



SPP *Southwest Power Pool*

*System Impact Study
For Transmission Service
Requested By
Central & South West Power
Marketing, Inc.*

*From Central and South West
Services to Entergy*

*For a Reserved Amount Of 290MW
From 4/1/01
To 9/30/04*

SPP Transmission Planning

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1. Executive Summary

Central and South West Power Marketing Inc. has requested a system impact study for long-term Firm Point-to-Point transmission service from Central and South West Services to Entergy. The period of the transaction is from 4/1/01 to 9/30/04. The request is for one reservation (171555), totaling 290 MW.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the additional 290 MW transfer while maintaining system reliability. The analysis in this document shows that to accommodate an additional 290 MW transfer, upgrades will be required on the SPP transmission systems.

The SPP is currently studying a Reliant 600 MW ERCOTE to EES long-term Firm Point-to-Point transmission service request for 1/1/01 to 1/1/06, reservation 150680. Since the request is a higher priority reservation, Reliant has the first right to the available capacity of the system. The facilities identified in the study of the 600 MW will need to be upgraded to support the 600 MW transfer and may need additional upgrading to support the requested 290 MW transfer. To ensure reliable operation of the transmission system, the requested 290 MW transfer system impact was studied with and without the 600 MW ERCOTE to EES transfer.

The overloads caused by the 290MW transfer without the 600MW transfer included in the analysis are listed in Table 1 and Table 2. The overloads caused by the 290MW transfer with the 600MW transfer included in the analysis are listed in Table 4, Table 5, and Table 6.

The SPP and effected member companies shall use due diligence to coordinate the addition of necessary facilities or transmission system upgrades to provide the requested transmission service. Central and South West Power Marketing Inc. is to compensate SPP for such costs pursuant to the terms of section 27 of the SPP Open Access Transmission Tariff. Expedited procedures for new facilities are available to Central and South West Power Marketing Inc. per section 19.8 of the SPP Open Access Transmission Service Tariff.

Engineering and construction of any new facilities or modifications will not start until after a transmission service agreement and/or construction agreement is in place and effected member companies receives the appropriate authorization to proceed from the SPP after they receive authorization from the transmission customer.

2. Introduction

Central and South West Power Marketing Inc. has requested an impact study for transmission service from CSWS control area with a sink of EES.

The principal objective of this study is to identify the restraints on the SPP Regional Tariff System that may limit the transfer to less than 290 MW. This study includes two sets of steady-state contingency analyses (PSS/E function ACCC) and Available Transfer Capability (ATC) analyses.

The steady-state analyses consider the impact of the 290 MW transfer on transmission line loading and transmission bus voltages for outages of single and selected multiple transmission lines and transformers on the SPP system .

ATC analyses shows the amount of First Contingency Incremental Transfer Capabilities (FCITC) between the given study systems and what the limitations are, if any, for transferring up to 290 MW.

3. Study Methodology

A. Description

Three analyses were conducted to determine the impact of the 290MW transfer on the SPP system. The first analysis was conducted to identify facility overloads caused by the 290MW transfer without the ERCOTE to EES 600MW transfer. The second analysis was conducted to determine the facility overloads caused by ERCOTE to EES 600MW transfer. The third analysis was conducted to identify facility overloads caused by the 290MW transfer with the ERCOTE to EES 600MW transfer and to ensure that available capacity exists for the 290 MW transfer on identified facilities of the 600 MW transfer.

The analyses were done using two steps. The first step was to study the steady-state analysis impact of the 290MW. The second step was to study Available Transfer Capability (ATC) of the facilities identified in the steady-state analysis impact.

The steady-state analyses were done to ensure current SPP Criteria and NERC Planning Standards requirements are fulfilled. The Southwest Power Pool (SPP) conforms to the NERC Planning Standards, which provide the strictest requirements, related to thermal overloads with a contingency. It requires that all facilities be within emergency ratings after a contingency. The ATC study portion was done using the requirements specified in the current SPP Criteria related to determination of ATC.

B. Model Updates

SPP used six seasonal models to study the 290MW request. The SPP 2000 Series Cases 2001 April (Spring Minimum), 2001 Spring Peak, 2001 Summer Peak, 2001 Fall Peak, 2001 Winter Peak, and 2004 Summer Peak were used to study the impact of the 290MW transfer on the SPP system during the transaction period of 4/01/01 to 9/30/04.

The chosen base case models were modified to reflect the most current modeling information. The cases were modified to reflect future firm transfers during the request period that were not already included in the January 2000 base case series models.

C. Transfer Analysis

Using the created models and the ACCC function of PSS/E, single and select double contingency outages were analyzed. Then full AC solution was used to obtain the most accurate results possible. Any facility overloaded, using MVA ratings, in the transfer case and not overloaded in the base case was flagged. The PSS/E options chosen to conduct the Impact Study analysis can be found in Appendix A.

4. Study Results

A. Study Analysis Results

Tables 1 thru 6 contain the analysis results of the System Impact Study. The tables identify the seasonal case in which the event occurred; the emergency rating of the overloaded circuit (Rate B), the contingent loading percentage of circuit with and without the studied transfers, the determined ATC value if calculated, any SPP identification or assignment of the event, and any solutions received from the transmission owners.

Tables 1 and 2 contain the facility overloads caused by the 290MW transfer without the 600MW ERCOTE to EES transfer included in the analysis. Table 1 contains the facility overloads on SPP Regional Tariff participants' transmission systems. Table 2 documents overloads on Non SPP Regional Tariff participants' transmission systems. The overloads found in Table 1 can be directly assigned to the CSWS to EES 290MW transfer, if not assigned to Reliant for the 600MW transfer.

Table 3 contains the facility overloads caused initially by the ERCOTE to EES transfer and documents the additional loading of the identified facilities by the CSWPMI CSWS to EES 290MW transfer. The initial loading and upgrade costs of these facilities will be assigned to Reliant's ERCOTE to EES 600MW transfer and will be determined in the System Impact Study of the 600MW request. Any facilities needing additional upgrades due to the CSWS to EES 290MW transfer will be assigned to CSWPMI.

After identifying the overloads caused initially by the 600MW request, the additional impact of the 290MW transfer on the SPP transmission system was determined by studying the 290MW transfer with the 600MW transfer included in the analysis.

Table 4 contains overloads first identified in Table 3 that are overloaded by subsequent contingencies by the 290MW transfer and consequently have a zero Available Transfer Capability for the 290MW request because of the ATC being reserved for the 600MW request. The Available Transfer Capability of the SPP transmission system is reserved for customers with the highest priority transmission requests. Since Reliant's ERCOTE to EES 600MW request has a higher priority than the 290MW request, Reliant has the right to the ATC.

Tables 5 and 6 contain new facility overloads caused by the 290MW transfer with the 600MW ERCOTE to EES transfer included in the analysis. Table 5 contains the facility overloads on SPP Regional Tariff participants' transmission systems. Table 6 documents overloads on Non SPP Regional Tariff participants' transmission systems. The overloads found in Table 5 can be directly assigned to the CSWS to EES 290MW transfer.

Table 1 - SPP Facility overloads caused by the 290 MW CSWS to EES transfer without the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload	ATC <MW>	Initial Limit, Available Solution and Cost, or Previous Assignment
01AP	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	86.5	100.1	CROCKETT to TENASKA, 345 KV 53526 CROCKET7 to 54061 TENASKA7 1	289	Reset 300/5 CTs at Jacksonville to 400/5 \$1,000
01SR	CESW-CESW	DIERKS to SOUTH DIERKS, 69KV 53259 DIERKS 2 to 53317 SDIERKS2 1	72	99.3	101.2	WICKES REC to DEQUEEN, 69KV 53242 WICKES 2 to 53257 DEQUEEN2 1	131	Initial Limit-600A Breaker
01SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	96.6	113.5	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	60	Reconductor 3.25 miles of 666 ACSR with 1272 ACSR, \$720,000
01SP	CESW-CESW	"	209	97.2	108.3	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	76	"
01SP	CESW-CESW	"	209	94.9	106.1	KEATCHIE REC TO STONEWALL 138KV 53418 KEATCHI4 to 53450 STONWAL4 1	125	"
01SP	CESW-CESW	"	209	89.3	105.5	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	187	"
01SP	CESW-CESW	"	209	93.8	105.0	KEATCHIE REC TO GEORGIA-PACIFIC 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1	155	"
01SP	CESW-CESW	"	209	89.9	104.1	MARSHALL to MARSHALL AUTO, 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1	201	"
01SP	CESW-CESW	"	209	89.9	104.0	BLOCKER TAP to MARSHALL, 69 KV 53516 BLOCKRT2 to 53570 MARSHAL2 1	204	"
01SP	CESW-CESW	"	209	92.5	103.7	GEORGIA-PACIFIC to LOGANSPOINT, 138 KV 53536 GEORPAC4 to 53565 LOGANSP4 1	189	"
01SP	CESW-CESW	"	209	86.7	103.1	CROCKETT to GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1	232	"
01SP	CESW-CESW	"	209	86.5	102.1	MARSHALL to PIRKEY, 138 KV 53571 MARSHL-4 to 53592 PIRKEY 4 1	249	"
01SP	CESW-CESW	"	209	86.2	102.9	SOUTHWEST SHREVEPORT to DIANA, 345 KV 53454 SW SHV 7 to 53528 DIANA 7 1	239	"
01SP	CESW-CESW	"	209	84.1	100.3	MARSHALL to PIRKEY, 138 KV 53592 PIRKEY 4 to 53602 SABMINT4 1	286	"
01SP	CESW-CESW	IPC JEFFERSON to LIEBERMAN, 138 KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	115	93.0	106.0	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	161	Initial Limit-Jumpers

