SPP Southwest Power Pool

System Impact Study For Transmission Service Requested By Duke Energy Trading and Marketing (DETM) From Oklahoma Gas & Electric (OKGE) to Entergy (EES)

For a Reserved Amount Of 450 MW From 1/1/02 To 1/1/06

Supplemental Study

SPP Coordinated Planning

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1. Executive Summary

Duke Energy Trading and Marketing (DETM) requested a system impact study for long-term Firm Point-to-Point transmission service from Oklahoma Gas and Electric (OKGE) to Entergy (EES). The period of the transaction is from 1/1/02 to 1/1/06. The request is for OASIS reservation 224115 in the amount of 450 MW.

DETM received a System Impact Study for the 450 MW transfer on April 4, 2001. Since that time, AEPW line rating changes have occurred and requests have withdrawn from the SWPP OASIS. In order to determine if service is available from the start date of 1/1/2002 through a period ending 1/1/2003, this updated study was performed. For the remaining period of the transaction from 1/1/2003 to 1/1/2006, higher priority requests exist and are currently being evaluated. Analysis for the remaining period was also provided without the higher priority requests included.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the additional 450 MW transfer while maintaining system reliability.

The OKGE to EES transfer overloads new facilities as well as impacts facilities that have been identified as limiting constraints for previously studied transfers. Tables 1 and 2 list the new overloads caused by the 450 MW transfer. Table 3 lists the previously assigned and identified facilities impacted by the 450 MW transfer. Facilities found in Table 3 limit the ATC to zero and as a result service cannot be provided until 1/1/2005 due to the delay in construction of required system upgrades.

2. Introduction

Duke Energy Trading and Marketing (DETM) requested an impact study for transmission service from OKGE 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 too less than 450 MW. This study includes steady-state contingency analyses (PSS/E function ACCC) and Available Transfer Capability (ATC) analyses.

The steady-state analyses consider the impact of the 450 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.

3. Study Methodology

A. Description

Two analyses were conducted to determine the impact of the 450 MW transfer on the system. The first analysis was conducted to identify any new overloads caused by the 450 MW transfer. The second analysis was done to ensure that available capacity exists on previously identified circuits.

The first analysis was to study the steady-state analysis impact of the 450 MW transfer on the SPP system. 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 second analysis was done to determine the impact of the transfer on previously assigned and identified facilities.

B. Model Updates

SPP used six seasonal models to study the 450 MW request. The SPP 2001 Series Cases: 2001/02 Winter Peak, 2002 Summer Peak, 2002/03 Winter Peak, 2003 Spring Peak, 2004 Summer Peak, and 2004/2005 Winter Peak were used to study the impact of the 450 MW transfer on the SPP system during the transaction period of 1/1/02 to 1/1/06.

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 2001 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

Tables 1, 2, and 3 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 estimated ATC value using interpolation if calculated, any SPP identification or assignment of the event, and any solutions received from the transmission owners.

Table 1 shows the new facility overloads caused by the 450 MW transfer. Upgrades associated with these new overloads can be directly assigned to the OKGE to EES 450 MW transfer.

Table 2 documents overloads on Non SPP Regional Tariff participants' transmission systems caused by the 450 MW transfer.

Table 3 documents the 450 MW transfer impact on previously assigned and identified facilities. Available solutions with estimated engineering and construction costs are given in the table.

