



# **SPP** *Southwest Power Pool*

*System Impact Study  
SPP-2003-114-2  
For Network Service  
Requested By  
Associated Electric Cooperative, Inc.*

*From AECI To OKGE*

*For a Reserved Amount Of  
11 to 15 MW From 6/1/2003 To  
6/1/2013*

*SPP Engineering, Tariff Studies*

## **System Impact Study**

Associated Electric Cooperative, Inc. has requested a system impact study for Network Service from AECI to OKGE for 11 to 15 MW. The period of the service requested is from 6/1/2003 to 6/1/2013. The OASIS reservation number is 540590. 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 AECI to OKGE request was studied to determine the facility upgrades required based on the actual queue position of the request with only those higher priority requests in Facility Study mode included in the models. Higher priority requests still in study mode that have not gone to facility study mode were not included in the 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 AECI to OKGE request.

Nine seasonal models were used to study the AECI to OKGE request for the requested service period with consideration of the elapsed request period. The SPP 2003 Series Cases 2003 Fall Peak (03FA), 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 6/1/2003 to 6/1/2013. 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.

With only the higher priority requests that have signed Facility Study Agreements included in the models, the study results of the AECI to OKGE 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 AECI to OKGE transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
03FA	AEPW-AEPW	53824 SHEFFD-4 138 53827 S.S.--4 138 1	140	140	3.5	53769 WEKIWA-4 138 53835 WED-TAP4 138 1	0	Replace Sand Springs switch 1306, 1307, & 1308	\$75,000
03FA	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 1	68	70	0.2	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to Westar Transmission Operating Directive 900 Outage of the JEC-East Manhattan 230kV Line	-
03FA	AEPW-AEPW	53827 S.S.--4 138 53835 WED-TAP4 138 1	143	143	2.7	53769 WEKIWA-4 138 53824 SHEFFD-4 138 1	6	Replace Sand Springs switches 1314, 1315, & 1316	\$75,000
03FA	WERE-WERE	57733 GATZ 2 69 57735 GOLDPLJ2 69 1	32	35	0.2	57736 HALSTED2 69 57744 MUDCRKJ2 69 1	11	None - Local area problem within Newton division	-
03FA	WERE-WERE	57733 GATZ 2 69 57735 GOLDPLJ2 69 1	32	34	0.2	57741 MID AMJ2 69 57744 MUDCRKJ2 69 1	11	"	-
03FA	WERE-WERE	57733 GATZ 2 69 57735 GOLDPLJ2 69 1	32	34	0.2	57741 MID AMJ2 69 57745 NEWTON 2 69 1	11	"	-
03FA	WERE-WERE	57735 GOLDPLJ2 69 57737 HESSTON2 69 1	32	36	0.2	57736 HALSTED2 69 57744 MUDCRKJ2 69 1	11	None - Local area problem within Newton division	-
03FA	WERE-WERE	57735 GOLDPLJ2 69 57737 HESSTON2 69 1	32	35	0.2	57741 MID AMJ2 69 57744 MUDCRKJ2 69 1	11	"	-
03FA	WERE-WERE	57735 GOLDPLJ2 69 57737 HESSTON2 69 1	32	35	0.2	57741 MID AMJ2 69 57745 NEWTON 2 69 1	11	"	-
