



SPP *Southwest Power Pool*

*System Impact Study
For Transmission Service
Requested By
Reliant Energy Services, Inc.*

From ERCOTE to Entergy

*For a Reserved Amount Of 600MW
From 1/1/01
To 1/1/06*

SPP Transmission Planning

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1. Executive Summary

Reliant Energy Services, Inc. has requested a system impact study for long-term Firm Point-to-Point transmission service from ERCOTE to Entergy. The period of the transaction is from 1/1/01 to 1/1/06. The request is for one reservation (150680), totaling 600 MW.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the additional 600 MW transfer while maintaining system reliability. The analysis in this document shows that to accommodate an additional 600 MW transfer, upgrades will be required on the SPP transmission systems. The overloads caused by the 600MW transfer are listed in Table 1 and Table 2.

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. Reliant Energy Services, 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 Reliant Energy Services, 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

Reliant Energy Services, Inc. has requested an impact study for transmission service from ERCOTE 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 600 MW. This study includes a steady-state contingency analysis (PSS/E function ACCC) and Available Transfer Capability (ATC) analysis.

The steady-state analysis consider the impact of the 600 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 analysis 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 600 MW.

3. Study Methodology

A. Description

The system impact study analysis was conducted to determine the impact of the 600MW transfer on the SPP system. The analysis was done using two steps. The first step was to study the steady-state analysis impact of the 600MW. The second step was to study Available Transfer Capability (ATC) of the facilities identified in the steady-state analysis impact.

The steady-state analysis was 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 eight seasonal models to study the 600MW request. The SPP 2000 Series Cases 2000/01 Winter Peak, 2001 April (Spring Minimum), 2001 Spring Peak, 2001 Summer Peak, 2001 Fall Peak, 2001/02 Winter Peak, 2004 Summer Peak, and 2004/05 Winter Peak were used to study the impact of the 600MW transfer on the SPP system during the transaction period of 1/01/01 to 1/01/06.

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 and 2 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 transfer, 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 600MW transfer. 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 ERCOTE to EES 600MW transfer.

Table 1 - SPP Facility overloads caused by the 600 MW ERCOTE to EES transfer.

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
00WP		NONE						