Table 1 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer without the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload	ATC <MW>	Initial Limit, Available Solution and Cost, or Previous Assignment
01SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	90.2	107.2	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	162	Reconductor 6.25 miles of 666 ACSR with 1272 ACSR, \$1,300,000
01SP	CESW-CESW	"	209	90.7	101.9	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	240	"
01SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	88.7	105.6	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	190	Reconductor 0.81 miles of 666 ACSR with 1272 ACSR. Replace 800A trap with new 2000A trap, \$190,000
01SP	CESW-CESW	"	209	89.1	100.2	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	286	"
01SP	CESW-CESW	NORTHWEST HENDERSON to POYNTER, 69KV 53583 NWHENDR2 to 53595 POYNTER2 1	59	93.9	101.4	CHEROKEE REC to KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	232	Replace 4/0 jumpers and bus at Poynter \$45,700
01SP	EMDE-EMDE	TIPTON FORD to MONETT, 161KV 59472 TIP292 5 to 59480 MON383 5 1	157	99.3	100.2	LARUSSEL to MONETT, 161KV 59479 LAR382 5 to 59480 MON383 5 1	235	Reconductor 30 miles of 336 ACSR with 795 MCM, \$5,700,000
01SP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	99.8	100.5	NEVADA TO BUTLER_5, 161 KV 59208 NEVADA 5 to 59216 BUTLER_5 1	96	2000-003 2001SP Change CT's Ratio Settings at Carthage
01SP	SWPA-AECI	CARTHAGE to REEDS, 69KV 52690 CARTHG 2 to 96751 2REEDS 1	36	98.9	100.1	CARTHAGE to LARUSSEL, 161KV 52688 CARTHAG5 to 59479 LAR382 5 1	287	2000-003 2001SP Change CT's Ratio Settings at Carthage
01FA		NONE						
01WP	CESW-CESW	BIG SANDY to HAWKINS, 69KV 53515 BIGSNDY2 to 53543 HAWKINS2 1	72	98.2	101.0	NORTH MINEOLA to LAKE HAWKINS, 138KV 53581 NMINEOL4 to 53666 LHAWKIN4 1	193	Initial Limit-350cu Bus at Big Sandy
04SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	98.3	115.2	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	31	Reconductor 3.25 miles of 666 ACSR with 1272 ACSR, \$720,000
04SP	CESW-CESW	"	209	99.4	110.5	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	18	"
04SP	CESW-CESW	"	209	96.7	108.0	KEATCHIE REC to STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1	85	"
04SP	CESW-CESW	"	209	95.4	106.8	KEATCHIE REC TO GEORGIA-PACIFIC 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1	110	"

Table 1 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer without the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload	ATC <MW>	Initial Limit, Available Solution and Cost, or Previous Assignment
04SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	94.0	105.4	GEORGIA-PACIFIC to LOGANSPORT, 138 KV 53536 GEORPAC4 to 53565 LOGANSP4 1	145	"
04SP	CESW-CESW	"	209	87.5	103.8	LONGWOOD to WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	219	"
04SP	CESW-CESW	"	209	86.1	103.0	CROCKETT to GRIMES, 345 KV 53526 CROCKET7 to 16555 7GRIMES 1	236	"
04SP	CESW-CESW	"	209	88.2	102.8	BLOCKER TAP to MARSHALL, 69 KV 53516 BLOCKRT2 to 53570 MARSHAL2 1	231	"
04SP	CESW-CESW	"	209	88.0	102.5	MARSHALL to MARSHALL AUTO, 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1	237	"
04SP	CESW-CESW	"	209	84.1	101.0	SOUTHWEST SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 1	273	"
04SP	CESW-CESW	GENTRY REC to EAST CENTERTON, 161KV 53187 GENTRYR5 to 53133 ECNTRT5 1	335	99.9	100.2	CHAMSPR5 to FARMINGTON AECC 161KV 53154 CHAMSPR5 to 53195 FARMGTN5 1	134	E.Centeron 161kV Breaker & Switch Replacements, Gentry Tap 161kV Line Switch Replacement, \$167,960
04SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	91.6	108.5	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	137	Reconductor 6.25 miles of 666 ACSR with 1272 ACSR, \$1,300,000
04SP	CESW-CESW	"	209	89.9	101.2	KEATCHIE REC to STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1	259	"
04SP	CESW-CESW	"	209	92.5	103.7	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	189	"
04SP	CESW-CESW	NORTHWEST HENDERSON to POYNTER 69KV 53583 NWHENDR2 to 53595 POYNTER2 1	59	95.9	103.5	CHEROKEE REC to KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	150	Replace 4/0 jumpers and bus at Poynter \$45,700
04SP	CESW-CESW	"	59	93.6	101.2	CHEROKEE REC to TATUM, 138 KV 53522 CHEROKE4 to 53611 TATUM 4 1	243	"
04SP	CESW-CESW	"	59	93.3	100.6	ROCK HILL to TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	266	"
04SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	89.9	106.8	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	166	Reconductor 0.81 miles of 666 ACSR with 1272 ACSR. Replace 800A trap with new 2000A trap, \$190,000
04SP	CESW-CESW	"	209	90.8	101.9	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	237	"

Table 1 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer without the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload	ATC <MW>	Initial Limit, Available Solution and Cost, or Previous Assignment
04SP	CESW-CESW	QUITMAN to NORTH MINEOLA 69KV 53596 QUITMAN2 to 53580 NMINEOL2 1	59	99.1	100.6	ADORA REC to ADORA T, 161KV 53243 ADORA 2 to 53244 ADRWTPL2 1	207	Initial Limit-4/0cu Bus at Quitman
04SP	CESW-CESW	GENTRY REC to FLINT CREEK, 161KV 53187 GENTRYR5 to 53139 FLINTCR5 1	335	99.8	100.2	Multiple Outage Contingency FLINT CREEK to MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1 MONETT to BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLINE 7 1	231	2000-003 2001SP Replace Switch \$60,000
04SP	CESW-CESW	"	335	99.8	100.1	FLINT CREEK to MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1	236	"
04SP	CESW-CESW	"	335	99.8	100.2	MONETT to BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLINE 7 1	222	"
04SP	SWPA-AECI	CATTHAGE to REEDS, 69KV 52690 CARTHG 2 to 96751 2REEDS 1	36	99.9	100.7	TIPTON FORD to JOPLIN SOUTHWEST, 161KV 59472 TIP292 5 to 59483 JOP389 5 1	46	2000-003 2001SP Change CT's Ratio Settings at Carthage
04SP	SWPA-AECI	"	36	99.7	100.5	BEAVER to NEOSHO SPA, 161KV 52680 BEAVER 5 to 52686 NEO SPA5 1	118	"
04SP	SWPA-AECI	"	36	99.7	100.5	CLINTON to OSCEOLA, 161KV 96071 5CLINTN to 96108 5OSCEOL 1	120	"
04SP	SWPA-AECI	"	36	99.7	100.4	STOCKTON TO MORGAN 161KV 52698 STOCKTN5 to 96101 5MORGAN 1	142	"
04SP	SWPA-AECI	"	36	99.4	100.2	NEVADA TO BUTLER_5, 161 KV 59208 NEVADA 5 to 59216 BUTLER_5 1	244	"
04SP	SWPA-AECI	"	36	99.4	100.1	ASH GROVE H.T. to DADEVILLE EAST, 69KV 59536 ASH121 2 to 59585 DAD368 2 1	253	"
04SP	SWPA-AECI	CARTHAGE to JASPER, 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	99.7	100.6	HUBEN to MORGAN, 345KV 96042 7HUBEN to 96045 7MORGAN 1	116	2000-003 2001SP Change CT's Ratio Settings at Carthage
04SP	SWPA-AECI	"	36	99.8	100.4	WEST GARDNER to LACYGNE, 345 KV 57965 W.GRDNR7 to 57981 LACYGNE7 1	124	"
04SP	SWPA-AECI	"	36	99.7	100.4	NEOSHO to MORGAN 345KV 56756 NEOSHO 7 to 96045 7MORGAN 1	141	"
04SP	EES-SWPA	MIDWAY to BULL SHOALS, 161KV 17875 5MIDWAY# to 52660 BULL SH5 1	162	99.4	100.3	CALCR to MELBRN, 161KV 17854 5CALCR to 17874 5MELBRN 1	211	Initial Limit-600A Switches
04SP	EMDE-EMDE	MONETT TO AURORA, 161KV 59480 MON383 5 to 59468 AUR124 5 1	157	98.9	100.1	MUSKOGEE to FORT SMITH, 345KV 55224 MSKGE7 to 55302 FTSMI7 1	285	1999-010 2005SP Mitigation Plan In Effect
04SP	EMDE-EMDE	"	157	99.0	100.1	MONETT H.T. to MONETT 383 SUB., 69KV 59540 MON152 2 to 59591 MON383 2 1	276	"