03WP	WFEC-WFEC	55973 LEXNGTN2 69 56022 PAOLI 2 69 1	33	34	0.1	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Constr new Noble Sub to Canadian Switch - 138kv - Move 12 MW off 69 system, Current work plan - Complete by 2004 Winter	-
03WP	WFEC-WFEC	56022 PAOLI 2 69 56023 PAOLI 4 138 1	42	42	0.1	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Constr new Noble Sub to Canadian Switch - 138kv - Move 12 MW off 69 system, Current work plan - Complete by 2004 Winter	-
03WP	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	159	159	1.1	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 WMCIPHER3 115 1	67	73	0.5	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	Tear down double circuit, build single circuit with 1192.5 ACSR.	\$7,800,000
04AP		NONE IDENTIFIED					11		
04G	CELE-AEPW	50090 IPAPER 4 138 53461 WALLAKE4 138 1	236	257	2.1	50045 DOLHILL7 345 53454 SW SHV 7 345 1	0	May be relieved due to Dolet Hills Operating Directive	-
04G	SWPA-SWPA	52774 EUFAULA4 138 B053 EUFAULA1 1 1	105	106	0.9	52752 GORE 5 161 52790 WELEETK5 161 1	0	Replace Eufaula Transformer	\$2,000,000
04G	SWPA-SWPA	52774 EUFAULA4 138 B053 EUFAULA1 1 1	105	105	0.9	52790 WELEETK5 161 52792 WELEETK4 138 1	0	See Previous	-
04G	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 1	68	73	0.2	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to Westar Transmission Operating Directive 900 Outage of the JEC-East Manhattan 230kV Line	-
04G	WERE-WERE	57167 KEENE 3 115 57339 S ALMA 3 115 1	68	68	0.2	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to Westar Transmission Operating Directive 900 Outage of the JEC-East Manhattan 230kV Line	-
04G	WERE-WERE	57216 KERFORD3 115 57259 NW LEAV3 115 1	68	68	0.1	57211 ARNOLD 3 115 57268 STRANGR3 115 1	0	May be relieved due to Westar Transmission Operating Directive 1200 Outage of the Arnold to Stranger Creek 115kV Line	-
04G	WERE-WERE	57321 ANZIO 3 115 57328 FT JCT 3 115 1	92	94	0.3	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	0	May be relieved due to Westar Transmission Operating Directive 1217 Outage of the Fort Junction-West Junction City 115kV Line	-
04G	WERE-WERE	57328 FT JCT 3 115 57343 WJCCTYE3 115 1	68	70	0.3	56773 SUMMIT 7 345 B168 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
04G	WERE-WERE	57328 FT JCT 3 115 57343 WJCCTYE3 115 1	68	70	0.3	56873 SUMMIT 6 230 B168 SUMMIT1X 1 1	0	"	-
04G	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	152	0.7	56873 SUMMIT 6 230 B168 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
04G	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	152	0.7	56773 SUMMIT 7 345 B168 SUMMIT1X 1 1	0	"	-
04G	WERE-WERE	57623 ATHENS 2 69 57631 CC4VERN2 69 1	43	43	0.3	56791 BENTON 7 345 56797 WOLFCRK7 345 1	0	May be relieved due to Westar Transmission Operating Directive 1304 Overload of the Athens to Wolf Creek 69 kV Line	-