01AP	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	86.9	105.7	CROCKETT TO TENASKA 345 KV 53526 CROCKET7 to 54061 TENASKA7 1	418	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	99.4	104.5	WICKES REC TO DEQUEEN 69KV 53242 WICKES 2 to 53257 DEQUEEN2 1	77	Initial Limit-600A Breaker
01SR	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	82.1	101.9	CROCKETT TO TENASKA 345 KV 53526 CROCKET7 to 54061 TENASKA7 1	546	Reset 300/5 CTs at Jacksonville to 400/5 \$1,000
01SR	CESW-CESW	PATTERSON TO ASHDOWN REC (MILLWOOD) 115KV 53305 PATTERS3 to 53225 ASHDWNR3 1	120	82.2	100.2	MCNEIL 500/115KV TRANSFORMER 17543 8MCNEIL to 17544 3MCNEIL 1	594	Patterson Switch Replacement, 600A to 1200A \$20,000
01SP	CESW-CESW	IPC JEFFERSON TO LIEBERMAN 138KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	115	93.4	123.8	LONGWOOD TO WILKES 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	135	Conductor Limited 26.51 miles
01SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	96.8	110.5	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	146	Reconductor 3.25 miles of 666 ACSR with 1272 ACSR, \$720,000
01SP	CESW-CESW	"	209	97.3	101.6	STONEWALL TO WESTERN ELECTRIC T 53450 STONWAL4 to 53464 WESTELT4 1	388	"
01SP	CESW-CESW	"	209	89.5	100.7	LONGWOOD TO WILKES 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	566	"
01SP	CESW-CESW	GENTRY REC TO EAST CENTERTON 161KV 53187 GENTRYR5 to 53133 ECNTRTN5 1	335	99.7	100.5	FLINT CREEK TO ELM SPRINGS REC 161KV 53139 FLINTCR5 to 53194 ELMSPRR5 1	248	E.Centeron 161kV Breaker & Switch Replacements, Gentry Tap 161kV Line Switch Replacement, \$167,960
01SP	CESW-CESW	WATERWORKS TO ARSENAL HILL 69KV 53462 WATERWK2 to 53385 ARSHILL2 1	95	99.5	100.7	FLOURNOY 138/ 69KV TRANSFORMER 53404 FLOURNY2 to 53405 FLOURNY4 1	315	Initial Limit-500cu Bus
01SP	CESW-CESW	JEFFERSON SWITCHING TO IPC JEFFERSON 138KV 53551 JEFFRSN4 to 53548 IPCJEFF4 1	136	85.8	111.6	LONGWOOD TO WILKES 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	336	1999-014 2001SP Jefferson 138KV Line Rebuild, 1.49 miles, 795MCM
01SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	90.5	104.2	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	426	Reconductor 6.25 miles of 666 ACSR with 1272 ACSR, \$1,300,000
01SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	88.9	102.6	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	493	Reconductor 0.81 miles of 666 ACSR with 1272 ACSR. Replace 800A trap with new 2000A trap, \$190,000
01SP	EMDE-EMDE	TIPTON FORD TO MONETT 161KV 59472 TIP292 5 to 59480 MON383 5 1	157	98.0	100.2	LARUSSEL TO MONETT 161KV 59479 LAR382 5 to 59480 MON383 5 1	558	Reconductor 30 miles of 336 ACSR with 795 MCM, \$5,700,000
01SP	GRRD-GRRD	TAHLEQUAH TO MAID 161KV 54455 TAHLQH 5 to 54448 MAID 5 1	148	99.8	102.2	MUSKOGEE TO ROSS LAKE 161KV 55222 MSKGE5 to 55252 ROSS 5 1	57	2000-003 2001SP Taken Out by GRDA
01SP	KACP-KACP	STILWELL TO LACYGNE 345 KV 57968 STILWEL7 to 57981 LACYGNE7 1	1202	99.9	101.6	WEST GARDNER TO LACYGNE 345 KV 57965 W.GRDNR7 to 57981 LACYGNE7 1	44	SPP Flowgate with Operating Guide

