



# **SPP** *Southwest Power Pool*

*System Impact Study  
SPP-2003-133-1  
For Transmission Service  
Requested By  
Cargill - Alliant*

*From AEPW To ERCOTN*

*For a Reserved Amount Of  
13 MW From 1/1/2004 To 1/1/2010*

*SPP Engineering, Tariff Studies*

## **System Impact Study**

Cargill - Alliant has requested a system impact study for long-term Firm Point-to-Point transmission service from AEPW to ERCOTN for 13 MW. The period of the service requested is from 1/1/2004 to 1/1/2010. The OASIS reservation number is 523311. The principal objective of this study is to identify system constraints on the SPP Regional Tariff System and potential system facility upgrades that may be necessary to provide the requested service.

The AEPW to ERCOTN request was studied to determine the facility upgrades required based on the actual queue position of the request. Only the higher priority requests in Facility Study mode were considered in developing the study models. The results of the transfer analysis are documented in Table 1. The results given in Table 1 include upgrades that may be assigned to higher priority requests. The results of this study gives the customer an estimated cost of the facility upgrades that may be required in order to accommodate the AEPW to ERCOTN request.

Eight seasonal models were used to study the AEPW to ERCOTN request for the requested service period. The SPP 2003 Series Cases 2003/04 Winter Peak (03WP), 2004 April Min (04AP), 2004 Spring Peak (04G), 2004 Summer Peak (04SP), 2004 Fall Peak (04FA), 2004/05 Winter Peak (04WP), 2009 Summer Peak (09SP), and 2009/10 Winter Peak (09WP) were used to study the impact of the request on the SPP system during a the requested service period of 1/1/2004 to 1/1/2010. The chosen base case models were modified to reflect the most current modeling information. The cases were modified to reflect firm transfers during the requested service period that were not already included in the January 2003 base case series models.

PTI's MUST First Contingency Incremental Transfer Capability (FCITC) DC analysis was used to study the request. The MUST option to convert MVA branch ratings to estimated MW ratings was used to partially compensate for reactive loading.

The study results of the AEPW to ERCOTN transfer show that limiting constraints exist. Due to the limiting constraints identified, the Transmission Service Request cannot be granted. Any solutions, upgrades, and costs provided in the System Impact Study are planning estimates only. The final ATC and upgrades required may vary from these results due to the status of higher priority requests, unknown facility upgrades and proposed transmission plans that will be identified during the facility study process, and the final results of the full AC analysis. Execution of a Facility Study Agreement is now required to maintain queue position. The final upgrade solutions and cost assignments will be determined upon the completion of the facility study.