**Table 1 continued** – SPP facility overloads identified for the AECI to OKGE transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
04G	WERE-WERE	57631 CC4VERN2 69 57636 GREEN 2 69 1	43	45	0.3	56791 BENTON 7 345 56797 WOLFCRK7 345 1	0	May be relieved due to Westar Transmission Operating Directive 1304 Overload of the Athens to Wolf Creek 69 kV Line	-
04G	WERE-WERE	57631 CC4VERN2 69 57636 GREEN 2 69 1	43	44	0.3	56794 ROSEHIL7 345 56797 WOLFCRK7 345 1	0	"	-
04G	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 1	67	67	0.7	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	8	See Previous	-
04SP	CELE-AEPW	50090 IPAPER 4 138 53461 WALLAKE4 138 1	208	246	2.1	50045 DOLHILL7 345 53454 SW SHV 7 345 1	0	May be relieved due to Dolet Hills Operating Directive	-
04SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	311	408	0.1	53139 FLINTCR5 161 53187 GENTRYR5 161 1	0	Rebuild 16.3 miles of 2-297 ACSR with 2156 ACSR. Replace Flint Creek wavetrap & jumpers. Replace Flint Creek switch # 1K75	\$8,200,000
04SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	311	401	0.1	53133 ECNTRTN5 161 53187 GENTRYR5 161 1	0	See Previous	-
04SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	311	345	1.6	53139 FLINTCR5 161 53154 CHAMSPR5 161 1	0	"	-
04SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	311	334	0.2	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	"	-
04SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	311	322	0.2	53157 SFAYTVL5 161 53195 FARMGTN5 161 1	0	"	-
04SP	AEPW-AEPW	53142 HUNTING2 69 53202 MIDLREA2 69 1	36	36	0.4	55262 AES 5 161 55264 TARBY 5 161 1	0	Solution Undetermined	-
04SP	AEPW-AEPW	53849 TERNITP4 138 53869 VERDIGS4 138 1	149	155	0.8	53857 OWASSOS4 138 53945 N.E.S.-4 138 1	0	Solution Undetermined	-
04SP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	105	115	2.5	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	Replace Okmulgee Wavetrap	\$40,000
04SP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	105	108	2.5	54017 HENRYET4 138 54057 KELCO 4 138 1	0	See Previous	-
04SP	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	105	110	2.5	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	Replace Weleetka Wavetrap	\$40,000
04SP	GRRD-GRRD	54427 COLINS 5 161 54476 COLNSGR2 69 1	50	52	0.3	54427 COLINS 5 161 54476 COLNSGR2 69 2	0	Solution Undetermined	-
04SP	WFEC-WFEC	56022 PAOLI 2 69 56023 PAOLI 4 138 1	42	42	0.1	55841 CANADNS2 69 56011 NOBLE 2 69 1	0	Constr new Noble Sub to Canadian Switch - 138kv - Move 12 MW off 69 system, Current work plan - Complete by 2004 Winter	-
04SP	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 Westar Transmission Operating Directive 900 Outage of the JEC-East Manhattan 230kV Line	-
04SP	WERE-WERE	57412 ARKVALJ3 115 57413 CIRCLE 3 115 1	68	80	0.1	57413 CIRCLE 3 115 57419 HEC 3 115 1	0	May be relieved due to Westar Transmission Operating Directive 1204 Outage of the Circle to Hutchinson Energy Center (HEC) GT 115 kV Line	-
04SP	WERE-WERE	57412 ARKVALJ3 115 57435 3 VANBU3 115 1	68	75	0.1	57413 CIRCLE 3 115 57419 HEC 3 115 1	0	May be relieved due to Westar Transmission Operating Directive 1204 Outage of the Circle to Hutchinson Energy Center (HEC) GT 115 kV Line	-
04SP	WERE-WERE	57588 CHASE 2 69 57605 WHITE J2 69 1	43	50	0.4	56991 WEAVER 4 138 B183 WEAVER2X 1 1	0	May be relieved due to Westar Transmission Operating Directive 634 Outage of the Weaver 138-69kV Transformer	-
04SP	WERE-WERE	57588 CHASE 2 69 57605 WHITE J2 69 1	43	50	0.4	57604 WEAVER 2 69 B183 WEAVER2X 1 1	0	"	-
04SP	WERE-WERE	57604 WEAVER 2 69 57837 RH JCT 2 69 1	43	44	1.0	57039 ELPASO 4 138 57042 FARBER 4 138 1	0	Move Rose Hill Jct. 69 kV load to Rose Hill 345/138 kV substation. Requires new transformer bay and a new 25 MVA 138-12 kV transformer.	\$1,400,000
04SP	WERE-WERE	57786 CHISHLM2 69 57832 RIPLEYM2 69 1	128	141	0.1	57040 EVANS N4 138 57065 SG12COL4 138 1	0	May be relieved due to Westar Transmission Operating Directive 1105 Outage of the Moundridge to Halstead 138 kV line, Gordon Evans to Halstead 138 kV line or loss of the Halstead 138 kV bus.	-
04SP	WERE-WERE	57786 CHISHLM2 69 57832 RIPLEYM2 69 1	128	139	0.1	57012 HALSTD4 138 57065 SG12COL4 138 1	0	"	-
04SP	WERE-WERE	57786 CHISHLM2 69 57832 RIPLEYM2 69 1	128	136	0.1	57035 CHISHLM4 138 57064 17TH 4 138 1	0	May be relieved due to Westar Transmission Operating Directive 1100 Outage of the 17th Street to Chisholm 138 kV Line	-