Table 2- Non-SPP Facility overloads caused by the 290 MW CSWS to EES transfer without the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01AP	EES-EES	METRO2 to OAK RIDGE 138KV 16504 4METRO2 to 16512 4OAKRIDG 1	282	88.2	112.1	GOSLIN to ALDEN 138KV 16517 4GOSLIN to 17019 4ALDEN 1
01SR	EES-EES	TOLEDO BEND to LEACH 138 KV 16677 4TOLEDO to 16657 4LEACH 1	144.6	95.3	100.3	COOPER to LEESVILLE, 138 KV 50037 COOPER 4 to 50098 LEESV 4 1
01SP	EES-EES	ADA to SAILES, 115 KV 17460 3ADA to 17451 3SAILES 1	115	99.6	101.9	MAGNOLIA-EAST to MCNEIL, 115 KV 17542 3MAG-E to 17544 3MCNEIL 1
01SP	EES-EES	NEWTON BULK to HLYSPG, 138 KV 16618 4NEWTONB to 17917 4HLYSPG 1	112	97.5	100.9	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01FA	EES-EES	CAMDEN-SOUTH to STEPHENS, 115 KV 17536 3CAMD-S# to 17516 3STEPHN 1	96	98.6	100.1	ELDORADO-EHV 500/115 KV TRANSFORMER 17528 3ELDEHV to 17530 8ELDEHV 1
01FA	EES-EES	STEPHENS to MCNEIL, 115 KV 17516 3STEPHN to 17544 3MCNEIL 1	96	99.5	100.7	SMACKOVER SS to ELDORADO-DONAN SS, 115 KV 17515 3SMACKO* to 17546 3ELD-DO* 1
01FA	EES-EES	"	96	99.3	100.5	ELDORADO-EHV to ELDORADO-DONAN SS, 115 KV 17528 3ELDEHV to 17546 3ELD-DO* 1
01WP	EES-EES	RINGGOLD to SAILES, 115 KV 17450 3RINGLD to 17451 3SAILES 1	115	88.1	102.2	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01WP	EES-EES	"	115	88.1	102.1	LONGWOOD TO ELDORADO-EHV 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01WP	CELE-EES	CARROLL TO RINGGOLD 138/115KV TRANSFORMER 50024 CARROLL4 to 17450 3RINGLD 1	125	99.6	101.9	DOLET HILLS TO SOUTHWEST SHREVEPORT 345 50045 DOLHILL7 to 53454 SW SHV 7 1
01WP	CELE-EES	"	125	88.0	101.0	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01WP	CELE-EES	"	125	88.0	100.9	LONGWOOD TO ELDORADO-EHV 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
04SP	EES-CELE	CARROLL TO RINGGOLD 138/115KV TRANSFORMER 17450 3RINGLD to 50024 CARROLL4 1	125	96.5	101.8	DANVILLE (LPL) to JONESBORO (LPL), 115KV 17463 3DANVLL to 17469 3JNSBRO 1
04SP	EES-EES	CROSSETT-NORTH to STERLINGTON SES, 115KV 17480 3CROS-N to 17430 3STERL 1	80	99.6	100.9	HERMITAGE to HILO, 115KV 17497 3HERMTG to 17498 3HILO 1
04SP	EES-EES	"	80	99.7	101.1	HILO to ELDORADO-EHV, 115KV 17498 3HILO to 17528 3ELDEHV 1
04SP	EES-EES	"	80	99.4	100.4	GLENDAL SS to PNBGR# 3, 115KV 17550 3GLENDL to 17628 3PNBRG# 1

Table 3- SPP Facility overloads caused initially by the 600 MW ERCOTE to EES transfer with the additional facility loading by the CSWS to EES 290MW transfer. The upgrades and costs available are included.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	600MW %Loading	Additional 290MW %Loading	Branch Outage That Caused Overload	Possible Upgrade and Cost to Customer of the ERCOTE to EES 600MW Transfer	Additional Upgrade and Cost to Customer of the CSWS to EES Transfer
01AP	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	86.5	105.3	119.0	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1	Reset 300/5 CTs at Jacksonville to 400/5 \$1,000	None
01SR	CESW-CESW	DIERKS to SOUTH DIERKS, 69KV 53259 DIERKS 2 to 53317 SDIERKS2 1	72	99.3	104.3	106.8	WICKES REC to DEQUEEN, 69KV 53242 WICKES 2 to 53257 DEQUEEN2 1	Initial Limit-600A Breaker	Not Available
01SR	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	81.7	101.5	117.3	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1	Reset 300/5 CTs at Jacksonville to 400/5 \$1,000	None
01SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	96.6	110.2	127.7	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	Reconductor 3.25 miles of 666 ACSR with 1272 ACSR, \$720,000	Not Available
01SP	CESW-CESW	"	209	97.2	101.5	112.8	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	"	"
01SP	CESW-CESW	"	209	89.3	100.5	117.1	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	"	"
01SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	90.2	103.9	121.3	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	Reconductor 6.25 miles of 666 ACSR with 1272 ACSR, \$1,300,000	Not Available
01SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	88.7	102.3	119.7	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	Reconductor 0.81 miles of 666 ACSR with 1272 ACSR. Replace 800A trap with new 2000A trap, \$190,000	Additional Loading due to the 290MW transfer exceeds New Emergency Rating, Reconductor other 5.76 miles of 795 ACSR Cost Not Available
01SP	CESW-CESW	IPC JEFFERSON to LIEBERMAN, 138 KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	115	93.0	123.2	136.7	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	Conductor Limited 26.51 Miles	Not Available

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Table 3 continued - SPP Facility overloads caused initially by the 600 MW ERCOTE to EES transfer with the additional facility loading by the CSWS to EES 290MW transfer. The upgrades and costs available are included.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	600MW %Loading	Additional 290MW %Loading	Branch Outage That Caused Overload	Possible Upgrade and Cost to Customer of the ERCOTE to EES 600MW Transfer	Additional Upgrade and Cost to Customer of the CSWS to EES Transfer
01SP	CESW-CESW	JEFFRSN SWITCHING TO IPC JEFFRSN, 138KV 53551 JEFFRSN4 to 53548 IPCJEFF4 1	136	85.4	111.1	122.7	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	None, 1999-014 2001SP Jefferson 138KV Line Rebuild, 1.49 miles, 795MCM	None
01SP	CESW-CESW	WATERWORKS TO ARSENAL HILL 69KV 53462 WATERWK2 to 53385 ARSHILL2 1	95	99.5	100.6	101.0	FLOURNOY138/69KV TRANSFORMER 53404 FLOURNY2 to 53405 FLOURNY4 1	Initial Limit-500cu Bus	Not Available
01SP	EMDE-EMDE	TIPTON FORD TO MONETT, 161KV 59472 TIP292 5 to 59480 MON383 5 1	157	99.3	101.5	102.4	LARUSSEL TO MONETT, 161KV 59479 LAR382 5 to 59480 MON383 5 1	Reconductor 30 miles of 336 ACSR with 795 MCM, \$5,700,000	Not Available
01SP	GRRD-GRRD	TAHLEQUAH TO MAID, 161KV 54455 TAHLQH 5 to 54448 MAID 5 1	148	99.2	100.5	101.1	FLINTCREEK TO GRDA1, 345KV 53140 FLINTCR7 to 54450 GRDA1 7 1	None, 2000-003 2001SP Taken Out by GRDA	None
01SP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	99.8	101.5	102.2	NEVADA TO BUTLER, 161KV 59208 NEVADA 5 to 59216 BUTLER_5 1	None, 2000-003 2001SP Change CT's Ratio Settings, \$1,000	None
01SP	SWPA-AECI	CARTHAGE TO REEDS, 69KV 52690 CARTHG 2 to 96751 2REEDS 1	36	98.9	101.7	102.8	CARTHAGE TO LARUSSEL, 161KV 52688 CARTHAG5 to 59479 LAR382 5 1	None, 2000-003 2001SP Change CT's Ratio Settings, \$1,000	None
01SP	SWPA-AECI	"	36	98.9	101.4	102.6	MONETT TO BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLINE 7 1	"	"
01SP	SWPA-AECI	"	36	98.7	101.2	102.3	FLINTCREEK TO MONETT, 345KV 53140 FLINTCR7 to 59481 MON383 7 1	"	"
01FA		NONE							
01WP		NONE							

Table 3 continued - SPP Facility overloads caused initially by the 600 MW ERCOTE to EES transfer with the additional facility loading by the CSWS to EES 290MW transfer. The upgrades and costs available are included.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	600MW %Loading	Additional 290MW %Loading	Branch Outage That Caused Overload	Possible Upgrade and Cost to Customer of the ERCOTE to EES 600MW Transfer	Additional Upgrade and Cost to Customer of the CSWS to EES Transfer
04SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	98.3	111.3	128.8	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	Reconductor 3.25 miles of 666 ACSR with 1272 ACSR, \$720,000	Not Available
04SP	CESW-CESW	"	209	99.4	103.6	115.1	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1	"	"
04SP	CESW-CESW	"	209	96.7	101.0	112.5	KEATCHIE REC TO STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1	"	"
04SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	91.6	104.6	122	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	Reconductor 6.25 miles of 666 ACSR with 1272 ACSR, \$1,300,000	Not Available
04SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	89.9	102.9	120.3	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	Reconductor 0.81 miles of 666 ACSR with 1272 ACSR. Replace 800A trap with new 2000A trap, \$190,000	Additional Loading due to the 290MW transfer exceeds New Emergency Rating, Reconductor other 5.76 miles of 795 ACSR Cost Not Available
04SP	CESW-CESW	IPC JEFFERSON to LIEBERMAN, 138 KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	115	82.3	112.7	126.2	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	Conductor Limited 26.51 Miles	Not Available
04SP	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	83.4	103.2	116.6	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1	Reset 300/5 CTs at Jacksonville to 400/5 \$1,000	None
04SP	CESW-CESW	JEFFRSN SWITCHING TO IPC JEFFRSN, 138KV 53551 JEFFRSN4 to 53548 IPCJEFF4 1	136	76.0	101.9	113.5	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	None, 1999-014 2001SP Jefferson 138KV Line Rebuild, 1.49 miles, 795MCM	None
04SP	CESW-CESW	WILKES TO JEFFERSON SWITCHING, 138KV 53619 WILKES 4 to 53551 JEFFRSN4 1	210	78.0	100.2	100.5	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1	Initial Limit-Wavetrap	Not Available