Table 1 - SPP Facility Overloads caused by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B <MVA>	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload	ATC
		NOBLE TO CANADIAN SW, 69KV				**PAOLI 138/69KV TRANSFORMER**	
01WP	WFEC-WFEC	56011 NOBLE 269.0 to 55841 CANADNS269.0 CKT 1	38	97.9	101.6	56022 PAOLI 269.0 to 56023 PAOLI 4 138 CKT1	255
		HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV				**EAST MANHATTAN TO CONCORDIA, 230KV**	
01WP	WERE-WERE	57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	98.8	100.1	56861 EMANHAT6 230 to 58758 CONCORD6 230 CKT1	418
		ROBERT S. KERR TO VAN BUREN, 161KV				**BONANZA TAP TO AES, 161KV**	
02SP	SWPA-SWPA	52782 RS KERR5 161 to 52722 VAN BUR5 161 CKT 1	167	100.0	106.7	55261 BONANZT5 161 to 55262 AES 5 161 CKT1	0
		MIDLAND 230/115KV TRANSFORMER				**LAWRENCE HILL 230/115KV TRANSFORMER**	
02SP	WERE-WERE	56855 MIDLAND6 230 to 57252 MIDLAND3 115 CKT 1	308	100.0	101.1	56853 LAWHILL6 230 to 57250 LWRNCHL3 115 CKT1	0
		LOWELL REC TO ROGERS, 69KV				**EAST ROGERS 161/69KV TRANSFORMER**	
02SP	AEPW-AEPW	53200 LOWELLR269.0 to 53152 ROGERS 269.0 CKT 1	72	99.9	100.6	53134 EROGERS269.0 to 53135 EROGERS5 161 CKT1	79
		GILL ENERGY CENTER EAST TO OATVILLE, 69KV				**GILL ENERGY CENTER EAST TO HAYSVILLE JUNCTION, 69KV**	
02SP	WERE-WERE	57795 GILL E 269.0 to 57825 OATVILL269.0 CKT 1	72	99.9	100.4	57795 GILL E 269.0 to 57804 HAYSVLJ269.0 CKT1	93
		MONETT TO AURORA H. T., 161KV				**BEAVER TO EUREKA SPRINGS, 161KV**	
02SP	EMDE-EMDE	59480 MON383 5 161 to 59468 AUR124 5 161 CKT 1	157	98.4	104.3	52680 BEAVER 5 161 to 53136 EUREKA 5 161 CKT1	122
		FARMINGTON AECC TO CHAMBER SPRINGS ROAD, 161KV				**DYESS TO SOUTH SPRINGDALE, 161KV**	
02SP	AEPW-AEPW	53195 FARMGTN5 161 to 53154 CHAMSPR5 161 CKT 1	335	99.7	100.6	53131 DYESS 5 161 to 53159 SOSPRDL5 161 CKT1	139
		CHIKASKIA TAP TO BRAMAN, 69KV				**KILDARE4 TO WHITE EAGLE, 138KV**	
02SP	OKGE-OKGE	54751 CHIKSTP269.0 to 54750 BRAMAN 269.0 CKT 1	38	96.1	103.7	54760 KILDARE4 138 to 54761 WHEAGLE4 138 CKT1	230
		FARMINGTON AECC TO CHAMBER SPRINGS ROAD, 161KV				**DYESS TO CHAMBER SPRINGS ROAD, 161KV**	
02SP	AEPW-AEPW	53195 FARMGTN5 161 to 53154 CHAMSPR5 161 CKT 1	335	99.1	100.9	53131 DYESS 5 161 to 53154 CHAMSPR5 161 CKT1	234
		LOWELL REC TO ROGERS, 69KV				**EAST ROGERS TO NORTH ROGERS, 69KV**	
02SP	AEPW-AEPW	53200 LOWELLR269.0 to 53152 ROGERS 269.0 CKT 1	72	99.6	100.3	53134 EROGERS269.0 to 53150 NROGERS269.0 CKT1	260
		ACME TO WEST NORMAN, 69KV				**GOLDSBY TO OKLAHOMA UNIVERSITY SW, 69KV**	
02SP	WFEC-WFEC	55802 ACME 269.0 to 56095 WNORMAN269.0 CKT 1	38	97.6	101.7	55924 GOLDSBY269.0 to 56018 OU SW 269.0 CKT1	265
		HALSTEAD TO MUD CREEK JUNCTION, 69KV				**HALSTEAD NORTH BUS TO MOUNDRIDGE, 138KV**	
02SP	WERE-WERE	57736 HALSTED269.0 to 57744 MUDCRKJ269.0 CKT 1	59	99.9	100.1	57011 HALSTDN4 138 to 57013 MOUND 4 138 CKT1	318
		GENTRY REC TO FLINT CREEK, 161KV				**DYESS TO ELM SPRINGS REC, 161KV**	
02SP	AEPW-AEPW	53187 GENTRYR5 161 to 53139 FLINTCR5 161 CKT 1	354	98.8	100.4	53131 DYESS 5 161 to 53194 ELMSPRR5 161 CKT1	345
		EAST CENTERTON TO GENTRY REC, 161KV				**CHAMBER SPRINGS ROAD TO FARMINGTON AECC, 161KV**	
02SP	AEPW-AEPW	53133 ECNTRTN5 161 to 53187 GENTRYR5 161 CKT 1	335	98.6	100.4	53154 CHAMSPR5 161 to 53195 FARMGTN5 161 CKT1	346
		TECUMSEH HILL EAST BUS TO STULL SWITCHING STATION, 115KV				**HOYT TO STRANGER CREEK, 345KV**	
02SP	WERE-WERE	57182 TECHILE3 115 to 57270 STULL T3 115 CKT 1	92	97.7	100.5	56765 HOYT 7 345 to 56772 STRANGR7 345 CKT1	368
		MONETT TO AURORA H. T., 161KV				**DADEVILLE EAST TO MORGAN, 161KV**	
02SP	EMDE-EMDE	59480 MON383 5 161 to 59468 AUR124 5 161 CKT 1	157	96.1	100.1	59478 DAD368 5 161 to 96101 5MORGAN 161 CKT1	435
		HOYT TO HOYT HTI SWITCHING JUNCTION, 115KV				**CLIFTON TO GREENLEAF, 115KV**	
02WP	WERE-WERE	57163 HOYT 3 115 to 57165 HTI JCT3 115 CKT 1	92	99.0	100.7	58756 CLIFTON3 115 to 58765 GRNLEAF3 115 CKT1	268
		GOLDSBY TO OKLAHOMA UNIVERSITY SW, 69KV				**MONETT TO AURORA H. T., 161KV**	
02WP	WFEC-WFEC	55924 GOLDSBY269.0 to 56018 OU SW 269.0 CKT 1	34	95.3	100.9	55802 ACME 269.0 to 56095 WNORMAN269.0 CKT1	380
		GATZ to GOLDEN PLAINS JUNCTION, 69KV				**MID AM JUNCTION TO MUD CREEK JUNCTION, 69KV**	
03G	WERE-WERE	57733 GATZ 269.0 to 57735 GOLDPLJ269.0 CKT 1	32	99.9	100.3	57741 MID AMJ269.0 to 57744 MUDCRKJ269.0 CKT1	104
		HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV				**CLIFTON TO CONCORDIA, 115KV**	
03G	WERE-WERE	57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	99.2	101.0	58756 CLIFTON3 115 to 58757 CONCORD3 115 CKT1	196
		HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV				**COOPER 345/161KV TRANSFORMER**	
03G	WERE-WERE	57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	99.2	100.2	64066 COOPER 5 161 to 64356 COOPER Y 345 CKT1	346