Table 1 continued - SPP Facility overloads caused by the 600 MW ERCOTE to EES transfer.

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	SWPA-AECI	CARTHAGE TO REEDS 69KV 52690 CARTHG 2 to 96751 2REEDS 1	36	99.6	102.1	BEAVER TO EUREKA SPRINGS 161KV 52680 BEAVER 5 to 53136 EUREKA 5 1	103	2000-003 2001SP Change CT's Ratio Settings at Carthage
01SP	SWPA-AECI	"	36	98.8	100.9	AURORA HT TO AURORA WEST 69KV 59537 AUR124 2 to 59578 AUR355 2 1	361	"
01SP	SWPA-AECI	CARTHAGE TO JASPER 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	98.9	100.6	NEVADA TO BUTLER 161KV 59208 NEVADA 5 to 59216 BUTLER_5 1	416	2000-003 2001SP Change CT's Ratio Settings at Carthage
01FA		NONE						
01WP		NONE						
04SP	CESW-CESW	CHEROKEE REC TO KNOX LEE, 138 KV 53522 CHEROKE4 to 53557 KNOXLEE4 1	209	98.6	111.7	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	66	Reconductor 3.25 miles of 666 ACSR with 1272 ACSR, \$720,000
04SP	CESW-CESW	"	209	99.5	103.8	STONEWALL TO WESTERN ELECTRIC T 53450 STONWAL4 to 53464 WESTELT4 1	78	"
04SP	CESW-CESW	"	209	96.8	101.2	KEATCHIE REC TO STONEWALL 138KV 53418 KEATCHI4 to 53450 STONWAL4 1	452	"
04SP	CESW-CESW	GENTRY REC TO EAST CENTERTON 161KV 53187 GENTRYR5 to 53133 ECNTRT5 1	335	99.6	100.4	CHAMSPR5 TO FARGTON AECC 161KV 53154 CHAMSPR5 to 53195 FARMGTN5 1	302	E.Centerton 161kV Breaker & Switch Replacements, Gentry Tap 161kV Line Switch Replacement, \$167,960
04SP	CESW-CESW	"	335	99.4	100.2	DYESS TO CHAMSPR5 161KV 53131 DYESS 5 to 53154 CHAMSPR5 1	495	"
04SP	CESW-CESW	IPC JEFFERSON TO LIEBERMAN 138KV 53548 IPCJEFF4 to 53420 LIEBERM4 1	115	83.0	113.5	LONGWOOD TO WILKES 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	335	Conductor Limited 26.51 miles
04SP	CESW-CESW	GENTRY REC to FLINT CREEK, 161KV 53187 GENTRYR5 to 53139 FLINTCR5 1	335	99.4	100.4	Multiple Outage Contingency FLINT CREEK to MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1 MONETT to BROOKLINE, 345KV 59481 MON383 7 to 59984 BRKLN 7 1	360	2000-003 2001SP Replace Switch \$60,000
04SP	CESW-CESW	"	335	99.4	100.4	MONETT TO BROOKLINE 345KV 59481 MON383 7 to 59984 BRKLN 7 1	363	"
04SP	CESW-CESW	"	335	99.3	100.4	FLINT CREEK TO MONETT 345KV 53140 FLINTCR7 to 59481 MON383 7 1	382	"
04SP	CESW-CESW	TATUM TO CHEROKEE REC, 138KV 53611 TATUM 4 to 53522 CHEROKE4 1	209	91.9	105	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	383	Reconductor 6.25 miles of 666 ACSR with 1272 ACSR, \$1,300,000
04SP	CESW-CESW	ROCK HILL TO TATUM, 138KV 53598 ROKHILL4 to 53611 TATUM 4 1	209	90.2	103.3	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	458	Reconductor 0.81 miles of 666 ACSR with 1272 ACSR. Replace 800A trap with new 2000A trap, \$190,000
04SP	CESW-CESW	JACKSONVILLE to PINE GROVE, 138KV 53549 JACKSNV4 to 53675 PINEGRV4 1	158	83.8	103.6	CROCKETT TO TENASKA 345 KV 53526 CROCKET7 to 54061 TENASKA7 1	489	Reset 300/5 CTs at Jacksonville to 400/5 \$1,000