Table 3 continued - SPP Facility overloads caused initially by the 600 MW ERCOTE to EES transfer with the additional facility loading by the CSWS to EES 290MW transfer. The upgrades and costs available are included.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	600MW %Loading	Additional 290MW %Loading	Branch Outage That Caused Overload	Possible Upgrade and Cost to Customer of the ERCOTE to EES 600MW Transfer	Additional Upgrade and Cost to Customer of the CSWS to EES Transfer
04SP	CESW-CESW	FLOURNOY TO LONGWOOD, 138KV 53405 FLOURNY4 to 53423 LONGWD 4	190	89.8	101.2	103.9	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	Initial Limit-Jumpers	Not Available
04SP	CESW-CESW	GENTRY REC to EAST CENTERTON, 161KV 53187 GENTRYR5 to 53133 ECNTRTN5 1	335	99.9	100.7	101.0	CHAMSPR5 to FARMINGTON AECC 161KV 53154 CHAMSPR5 to 53195 FARMGTN5 1	E.Centerton 161kV Breaker & Switch Replacements, Gentry Tap 161kV Line Switch Replacement, \$167,960	Not Available
04SP	CESW-CESW	"	335	99.6	100.5	100.8	DYESS TO CHAMSPR5, 161KV 53131 DYESS 5 to 53154 CHAMSPR5 1	"	"
04SP	CESW-CESW	GENTRY REC to FLINT CREEK, 161KV 53187 GENTRYR5 to 53139 FLINTCR5 1	335	99.8	100.8	101.2	Multiple Outage Contingency FLINT CREEK to MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1 MONETT to BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLINE 7 1	Not Available, 2000-003 2001SP Replace Switch \$60,000	Not Available
04SP	CESW-CESW	"	335	99.8	100.8	101.2	FLINTCREEK TO MONETT, 345KV 53140 FLINTCR7 to 59481 MON383 7 1	"	"
04SP	CESW-CESW	"	335	99.8	100.8	101.3	MONETT TO BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLINE 7 1	"	"
04SP	EES-SWPA	MIDWAY TO BULL SHOALS 17875 5MIDWAY# to 52660 BULL SH5 1	162	99.4	101.5	102.5	CALICO ROCK TO MELBOURNE, 161KV 17854 5CALCR to 17874 5MELBRN 1	Initial Limit-600A Switches	Not Available
04SP	EES-SWPA	"	162	99.1	101.2	102.2	NORFORK TO CALICO ROCK, 161KV 52648 NORFORK5 to 17854 5CALCR 1	"	
04SP	EES-SWPA	"	162	98.0	101.0	102.2	SWEETWTR TO FLETCH, 161KV 31798 SWEETWTR to 96077 5FLETCH 1	"	

Table 3 continued - SPP Facility overloads caused initially by the 600 MW ERCOTE to EES transfer with the additional facility loading by the CSWS to EES 290MW transfer. The upgrades and costs available are included.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	600MW %Loading	Additional 290MW %Loading	Branch Outage That Caused Overload	Possible Upgrade and Cost to Customer of the ERCOTE to EES 600MW Transfer	Additional Upgrade and Cost to Customer of the CSWS to EES Transfer
04SP	EMDE-EMDE	MONETT TO AURORA HT, 161KV 59480 MON383 5 to 59468 AUR124 5 1	157	98.9	101.8	103.0	MUSKOGEE TO FORT SMITH, 345KV 55224 MSKGE7 to 55302 FTSMI7 1	None, 1999-010 2005SP Mitigation Plan In Effect	None
04SP	EMDE-EMDE	"	157	99.0	101.5	102.5	MONETT HT TO MONETT, 69KV 59540 MON152 2 to 59591 MON383 2 1	"	"
04SP	EMDE-EMDE	"	157	99.0	101.4	102.4	STILWELL TO LACYGNE, 345 KV 57968 STILWEL7 to 57981 LACYGNE7 1	"	"
04SP	GRRD-GRRD	ZENA TAP TO JAY, 69KV 54467 ZENA TP2 to 54520 JAY GR 2 1	41	99.5	100.7	101.2	FLINT CREEK TO GRDA1, 345KV 53140 FLINTCR7 to 54450 GRDA1 7 1	None, 2000-003 2001SP Taken Out by GRDA	None
04SP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	99.7	101.7	102.6	HUBEN TO MORGAN, 345KV 96042 7HUBEN to 96045 7MORGAN 1	None, 2000-003 2001SP Change CT's Ratio Settings, \$1,000	Not Available
04SP	SWPA-AECI	"	36	99.7	101.4	102.2	NEOSHO TO MORGAN, 345KV 56756 NEOSHO 7 to 96045 7MORGAN 1	"	"
04SP	SWPA-AECI	"	36	99.8	101.4	102.0	WEST GARDNER TO LACYGNE, 345 KV 57965 W.GRDNR7 to 57981 LACYGNE7 1	"	"
04SP	SWPA-AECI	CARTHAGE TO REEDS, 69KV 52690 CARTHG 2 to 96751 2REEDS 1	36	99.9	101.9	102.9	TIPTON FORD TO JOPLIN SW, 161KV 59472 TIP292 5 to 59483 JOP389 5 1	None, 2000-003 2001SP Change CT's Ratio Settings, \$1,000	Not Available
04SP	SWPA-AECI	"	36	99.7	101.7	102.5	BEAVER TO NEOSHO SPA, 161KV 52680 BEAVER 5 to 52686 NEO SPA5 1	"	"
04SP	SWPA-AECI	"	36	99.7	101.5	102.3	CLINTON TO OSCEOLA, 161KV 96071 5CLINTN to 96108 5OSCEOL 1	"	"

Table 4 - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01AP	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	105.3	119.0	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SR	CESW-CESW	DIERKS to SOUTH DIERKS, 69KV 53259 DIERKS 2 to 53317 SDIERKS2 1	72	104.3	106.8	WICKES REC to DEQUEEN, 69KV 53242 WICKES 2 to 53257 DEQUEEN2 1
01SR	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	101.5	117.3	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	110.2	127.7	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1
01SP	CESW-CESW	"	209	100.5	117.1	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1
01SP	CESW-CESW	"	209	101.5	112.8	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1
01SP	CESW-CESW	"	209	97.0	113.9	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 to 53528 DIANA 7 1
01SP	CESW-CESW	"	209	95.8	112.7	CROCKETT TO GRIMES, 345 KV 53526 CROCKET7 to 16555 7GRIMES 1
01SP	CESW-CESW	"	209	99.3	110.6	KEATCHIE REC TO STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1
01SP	CESW-CESW	"	209	96.3	110.6	MARSHALL 69KV TO MARSHALL AUTO 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1
01SP	CESW-CESW	"	209	96.3	110.5	BLOCKER TAP TO MARSHALL, 69KV 53516 BLOCKRT2 to 53570 MARSHAL2 1
01SP	CESW-CESW	"	209	98.2	109.5	KEATCHIE REC TO GEORGIA-PACIFIC, 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1
01SP	CESW-CESW	"	209	96.9	108.2	GEORGIA-PACIFIC TO LOGANSPORT, 138KV 53536 GEORPAC4 to 53565 LOGANSP4 1
01SP	CESW-CESW	"	209	92.5	108.1	MARSHALL TO PIRKEY, 138KV 53571 MARSHL-4 to 53592 PIRKEY 4 1
01SP	CESW-CESW	"	209	91.2	107.3	PIRKEY TO SABINE MINING CO. T, 138KV 53592 PIRKEY 4 to 53602 SABMINT4 1
01SP	CESW-CESW	"	209	90.7	106.8	SABINE MINING CO. T TO SE MARSHALL, 138KV 53602 SABMINT4 to 53605 SEMRSHL4 1
01SP	CESW-CESW	"	209	90.2	105.3	Multiple Outage Contingency WELSH to WILKES 345KV 53615 WELSH 7 to 53620 WILKES 7 CKT1 WELSH to NW TEXARKANA 345KV 53615 WELSH 7 to 53301 NWTXARK7 CKT1
01SP	CESW-CESW	"	209	88.5	104.6	SCOTTSVILLE TO SOUTHEAST MARSHALL, 138KV 53603 SCOTTSV4 to 53605 SEMRSHL4 1

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Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	87.6	103.7	LONGWOOD TO SCOTTSVILLE, 138KV 53423 LONGWD 4 to 53603 SCOTTSV4 1
01SP	CESW-CESW	"	209	89.4	103.7	SOUTHWEST SHREVEPORT 345/138KV TRANSFORMER 53453 SW SHV 4 to 53454 SW SHV 7 1
01SP	CESW-CESW	"	209	88.9	103.2	BLOCKER TAP TO ROSBOROUGH, 69KV 53516 BLOCKRT2 to 53600 ROSBORO2 1
01SP	CESW-CESW	"	209	88.9	103.2	SW SHREVEPORT TO WESTERN ELECTRIC T 138KV 53453 SW SHV 4 to 53464 WESTELT4 1
01SP	CESW-CESW	"	209	88.9	103.2	ROCK HILL TO ROSBOROUGH, 69KV 53597 ROKHILL2 to 53600 ROSBORO2 1
01SP	CESW-CESW	"	209	80.6	103.1	WHITNEY TO TEXAS EASTMAN, 138KV 53618 WHITNEY4 to 53630 TEXEST4 1
01SP	CESW-CESW	"	209	88.2	103.1	WELSH TO WILKES, 345KV 53615 WELSH 7 to 53620 WILKES 7 1
01SP	CESW-CESW	"	209	88.7	103.1	SOUTHWEST SHREVEPORT 345/138KV TRANSFORMER 53453 SW SHV 4 to 53454 SW SHV 7 2
01SP	CESW-CESW	"	209	88.8	102.7	SW SHREVEPORT TO SW SHREVEPORT TAP, 138KV 53453 SW SHV 4 to 53455 SW SHVT4 1
01SP	CESW-CESW	"	209	88.1	102.3	JOAQUIN REC TO LOGANSPORT, 138KV 53552 JOAQUIN4 to 53565 LOGANSP4 1
01SP	CESW-CESW	"	209	87.4	101.7	CENTER TO JOAQUIN REC, 138KV 53520 CENTER 4 to 53552 JOAQUIN4 1
01SP	CESW-CESW	"	209	85.8	101.6	CROCKETT TO TENASKA, 345 KV 53526 CROCKET7 to 54061 TENASKA7 1
01SP	CESW-CESW	"	209	85.9	101.5	Multiple Outage Contingency LYDIA to VALLIANT 345KV 53277 LYDIA 7 to 54037 VALIANT7 CKT1 LYDIA to NW TEXARKANA 345KV 53277 LYDIA 7 to 53301 NWTXARK7 CKT1 LYDIA to WELSH 345KV 53277 LYDIA 7 to 53615 WELSH 7 CKT1
01SP	CESW-CESW	"	209	85.6	101.4	HARRISON ROAD TO LIBERTY CITY TAP, 138KV 53542 HARRISN4 to 53561 LIBCYTP4 1
01SP	CESW-CESW	"	209	85.4	101.2	LIBERTY CITY TAP TO NEW GLADEWATER, 138KV 53561 LIBCYTP4 to 53576 NEWGLAD4 1
01SP	CESW-CESW	"	209	86.3	101.2	KNOX LEE TO OAK HILL #2, 138KV 53557 KNOXLEE4 to 53586 OAK2HIL4 1
01SP	CESW-CESW	"	209	86.3	101.2	OAK HILL #1 TO OAK HILL #2, 138KV 53585 OAK1HIL4 to 53586 OAK2HIL4 1
01SP	CESW-CESW	"	209	86.2	101.0	NORTHWEST HENDERSON TO OAK HILL #1, 138KV 53584 NWHENDR4 to 53585 OAK1HIL4 1
01SP	CESW-CESW	"	209	85.0	100.8	NEW GLADEWATER TO PERDUE, 138KV 53576 NEWGLAD4 to 53590 PERDUE 4 1

Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	85.4	100.6	JACKSONVILLE TO OVERTON, 138KV 53549 JACKSNV4 to 53588 OVERTON4 1
01SP	CESW-CESW	"	209	85.1	100.6	LYDIA TO VALLIANT, 345KV 53277 LYDIA 7 to 54037 VALIANT7 1
01SP	CESW-CESW	"	209	85.0	100.2	NORTHWEST HENDERSON TO POYNTER, 69KV 53545 HNDRSNR2 to 53595 POYNTER2 1
01SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	103.9	121.3	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1
01SP	CESW-CESW	"	209	94.1	110.7	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1
01SP	CESW-CESW	"	209	90.7	107.5	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 to 53528 DIANA 7 1
01SP	CESW-CESW	"	209	89.4	106.4	CROCKETT TO GRIMES, 345 KV 53526 CROCKET7 to 16555 7GRIMES 1
01SP	CESW-CESW	"	209	95.1	106.3	STONEWALL TO WESTERN ELECTRIC T 138KV 53450 STONWAL4 to 53464 WESTELT4 1
01SP	CESW-CESW	"	209	92.8	104.2	KEATCHIE REC TO STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1
01SP	CESW-CESW	"	209	89.9	104.2	MARSHALL 69KV TO MARSHALL AUTO 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1
01SP	CESW-CESW	"	209	89.9	104.1	BLOCKER TAP TO MARSHALL, 69KV 53516 BLOCKRT2 to 53570 MARSHAL2 1
01SP	CESW-CESW	"	209	91.7	103.1	KEATCHIE REC TO GEORGIA-PACIFIC 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1
01SP	CESW-CESW	"	209	90.4	101.8	GEORGIA-PACIFIC TO LOGANSPO, 138KV 53536 GEORPAC4 to 53565 LOGANSP4 1
01SP	CESW-CESW	"	209	86.2	101.7	MARSHALL TO PIRKEY, 138KV 53571 MARSHL-4 to 53592 PIRKEY 4 1
01SP	CESW-CESW	"	209	84.9	101.0	PIRKEY TO SABINE MINING CO. T, 138KV 53592 PIRKEY 4 to 53602 SABMINT4 1
01SP	CESW-CESW	"	209	84.4	100.5	SABINE MINING CO. T TO SE MARSHALL, 138KV 53602 SABMINT4 to 53605 SEMRSHL4 1
01SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	102.3	119.7	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1
01SP	CESW-CESW	"	209	92.5	109.1	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1

Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	89.1	105.9	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 to 53528 DIANA 7 1
01SP	CESW-CESW	"	209	87.9	104.8	CROCKETT TO GRIMES, 345 KV 53526 CROCKET7 to 16555 7GRIMES 1
01SP	CESW-CESW	"	209	93.4	104.7	STONEWALL TO WESTERN ELECTRIC T 138KV 53450 STONWAL4 to 53464 WESTELT4 1
01SP	CESW-CESW	"	209	91.2	102.6	KEATCHIE REC TO STONEWALL 138KV 53418 KEATCHI4 to 53450 STONWAL4 1
01SP	CESW-CESW	"	209	88.2	102.5	MARSHALL 69KV TO MARSHALL AUTO 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1
01SP	CESW-CESW	"	209	88.3	102.5	BLOCKER TAP TO MARSHALL, 69KV 53516 BLOCKRT2 to 53570 MARSHAL2 1
01SP	CESW-CESW	"	209	90.1	101.5	KEATCHIE REC TO GEORGIA-PACIFIC 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1
01SP	CESW-CESW	"	209	88.8	100.2	GEORGIA-PACIFIC TO LOGANSFORT, 138KV 53536 GEORPAC4 to 53565 LOGANSP4 1
01SP	CESW-CESW	"	209	84.6	100.2	MARSHALL TO PIRKEY, 138KV 53571 MARSHL-4 to 53592 PIRKEY 4 1
01SP	CESW-CESW	IPC JEFFERSON to LIEBERMAN, 138 KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	115	123.2	136.7	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1
01SP	CESW-CESW	"	115	94.9	107	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1
01SP	CESW-CESW	JEFFERSON SWITCHING TO IPC JEFFERSON, 138KV 53551 JEFFRSN4 to 53548 IPCJEFF4 1	136	111.1	122.7	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1
01SP	CESW-CESW	WATERWORKS TO ARSENAL HILL 69KV 53462 WATERWK2 to 53385 ARSHILL2 1	95	100.6	101.0	FLOURNOY138/69KV TRANSFORMER 53404 FLOURNY2 to 53405 FLOURNY4 1
01SP	CESW-CESW	JACKSONVILLE TO PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	89.1	102.7	CROCKETT TO TENASKA, 345 KV 53526 CROCKET7 to 54061 TENASKA7 1
01SP	EMDE-EMDE	TIPTON FORD TO MONETT, 161KV 59472 TIP292 5 to 59480 MON383 5 1	157	101.5	102.4	LARUSSEL TO MONETT, 161KV 59479 LAR382 5 to 59480 MON383 5 1
01FA		NONE				
01WP		NONE				
04SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	111.3	128.8	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1

Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
04SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	103.6	115.1	STONEWALL to WESTERN ELECTRIC T, 138 KV 53450 STONWAL4 to 53464 WESTELT4 1
04SP	CESW-CESW	"	209	101.0	112.5	KEATCHIE REC TO STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1
04SP	CESW-CESW	"	209	98.4	115.3	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1
04SP	CESW-CESW	"	209	95.5	112.7	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
04SP	CESW-CESW	"	209	94.8	112.0	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 to 53528 DIANA 7 1
04SP	CESW-CESW	"	209	99.7	111.3	KEATCHIE REC TO GEORGIA PACIFIC 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1
04SP	CESW-CESW	"	209	98.3	109.9	GEORGIA-PACIFIC TO LOGANSPO, 138KV 53536 GEORPAC4 to 53565 LOGANSP4 1
04SP	CESW-CESW	"	209	94.7	109.4	BLOCKER TAP TO MARSHALL, 69KV 53516 BLOCKRT2 to 53570 MARSHAL2 1
04SP	CESW-CESW	"	209	94.4	109.1	MARSHALL 69KV TO MARSHALL AUTO 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1
04SP	CESW-CESW	"	209	88.7	104.7	MARSHALL TO PIRKEY, 138KV 53571 MARSHL-4 to 53592 PIRKEY 4 1
04SP	CESW-CESW	"	209	87.4	104.0	PIRKEY TO SABINE MINING CO. T, 138KV 53592 PIRKEY 4 to 53602 SABMINT4 1
04SP	CESW-CESW	"	209	87.0	103.6	SABINE MINING CO. T TO SE MARSHALL, 138KV 53602 SABMINT4 to 53605 SEMRSHL4 1
04SP	CESW-CESW	"	209	86.8	101.6	BLOCKER TAP TO ROSBOROUGH, 69KV 53516 BLOCKRT2 to 53600 ROSBORO2 1
04SP	CESW-CESW	"	209	86.7	101.5	ROCK HILL TO ROSBOROUGH, 69KV 53597 ROKHILL2 to 53600 ROSBORO2 1
04SP	CESW-CESW	"	209	84.6	101.2	SCOTTSVILLE TO SOUTHEAST MARSHALL, 138KV 53603 SCOTTSV4 to 53605 SEMRSHL4 1
04SP	CESW-CESW	"	209	86.3	101.0	JOAQUIN REC TO LOGANSPO, 138KV 53552 JOAQUIN4 to 53565 LOGANSP4 1
04SP	CESW-CESW	"	209	77.9	100.8	WHITNEY TO TEXAS EASTMAN, 138KV 53618 WHITNEY4 to 53630 TEXEST4 1
04SP	CESW-CESW	"	209	84.1	100.5	CROCKETT TO TENASKA, 345 KV 53526 CROCKET7 to 54061 TENASKA7 1
04SP	CESW-CESW	"	209	85.0	100.3	WELSH TO WILKES, 345KV 53615 WELSH 7 to 53620 WILKES 7 1
04SP	CESW-CESW	"	209	85.6	100.3	CENTER TO JOAQUIN REC, 138KV 53520 CENTER 4 to 53552 JOAQUIN4 1
04SP	CESW-CESW	"	209	83.6	100.2	LONGWOOD TO SCOTTSVILLE, 138KV 53423 LONGWD 4 to 53603 SCOTTSV4 1

Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
04SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	104.6	122	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1
04SP	CESW-CESW	"	209	91.7	108.5	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1
04SP	CESW-CESW	"	209	96.8	108.2	STONEWALL TO WESTERN ELECTRIC T 138KV 53450 STONWAL4 to 53464 WESTELT4 1
04SP	CESW-CESW	"	209	88.7	105.9	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
04SP	CESW-CESW	"	209	94.1	105.7	KEATCHIE REC TO STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1
04SP	CESW-CESW	"	209	88.1	105.3	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 to 53528 DIANA 7 1
04SP	CESW-CESW	"	209	92.9	104.4	KEATCHIE REC TO GEORGIA PACIFIC 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1
04SP	CESW-CESW	"	209	91.5	103.1	GEORGIA-PACIFIC TO LOGANSPORT, 138KV 53536 GEORPAC4 to 53565 LOGANSP4 1
04SP	CESW-CESW	"	209	87.9	102.6	BLOCKER TAP TO MARSHALL, 69KV 53516 BLOCKRT2 to 53570 MARSHAL2 1
04SP	CESW-CESW	"	209	87.6	102.3	MARSHALL 69KV TO MARSHALL AUTO 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1
04SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	102.9	120.3	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1
04SP	CESW-CESW	"	209	95.0	106.5	STONEWALL TO WESTERN ELECTRIC T 138KV 53450 STONWAL4 to 53464 WESTELT4 1
04SP	CESW-CESW	"	209	90.0	106.8	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1
04SP	CESW-CESW	"	209	87.1	104.2	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
04SP	CESW-CESW	"	209	92.4	103.9	KEATCHIE REC TO STONEWALL, 138KV 53418 KEATCHI4 to 53450 STONWAL4 1
04SP	CESW-CESW	"	209	86.4	103.6	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 to 53528 DIANA 7 1
04SP	CESW-CESW	"	209	91.1	102.7	KEATCHIE REC TO GEORGIA PACIFIC 138KV 53418 KEATCHI4 to 53536 GEORPAC4 1
04SP	CESW-CESW	"	209	89.7	101.3	GEORGIA-PACIFIC TO LOGANSPORT, 138KV 53536 GEORPAC4 to 53565 LOGANSP4 1

Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
04SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	86.1	100.9	BLOCKER TAP TO MARSHALL, 69KV 53516 BLOCKRT2 to 53570 MARSHAL2 1
04SP	CESW-CESW	"	209	85.9	100.6	MARSHALL 69KV TO MARSHALL AUTO 69KV 53570 MARSHAL2 to 53623 MARAUTO2 1
04SP	CESW-CESW	IPC JEFFERSON to LIEBERMAN, 138 KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	115	112.7	126.2	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1
04SP	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	103.2	116.6	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1
04SP	CESW-CESW	JEFFERSON SWITCHING TO IPC JEFFERSON, 138KV 53551 JEFFRSN4 to 53548 IPCJEFF4 1	136	101.9	113.5	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1
04SP	CESW-CESW	WILKES TO JEFFERSON SWITCHING, 138KV 53619 WILKES 4 to 53551 JEFFRSN4 1	210	100.2	100.5	LONGWOOD to WILKES, 345 KV 53424 LONGWD 7 to 53620 WILKES 7 1
04SP	CESW-CESW	FLOURNOY TO LONGWOOD, 138KV 53405 FLOURNY4 to 53423 LONGWD 4	190	101.2	103.9	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1
04SP	CESW-CESW	GENTRY REC to EAST CENTERTON, 161KV 53187 GENTRYR5 to 53133 ECNTRTN5 1	335	100.7	101.0	CHAMSPR5 to FARMINGTON AECC 161KV 53154 CHAMSPR5 to 53195 FARMGTN5 1
04SP	CESW-CESW	"	335	100.5	100.8	DYESS TO CHAMSPR5, 161KV 53131 DYESS 5 to 53154 CHAMSPR5 1
04SP	CESW-CESW	"	335	99.6	100.1	Multiple Outage Contingency FLINT CREEK to MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1 MONETT to BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLNE 7 1
04SP	CESW-CESW	"	335	99.6	100.1	MONETT TO BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLNE 7 1
04SP	CESW-CESW	GENTRY REC to FLINT CREEK, 161KV 53187 GENTRYR5 to 53139 FLINTCR5 1	335	100.8	101.2	Multiple Outage Contingency FLINT CREEK to MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1 MONETT to BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLNE 7 1
04SP	CESW-CESW	"	335	100.8	101.2	FLINTCREEK TO MONETT, 345KV 53140 FLINTCR7 to 59481 MON383 7 1
04SP	CESW-CESW	"	335	100.8	101.3	MONETT TO BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLNE 7 1
04SP	EES-SWPA	MIDWAY TO BULL SHOALS, 161KV 17875 5MIDWAY# to 52660 BULL SH5 1	162	101.5	102.5	CALICO ROCK TO MELBOURNE, 161KV 17854 5CALCR to 17874 5MELBRN 1
04SP	EES-SWPA	"	162	101.2	102.2	NORFORK TO CALICO ROCK, 161KV 52648 NORFORK5 to 17854 5CALCR 1
04SP	EES-SWPA	"	162	101.0	102.2	SWEETWTR TO FLETCH, 161KV 31798 SWEETWTR to 96077 5FLETCH 1

Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
04SP	EES-SWPA	MIDWAY TO BULL SHOALS, 161KV 17875 5MIDWAY# to 52660 BULL SH5 1	162	99.1	100.6	HUBEN TO MORGAN, 345KV 96042 7HUBEN to 96045 7MORGAN 1
04SP	EES-SWPA	"	162	99.2	100.5	FLETCHER TO FLTCHN 1 100 96077 5FLETCH to 96148 1FLTCHN 1
04SP	EES-SWPA	"	162	99.2	100.5	FLETCHER TO FLTCHN 1 100 96040 7FLETCH to 96148 1FLTCHN 1
04SP	EES-SWPA	"	162	99.0	100.5	MUSKOGEE TO FORT SMITH, 345KV 55224 MSKGE7 to 55302 FTSMI7 1
04SP	EES-SWPA	"	162	99.3	100.5	NEWPORT TO SWIFTON, 161KV 17822 5NEWPO to 17834 5SWIFTN 1
04SP	EMDE-EMDE	MONETT TO AURORA HT, 161KV 59480 MON383 5 to 59468 AUR124 5 1	157	101.8	103.0	MUSKOGEE TO FORT SMITH, 345KV 55224 MSKGE7 to 55302 FTSMI7 1
04SP	EMDE-EMDE	"	157	101.5	102.5	MONETT HT TO MONETT, 69KV 59540 MON152 2 to 59591 MON383 2 1
04SP	EMDE-EMDE	"	157	101.4	102.4	STILWELL TO LACYGNE, 345 KV 57968 STILWEL7 to 57981 LACYGNE7 1
04SP	EMDE-EMDE	"	157	99.7	100.7	ARCHIE TO ADRIAN, 161KV 59207 ARCHIE 5 to 59240 ADRIAN 5 1
04SP	EMDE-EMDE	"	157	99.4	100.3	BUTLER TO ADRIAN, 161KV 59216 BUTLER_5 to 59240 ADRIAN 5 1
04SP	EMDE-EMDE	"	157	99.4	100.3	JAMESVILLE TO NIXA, 161KV 96089 5JAMESV to 96678 5NIXA-1 1
04SP	EMDE-EMDE	"	157	99.4	100.3	LITCHFIELD TO ASBURY, 161KV 56804 LITCH 5 to 59476 ASB349 5 1
04SP	EMDE-EMDE	"	157	99.3	100.2	CLINTON TO OSCEOLA, 161KV 96071 5CLINTN to 96108 5OSCEOL 1
04SP	GRRD-GRRD	ZENA TAP TO JAY, 69KV 54467 ZENA TP2 to 54520 JAY GR 2 1	41	100.7	101.2	FLINT CREEK TO GRDA1, 345KV 53140 FLINTCR7 to 54450 GRDA1 7 1
04SP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	101.7	102.6	HUBEN TO MORGAN, 345KV 96042 7HUBEN to 96045 7MORGAN 1
04SP	SWPA-AECI	"	36	101.4	102.2	NEOSHO TO MORGAN, 345KV 56756 NEOSHO 7 to 96045 7MORGAN 1
04SP	SWPA-AECI	"	36	101.4	102.0	WEST GARDNER TO LACYGNE, 345 KV 57965 W.GRDNR7 to 57981 LACYGNE7 1
04SP	SWPA-AECI	"	36	99.9	100.6	WOLF CREEK TO LACYGNE, 345KV 56762 WOLFCRK7 to 57981 LACYGNE7 1
04SP	SWPA-AECI	"	36	99.7	100.3	CLINTON TO OSCEOLA, 161KV 96071 5CLINTN to 96108 5OSCEOL 1
04SP	SWPA-AECI	"	36	99.6	100.3	EUREKA SPRINGS TO OSAGE CREEK, 161KV 53136 EUREKA 5 to 17880 5OSAGE # 1
04SP	SWPA-AECI	"	36	99.5	100.1	BROOKLINE TO MORGAN, 161KV 59969 BRKLINE 5 to 96101 5MORGAN 1

Table 4 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with an ATC of zero due to the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
04SP	SWPA-AECI	CARTHAGE TO REEDS, 69KV 52690 CARTHG 2 to 96751 2REEDS 1	36	101.9	102.9	TIPTON FORD TO JOPLIN SW, 161KV 59472 TIP292 5 to 59483 JOP389 5 1
04SP	SWPA-AECI	"	36	101.7	102.5	BEAVER TO NEOSHO SPA, 161KV 52680 BEAVER 5 to 52686 NEO SPA5 1
04SP	SWPA-AECI	"	36	101.5	102.3	CLINTON TO OSCEOLA, 161KV 96071 5CLINTN to 96108 5OSCEOL 1

