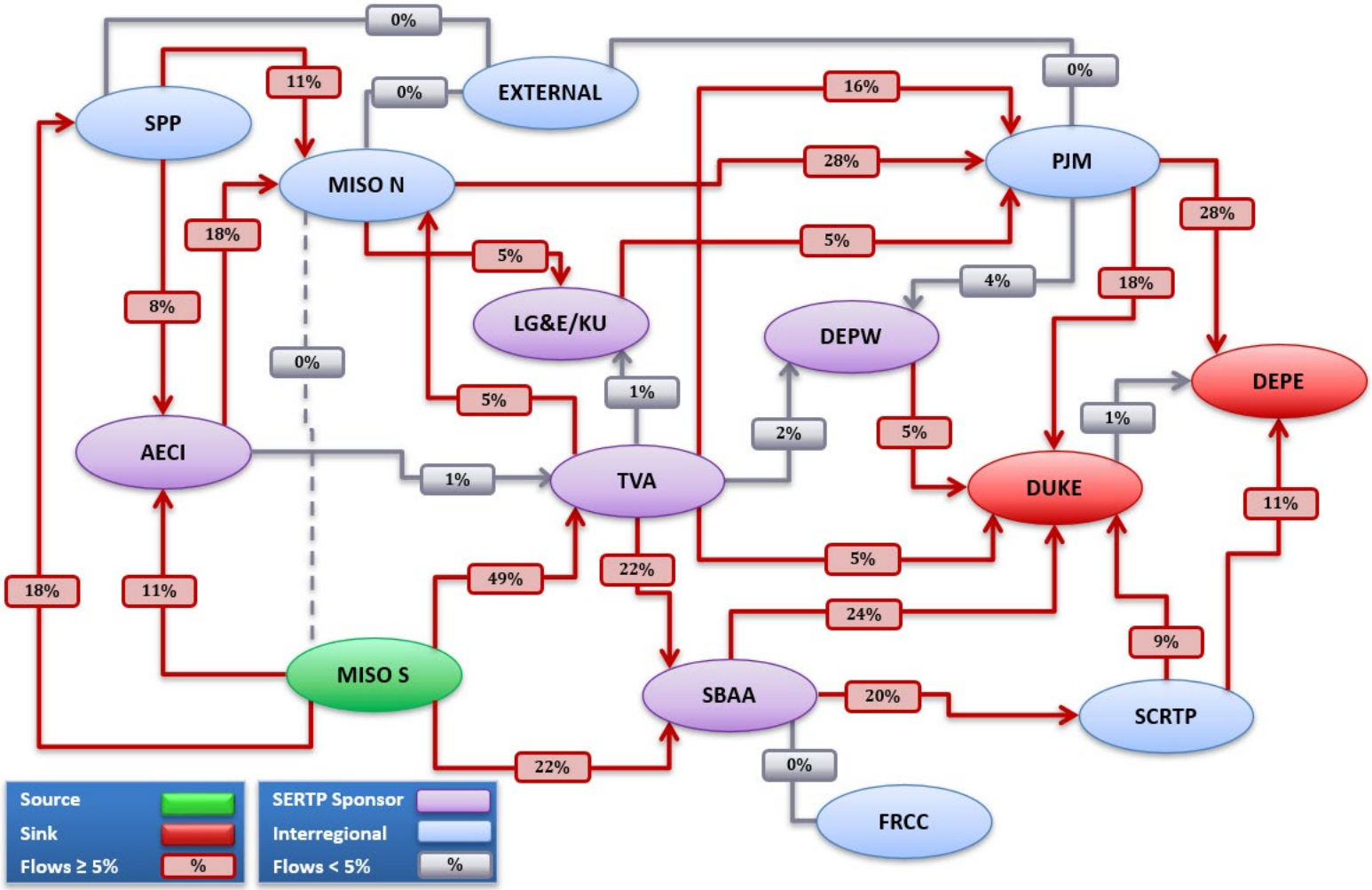


Table V.1. Total Cost Identified by the SERTP Sponsors

Balancing Authority Area	Planning Level Cost Estimate
Associated Electric Cooperative (AECI)	$0
Duke Carolinas (DEC)	$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)	$15,500,000
TOTAL ($2025)	**$15,500,000**

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



Study Request 5 SERTP Results

Study Structure and Assumptions

Transfer Sensitivity	Amount	Source	Sink	Year
MISO South to DEP/DEC	2,000 MW	MISO South	DEC: 1200 MW DEP: 800 MW	2030
Load Flow Cases				
2025 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 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.