**Table 1** – SPP facility overloads identified for the AEPW to ERCOTN transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
03WP	WFEC-WFEC	55802 ACME 2 69 55916 FRNKLNS2 69 1	34	48	0.6	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Jct to Acme Sub: Upgrade From 3/0 To 795MCM.	\$ 857,820
03WP	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	42	0.6	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR	\$ 525,000
03WP	WFEC-WFEC	55841 CANADNS2 69 56011 NOBLE 2 69 1	38	38	0.4	56022 PAOLI 2 69 56023 PAOLI 4 138 1	0	WFEC Planned Upgrade 2004WP	
03WP	WFEC-WFEC	55976 LIL AXE2 69 56011 NOBLE 2 69 1	26	28	0.4	56022 PAOLI 2 69 56023 PAOLI 4 138 1	0	Solution Undetermined	
03WP	WFEC-WFEC	56022 PAOLI 2 69 56023 PAOLI 4 138 1	42	48	0.3	55841 CANADNS2 69 56011 NOBLE 2 69 1	0	WFEC Planned Upgrade 2004WP	
03WP	WERE-WERE	57039 ELPASO 4 138 57046 GILL S 4 138 1	210	245	0.6	57040 EVANS N4 138 57041 EVANS S4 138 1	0	Solution Undetermined	
03WP	WERE-WERE	57152 CIRCLVL3 115 57165 HTI JCT3 115 1	95	105	0.1	57982 IATAN 7 345 59199 ST JOE 3 345 1	0	Rebuild 15.50-mile line (1192.5 kcmil 45/7 ACSR, 223 MVA, 245 MVA), Replace CTs and Wave Trap (2000 A.)	\$ 5,800,000
03WP	WERE-WERE	57152 CIRCLVL3 115 57331 KING HL3 115 1	90	94	0.1	57982 IATAN 7 345 59199 ST JOE 3 345 1	0	Rebuild 15.15 mile line with 1192.5 kcmil ACSR.	\$ 3,200,000
03WP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	88	89	0.1	57982 IATAN 7 345 59199 ST JOE 3 345 1	0	Rebuild 9.61 mile line with 1192.5 kcmil ACSR.	\$ 2,400,000
03WP	WERE-WERE	57342 WJCCY3 115 57343 WJCCY3E3 115 1	140	143	0.8	56873 SUMMIT 6 230 *B166 SUMMIT1X 1 1	0	May be relieved due to WERE Operating Guide 613 - Outage of Summit 230/115kV Transformer	
03WP	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	159	161	1.5	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	Rebuild 0.88 miles and reconductor with 1192.5 ACSR.	\$ 417,200
03WP	WERE-WERE	57374 SPHILPJ3 115 57438 WMCPHER3 115 1	67	74	0.7	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	Tear down double circuit, build single circuit with 1192.5 ACSR.	\$ 7,800,000
04AP	WFEC-WFEC	55802 ACME 2 69 55916 FRNKLNS2 69 1	34	42	0.6	55841 CANADNS2 69 55842 CANADNS4 138 1	0	See Previous Upgrade Specified for Facility	
04AP	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	38	0.6	55841 CANADNS2 69 55842 CANADNS4 138 1	0	See Previous Upgrade Specified for Facility	
04G	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	104	114	4.7	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	Replace Okmulgee Wavetrap	\$ 40,000
04G	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	103	110	4.7	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	Replace Weleetka Wavetrap	\$ 40,000
04G	WFEC-WFEC	55802 ACME 2 69 55916 FRNKLNS2 69 1	34	39	0.6	55841 CANADNS2 69 55842 CANADNS4 138 1	0	See Previous Upgrade Specified for Facility	
04G	WERE-WERE	57039 ELPASO 4 138 57046 GILL S 4 138 1	210	270	0.6	57040 EVANS N4 138 57041 EVANS S4 138 1	0	Solution Undetermined	
04G	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 1	68	69	0.2	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to WERE Operating Guide 900 - Outage of East Manhattan - Jeffrey Energy Center 230kV Line	