Table 1 continued - SPP Facility Overloads caused by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B <MVA>	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload	ATC
03G	WERE-WERE	**GREEN TO COFFEY COUNTY NO. 4 VERNON, 69KV** 57636 GREEN 269.0 to 57631 CC4VERN269.0 CKT 1	55	97.0	100.1	**WOLF CREEK TO LACYGNE, 345KV** 56797 WOLFCRK7 345 to 57981 LACYGNE7 345 CKT1	435
04SP	AEPW-EES	**FULTON TO PATMOS WEST, 115KV** 53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	174	99.8	109.6	**PLEASANT HILL TO ARKANSAS NUCLEAR ONE, 500KV** 99197 8P HILL 500 to 99486 8ANO 500 CKT1	8
04SP	AEPW-EES	**FULTON TO PATMOS WEST, 115KV** 53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	174	99.6	110.1	**LBROCK TO TENASKA RUSK COUNTY, 345KV** 53609 LEBROCK7 345 to 53637 TENRUSK7 345 CKT1	18
04SP	WERE-WERE	**LAKERIDGE TO EVANS ENERGY CENTER SOUTH, 138KV** 57053 LAKERDG4 138 to 57041 EVANS S4 138 CKT 1	371	99.9	100.5	**CHISHOLM TO EVANS ENERGY CENTER NORTH, 138KV** 57035 CHISHLM4 138 to 57040 EVANS N4 138 CKT1	44
04SP	AEPW-EES	**FULTON TO PATMOS WEST, 115KV** 53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	174	98.8	109.5	**FORT SMITH 500/345KV TRANSFORMER** 55302 FTSMITH7 345 to 55305 FTSMITH8 500 CKT1	49
04SP	WERE-WERE	**LAKERIDGE TO HOOVER NORTH BUS, 138KV** 57053 LAKERDG4 138 to 57049 HOOVERN4 138 CKT 1	371	99.9	100.3	**COWSKIN TO EVANS ENERGY CENTER SOUTH, 138KV** 57038 COWSKIN4 138 to 57041 EVANS S4 138 CKT1	59
04SP	WERE-WERE	**HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV** 57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	99.7	101.0	**JEFFREY ENERGY CENTER N. BUS TO MORRIS COUNTY, 345KV** 56766 JEC N 7 345 to 56770 MORRIS 7 345 CKT1	96
04SP	WERE-WERE	**HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV** 57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	99.4	102.0	**MIDIAN 161/138KV TRANSFORMER** 56936 MIDIAN 5 161 to 56990 MIDIAN 4 138 CKT1	106
04SP	GRRD-GRRD	**PENSACOLA TO GRAY TAP, 69KV** 54428 PENSA 269.0 to 54465 GRAY TP269.0 CKT 1	47	99.6	101.1	**AFTON TO CLEORA TAP, 69KV** 54433 AFTON 269.0 to 54492 CLEORTP269.0 CKT1	128
04SP	EES-SWPA	**MIDWAY TO BULL SHOALS, 161KV** 99825 5MIDWAY# 161 to 52660 BULL SH5 161 CKT 1	162	98.9	102.7	**CALICO ROCK TO MELBOURNE, 161KV** 99803 5CALCR 161 to 99824 5MELBRN 161 CKT1	128
04SP	AEPW-SWPA	**EUREKA SPRINGS TO BEAVER, 161KV** 53136 EUREKA 5 161 to 52680 BEAVER 5 161 CKT 1	274	97.4	105.1	**MONETT TO BROOKLINE, 345KV** 59481 MON383 7 345 to 59984 BRKLNE 7 345 CKT1	151
04SP	AEPW-SWPA	**EUREKA SPRINGS TO BEAVER, 161KV** 53136 EUREKA 5 161 to 52680 BEAVER 5 161 CKT 1	274	97.5	104.9	**FLINT CREEK TO MONETT, 345KV** 53140 FLINTCR7 345 to 59481 MON383 7 345 CKT1	153
04SP	EES-SWPA	**MIDWAY-AEC TO BULL SHOALS, 161KV** 99825 5MIDWAY# 161 to 52660 BULL SH5 161 CKT 1	162	98.7	102.4	**NORFORK TO CALICO ROCK, 161KV** 52648 NORFORK5 161 to 99803 5CALCR 161 CKT1	160
04SP	OKGE-OKGE	**CHESTNUT TO ENID, 69KV** 54726 CHSTNUT269.0 to 54727 ENID 269.0 CKT 1	66	99.3	101.0	**CHESTNUT TO SOUTH 4TH ST, 69KV** 54726 CHSTNUT269.0 to 54730 SO4TH2 269.0 CKT1	185
04SP	WERE-WERE	**HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV** 57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	98.8	101.4	**WILLIAMS BROTHERS PIPELINE TO MIDIAN, 161KV** 56921 WM BROS5 161 to 56936 MIDIAN 5 161 CKT1	209
04SP	AEPW-AEPW	**ALUMAX TAP TO NORTHWEST TEXARKANA, 138KV** 53245 ALUMXT 4 138 to 53300 NWTXARK4 138 CKT 1	261	99.1	101.0	**BANN TO NW TEXARKANA-BANN T, 138KV** 53250 BANN 4 138 to 53299 NWT-BNT4 138 CKT1	219
04SP	GRRD-GRRD	**PENSACOLA TO GRAY TAP, 69KV** 54428 PENSA 269.0 to 54465 GRAY TP269.0 CKT 1	47	98.9	100.6	**GROVE TO JAY, 138KV** 53951 GROVE 4 138 to 53971 JAY 4 138 CKT1	295
04SP	AEPW-AEPW	**WALLACE LAKE TO SOUTH SHREVEPORT, 138KV** 53461 WALLAKE4 138 to 53446 S SHV 4 138 CKT 1	209	94.9	102.4	**DOLET HILLS, 345/230KV TRANSFORMER** 50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1	308
04SP	AEPW-AEPW	**SCROGNS2 TO FERNDALE LAKE TAP, 69KV** 53316 SCROGNS269.0 to 53531 FERNDTP269.0 CKT 1	85	99.6	100.1	**ADORA REC TO WINFIELD, 69KV** 53243 ADORA 269.0 to 53335 WINFIEL269.0 CKT1	355
04SP	OKGE-OKGE	**PECAN CREEK 345/161KV TRANSFORMER** 55235 PECANCK7 345 to 55234 PECANCK5 161 CKT 1	369	95.3	100.9	**MUSKOGEE TO FORT SMITH, 345KV** 55224 MUSKOGE7 345 to 55302 FTSMITH7 345 CKT1	375
04SP	AEPW-SWPA	**EUREKA SPRINGS TO BEAVER, 161KV** 53136 EUREKA 5 161 to 52680 BEAVER 5 161 CKT 1	274	92.0	100.6	**MUSKOGEE TO FORT SMITH, 345KV** 55224 MUSKOGE7 345 to 55302 FTSMITH7 345 CKT1	416
04SP	EES-SWPA	**MIDWAY-AEC TO BULL SHOALS, 161KV** 99825 5MIDWAY# 161 to 52660 BULL SH5 161 CKT 1	162	95.1	100.3	**SWEET WATER TO FLETCHER, 161KV** 31798 SWEETWTR 161 to 96077 5FLETCH 161 CKT1	423
04WP	WERE-WERE	**TECUMSEH HILL E. BUS TO STULL SWITCH. STAT., 115KV** 57182 TECHILE3 115 to 57270 STULL T3 115 CKT 1	92	99.9	102.7	**HOYT TO STRANGER CREEK, 345KV** 56765 HOYT 7 345 to 56772 STRANGR7 345 CKT1	23
04WP	AEPW-EES	**FULTON TO PATMOS WEST, 115KV** 53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	197	99.4	107.5	**WELSH TO WILKES, 345KV** 53615 WELSH 7 345 to 53620 WILKES 7 345 CKT1	32