**Table 1 continued** – SPP facility overloads identified for the AECI to OKGE 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	57786 CHISLM2 69 57832 RIPLEYM2 69 1	128	130	0.1	57840 17TH 2 69 B009 17TH 4X 1 1	0	May be relieved due to Westar Transmission Operating Directive 600 Outage of the 17th Street 138-69kV Transformer	-
04SP	WERE-WERE	57786 CHISLM2 69 57832 RIPLEYM2 69 1	128	130	0.1	57064 17TH 4 138 B009 17TH 4X 1 1	0	"	-
04SP	WERE-WERE	57796 GILL W 2 69 B059 GEC3 GSU 1 1	136	174	0.3	57046 GILL S 4 138 B060 GILL 5X 1 1	0	May be relieved due to Westar Transmission Operating Directive 606 Outage of the Murray Gill #5 138/69kV Transformer or the Murray Gill Bus Tie breaker 138-24	-
04SP	WERE-WERE	57796 GILL W 2 69 B059 GEC3 GSU 1 1	136	174	0.3	57795 GILL E 2 69 B060 GILL 5X 1 1	0	"	-
04SP	WERE-WERE	57796 GILL W 2 69 B059 GEC3 GSU 1 1	136	153	0.3	57045 GILL W 4 138 57046 GILL S 4 138 1	0	May be relieved due to Westar Transmission Operating Directive 607 Outage of the Murray Gill #3 138/69kV Transformer (w/Unit #3, tertiary)	-
04SP	WERE-WERE	57796 GILL W 2 69 B059 GEC3 GSU 1 1	136	138	0.4	57795 GILL E 2 69 57796 GILL W 2 69 1	0	"	-
04SP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 1	150	159	2.0	53802 CATOOSA4 138 54438 CATSAGR5 161 2	11	GRDA has mitigation plan for outage of Catoosa 161/138kV Ckts 1 or 2; 3rd Transformer in place if needed	-
04SP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 2	150	160	2.0	53802 CATOOSA4 138 54438 CATSAGR5 161 1	11	GRDA has mitigation plan for outage of Catoosa 161/138kV Ckts 1 or 2; 3rd Transformer in place if needed	-
04SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 1	490	493	1.0	54933 DRAPER 4 138 54934 DRAPER 7 345 2	11	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
04SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 2	490	493	1.0	54933 DRAPER 4 138 54934 DRAPER 7 345 1	11	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
04SP	OKGE-OKGE	55237 TIBBENS2 69 55246 BEELINE2 69 1	66	71	0.7	55241 BLUEBEL2 69 55242 BLUEBEL4 138 1	11	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
04SP	OKGE-OKGE	55300 FTSMITH5 161 55305 FTSMITH8 500 1	475	477	3.5	55300 FTSMITH5 161 55302 FTSMITH7 345 1	11	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
04SP	WERE-WERE	57182 TECHILE3 115 57187 27CROCO3 115 1	67	70	0.1	57182 TECHILE3 115 57187 27CROCO3 115 2	11	Invalid Contingency	-
04FA	CELE-AEPW	50090 IPAPER 4 138 53461 WALLAKE4 138 1	235	269	1.3	50045 DOLHILL7 345 53454 SW SHV 7 345 1	0	May be relieved due to Dolet Hills Operating Directive	-
04FA	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 1	68	76	0.1	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to Westar Transmission Operating Directive 900 Outage of the JEC-East Manhattan 230kV Line	-
04FA	WERE-WERE	57167 KEENE 3 115 57339 S ALMA 3 115 1	68	72	0.1	56852 JEC 6 230 56861 EMANHAT6 230 1	0	May be relieved due to Westar Transmission Operating Directive 900 Outage of the JEC-East Manhattan 230kV Line	-
04FA	WERE-WERE	57301 EAST ST3 115 57309 WEMPORI3 115 1	92	97	0.2	57305 MORRIS 3 115 57309 WEMPORI3 115 1	0	May be relieved due to Westar Transmission Operating Directive 1209 Outage of the Morris-West Emporia 115kV Line	-
04FA	WERE-WERE	57321 ANZIO 3 115 57328 FT JCT 3 115 1	92	100	0.2	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	0	May be relieved due to Westar Transmission Operating Directive 1217 Outage of the Fort Junction-West Junction City 115kV Line	-
04FA	WERE-WERE	57328 FT JCT 3 115 57335 MCDOWEL3 115 1	68	70	0.1	56766 JEC N 7 345 56773 SUMMIT 7 345 1	0	May be relieved due to Westar Transmission Operating Directive 402 Outage of the Jeffrey Energy Center to Summit 345 kV Line	-