04G	WERE-WERE	57786 CHISHLM2 69 57832 RIPLEYM2 69 1	128	134	0.1	57040 EVANS N4 138 57041 EVANS S4 138 1	0	Solution Undetermined	
04SP	AEPW-AEPW	53133 ECNTRTN5 161 53187 GENTRYR5 161 1	353	371	0.1	53139 FLINTCR5 161 53170 TONTITN5 161 1	0	Rebuild 19.16 miles of 2-397.5 ACSR with 2156 ACSR. Replace East Centerton Wavetrap & jumpers	\$ 8,000,000
04SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	311	360	0.1	53154 CHAMSPR5 161 53170 TONTITN5 161 1	0	Rebuild 16.3 miles of 2-297 ACSR with 2156 ACSR. Replace Flint Creek wavetrap, jumpers & switch # 1K75	\$ 8,200,000
04SP	AEPW-AEPW	53139 FLINTCR5 161 53187 GENTRYR5 161 1	354	388	0.1	53139 FLINTCR5 161 53170 TONTITN5 161 1	0	Rebuild 1.09 miles of 2-397.5 ACSR with 2156 ACSR. Replace Flint Creek wavetrap & jumpers	\$ 450,000
04SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	247	315	1.6	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	Rebuild 12 miles with 2156MCM ACSR. Replace Chamber Springs wavetrap & reset relays.	\$ 7,200,000
04SP	AEPW-AEPW	53571 MARSHL-4 138 53623 MARAUTO2 69 1	107	123	0.2	53571 MARSHL-4 138 53623 MARAUTO2 69 2	0	Replace 755 ACAR Strain Bus, Replace 1033 AAC Jumpers	\$ 40,000
04SP	AEPW-AEPW	53571 MARSHL-4 138 53623 MARAUTO2 69 2	107	123	0.2	53571 MARSHL-4 138 53623 MARAUTO2 69 1	0	Replace 755 ACAR Strain Bus, Replace 1033 AAC Jumpers	\$ 40,000
04SP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	104	129	4.5	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	See Previous Upgrade Specified for Facility	
04SP	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	104	124	4.5	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	See Previous Upgrade Specified for Facility	
04SP	GRRD-GRRD	54447 TAHLQH 2 69 54455 TAHLQH 5 161 2	78	79	0.1	54447 TAHLQH 2 69 54455 TAHLQH 5 161 1	0	See Previous Upgrade Specified for Facility	
04SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 1	490	492	0.3	54933 DRAPER 4 138 54934 DRAPER 7 345 2	0	Add third 345 - 138 kV transformer at Draper in 2008 at OKGE expense and use the operating directive until 2008.	
04SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 2	490	492	0.3	54933 DRAPER 4 138 54934 DRAPER 7 345 1	0	Add third 345 - 138 kV transformer at Draper in 2008 at OKGE expense and use the operating directive until 2008.	
04SP	OKGE-OKGE	54941 HSL 4 138 54973 RENO 4 138 1	287	302	2.0	54941 HSL 4 138 54966 MIDWAY 4 138 1	0	Replace switches & ct's at Horseshoe Lake in 2004 at OKGE expense.	
04SP	OKGE-WFEC	54946 MIDWEST4 138 55917 FRNKLNS4 138 1	187	211	0.8	54946 MIDWEST4 138 54953 HOLLYWD4 138 1	0	Replace 800 amp wavetrap with 2000 amp wavetrap at Franklin Switch and 795ACSR jumpers with 1590ACSR, connectors	\$ 24,000
04SP	OKGE-OKGE	55237 TIBBENS2 69 55246 BEELINE2 69 1	66	70	0.8	55241 BLUEBEL2 69 55242 BLUEBEL4 138 1	0	Possible Expediting of OKGE Planned Upgrade	
04SP	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	49	0.6	55841 CANADNS2 69 55842 CANADNS4 138 1	0	See Previous Upgrade Specified for Facility	
04SP	WERE-WERE	56851 AUBURN 6 230 *B016 AUBRN77X 1 1	304	304	0.2	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to WERE Operating Guide 900 - Outage of East Manhattan - Jeffrey Energy Center 230kV Line	