			Thermal Loadings (%)			
Area	**Limiting Element**	**Rating (MVA)**	**Without Request**	**With Request**	**Contingency (With Request)**	**Project**
SBAA	380622 3HOGANSVILLE 115 381525 3HOGANSVL 2J 115 1	155	95.6	101.9	380124 6LAGRANGE B2 230 381594 6DRESDEN 230 1	*
SBAA	380954 3NELSON 115 381164 3MCCLAIN MTN 115 1	124	98.9	104.1	380335 6DAWSON CROS 230 381117 6MCGRAU F B2 230 1	*
SBAA	381122 6DALTON 6 230 382498 6LOOPERS DU 230 1	776	109.3	116.2	380021 8MOSTELLER 500 382499 8CONASAUGA 500 1	*
SBAA	382478 3S VILLA J 115 382486 3HICK LVL B1 115 1	255	103.1	108.1	381126 6HICK LVL B2 230 381182 6VIL RICA230 230 1	*
SBAA	384311 3GS STEEL 115 384334 3MORG XRD 115 1	112	101.3	110.7	384234 6CLAY 6 230 384247 6ONEONTA6 230 1	*
TVA	360032 5CROCKETT TN 161 360299 5LAWRENCB TN 161 1	273	93.5	100.1	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*
TVA	360032 5CROCKETT TN 161 360353 5LORETTO TN 161 1	273	98.1	104.7	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*
TVA	360133 5DUMPLIN VLY 161 360527 5EAST KNOX 161 1	364	88.6	100.2	DUK_P1-2_TVA1C	P1
TVA	360260 5COLBERT FP 161 360900 5IRONCITY TN 161 1	273	96.3	101.3	360366 5RESERVATION 161 360573 5FLORENCE TP 161 1	*
TVA	360353 5LORETTO TN 161 360900 5IRONCITY TN 161 1	273	102.5	109.1	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*
TVA	360420 5E CLEVELAND 161 361632 5HIWASSEE RI 161 1	290	107.7	115.9	DUK_P1-2_TVA5B	*
TVA	360425 5CHARLESTON 161 361632 5HIWASSEE RI 161 1	290	115.1	123.4	DUK_P1-2_TVA5B	*
TVA	360760 5KING PRIMRY 161 361232 5BEAR CRK TN 161 1	237	100.0	106.5	361199 5TATELYLE TP 161 361214 5LOUDON TN 161 1	P2

Area	Limiting Element	Rating (MVA)	Thermal Loadings (%) Without Request	Thermal Loadings (%) With Request	Contingency (With Request)	Project
TVA	361021 5S COLUMBIA 161 361042 5MTPLEAS PTP 161 1	246	96.4	103.1	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*
TVA	361232 5BEAR CRK TN 161 361416 5MANIS RD TN 161 1	237	97.3	103.8	361199 5TATELYLE TP 161 361214 5LOUDON TN 161 1	P2
TVA	361758 5BROADVW TP 161 361832 5MANN ROAD 161 1	232	91.2	101.3	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1	*

Note:

*All projects marked with an asterisk are addressed by existing projects that will be included in the 2025 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	306004 6CENTRAL 230 306104 6SHADYTB 230 1	421	80.4	90.6	Parallel Central Tie – Shady Grove Tie 230 kV T.L.
DEC	306004 6CENTRAL 230 306105 6SHADYTW 230 2	421	80.4	90.6	Parallel Central Tie – Shady Grove Tie 230 kV T.L.
DEC	306164 HORSESHO 100 308471 NIXRDTAP 100 1	120	79.0	95.5	Breaker on Horseshoe – Hendersonville Tie 100 kV T.L.
DEC	306183 OAKVALE 100 306195 SHADY GR 100 1	224	89.2	95.4	Parallel Shady Grove Tie – Oakvale Tie 100 kV T.L.
DEC	306305 W SPTBRG 100 306307 WALDEN T 100 1	83	75.9	98.1	Breaker at Tiger Tie on Tiger Tie – W Spartanburg Tie 100 kV T.L.
DEC	306305 W SPTBRG 100 308809 WALDENTW 100 1	83	73.2	94.8	Breaker at Tiger Tie on Tiger Tie – W Spartanburg Tie 100 kV T.L.
SBAA	380109 6S AUGUST B1 230 382143 6R_GOSHEN 230 1	602	83.3	92.2	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1
SBAA	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1	602	98.9	99.3	380109 6S AUGUST B1 230 382143 6R_GOSHEN 230 1
SBAA	380552 3MCBEAN RD 115 380559 3GOSHEN B2 115 1	248	89.9	96.7	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1
SBAA	380552 3MCBEAN RD 115 382104 3ROCKWD PG J 115 1	248	85.7	92.4	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1
SBAA	380593 3S AUGUST B2 115 380597 3MARV GRF JS 115 1	248	83.7	90.4	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1
SBAA	380597 3MARV GRF JS 115 381404 3SOLVAY 2 J 115 1	248	83.7	90.4	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1
SBAA	381404 3SOLVAY 2 J 115 382104 3ROCKWD PG J 115 1	248	85.3	92.1	380114 6GOSHEN B1 230 381408 6BOYKIN RD 230 1
SBAA	381408 6BOYKIN RD 230 381409 6ROSIER RD 230 1	596	87.5	97.0	380109 6S AUGUST B1 230 382143 6R_GOSHEN 230 1
SBAA	381409 6ROSIER RD 230 382103 6S AUGUST B2 230 1	596	86.4	95.9	380109 6S AUGUST B1 230 382143 6R_GOSHEN 230 1
SBAA	380160 6HATCH 230 382102 6HATCH SS 2 230 1	509	88.8	99.1	380013 8BONAIRE 500 380014 8HATCH 500 1
SBAA	382102 6HATCH SS 2 230 382361 6VIDALIA B2 230 1	509	87.9	98.2	380013 8BONAIRE 500 380014 8HATCH 500 1
SBAA	382579 6OFFERMAN B1 230 382591 6THALMANN B1 230 1	259	94.1	99.8	380015 8THALMANN 500 382353 8S_HAT_THAL 500 1
SBAA	380847 3BAXLEY 115 380848 3PINE GRV DS 115 1	124	90.6	98.6	380160 6HATCH 230 382102 6HATCH SS 2 230 1
SBAA	380189 6MITCHELL R 230 383229 6HICKORY SLR 230 1	602	83.8	91.0	380024 8N TIFTON 500 382501 8S_NTIF_RC 500 Z1
SBAA	381019 3MOULTRIE 115 381808 3SUNSET J 115 1	100	85.2	91.2	382505 6SPAIN 230 382595 6DAISY 230 1
SBAA	381021 3ROSEHILL J 115 381808 3SUNSET J 115 1	100	85.3	91.3	382505 6SPAIN 230 382595 6DAISY 230 1
SBAA	381135 6MCGRAU F B1 230 381994 6TRIN CHRCH 230 1	509	89.8	95.8	380020 8BOWEN 500 380021 8MOSTELLER 500 1
SBAA	381802 3CAIRO 1 115 381815 3RODDENBERY 115 1	124	87.2	94.4	382545 6THOMASVL B2 230 383203 6WIREGRASS 230 1
SBAA	384400 6GASTON_AL 230 385220 6BYNUM6 230 1	577	89.9	94.9	384234 6CLAY 6 230 384247 6ONEONTA6 230 1
SBAA	384479 3BELAMYSS 115 384480 3LIVING TS 115 1	91	81.9	91.1	384470 3GREENCO3 115 385454 3ENVIVATP 115 1