Table 1 continued - SPP Facility Overloads caused by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B <MVA>	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload	ATC
		HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV				**COOPER 345/161KV TRANSFORMER**	
04WP	WERE-WERE	57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	99.8	100.8	64066 COOPER 5 161 to 64356 COOPER Y 345 CKT1	79
		FULTON TO PATMOS WEST, 115KV				**MUSKOGEE TO FORT SMITH, 345KV**	
04WP	AEPW-EES	53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	197	98.3	107.5	55224 MUSKOGE7 345 to 55302 FTSMITH7 345 CKT1	85
		FULTON TO PATMOS WEST, 115KV				**SAILES TO ADA , 115KV**	
04WP	AEPW-EES	53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	197	98.5	106.0	99168 3SAILES 115 to 99179 3ADA 11 115 CKT1	93
		HOYT HTI SWITCHING JUNCTION TO CIRCLEVILLE, 115KV				**S1280 TO COOPER, 161KV**	
04WP	WERE-WERE	57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	99.8	100.8	60033 S1280 5 161 to 64066 COOPER 5 161 CKT1	103
		CHIKASKIA TAP TO BRAMAN, 69KV				**KILDARE TO WHITE EAGLE, 138KV**	
04WP	OKGE-OKGE	54751 CHIKSTP269.0 to 54750 BRAMAN 269.0 CKT 1	38	95.5	103.3	54760 KILDARE4 138 to 54761 WHEAGLE4 138 CKT1	259
		CIRCLEVILLE TO KING HILL N.M. COOP, 115KV				**IATAN TO ST JOSEPH, 345KV**	
04WP	WERE-WERE	57152 CIRCLVL3 115 to 57331 KING HL3 115 CKT 1	92	98.3	101.1	57982 IATAN 7 345 to 69702 ST JOE 3 345 CKT1	275
		ALUMAX TAP TO NORTHWEST TEXARKANA, 138KV				**NW TEXARKANA-BANN T TO NORTHWEST TEXARKANA, 138KV**	
04WP	AEPW-AEPW	53245 ALUMXT 4 138 to 53300 NWTXARK4 138 CKT 1	294	98.3	100.5	53299 NWT-BNT4 138 to 53300 NWTXARK4 138 CKT1	355