Table 5 - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload	ATC <MW>	Initial Limit, Available Solution and Cost, or Previous Assignment
01AP		NONE						
01SR	CESW-CESW	PATTERSON TO ASHDOWN REC (MILLWOOD, 115KV 53305 PATTERS3 to 53225 ASHDWNR3 1	120	99.9	107.6	MCNEIL 500/115KV TRANSFORMER 17543 8MCNEIL to 17544 3MCNEIL 1	7	Patterson Switch Replacement, 600A to 1200A \$20,000
01SR	CESW-CESW	"	120	91.1	105.6	LONGWOOD TO ELDORADO-EHV, 345 53424 LONGWD 7 to 17529 7ELDEHV 1	183	"
01SR	CESW-CESW	"	120	91.0	105.4	ELDORADO-EHV 500/345KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1	187	"
01SR	CESW-CESW	"	120	89.5	101.2	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1	259	"
01SR	CESW-CESW	IPC JEFFERSON TO LIEBERMAN, 138KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	135	90.2	101.8	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	247	Replace 4/0 jumpers to switches & Wavetrap at Lieberman \$10,000 for Summer Loading see Table 3
01SP	CESW-CESW	NORTHWEST HENDERSON TO POYNTER, 69KV 53583 NWHENDR2 to 53595 POYNTER2 1	59	96.8	104.4	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	116	Replace 4/0 jumpers and bus at Poynter \$45,700
01SP	CESW-CESW	"	59	94.6	102.2	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	200	"
01SP	CESW-CESW	"	59	94.0	101.6	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	225	"
01SP	CESW-CESW	ELM SPRINGS REC TO FLINT CREEK, 161KV 53194 ELMSPRR5 to 53139 FLINTCR5 1	335	99.9	100.1	FLINT CREEK TO GENTRY REC, 161KV 53139 FLINTCR5 to 53187 GENTRYR5 1	255	Initial Limit-Switch
01SP	CESW-CESW	NORTH MARSHALL TO WOODLAWN 69KV 53579 NMARSHL2 to 53621 WOODLWN2 1	51	88.9	101.1	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	265	Initial Limit-Jumpers
01SP	EMDE-EMDE	MONETT TO AURORA HT, 161KV 59480 MON383 5 to 59468 AUR124 5 1	157	99.7	100.6	DADEVILLE EAST TO MORGAN, 161KV 59478 DAD368 5 to 96101 5MORGAN 1	112	1999-010 2005SP Mitigation Plan In Effect
01SP	EES-SWPA	MIDWAY TO BULL SHOALS, 161KV 17875 5MIDWAY# to 52660 BULL SH5 1	162	99.9	100.9	BATESVILLE-NORTH TO CUSHMAN 161KV 17850 5BATEVL to 17858 5CUSHMN 1	34	Initial Limit-600A Switches
01SP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	99.6	100.4	AURORA HT TO MONETT, 161KV 59468 AUR124 5 to 59480 MON383 5 1	149	2000-003 2001SP Change CT's Ratio Settings
01FA	CESW-CESW	JACKSONVILLE TO PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	99.3	113.0	NORTH MINEOLA TO LAKE HAWKINS, 138KV 53526 CROCKET7 to 54061 TENASKA7 1	16	Reset 300/5 CTs at Jacksonville to 400/5 \$1,000
01FA	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	83.7	100.6	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	275	See Table 3
01WP	CESW-CESW	BIG SANDY TO HAWKINS, 69KV 53515 BIGSNDY2 to 53543 HAWKINS2 1	72	99.6	102.4	NORTH MINEOLA TO LAKE HAWKINS, 138KV 53581 NMINEOL4 to 53666 LHAWKIN4 1	46	Initial Limit-350cu Bus at Big Sandy

Table 5 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload	ATC <MW>	Initial Limit, Available Solution and Cost, or Previous Assignment
01WP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	86.9	104.3	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	215	See Table 3
01WP	CESW-CESW	IPC JEFFERSON TO LIEBERMAN, 138KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	135	91.6	102.8	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	221	Replace 4/0 jumpers to switches & Wavetrap at Lieberman \$10,000 for Summer Loading see Table 3
01WP	CESW-CESW	NORTHWEST TEXARKANA TO PATTERSON, 138KV 53300 NWTXARK4 to 53306 PATTERS4 1	287	88.7	100.3	LYDIA TO VALLIANT, 345KV 53277 LYDIA 7 to 54037 VALIANT7 1	285	Reconductor 13.37 miles of 1024 ACAR with 1590 ACSR. Replace 1200A switches & breaker @ Patterson, and replace wavetrap jumpers at both ends, \$3,800,000
01WP	WFEC-SWPA	TUPELO TAP TO TUPELO, 138KV 56071 TUPLOTP4 to 52800 TUPELO 4 1	96	93.6	101.0	PITTSBURG TO VALLIANT, 345KV 54033 PITTSB-7 to 54037 VALIANT7 1	253	Initial Limit-Wavetrap
04SP	CESW-CESW	NORTHWEST HENDERSON TO POYNTER 69KV 53583 NWHENDR2 to 53595 POYNTER2 1	59	98.9	106.7	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	41	Replace 4/0 jumpers and bus at Poynter \$45,700
04SP	CESW-CESW	"	59	96.5	104.3	CHEROKEE REC TO TATUM, 138 KV 53522 CHEROKE4 to 53611 TATUM 4 1	122	"
04SP	CESW-CESW	"	59	95.9	103.7	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	144	"
04SP	CESW-CESW	LONGWOOD TO NORAM, 138KV 53423 LONGWD 4 to 53473 NORAM 4	234	99.3	102	Multiple Outage Contingency SW SHREVEPORT to DIANA 345KV 53454 SW SHV 7 to 53528 DIANA 7 CKT1 SW SHREVEPORT to LONGWOOD 345KV 53454 SW SHV 7 to 53424 LONGWD 7 CKT1	89	Conductor Limited
04SP	CESW-EES	HOPE TO PATMOS, 115KV 53383 HOPE 3 to 17537 3PATMOS# 1	174	93.1	110.1	LONGWOOD TO ELDORADO-EHV, 345 53424 LONGWD 7 to 17529 7ELDEHV 1	122	Conductor Limited 11.34 Miles
04SP	CESW-EES	"	174	92.9	109.9	ELDORADO-EHV 500/345KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1	125	"
04SP	CESW-EES	"	174	88.5	102.2	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1	244	"
04SP	CESW-EES	"	174	91.7	100.4	MCNEIL 500/115KV TRANSFORMER 17543 8MCNEIL to 17544 3MCNEIL 1	279	"
04SP	CESW-SWPA	EUREKA SPRINGS TO BEAVER, 161KV 53136 EUREKA 5 to 52680 BEAVER 5 1	274	99.1	100.8	Multiple Outage Contingency FLINT CREEK to MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1 MONETT to BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLNE 7 1	151	SWPA Cost-Reconnect CT's to 1000:5 Tap on Bkrs 42, 32, & half or 22. Replace metering & reset relays for Line 2 & Line 3, \$22,500 CESW Cost-Reconductor 1.25 miles of 795 ACSR with 1590 ACSR (CSW owns 1.25 of 7.22 miles of the line), \$515,000
04SP	CESW-SWPA	"	274	99.2	100.8	MONETT TO BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLNE 7 1	148	"
04SP	CESW-SWPA	"	274	98.9	100.8	FLINTCREEK TO MONETT, 345KV 53140 FLINTCR7 to 59481 MON383 7 1	157	"
04SP	CESW-CESW	HAWKINS REC TO HAWKINS, 69KV 53544 HAWKREA2 to 53543 HAWKINS2 1	85	99.4	101.2	PERDUE TO LAKE HAWKINS, 138KV 53590 PERDUE 4 to 53666 LHAWKIN4 1	159	Reconductor 1.00 mile of 477 ACSR with 795 ACSR \$375,000

Table 5 continued - SPP Facility overloads caused by the 290 MW CSWS to EES transfer with the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From-To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload	ATC <MW>	Initial Limit, Available Solution and Cost, or Previous Assignment
04SP	CESW-CESW	LONE STAR SOUTH TO LONE STAR REC (BOND), 69KV 53275 LSSOUTH2 to 53274 LSREA 2 1	59	98.1	100.9	LONESTAR TAP TO AIRPRODUCTS TAP, 69KV 53272 LSTARTP2 to 53510 AIRPRDT2 1	203	Initial Limit-Jumpers
04SP	CESW-CESW	"	59	98.1	100.9	LONESTAR TAP TO LONE STAR POWER PLANT, 69KV 53272 LSTARTP2 to 53347 LONSTAR2 1	203	"
04SP	CESW-CESW	"	59	97.8	100.6	JENKINS REC TO AIRPRODUCTS TAP, 69KV 53267 JENKINS2 to 53510 AIRPRDT2 1	233	"
04SP	CESW-CESW	QUITMAN TO NORTH MINEOLA, 69KV 53596 QUITMAN2 to 53580 NMINEOL2 1	59	98.8	100.3	ADORA REC TO ADORA T 69KV 53243 ADORA 2 to 53244 ADRWTPL2 1	261	Initial Limit-4/0cu Bus at Quitman
04SP	CESW-CESW	JACKSONVILLE TO OVERTON, 138KV 53549 JACKSNV4 to 53588 OVERTON4 1	235	92.5	100.6	CROCKETT TO TENASKA, 345 KV 53526 CROCKET7 to 54061 TENASKA7 1	270	795 ACSR Conductor Limited

Table 6- Non-SPP Facility overloads caused by the 290 MW CSWS to EES transfer with the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01AP	EES-EES	LEACH TO NEWTON BULK , 138 KV 16657 4LEACH to 16618 4NEWTONB 1	144.6	94.3	100.7	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01AP	EES-EES	TOLEDO BEND to LEACH 138 KV 16677 4TOLEDO to 16657 4LEACH 1	144.6	94.7	101.1	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01AP	EES-EES	LINE 485 TAP OF 558 TO HUNTSVILLE, 138KV 16528 4L558T48 to 16532 4HUNTSVL 1	206	92.1	100.1	HARTBURG TO MOUNT OLIVE, 500KV 16686 8HARTBRG to 17445 8MTOLIV 1
01AP	EES-EES	MT. ZION TO LINE 485 TAP OF 558,138KV 16534 4MT.ZION to 16528 4L558T48 1	206	93.9	101.9	HARTBURG TO MOUNT OLIVE, 500KV 16686 8HARTBRG to 17445 8MTOLIV 1
01AP	EES-EES	GRIMES TO MT ZION, 138KV 16556 4GRIMES to 16534 4MT.ZION 1	206	95.5	103.6	HARTBURG TO MOUNT OLIVE, 500KV 16686 8HARTBRG to 17445 8MTOLIV 1
01AP	EES-EES	"	206	91.3	101.0	DOLET HILLS 345/230KV TRANSFORMER 50045 DOLHILL7 to 50046 DOLHILL6 1
01AP	EES-EES	"	206	85.1	100.2	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01AP	EES-EES	"	206	89.5	100.2	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01SR	CELE-EES	CARROLL TO RINGGOLD 138/115KV TRANSFORMER 50024 CARROLL4 to 17450 3RINGLD 1	125	87.7	102.6	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01SR	CELE-EES	"	125	87.8	102.6	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01SR	CELE-EES	"	125	89.5	101.6	CARROLL TO MESSICK, 230KV 50023 CARROLL6 to 50126 MESSICK6 1
01SR	EES-EES	RINGGOLD to SAILES, 115 KV 17450 3RINGLD to 17451 3SAILES 1	115	88.7	104.8	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01SR	EES-EES	"	115	88.8	104.8	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01SR	EES-EES	"	115	90.6	103.7	CARROLL TO MESSICK, 230KV 50023 CARROLL6 to 50126 MESSICK6 1
01SR	EES-EES	TOLEDO BEND to LEACH 138 KV 16677 4TOLEDO to 16657 4LEACH 1	144.6	99.9	105.6	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SR	EES-EES	LEACH TO NEWTON BULK , 138 KV 16657 4LEACH to 16618 4NEWTONB 1	144.6	98.8	104.5	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SR	EES-EES	HLYSPG TO JASPER, 138KV 17917 4HLYSPG to 16668 4JASPER 1	112	96.4	100.2	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SP	CELE-EES	CARROLL TO RINGGOLD 138/115KV TRANSFORMER 50024 CARROLL4 to 17450 3RINGLD 1	125	97.6	110.3	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01SP	CELE-EES	"	125	97.6	110.3	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01SP	CELE-EES	"	125	99.9	102.3	DOLET HILLS TO SW SHREVEPORT, 345KV 50045 DOLHILL7 to 53454 SW SHV 7 1