**Table 1 -continued** – SPP facility overloads identified for the AEPW to ERCOTN transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
04SP	WERE-WERE	57182 TECHILE3 115 57187 27CROCO3 115 1	67	74	0.1	57151 AUBURN 3 115 *B016 AUBRN77X 1 1	0	May be relieved due to WERE Operating Guide 618 - Outage of Auburn Road 230/115kV Transformer	
04SP	WERE-WERE	57588 CHASE 2 69 57605 WHITE J2 69 1	43	48	0.2	56991 WEAVER 4 138 *B183 WEAVER2X 1 1	0	May be relieved due to WERE Operating Guide 634 - Outage of Weaver 138/69kV Transformer	
04SP	WERE-WERE	57786 CHISHLM2 69 57832 RIPLEYM2 69 1	128	134	0.1	57040 EVANS N4 138 57065 SG12COL4 138 1	0	Solution Undetermined	
04SP	OKGE-OKGE	54852 SLVRLAK4 138 54854 PANTHER4 138 1	286	311	0.7	54873 LONEOAK4 138 54879 NORTWST4 138 1	13	Upgrade completed by OKGE. Rate A/B = 478/478MVA	
04FA	WERE-WERE	57039 ELPASO 4 138 57046 GILL S 4 138 1	210	265	0.6	57040 EVANS N4 138 57041 EVANS S4 138 1	0	Solution Undetermined	
04FA	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 1	68	71	0.2	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to WERE Operating Guide 900 - Outage of East Manhattan - Jeffrey Energy Center 230kV Line	
04FA	WERE-WERE	57342 WJCCY3 115 57343 WJCCY3E3 115 1	141	144	0.8	56873 SUMMIT 6 230 *B168 SUMMIT1X 1 1	0	May be relieved due to WERE Operating Guide 613 - Outage of Summit 230/115kV Transformer	
04FA	WERE-WERE	57786 CHISHLM2 69 57832 RIPLEYM2 69 1	128	134	0.1	57040 EVANS N4 138 57041 EVANS S4 138 1	0	Solution Undetermined	
04FA	OKGE-OKGE	54852 SLVRLAK4 138 54854 PANTHER4 138 1	286	319	0.6	54873 LONEOAK4 138 54879 NORTWST4 138 1	13	Upgrade completed by OKGE. Rate A/B = 478/478MVA	
04WP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	105	117	4.5	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	See Previous Upgrade Specified for Facility	
04WP	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	104	111	4.5	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	See Previous Upgrade Specified for Facility	
04WP	WFEC-WFEC	55976 LIL AXE2 69 56011 NOBLE 2 69 1	26	28	0.4	56022 PAOLI 2 69 56023 PAOLI 4 138 1	0	Solution Undetermined	
04WP	WERE-WERE	57039 ELPASO 4 138 57046 GILL S 4 138 1	210	245	0.6	57040 EVANS N4 138 57041 EVANS S4 138 1	0	Solution Undetermined	
04WP	WERE-WERE	57152 CIRCLVL3 115 57165 HTI JCT3 115 1	95	103	0.1	57982 IATAN 7 345 59199 ST JOE 3 345 1	0	See Previous Upgrade Specified for Facility	
04WP	WERE-WERE	57152 CIRCLVL3 115 57331 KING HL3 115 1	90	92	0.1	57982 IATAN 7 345 59199 ST JOE 3 345 1	0	See Previous Upgrade Specified for Facility	
04WP	OKGE-OKGE	54852 SLVRLAK4 138 54854 PANTHER4 138 1	286	310	0.7	54873 LONEOAK4 138 54879 NORTWST4 138 1	13	Upgrade completed by OKGE. Rate A/B = 478/478MVA	
09SP	SWPS-SWPS	50520 LP-HOLL2 69 50521 LP-HOLL6 230 1	90	93	0.1	50524 LP-HCL12 69 50527 LP-WADS6 230 1	0	Solution Undetermined	
09SP	SWPS-SWPS	51014 OSAGE--3 115 51080 CANYNE3 115 1	99	105	1.9	50993 BUSHLND6 230 51111 DFSMTH6 230 1	0	Rebuild 13 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 1,910,000