Table 1 continued - SPP Facility overloads caused by the 600 MW ERCOTE to EES transfer.

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	FLOURNOY TO LONGWOOD, 138KV 53405 FLOURNY4 to 53423 LONGWD 4	190	90	101.5	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	530	Initial Limit-Jumpers
04SP	CESW-CESW	JEFFERSON SWITCHING TO IPC JEFFERSON 138KV 53551 JEFFRSN4 to 53548 IPCJEFF4 1	136	76.6	102.6	LONGWOOD TO WILKES 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	540	1999-014 2001SP Jefferson 138KV Line Rebuild,1.49 miles, 795MCM
04SP	CESW-CESW	WILKES TO JEFFERSON SWITCHING 138KV 53619 WILKES 4 to 53551 JEFFRSN4 1	210	78.4	100.8	LONGWOOD TO WILKES 345KV 53424 LONGWD 7 to 53620 WILKES 7 1	580	Initial Limit-Wavetrap
04SP	EMDE-EMDE	MONETT TO AURORA HT 161KV 59480 MON383 5 to 59468 AUR124 5 1	157	99.8	102.3	EUREKA SPRINGS TO OSAGE 161KV 53136 EUREKA 5 to 17880 5OSAGE # 1	59	1999-010 2005SP Mitigation Plan In Effect
04SP	EMDE-EMDE	"	157	97.6	100.5	MUSKOGEE TO FORT SMITH 345KV 55224 MSKGE7 to 55302 FTSMI7 1	508	"
04SP	EMDE-EMDE	"	157	97.8	100.3	MONETT HT TO MONETT 69KV 59540 MON152 2 to 59591 MON383 2 1	542	"
04SP	EMDE-EMDE	"	157	97.9	100.3	STILWELL TO LACYGNE 345 KV 57968 STILWEL7 to 57981 LACYGNE7 1	544	"
04SP	GRRD-GRRD	ZENA TAP TO JAY 69KV 54467 ZENA TP2 to 54520 JAY GR 2 1	41	99.0	100.1	FLINT CREEK TO GRDA 1, 345KV 53140 FLINTCR7 to 54450 GRDA1 7 1	548	2000-003 2001SP Taken Out by GRDA
04SP	EES-SWPA	MIDWAY TO BULL SHOALS 161KV 17875 5MIDWAY# to 52660 BULL SH5 1	162	98.4	100.5	CALICO ROCK TO MELBOURNE 161KV 17854 5CALCR to 17874 5MELBRN 1	466	Initial Limit -600A Switches
04SP	EES-SWPA	"	162	98.1	100.3	NORFORK TO CALICO ROCK 161KV 52648 NORFORK5 to 17854 5CALCR 1	539	"
04SP	SWPA-AECI	CARTHAGE TO JASPER 69KV 52690 CARTHG 2 to 96649 2JASPER 1	36	99.5	101.1	WEST GARDNER TO LACYGNE 345 KV 57965 W.GRDNR7 to 57981 LACYGNE7 1	194	2000-003 2001SP Change CT's Ratio Settings at Carthage
04SP	SWPA-AECI	"	36	99.1	101.1	HUBEN TO MORGAN 345KV 96042 7HUBEN to 96045 7MORGAN 1	272	"
04SP	SWPA-AECI	"	36	99.3	101.0	NEOSHO TO MORGAN 345KV 56756 NEOSHO 7 to 96045 7MORGAN 1	273	"
04SP	SWPA-AECI	CARTHAGE TO REEDS 69KV 52690 CARTHG 2 to 96751 2REEDS 1	36	99.6	101.9	MUSKOGEE TO FORT SMITH 345KV 55224 MSKGE7 to 55302 FTSMI7 1		2000-003 2001SP Change CT's Ratio Settings at Carthage
04SP	SWPA-AECI	"	36	99.9	101.8	AURORA HT TO CHESAPEAKE 161KV 59468 AUR124 5 to 59499 CPK446 5 1		"
04SP	SWPA-AECI	"	36	99.6	101.4	BROOKLINE TO MORGAN 161KV 59969 BRKLINE 5 to 96101 5MORGAN 1		"
04WP	CESW-CESW	ALUMAX TAP TO NORTHWEST TEXARKANA 138KV 53245 ALUMXT 4 to 53300 NWTXARK4 1	287	97.8	101.7	NW TEXARKANA-BANN T TO NW TEXARKANA 53299 NWT-BNT4 to 53300 NWTXARK4 1(138KV)	340	Conductor Limited 3.3 miles
04WP	EES-SWPA	MIDWAY TO BULL SHOALS 161KV 17875 5MIDWAY# to 52660 BULL SH5 1	162	99.3	104.2	NORFORK TO BULL SHOALS 161KV 52648 NORFORK5 to 52660 BULL SH5 1	95	Initial Limit-600A Switches
04WP	EES-SWPA	"	162	99.1	101.1	INDEPENDENCE SES TO MOOREFIELD 161KV 17867 5ISES to 17876 5MORFLD 1	271	"
04WP	SWPAECI	CARTHAGE TO REEDS 69KV 52690 CARTHG 2 to 96751 2REEDS 1	43	98.4	100.4	BEAVER TO EUREKA SPRINGS 161KV 52680 BEAVER 5 to 53136 EUREKA 5 1	282	2000-003 2001SP Change CT's Ratio Settings at Carthage

Table 2- Non-SPP Facility overloads caused by the 600 MW ERCOTE to EES transfer.