Table 2 – Non-SPP Facility Overloads caused by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B <MVA>	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload
01WP	AMRN-AMRN	31221 MOBERLY 161 to 31222 MOBERLY 69.0 CKT 1	75	99.8	100.2	31221 MOBERLY 161 to 96120 5THMHIL 161 CKT1
01WP	CELE-CELE	50031 COCODR 6 230 to 50039 COUGH 4 138 CKT 1	386	98.3	101.3	50031 COCODR 6 230 to 50203 VILPLT 6 230 CKT1
01WP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	43	98.0	101.3	59479 LAR382 5 161 to 59480 MON383 5 161 CKT1
01WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	98.5	111.9	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
01WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	98.4	111.7	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
02SP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	36	98.2	102.5	52680 BEAVER 5 161 to 53136 EUREKA 5 161 CKT1
02SP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	36	96.1	100.6	59481 MON383 7 345 to 59984 BRKLNE 7 345 CKT1
02SP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	36	96.2	100.6	56793 NEOSHO 7 345 to 96045 7MORGAN 345 CKT1
02SP	SUNC-SUNC	56448 HOLCOMB3 115 to 56393 PLYMELL3 115 CKT 1	143	100.0	100.1	56391 PIONEER3 115 to 56400 PK_GOAB3 115 CKT1
02SP	EES-EES	97618 4NEWTONB 138 to 97768 4HLYSPG# 138 CKT 1	112	97.3	101.2	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
02SP	EES-EES	98229 4PT HUD 138 to 98230 2PT.HUD 69.0 CKT 2	100	99.8	100.2	98308 6ENJAY 230 to 98341 6JAGUAR 230 CKT1
02SP	EES-EES	98273 4OAKGROV 138 to 98283 T300/331 138 CKT 1	135	100.0	101.8	98567 6CONVNT 230 to 98568 6ROMEVL 230 CKT1
02SP	EES-EES	98273 4OAKGROV 138 to 98283 T300/331 138 CKT 1	135	99.9	101.6	97311 GRENWD 3 115 to 98520 3HUMPHY 115 CKT1
02SP	EES-EES	98273 4OAKGROV 138 to 98283 T300/331 138 CKT 1	135	99.8	101.3	98561 3NORCO 115 to 98593 3KENNER 115 CKT1
02SP	EES-EES	99556 3LR-WAL 115 to 99548 3LR-PIN 115 CKT 1	159	99.4	100.2	99570 3MAUMEL* 115 to 99581 3NLR-LV 115 CKT1
02SP	EES-EES	99556 3LR-WAL 115 to 99548 3LR-PIN 115 CKT 1	159	99.4	100.2	99570 3MAUMEL* 115 to 99574 3MORGAN 115 CKT1
02WP	CELE-CELE	50031 COCODR 6 230 to 50039 COUGH 4 138 CKT 1	386	99.9	103.0	50031 COCODR 6 230 to 50203 VILPLT 6 230 CKT1
02WP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	43	96.4	100.2	59468 AUR124 5 161 to 59480 MON383 5 161 CKT1
02WP	SJLP-SJLP	69703 ST JOE 5 161 to 69701 MIDWAY 5 161 CKT 1	164	98.8	101.4	96039 7FAIRPT 345 to 96076 5FAIRPT 161 CKT3
02WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	99.7	114.5	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
02WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	99.5	114.4	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
02WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	93.7	107.3	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
02WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	93.6	107.2	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
03G	EES-EES	97487 4MT.ZION 138 to 97480 L558T485 138 CKT 1	206	95.4	102.8	97454 4WALDEN 138 to 97514 4GRIMES 138 CKT1
03G	EES-EES	97487 4MT.ZION 138 to 97480 L558T485 138 CKT 1	206	93.8	101.1	97454 4WALDEN 138 to 97469 4APRIL 138 CKT1
03G	EES-EES	97487 4MT.ZION 138 to 97480 L558T485 138 CKT 1	206	92.8	100.2	97469 4APRIL 138 to 97470 4LFOREST 138 CKT1
03G	EES-EES	97514 4GRIMES 138 to 97487 4MT.ZION 138 CKT 1	206	98.8	106.1	97454 4WALDEN 138 to 97514 4GRIMES 138 CKT1
03G	EES-EES	97514 4GRIMES 138 to 97487 4MT.ZION 138 CKT 1	206	97.2	104.5	97454 4WALDEN 138 to 97469 4APRIL 138 CKT1
03G	EES-EES	97514 4GRIMES 138 to 97487 4MT.ZION 138 CKT 1	206	96.2	103.5	97469 4APRIL 138 to 97470 4LFOREST 138 CKT1
03G	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	96.7	101.3	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
03G	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	96.6	101.1	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
03G	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	95.9	100.9	50023 CARROLL6 230 to 50126 MESSICK6 230 CKT1
04SP	CELE-EES	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	98.2	102.4	50027 CLARN 6 230 to 50126 MESSICK6 230 CKT1
04SP	CELE-EES	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	98.6	101.1	99230 3COUCH 115 to 99263 3LEWIS # 115 CKT1
04SP	CELE-EES	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	98.8	100.3	99169 6DANVLL 230 to 99181 6GRAMBL 230 CKT1
04SP	CELE-CELE	50031 COCODR 6 230 to 50039 COUGH 4 138 CKT 1	386	98.1	101.2	50214 WSTFORK6 230 to 50310 PMOUTON6 230 CKT1
04SP	SWPA-AECI	52690 CARTHG 269.0 to 96649 2JASPER 69.0 CKT 1	47	99.9	102.6	96042 7HUBEN 345 to 96045 7MORGAN 345 CKT1
04SP	SWPA-AECI	52690 CARTHG 269.0 to 96649 2JASPER 69.0 CKT 1	47	99.8	101.8	96042 7HUBEN 345 to 96088 5HUBEN 161 CKT1
04SP	SWPA-AECI	52690 CARTHG 269.0 to 96649 2JASPER 69.0 CKT 1	47	99.7	102.0	56793 NEOSHO 7 345 to 96045 7MORGAN 345 CKT1
04SP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	36	99.9	103.7	53140 FLINTCR7 345 to 54450 GRDA1 7 345 CKT1
04SP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	36	99.8	103.5	30154 BLAND 345 to 96041 7FRANKS 345 CKT1
04SP	SJLP-SJLP	69703 ST JOE 5 161 to 69701 MIDWAY 5 161 CKT 1	164	98.8	101.2	96076 5FAIRPT 161 to 96104 5NODWAY 161 CKT1
04SP	SJLP-SJLP	69703 ST JOE 5 161 to 69701 MIDWAY 5 161 CKT 1	164	98.8	101.2	96097 5MARYVL 161 to 96104 5NODWAY 161 CKT1
04SP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	99.7	101.5	99162 8MTOLIV 500 to 99163 6MTOLIV 230 CKT1
04SP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	98.9	100.8	99173 3HAYNVL 115 to 99249 3EMERSN 115 CKT1
04SP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	95.8	100.5	50027 CLARN 6 230 to 50126 MESSICK6 230 CKT1
04SP	EES-EES	99171 3SPRINGH 115 to 99280 3TAYLOR 115 CKT 1	120	96.3	100.4	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT1
04SP	EES-EES	99172 3SAREPT 115 to 99171 3SPRINGH 115 CKT 1	120	100.0	101.1	99249 3EMERSN 115 to 99288 3KERLIN* 115 CKT1
04SP	EES-EES	99173 3HAYNVL 115 to 99249 3EMERSN 115 CKT 1	114	99.5	100.1	99171 3SPRINGH 115 to 99280 3TAYLOR 115 CKT1