09SP	SWPA-ENTR	52660 BULL SH5 161 99825 5MIDWAY# 161 1	161	171	0.1	99817 5ISES 1 161 99826 5MORFLD 161 1	0	Replace disconnect switches, metering CTs and wave trap at Bull Shoals.	\$ 150,000
09SP	SWPA-ENTR	52660 BULL SH5 161 99825 5MIDWAY# 161 1	161	163	0.1	99798 5BATEVL 161 99826 5MORFLD 161 1	0	See Previous Upgrade Specified for Facility	
09SP	AEPW-OKGE	53126 BONANZA5 161 55261 BONANZT5 161 1	177	182	0.1	55262 AES 5 161 55264 TARBY 5 161 1	0	Rebuild 0.06 miles of 397.5 ACSR with 1272 ACSR & reset Bonanza relay	\$ 50,000
09SP	AEPW-AEPW	53131 DYESS 5 161 53159 SOSPRDL5 161 1	312	354	0.1	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	Rebuild 3.95 miles of 1272 AAC with 2156 ACSR. Replace South Springdale Circuit Switcher & Jumpers	\$ 2,200,000
09SP	AEPW-AEPW	53133 ECNTRTN5 161 53187 GENTRYR5 161 1	353	393	0.3	53144 LOWELL 5 161 53170 TONTITN5 161 1	0	See Previous Upgrade Specified for Facility	
09SP	AEPW-AEPW	53139 FLINTCR5 161 53154 CHAMSPR5 161 1	332	346	0.1	53155 CHAMSPR7 345 53756 CLARKSV7 345 1	0	Replace Terminal Equipment	\$ 60,000
09SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	306	409	0.2	53155 CHAMSPR7 345 53756 CLARKSV7 345 1	0	See Previous Upgrade Specified for Facility	
09SP	AEPW-AEPW	53139 FLINTCR5 161 53187 GENTRYR5 161 1	350	389	0.1	52681 WSHBRN 5 161 52686 NEO SPA5 161 1	0	See Previous Upgrade Specified for Facility	
09SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	243	379	1.2	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	See Previous Upgrade Specified for Facility	
09SP	AEPW-AEPW	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	335	390	0.2	53131 DYESS 5 161 53159 SOSPRDL5 161 1	0	Replace Farmington switch 8839	\$ 60,000
09SP	AEPW-AEPW	53157 SFAYTVL5 161 53195 FARMGTN5 161 1	313	326	0.2	53131 DYESS 5 161 53159 SOSPRDL5 161 1	0	Replace Farmington switch 5894 and replace South Fayetteville wavetraps	\$ 50,000
09SP	AEPW-AEPW	53170 TONTITN5 161 53194 ELMSPRR5 161 1	335	355	0.2	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	Rebuild 1.6 miles of 2-397 ACSR with 2156 ACSR. Replace Elm Springs Switch and Strain Bus	\$ 1,000,000
09SP	AEPW-AEPW	53530 EVENSID2 69 53583 NWHENDR2 69 1	72	75	0.1	53583 NWHENDR2 69 53595 POYNTER2 69 1	0	Rebuild 6.4 miles of 397 ACSR with 1272 ACSR. Replace Evenside breaker 1230 and jumpers	\$ 2,700,000
09SP	AEPW-AEPW	53540 GREGGTN2 69 53562 LLAMOND2 69 1	107	108	0.1	53589 PERDUE 2 69 53590 PERDUE 4 138 1	0	Rebuild 2.66 miles of 755 ACAR with 1590 ACSR	\$ 1,100,000
09SP	AEPW-AEPW	53557 KNOXLEE4 138 53586 OAK2HIL4 138 1	206	224	0.1	53557 KNOXLEE4 138 53574 MONROER4 138 1	0	Reset relays & replace wavetraps @ Knoxlee	\$ 50,000
09SP	AEPW-AEPW	53571 MARSHL-4 138 53623 MARAUTO2 69 1	107	129	0.4	53571 MARSHL-4 138 53623 MARAUTO2 69 2	0	See Previous Upgrade Specified for Facility	
09SP	AEPW-AEPW	53571 MARSHL-4 138 53623 MARAUTO2 69 2	107	129	0.4	53571 MARSHL-4 138 53623 MARAUTO2 69 1	0	See Previous Upgrade Specified for Facility	
09SP	AEPW-AEPW	53583 NWHENDR2 69 53595 POYNTER2 69 1	72	82	0.1	53530 EVENSID2 69 53583 NWHENDR2 69 1	0	Rebuild 3.22 miles of 397 ACSR with 1272 ACSR. Replace riser jumpers @ NW Henderson. Replace breaker & switches @ Poynter	\$ 1,500,000