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
00WP	EES-EES	SAILES TO ADA 115KV 17451 3SAILES to 17460 3ADA 1	115	98.7	100.3	MCNEIL 500/115KV 17543 8MCNEIL to 17544 3MCNEIL 1
01AP	EES-EES	MT.ZION TO LINE 485 TAP OF 558 138KV 16534 4MT ZION to 16528 4L558T48 1	206	85.6	103.1	WALDEN TO APRIL 138KV 16503 4WALDEN to 16518 4APRIL 1
01SR	EES-EES	NEWTON BULK TO HLYSPG 138KV 16618 4NEWTONB to 17917 4HLYSPG 1	112	96.1	103.6	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SR	EES-EES	LEACH TO NEWTON BULK 138KV 16657 4LEACH to 16618 4NEWTONB 1	144.6	92.5	105.1	CROCKETT TO GRIMES 345KV 53526 CROCKET7 to 16555 7GRIMES 1
01SR	EES-EES	TOLEDO BEND TO LEACH 138KV 16677 4TOLEDO to 16657 4LEACH 1	144.6	93.6	106.2	CROCKETT TO GRIMES 345KV 53526 CROCKET7 to 16555 7GRIMES 1
01SR	EES-EES	"	144.6	88.9	100.1	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SR	EES-EES	HLYSPG TO JASPER 138KV 17917 4HLYSPG to 16668 4JASPER 1	112	94.9	104.3	CROCKETT TO GRIMES 345KV 53526 CROCKET7 to 16555 7GRIMES 1
01SP	EES-EES	NEWTON BULK TO HLYSPG 138KV 16618 4NEWTONB to 17917 4HLYSPG 1	112	97.6	104.9	CROCKETT TO TENASKA 345KV 53526 CROCKET7 to 54061 TENASKA7 1
01SP	EES-EES	HLYSPG TO JASPER 138KV 17917 4HLYSPG to 16668 4JASPER 1	112	94.3	103.2	CROCKETT TO GRIMES 345KV 53526 CROCKET7 to 16555 7GRIMES 1
01FA	EES-EES	CAMDEN-SOUTH TO STEPHENS 115KV 17536 3CAMD-S# to 17516 3STEPHN 1	96	98.7	101.8	ELDORADO-EHV 500/115KV TRANSFORMER 17528 3ELDEHV to 17530 8ELDEHV 1
01WP	EES-CELE	RINGGOLD TO CARROLL 115/138KV 17450 3RINGLD to 50024 CARROLL4 1	125	89.0	114.6	ELDORADO-EHV 500/345KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01WP	EES-CELE	"	125	88.9	114.5	LONGWOOD TO ELDORADO-EHV 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01WP	EES-CELE	"	125	99.9	103.6	DOLET HILLS TO SW SHREVEPORT 345KV 50045 DOLHILL7 to 53454 SW SHV 7 1
01WP	EES-CELE	"	125	81.0	102.4	CARROLL TO MESSICK 230KV 50023 CARROLL6 to 50126 MESSICK6 1
01WP	EES-EES	"	80	99.8	100.1	MCADAMS TO LAKEOVER 500KV 17259 8MCADAM to 17327 8LAKEOV 1

Table 2 continued – Non-SPP Facility overloads caused by the 600 MW ERCOTE to EES transfer.

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 115KV 17450 3RINGLD to 17451 3SAILES 1	115	89.1	116.9	ELDORADO-EHV 500/345KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01WP	EES-EES	"	115	89.1	116.8	LONGWOOD TO ELDORADO-EHV 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01WP	EES-EES	"	115	80.6	103.7	CARROLL TO MESSICK 230KV 50023 CARROLL6 to 50126 MESSICK6 1
01WP	EES-EES	MURFREESBORO TO MURFREESBORO-SOUTH 115KV 17609 4MURFRE to 17607 3MURF-S 1	60	69.2	121.3	LONGWOOD TO ELDORADO-EHV 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
01WP	EES-EES	"	60	69.1	121.1	ELDORADO-EHV 500/345KV TRANSFORMER 17529 7ELDEHV to 17530 8ELDEHV 1
01WP	EES-EES	MURFREESBORO TO MURFREESBORO-SOUTH 115KV 17609 4MURFRE to 17607 3MURF-S 1	60	62.8	109.9	PITTSBURG TO VALLIANT 345KV 54033 PITTSB-7 to 54037 VALIANT7 1
04SP	EES-EES	NEWTON BULK TO HLYSPG 138KV 16618 4NEWTONB to 17917 4HLYSPG 1	112	99.4	101.1	NELSON TO RICHARD 500KV 16757 8NELSON to 16828 8RICHARD 1
04SP	EES-EES	PATMOS-WEST SS TO LEWIS CREEK #1 17537 3PATMOS# to 17502 3LEWIS # 1	159	60.4	100.1	LONGWOOD TO ELDORADO-EHV 345KV 53424 LONGWD 7 to 17529 7ELDEHV 1
04WP	EES-EES	PATMOS-WEST SS TO LEWIS CREEK #1 17537 3PATMOS# to 17502 3LEWIS # 1	159	82.6	104.9	ELDORADO-EHV 500/115KV TRANSFORMER 17543 8MCNEIL to 17544 3MCNEIL 1

5. Conclusion

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

The final cost assignment of facilities and ATC to Reliant Energy Services, Inc. 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