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Area	Limiting Element	Rating (MVA)	Thermal Loadings (%)		Contingency (With Request)
			Without Request	With Request	
SBAA	384489 6N SELMA6 230 385588 6RICECRKTP 230 1	533	78.8	92.9	385425 6MOUNDVIL6 230 385611 6LOCKFIVE 6 230 1
TVA	360226 5OKOLONA MS 161 361900 5SHANNON MS 161 1	273	82.9	96.1	360035 8WEST POINT 500 360052 8BR FERRY NP 500 1
TVA	360724 5FREEPORT #1 161 365935 5SHELBY DR74 161 1	278	79.2	93.4	360023 8FREEPORT TN 500 360025 8CORDOVA TN 500 1
TVA	360725 5FREEPORT #2 161 365598 5SE GATE 34 161 1	253	77.6	93.5	360023 8FREEPORT TN 500 360025 8CORDOVA TN 500 1
TVA	360146 5MILAN TN 161 361106 5RUTHRFRD TP 161 1	290	85.1	90.8	360037 8JVILLE FP 500 360582 8GLEASON CT 500 1
TVA	360366 5RESERVATION 161 360766 5DOUBLE HEAD 161 1	232	83.3	90.7	360775 5BRIDES HILL 161 361193 5SPNG CRK AL 161 1
TVA	360759 5E POINT2 AL 161 361350 5FAIRVIEW TP 161 1	335	89.2	95.3	360058 8E POINT AL 500 360065 8WID CRK FP 500 1
TVA	360065 8WID CRK FP 500 360066 5WID CRK FP1 161 17	1219	87.1	96.6	DUK_P1-2_TVA5C
TVA	360068 6WID CRK FP 230 360067 5WID CRK FP2 161 16	558	82.2	90.5	380021 8MOSTELLER 500 382499 8CONASAUGA 500 1
TVA	360277 5ARAB AL 161 360279 5GUNTERSV HP 161 1	276	92.2	98.9	360058 8E POINT AL 500 360065 8WID CRK FP 500 1
TVA	360065 8WID CRK FP 500 360081 8SEQUOYAH NP 500 1	2119	86.4	98.9	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1
TVA	360051 5MAURY TN 161 361021 5S COLUMBIA 161 1	246	84.9	91.8	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1
TVA	360305 5MT PLEAS TN 161 361069 5W COLUMBIA 161 1	237	88.8	96.0	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1
TVA	360316 5WCENTERVILL 161 360515 5LOCUST CRK 161 1	137	87.1	92.3	360039 5JVILLE FP#2 161 360313 5DICKSON TN 161 1
TVA	360515 5LOCUST CRK 161 361790 5PINEWOOD RD 161 1	137	92.1	98.9	360048 8DAVIDSON TN 500 360049 5DAVIDSON #1 161 1
TVA	361078 5JINGO TN TP 161 361790 5PINEWOOD RD 161 1	137	83.6	90.7	360048 8DAVIDSON TN 500 360049 5DAVIDSON #1 161 1
TVA	360391 5FAYETTVL TN 161 361598 5PARKCITY TP 161 1	232	85.8	94.1	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1
TVA	360392 5WINCHESTER 161 361758 5BROADVW TP 161 1	232	86.4	96.4	360050 8MAURY TN 500 360052 8BR FERRY NP 500 1
TVA	360352 5GALLATIN F1 161 361827 5W TROUSDALE 161 1	371	93.1	99.6	361673 5BLEDSOE TN 161 361714 5GAL SCRB TP 161 1
TVA	360354 5LAFAYETT TN 161 361265 5HARTSVLE TP 161 1	371	86.9	93.3	361673 5BLEDSOE TN 161 361714 5GAL SCRB TP 161 1
TVA	361265 5HARTSVLE TP 161 361827 5W TROUSDALE 161 1	371	91.1	97.5	361673 5BLEDSOE TN 161 361714 5GAL SCRB TP 161 1
TVA	361900 5SHANNON MS 161 361901 5NETTLETONTP 161 1	273	79.3	92.5	360035 8WEST POINT 500 360052 8BR FERRY NP 500 1
TVA	360408 5NICKJACK HP 161 361860 5AETNA MTN 161 1	182	86.2	93.5	360065 8WID CRK FP 500 360067 5WID CRK FP2 161 10
TVA	360711 5CHICK HP B2 161 361218 5HAMIL CHATT 161 1	391	83.9	91.4	DUK_P1-2_TVA5B
TVA	360420 5E CLEVELAND 161 361439 5BENTON TN 161 1	237	85.7	90.8	360424 5APALACHIA 161 360658 5NE BENTON 161 1
TVA	360424 5APALACHIA 161 360658 5NE BENTON 161 1	227	90.1	95.6	360420 5E CLEVELAND 161 361439 5BENTON TN 161 1
TVA	360444 5FT LOUDOUN 161 361416 5MANIS RD TN 161 1	237	92.6	99.2	361199 5TATELYLE TP 161 361214 5LOUDON TN 161 1
TVA	360694 5BETHELVLLEY 161 361140 5EATON XRD 161 1	227	93.4	98.7	360671 5ORNL TN 161 360694 5BETHELVLLEY 161 1
TVA	361115 5RIVER TN TP 161 361249 5UNION VLY R 161 1	237	87.4	94.9	DUK_P1-2_TVA2B
TVA	365598 5SE GATE 34 161 365935 5SHELBY DR74 161 1	223	73.3	91.1	360023 8FREEPORT TN 500 360025 8CORDOVA TN 500 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
P1	Uprate 8.1 miles of the Dumplin Valley – East Knox 161 kV transmission line to 90°C.	TVA	$5,300,000
P2	Reconductor 21.2 miles of the Kingston – Ft. Loudoun 161 kV transmission line to 110°C ACSS-795.0-26/7.	TVA	$10,200,000
SERTP TOTAL ($2025)			**$15,500,000** (1)

(1) Total planning level cost estimate does not include the cost of projects that are included in SERTP Sponsors' expansion plans and are scheduled to be completed by 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.