**Table 1 -continued** – SPP facility overloads identified for the AEPW to ERCOTN transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
09SP	AEPW-AEPW	53617 WHITNEY2 69 53618 WHITNEY4 138 1	145	146	0.3	53617 WHITNEY2 69 53618 WHITNEY4 138 2	0	Add 3rd Whitney Auto	\$ 1,300,000
09SP	AEPW-AEPW	53781 BA101-N4 138 53818 ONETA--4 138 1	235	236	2.8	53785 RSSAUTO4 138 53795 R.S.S.-4 138 1	0	Rebuild 6.05 miles of 795 ACSR with 1590 ACSR. Replace jumper @ Oneta	\$ 3,600,000
09SP	AEPW-AEPW	54125 TIP&HED2 69 54138 SNYDER-2 69 1	53	59	0.1	54126 HOB-JCT4 138 54158 TAMARTP4 138 1	0	Replace Snyder wavetrapp	\$ 40,000
09SP	GRRD-GRRD	54427 COLINS 5 161 54476 COLNSGR2 69 1	50	56	0.2	54427 COLINS 5 161 54476 COLNSGR2 69 2	0	Solution Undetermined	
09SP	GRRD-GRRD	54447 TAHLQH 2 69 54455 TAHLQH 5 161 1	77	83	0.1	54447 TAHLQH 2 69 54455 TAHLQH 5 161 2	0	Add 3rd 161/69 KV Transformer	\$ 1,400,000
09SP	GRRD-GRRD	54447 TAHLQH 2 69 54455 TAHLQH 5 161 2	77	84	0.1	54447 TAHLQH 2 69 54455 TAHLQH 5 161 1	0	See Previous Upgrade Specified for Facility	
09SP	GRRD-GRRD	54451 CLARMR 5 161 54479 CLARMR 2 69 1	84	86	0.1	54451 CLARMR 5 161 54479 CLARMR 2 69 2	0	Add 3rd 161/69 KV Transformer	\$ 1,250,000
09SP	GRRD-GRRD	54451 CLARMR 5 161 54479 CLARMR 2 69 2	84	86	0.1	54451 CLARMR 5 161 54479 CLARMR 2 69 1	0	See Previous Upgrade Specified for Facility	
09SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 1	489	514	0.5	54933 DRAPER 4 138 54934 DRAPER 7 345 2	0	Add third 345 - 138 kV transformer at Draper in 2008 at OKGE expense and use the operating directive until 2008.	
09SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 2	489	514	0.5	54933 DRAPER 4 138 54934 DRAPER 7 345 1	0	Add third 345 - 138 kV transformer at Draper in 2008 at OKGE expense and use the operating directive until 2008.	
09SP	OKGE-OKGE	54941 HSL 4 138 54966 MIDWAY 4 138 1	286	287	1.4	54941 HSL 4 138 54973 RENO 4 138 1	0	Solution Undetermined	
09SP	OKGE-OKGE	54941 HSL 4 138 54973 RENO 4 138 1	287	321	1.9	54941 HSL 4 138 54966 MIDWAY 4 138 1	0	Replace switches & ct's at Horseshoe Lake in 2004 by OKGE	
09SP	OKGE-WFEC	54946 MIDWEST4 138 55917 FRNKLNS4 138 1	186	237	0.9	54946 MIDWEST4 138 54953 HOLLYWD4 138 1	0	See Previous Upgrade Specified for Facility	
09SP	WFEC-WFEC	55810 ANADARK2 69 55838 CADD0 2 69 1	61	65	0.3	55814 ANADARK4 138 56089 WASHITA4 138 1	0	Solution Undetermined	
09SP	WFEC-WFEC	55863 COMANCH2 69 56086 WALTERS2 69 1	38	40	0.2	54099 COMANC-2 69 54187 L-DISTP2 69 1	0	Comanche> Walters: Upgrade 4/0 to 556 ACSR	\$ 3,500,000
09SP	WFEC-WFEC	55979 LNDYSW2 69 56087 WALVILL2 69 1	26	28	0.2	55911 FLETCHR2 69 55990 MARLOWJ2 69 1	0	Lindsay>Wallville: 4.9 miles, 1/0 to 336	\$ 1,000,000
09SP	MIDW-WEPL	56565 SEWARD 2 69 58792 SEWARD 3 115 1	44	51	0.1	56601 HEIZER 3 115 58779 MULGREN6 230 1	0	Solution Undetermined	
09SP	WERE-WERE	57160 41CALIF3 115 57188 27CROCJ3 115 1	67	70	0.1	57151 AUBURN 3 115 *B015 AUBRN77X 1 1	0	May be relieved due to WERE Operating Guide 618 - Outage of Auburn Road 230/115kV Transformer	