Table 6 continued - Non-SPP Facility overloads caused by the 290 MW CSWS to EES transfer with the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01SP	EES-EES	RINGGOLD to SAILES, 115 KV 17450 3RINGLD to 17451 3SAILES 1	115	95.9	109.7	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01SP	EES-EES	"	115	95.9	109.6	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01SP	EES-EES	"	115	98.4	101.0	DOLET HILLS TO SW SHREVEPORT, 345KV 50045 DOLHILL7 to 53454 SW SHV 7 1
01SP	EES-EES	MURFREESBORO 138/115KV 17609 4MURFRE to 17607 3MURF-S 1	60	87.5	110.9	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01SP	EES-EES	"	60	87.5	110.7	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01SP	EES-EES	HLYSPG TO JASPER, 138KV 17917 4HLYSPG to 16668 4JASPER 1	112	97.5	100.9	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01FA	EES-EES	NEWTON BULK to HLYSPG, 138 KV 16618 4NEWTONB to 17917 4HLYSPG 1	112	99.2	103.6	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
01FA	EES-EES	RINGGOLD to SAILES, 115 KV 17450 3RINGLD to 17451 3SAILES 1	115	85.0	100.2	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01FA	EES-EES	"	115	84.9	100.2	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01WP	CELE-EES	CARROLL TO RINGGOLD 138/115KV TRANSFORMER 50024 CARROLL4 to 17450 3RINGLD 1	125	96.8	108.0	CLARENCE TO MESSICK, 230KV 50027 CLARN 6 to 50126 MESSICK6 1
01WP	CELE-EES	"	125	96.5	106.1	LYDIA TO VALIANT, 345KV 53277 LYDIA 7 to 54037 VALIANT7 1
01WP	CELE-EES	"	125	95.8	103.6	WINNFIELD 230/115KV TRANSFORMER 17397 3WINFLD to 17398 6WINFLD 1
01WP	CELE-EES	"	125	95.8	103.6	WINNFIELD TO MONTGOMERY 230KV 17398 6WINFLD to 17401 6MONTGY 1
01WP	CELE-EES	"	125	91.0	102.2	CLARENCE TO MONTGOMERY, 230KV 50027 CLARN 6 to 17401 6MONTGY 1
01WP	CELE-EES	"	125	95.3	101.7	MCNEIL 500/115KV TRANSFORMER 17543 8MCNEIL to 17544 3MCNEIL 1
01WP	CELE-EES	"	125	91.9	100.8	PITTSBURG TO VALIANT, 345KV 54033 PITTSB- 7 to 54037 VALIANT7 1
01WP	EES-EES	RINGGOLD to SAILES, 115 KV 17450 3RINGLD to 17451 3SAILES 1	115	97.6	109.8	CLARENCE TO MESSICK, 230KV 50027 CLARN 6 to 50126 MESSICK6 1
01WP	EES-EES	"	115	97.2	107.6	LYDIA TO VALIANT, 345KV 53277 LYDIA 7 to 54037 VALIANT7 1
01WP	EES-EES	"	115	96.6	105.1	WINNFIELD 230/115KV TRANSFORMER 17397 3WINFLD to 17398 6WINFLD 1
01WP	EES-EES	"	115	96.6	105.1	WINNFIELD TO MONTGOMERY 230KV 17398 6WINFLD to 17401 6MONTGY 1

Table 6 continued - Non-SPP Facility overloads caused by the 290 MW CSWS to EES transfer with the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
01WP	EES-EES	RINGGOLD to SAILES, 115 KV 17450 3RINGLD to 17451 3SAILES 1	115	91.4	103.5	CLARENCE TO MONTGOMERY, 230KV 50027 CLARN 6 to 17401 6MONTGY 1
01WP	EES-EES	"	115	95.6	102.5	MCNEIL 500/115KV TRANSFORMER 17543 8MCNEIL to 17544 3MCNEIL 1
01WP	EES-EES	"	115	92.3	101.9	PITTSBURG TO VALIANT, 345KV 54033 PITTSB-7 to 54037 VALIANT7 1
01WP	EES-EES	"	115	91.4	100.8	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
01WP	EES-EES	"	115	92.9	100.6	MCKNIGHT TO FRANKLIN, 500KV 16897 8MCKNT to 17361 8FRKLIN 1
01WP	EES-EES	MURFREESBORO 138/115KV 17609 4MURFRE to 17607 3MURF-S 1	60	98.4	118.4	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
01WP	EES-EES	"	60	96.0	114.2	DOLET HILLS 345/230KV TRANSFORMER 50045 DOLHILL7 to 50046 DOLHILL6 1
01WP	EES-EES	"	60	96.7	114.2	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1
01WP	EES-EES	"	60	95.2	113.9	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1
04SP	CELE-EES	CARROLL TO RINGGOLD 138/115KV TRANSFORMER 50024 CARROLL4 to 17450 3RINGLD 1	125	96.1	109.8	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
04SP	CELE-EES	"	125	96.0	109.7	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
04SP	EES-EES	RINGGOLD to SAILES, 115 KV 17450 3RINGLD to 17451 3SAILES 1	115	94.4	109.2	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
04SP	EES-EES	"	115	94.2	109.1	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
04SP	EES-EES	LEWISVILLE TO COUCH, 115KV 17502 3LEWIS # to 17478 3COUCH 1	159	90.0	108.6	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
04SP	EES-EES	"	159	89.8	108.4	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
04SP	EES-EES	PATMOS-WEST SS TO LEWISVILLE, 115KV 17537 3PATMOS# to 17502 3LEWIS # 1	159	99.3	117.8	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
04SP	EES-EES	"	159	99.1	117.6	ELDORADO-EHV 500/345 KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
04SP	EES-EES	"	159	94.2	109.2	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
04SP	EES-EES	"	159	97.6	107.2	MCNEIL 500/115KV TRANSFORMER 17543 8MCNEIL to 17544 3MCNEIL 1
04SP	EES-EES	"	159	90.8	105.1	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1

Table 6 continued - Non-SPP Facility overloads caused by the 290 MW CSWS to EES transfer with the 600 MW ERCOTE to EES transfer included in the analysis.

Study Year	From -To Area(s)	Branch Over 100% Rate B	RATE B <MVA>	Base Case %Loading	Transfer Case %Loading	Branch Outage That Caused Overload
04SP	EES-EES	PATMOS-WEST SS TO LEWISVILLE, 115KV 17537 3PATMOS# to 17502 3LEWIS # 1	159	89.0	102.0	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 to 53620 WILKES 7 1
04SP	EES-EES	"	159	86.1	100.1	DOLET HILLS 345/230KV TRANSFORMER 50045 DOLHILL7 to 50046 DOLHILL6 1
04SP	EES-EES	MURFREESBORO 138/115KV 17609 4MURFRE to 17607 3MURF-S 1	60	94.8	113.3	CROCKETT TO GRIMES, 345KV 53526 CROCKET7 to 16555 7GRIMES 1
04SP	EES-EES	"	60	91.0	108.7	CROCKETT TO TENASKA, 345KV 53526 CROCKET7 to 54061 TENASKA7 1

5. Conclusion

The results of the study show that before the 290MW transfer can take place system improvements will need to be completed. The facilities identified in the System Impact Study for the Reliant ERCOTE to EES 600MW transfer will be required before the 290MW transmission service can take place in order to maintain system reliability.

The final cost assignment of facilities and ATC to CSWPMI will be determined upon the completion of a facility study.

Appendix A

PSS/E CHOICES IN RUNNING LOAD FLOW PROGRAM AND ACCC

BASE CASES:

Solutions - Fixed slope decoupled Newton-Raphson solution (FDNS)

1. Tap adjustment – Stepping
2. Area interchange control – Tie lines only
3. Var limits – Apply immediately
4. Solution options - Phase shift adjustment
 - Flat start
 - Lock DC taps
 - Lock switched shunts

ACCC CASES:

Solutions – AC contingency checking (ACCC)

1. MW mismatch tolerance –1.0
2. Contingency case rating – Rate B
3. Percent of rating – 100
4. Output code – Summary
5. Min flow change in overload report – 1mw
6. Excl'd cases w/ no overloads form report – YES
7. Exclude interfaces from report – NO
8. Perform voltage limit check – YES
9. Elements in available capacity table – 60000
10. Cutoff threshold for available capacity table – 99999.0
11. Min. contng. case Vltg chng for report – 0.02
12. Sorted output – None

Newton Solution:

1. Tap adjustment – Stepping
2. Area interchange control – Tie lines only
3. Var limits - Apply automatically
4. Solution options - Phase shift adjustment
 - Flat start
 - Lock DC taps
 - Lock switched shunts