Table 2 continued – Non-SPP Facility Overloads caused by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B <MVA>	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload
04SP	EES-EES	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT 1	167	97.9	104.7	99171 3SPRINGH 115 to 99172 3SAREPT 115 CKT1
04SP	EES-EES	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT 1	167	93.5	102.9	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
04SP	EES-EES	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT 1	167	93.4	102.8	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
04SP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	99.8	110.9	53306 PATTERS4 138 to 53321 SNASHVL4 138 CKT1
04SP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	99.8	109.9	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT1
04SP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	99.7	109.6	98937 8B.WLSN 500 to 99203 8PERYVIL 500 CKT1
04SP	EES-EES	99303 3PATMOS# 115 to 99263 3LEWIS # 115 CKT 1	159	99.6	111.2	54033 PITTSB-7 345 to 55224 MUSKOGE7 345 CKT1
04SP	EES-EES	99303 3PATMOS# 115 to 99263 3LEWIS # 115 CKT 1	159	99.9	110.4	99627 8KEO 50 500 to 99788 8WM-EHV 500 CKT1
04SP	EES-EES	99303 3PATMOS# 115 to 99263 3LEWIS # 115 CKT 1	159	99.5	110.0	99170 3MINDEN 115 to 99172 3SAREPT 115 CKT1
04SP	EES-EES	99310 3MCNEIL 115 to 99230 3COUCH 115 CKT 1	167	97.2	102.0	99309 8MCNEIL 500 to 99310 3MCNEIL 115 CKT1
04SP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	99.3	112.6	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
04WP	AMRN-AMRN	30666 GRAND TW 138 to 30292 CARBD NW 138 CKT 1	204	99.4	100.1	30666 GRAND TW 138 to 30999 MAKANDA 138 CKT1
04WP	AMRN-AMRN	30999 MAKANDA 138 to 31383 ORDILL 138 CKT 1	180	99.6	100.6	30666 GRAND TW 138 to 32293 CAMBL TP 138 CKT1
04WP	AMRN-AECI	31221 MOBERLY 161 to 96120 5THMHIL 161 CKT 1	386	99.0	100.1	96044 7MCCRED 345 to 96049 7THOMHL 345 CKT1
04WP	AMRN-AMRN	31408 OVERTON 345 to 31409 OVERTON 161 CKT 1	300	99.9	100.1	96061 5BOONE 161 to 96519 5MLRSBG 161 CKT1
04WP	EES-CELE	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	98.7	100.4	99230 3COUCH 115 to 99264 3MAG-DW 115 CKT1
04WP	CELE-CELE	50031 COCODR 6 230 to 50039 COUGH 4 138 CKT 1	386	98.5	101.7	50031 COCODR 6 230 to 50203 VILPLT 6 230 CKT1
04WP	SWPA-AECI	52690 CARTHG 269.0 to 96649 2JASPER 69.0 CKT 1	52	99.6	101.7	57968 STILWEL7 345 to 57981 LACYGNE7 345 CKT1
04WP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	43	99.6	102.9	57968 STILWEL7 345 to 57981 LACYGNE7 345 CKT1
04WP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	43	99.5	102.7	59468 AUR124 5 161 to 59499 CPK446 5 161 CKT1
04WP	SWPA-AECI	52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	43	99.4	102.7	52692 SPRGFLD5 161 to 59479 LAR382 5 161 CKT1
04WP	AECI-AECI	96090 5KINGDM 161 to 96517 2KINGDM 69.0 CKT 1	29	99.9	100.8	96090 5KINGDM 161 to 96523 5WLMSBG 161 CKT1
04WP	AECI-AECI	96090 5KINGDM 161 to 96517 2KINGDM 69.0 CKT 1	29	99.6	100.5	96099 5MONTCT 161 to 96523 5WLMSBG 161 CKT1
04WP	AECI-AECI	96090 5KINGDM 161 to 96517 2KINGDM 69.0 CKT 2	29	99.8	100.7	96090 5KINGDM 161 to 96523 5WLMSBG 161 CKT1
04WP	AECI-AECI	96090 5KINGDM 161 to 96517 2KINGDM 69.0 CKT 2	29	99.5	100.4	96099 5MONTCT 161 to 96523 5WLMSBG 161 CKT1
04WP	AECI-AECI	96098 5MOCITY 161 to 96154 1MOCTN2 100 CKT 2	34	99.3	100.3	96091 5LATHRP 161 to 96302 2LATHRP 69.0 CKT1
04WP	AECI-AECI	96153 1MOCTN1 100 to 96098 5MOCITY 161 CKT 1	34	99.2	100.2	96091 5LATHRP 161 to 96302 2LATHRP 69.0 CKT1
04WP	AECI-AECI	96153 1MOCTN1 100 to 96304 2MOCITY 69.0 CKT 1	34	99.2	100.2	96091 5LATHRP 161 to 96302 2LATHRP 69.0 CKT1
04WP	AECI-AECI	96154 1MOCTN2 100 to 96304 2MOCITY 69.0 CKT 2	34	99.3	100.3	96091 5LATHRP 161 to 96302 2LATHRP 69.0 CKT1
04WP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	99.8	101.7	99230 3COUCH 115 to 99264 3MAG-DW 115 CKT1
04WP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	96.7	101.2	50027 CLARN 6 230 to 50126 MESSICK6 230 CKT1
04WP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	98.3	100.8	53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT1
04WP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	99.6	110.0	54033 PITTSB-7 345 to 55224 MUSKOGE7 345 CKT1
04WP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	99.5	108.8	99230 3COUCH 115 to 99380 3HOPE E# 115 CKT1
04WP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	99.3	108.6	99171 3SPRINGH 115 to 99280 3TAYLOR 115 CKT1
04WP	EES-EES	99303 3PATMOS# 115 to 99263 3LEWIS # 115 CKT 1	159	99.6	109.9	53301 NWTXARK7 345 to 53615 WELSH 7 345 CKT1
04WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	99.7	111.9	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1
04WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	99.8	111.8	53526 CROCKET7 345 to 53637 TENRUSK7 345 CKT1
04WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	98.8	110.5	53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1