09SP	WERE-WERE	57182 TECHILE3 115 57187 27CROCO3 115 1	67	78	0.1	57151 AUBURN 3 115 *B015 AUBRN77X 1 1	0	May be relieved due to WERE Operating Guide 618 - Outage of Auburn Road 230/115kV Transformer	
09SP	WERE-WERE	57182 TECHILE3 115 57187 27CROCO3 115 2	91	92	0.1	57151 AUBURN 3 115 *B015 AUBRN77X 1 1	0	May be relieved due to WERE Operating Guide 618 - Outage of Auburn Road 230/115kV Transformer	
09SP	WERE-WERE	57438 WMPHER3 115 57439 WHEATLD3 115 1	70	74	0.2	57413 CIRCLE 3 115 57432 RICE 3 115 1	0	Solution Undetermined	
09SP	WERE-WERE	57588 CHASE 2 69 57605 WHITE J2 69 1	42	47	0.2	56991 WEAVER 4 138 *B188 WEAVER2X 1 1	0	May be relieved due to WERE Operating Guide 634 - Outage of Weaver 138/69kV Transformer	
09SP	OKGE-OKGE	54852 SLVRLAK4 138 54854 PANTHER4 138 1	286	287	0.1	54873 LONEOAK4 138 54879 NORTWST4 138 1	13	Upgrade completed by OKGE. Rate A/B = 478/478MVA	
09WP	AEPW-AEPW	53133 ECNTRTN5 161 53187 GENTRYR5 161 1	367	379	0.1	53139 FLINTCR5 161 53170 TONTITN5 161 1	0	See Previous Upgrade Specified for Facility	
09WP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	331	348	0.1	53154 CHAMSPR5 161 53170 TONTITN5 161 1	0	See Previous Upgrade Specified for Facility	
09WP	AEPW-AEPW	53139 FLINTCR5 161 53187 GENTRYR5 161 1	361	397	0.1	53139 FLINTCR5 161 53170 TONTITN5 161 1	0	See Previous Upgrade Specified for Facility	
09WP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	243	309	1.6	53154 CHAMSPR5 161 53195 FARMGNT5 161 1	0	See Previous Upgrade Specified for Facility	
09WP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	105	110	4.5	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	See Previous Upgrade Specified for Facility	
09WP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 1	489	515	0.3	54933 DRAPER 4 138 54934 DRAPER 7 345 2	0	Add third 345 - 138 kV transformer at Draper in 2008 at OKGE expense and use the operating directive until 2008.	
09WP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 2	489	515	0.3	54933 DRAPER 4 138 54934 DRAPER 7 345 1	0	Add third 345 - 138 kV transformer at Draper in 2008 at OKGE expense and use the operating directive until 2008.	
09WP	WERE-WERE	57152 CIRCLVL3 115 57165 HTI JCT3 115 1	95	97	0.1	57982 IATAN 7 345 59199 ST JOE 3 345 1	0	See Previous Upgrade Specified for Facility	
09WP	WERE-WERE	57321 ANZIO 3 115 57328 FT JCT 3 115 1	92	95	0.4	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	0	May be relieved due to WERE Operating Guide 1217 - Outage of Fort Junction - West Junction City 115kV Line	
09WP	WERE-WERE	57328 FT JCT 3 115 57343 WJCCTYE3 115 1	68	69	0.4	56873 SUMMIT 6 230 *B171 SUMMIT1X 1 1	0	May be relieved due to WERE Operating Guide 613 - Outage of Summit 230/115kV Transformer	
09WP	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	149	0.8	56873 SUMMIT 6 230 *B171 SUMMIT1X 1 1	0	May be relieved due to WERE Operating Guide 613 - Outage of Summit 230/115kV Transformer	
09WP	OKGE-OKGE	54852 SLVRLAK4 138 54854 PANTHER4 138 1	286	290	0.2	54873 LONEOAK4 138 54879 NORTWST4 138 1	13	Upgrade completed by OKGE. Rate A/B = 478/478MVA	
Total Estimated Cost									\$ 67,954,020