Table 3 – Previously Assigned and Identified SPP Facilities Impacted by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload	ATC	Assignment	Solution	Estimated Cost	New Rating	% Increase In Rating
01WP	AEPW-AEPW	**IPC JEFFERSON TO LIEBERMAN, 138KV** 53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	105.4	111.8	**LONGWOOD TO WILKES, 345KV** 53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	0	SPP Flowgate	#1 Replace Switches @ Lieberman	60,000	163	14.0%
01WP	AEPW-AEPW	**EAST ROGERS TO DYESS, 161KV** 53135 EROGERS5 161 to 53131 DYESS 5 161 CKT 1	245	102.1	105.5	**EAST CENTERTON TO GENTRY, 161KV** 53133 ECNTRTN5 161 to 53187 GENTRYR5 161 CKT1	0	Upgrade Assigned to SPP-2000-004 163951 Est. In-Service Date 6/1/2002				
02SP	KACP-KACP	**LA CYGNE TO STILWELL, 345KV** 57981 LACYGNE7 to 57968 STILWEL7 CKT 1	1251	101.6	104.5	**WEST GARDNER TO LA CYGNE, 345KV** 57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	0	SPP Flowgate	#2 Add Second LaCygne-Stilwell 345kV line and add LaCygne and Stilwell Terminals	17,000,000	N/A	N/A
02SP	AEPW-AEPW	**CHEROKEE REC TO KNOX LEE, 138KV** 53522 CHEROKE4 138 to 53557 KNOXLEE4 138 CKT 1	235	98.1	101.4	**Multiple Outage Contingency** **SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV** 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 **SOUTHWEST SHREVEPORT TO DIANA, 345KV** 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	261		#3 Reconductor 3.25 miles of 666 ACSR with 1272 ACSR.	981,000		
02SP	AEPW-AEPW	**IPC JEFFERSON TO LIEBERMAN, 138KV** 53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	93.1	99.4	**LONGWOOD TO WILKES, 345KV** 53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	450				N/A	N/A
02SP	AEPW-AEPW	**LONGWOOD TO NORAM, 138KV** 53423 LONGWD 4 to 53473 NORAM 4	265	89.8	92.2	**Multiple Outage Contingency** **SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV** 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 **SOUTHWEST SHREVEPORT TO DIANA, 345KV** 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	450				N/A	N/A
02SP	AEPW-AEPW	**NORAM TO RAINES, 138KV** 53473 NORAM 4 to 53439 RAINES 4 1	265	88.4	90.9	**Multiple Outage Contingency** **SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV** 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 **SOUTHWEST SHREVEPORT TO DIANA, 345KV** 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	450				N/A	N/A

Table 3 continued – Previously Assigned and Identified SPP Facilities Impacted by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload	ATC	Assignment	Solution	Estimated Cost	New Rating	% Increase In Rating
						Multiple Outage Contingency						
						SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV						
						53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1						
		TATUM TO ROCKHILL, 138KV				**SOUTHWEST SHREVEPORT TO DIANA, 345KV**						
02SP	AEPW-AEPW	53611 TATUM 4 138 to 53598 ROKHILL4 138 CKT 1	235	91.5	94.8	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	450				N/A	N/A
						Multiple Outage Contingency						
						SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV						
						53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1						
		CHEROKEE REC TO TATUM, 138KV				**SOUTHWEST SHREVEPORT TO DIANA, 345KV**						
02SP	AEPW-AEPW	53522 CHEROKE4 138 to 53611 TATUM 4 138 CKT 1	235	93.1	96.3	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	450				N/A	N/A
		IPC JEFFERSON TO LIEBERMAN, 138KV				**LONGWOOD TO WILKES, 345KV**						
02WP	AEPW-AEPW	53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	101.0	107.2	53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	0	SPP Flowgate	See Previous Upgrade #1		163	14.0%
		LA CYGNE TO STILWELL, 345KV				**WEST GARDNER TO LA CYGNE, 345KV**						
04SP	KACP-KACP	57981 LACYGNE7 to 57968 STILWEL7 CKT 1	1251	108.4	111.3	57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	0	SPP Flowgate	See Previous Upgrade #2		N/A	N/A
		BUFORD TAP TO BULL SHOALS, 161KV				**BULL SHOALS TO MIDWAY, 161KV**			#4 Replace three 600A switches @ Bull Shoals w/ 1200 A switches. Resag conductor and replace structures as necessary.			
04SP	SWPA-SWPA	52661 BUFRDTP5 161 to 52660 BULL SH5 161 CKT 1	167	100.1	108.7	52660 BULL SH5 161 to 99825 5MIDWAY# 161 CKT1	0			150,000	223	33.5%
						Multiple Outage Contingency						
						SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV						
						53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1						
		CHEROKEE REC TO KNOX LEE, 138KV				**SOUTHWEST SHREVEPORT TO DIANA, 345KV**						
04SP	AEPW-AEPW	53522 CHEROKE4 138 to 53557 KNOXLEE4 138 CKT 1	235	102.2	105.8	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	0		See Previous Upgrade #3			

Table 3 continued – Previously Assigned and Identified SPP Facilities Impacted by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload	ATC	Assignment	Solution	Estimated Cost	New Rating	% Increase In Rating
						Multiple Outage Contingency						
						SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV						
						53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1						
		CHEROKEE REC TO TATUM, 138KV				**SOUTHWEST SHREVEPORT TO DIANA, 345KV**						
04SP	AEPW-AEPW	53522 CHEROKE4 138 to 53611 TATUM 4 138 CKT 1	235	97.0	100.5	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	383		#5 Reconductor 6.25 miles of 666 ACSR with 1272 ACSR.	1,641,000		
						Multiple Outage Contingency						
						SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV						
						53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1						
		LONGWOOD TO NORAM, 138KV				**SOUTHWEST SHREVEPORT TO DIANA, 345KV**						
04SP	AEPW-AEPW	53423 LONGWD 4 to 53473 NORAM 4	265	90.7	93.3	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	450				N/A	N/A
						Multiple Outage Contingency						
						SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV						
						53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1						
		NORAM TO RAINES, 138KV				**SOUTHWEST SHREVEPORT TO DIANA, 345KV**						
04SP	AEPW-AEPW	53473 NORAM 4 to 53439 RAINES 4 1	265	89.3	91.9	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	450				N/A	N/A
		IPC JEFFERSON TO LIEBERMAN, 138KV				**LONGWOOD TO WILKES, 345KV**						
04SP	AEPW-AEPW	53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	91.0	97.0	53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	450	SPP Flowgate			N/A	N/A
		WEST GARDNER TO LA CYGNE, 345KV				**LA CYGNE TO STILWELL, 345KV**						
04SP	KACP-KACP	57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	1251	96.8	99.2	57981 LACYGNE7 to 57968 STILWEL7 CKT 1	450				N/A	N/A
		NORFORK TO BUFORD TAP, 161KV				**BULL SHOALS TO MIDWAY, 161KV**						
04SP	SWPA-SWPA	52648 NORFORK5 161 to 52661 BUFRDTP5 161 CKT 1	189	87.4	95.0	52660 BULL SH5 161 to 99825 5MIDWAY# 161 CKT1	450				N/A	N/A

Table 3 continued – Previously Assigned and Identified SPP Facilities Impacted by the OKGE to EES 450 MW Transfer

Study Year	From Area To Area	Branch Over 100% Rate B	Rate B	No Transfer %Loading	Transfer Case %Loading	Outaged Branch That Caused Overload	ATC	Assignment	Solution	Estimated Cost	New Rating	% Increase In Rating
						Multiple Outage Contingency						
						SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV						
						53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1						
		TATUM TO ROCKHILL, 138KV				**SOUTHWEST SHREVEPORT TO DIANA, 345KV**						
04SP	AEPW-AEPW	53611 TATUM 4 138 to 53598 ROKHILL4 138 CKT 1	235	95.4	98.9	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	450				N/A	N/A
		LA CYGNE TO STILWELL, 345KV				**WEST GARDNER TO LA CYGNE, 345KV**						
04WP	KACP-KACP	57981 LACYGNE7 to 57968 STILWEL7 CKT 1	1315	97.8	100.5	57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	365	SPP Flowgate	See Previous Upgrade #2		N/A	N/A
									Total Estimated Costs of Known Solutions	19,832,000		

5. Conclusion

The results of the study show that before the 450 MW transfer from OKGE to EES can take place system improvements will be needed.

The previously assigned and identified facilities limit the ATC to zero due to the inability to upgrade the constraints as required. For the 2002 Summer (6/1/02-10/1/02) and 2004 Summer (6/1/04-10/1/04), the ATC is zero due the loading of the La Cygne to Stilwell, La Cygne to West Gardner Flowgate. The estimated lead-time of the Flowgate upgrade is 36 months, putting the estimated in service date at 1/1/2005. Therefore service would need to be deferred until such time.

If the customer elects to take deferred service, additional system impact analysis will be required in addition to 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 - X Phase shift adjustment
   _ Flat start
   _ Lock DC taps
   _ Lock switched shunts

ACCC CASES:
Solutions – AC contingency checking (ACCC)
1. MW mismatch tolerance –0.5
2. Contingency case rating – Rate B
3. Percent of rating – 100
4. Output code – Summary
5. Min flow change in overload report – 1 MW
6. Excld 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 - X Phase shift adjustment
   _ Flat start
   _ Lock DC taps
   _ Lock switched shunts