**Table 1 continued** – SPP facility overloads identified for the AECl to OKGE transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
04FA	WERE-WERE	57328 FT JCT 3 115 57335 MCDOWEL3 115 1	68	70	0.1	56873 SUMMIT 6 230 B168 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
04FA	WERE-WERE	57328 FT JCT 3 115 57335 MCDOWEL3 115 1	68	70	0.1	56773 SUMMIT 7 345 B168 SUMMIT1X 1 1	0	"	-
04FA	WERE-WERE	57328 FT JCT 3 115 57343 WJCCTYE3 115 1	68	75	0.2	56773 SUMMIT 7 345 B168 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
04FA	WERE-WERE	57328 FT JCT 3 115 57343 WJCCTYE3 115 1	68	75	0.2	56873 SUMMIT 6 230 B168 SUMMIT1X 1 1	0	"	-
04FA	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	163	0.3	56873 SUMMIT 6 230 B168 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
04FA	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	163	0.3	56773 SUMMIT 7 345 B168 SUMMIT1X 1 1	0	"	-
04FA	WERE-WERE	57368 EXIDE J3 115 57372 PHILIPS3 115 1	196	198	0.4	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	Rebuild and reconductor 0.34 miles with 1192 ACSR.	\$95,200
04FA	WERE-WERE	57368 EXIDE J3 115 57381 SUMMIT 3 115 1	196	209	0.4	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	Rebuild and reconductor 4.94 miles with 1192 ACSR.	\$1,100,000
04FA	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	156	180	0.7	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
04FA	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 1	66	83	0.3	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
04FA	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 2	90	97	0.4	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
04FA	AEPW-AEPW	53824 SHEFFD-4 138 53827 S.S.--4 138 1	139	139	5.2	53769 WEKIWA-4 138 53835 WED-TAP4 138 1	5	See Previous	-
04FA	WERE-WERE	57039 ELPASO 4 138 57046 GILL S 4 138 1	210	271	0.2	57040 EVANS N4 138 57041 EVANS S4 138 1	11	Invalid Contingency	-
04WP	SWPA-SWPA	52774 EUFAULA4 138 B051 EUFAULA1 1 1	105	124	1.9	52752 GORE 5 161 52790 WELEETK5 161 1	0	See Previous	-
04WP	SWPA-SWPA	52774 EUFAULA4 138 B051 EUFAULA1 1 1	105	123	1.9	52790 WELEETK5 161 52792 WELEETK4 138 1	0	"	-
04WP	SWPA-SWPA	52774 EUFAULA4 138 B051 EUFAULA1 1 1	105	114	1.5	52774 EUFAULA4 138 52778 EUF #2 1 13.8 1	0	"	-
04WP	SWPA-SWPA	52774 EUFAULA4 138 B051 EUFAULA1 1 1	105	114	1.5	52774 EUFAULA4 138 52780 EUF #3 1 13.8 1	0	"	-
04WP	SWPA-SWPA	52774 EUFAULA4 138 B051 EUFAULA1 1 1	105	113	1.9	54003 WISTER-2 69 55259 HOWEIN 2 69 1	0	"	-
04WP	SWPA-WFEC	52800 TUPELO 4 138 56071 TUPLOTP4 138 1	96	97	2.3	54140 S.W.S.-4 138 54208 SWS3-1 24 1	0	Replace 400A Wave Trap with 800A	\$8,700
04WP	GRRD-GRRD	54427 COLINS 5 161 54476 COLNSGR2 69 1	50	50	0.3	54427 COLINS 5 161 54476 COLNSGR2 69 2	0	Solution Undetermined	-
04WP	WFEC-WFEC	56022 PAOLI 2 69 56023 PAOLI 4 138 1	42	42	0.1	55841 CANADNS2 69 56011 NOBLE 2 69 1	0	Constr new Noble Sub to Canadian Switch - 138kv - Move 12 MW off 69 system, Current work plan - Complete by 2004 Winter	-
04WP	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	144	0.6	56873 SUMMIT 6 230 B167 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
04WP	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	144	0.6	56773 SUMMIT 7 345 B167 SUMMIT1X 1 1	0	"	-
04WP	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	156	160	1.3	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
04WP	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 1	66	74	0.6	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
04WP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 1	150	165	1.9	53802 CATOOSA4 138 54438 CATSAGR5 161 2	11	GRDA has mitigation plan for outage of Catoosa 161/138kV Ckts 1 or 2; 3rd Transformer in place if needed	-
04WP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 2	150	166	1.9	53802 CATOOSA4 138 54438 CATSAGR5 161 1	11	GRDA has mitigation plan for outage of Catoosa 161/138kV Ckts 1 or 2; 3rd Transformer in place if needed	-
09SP	CELE-AEPW	50090 IPAPER 4 138 53461 WALLAKE4 138 1	208	245	2.1	50045 DOLHILL7 345 53454 SW SHV 7 345 1	0	May be relieved due to Dolet Hills Operating Directive	-
09SP	SWPS-SWPS	51014 OSAGE--3 115 51080 CANYNE3 115 1	99	106	0.4	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	SWPS-SWPS	51020 RANDALL3 115 51082 PALODU 3 115 1	98	99	0.6	51041 AMARLS6 230 51321 SWISHER6 230 1	0	Rebuild 9 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$1,170,000

**Table 1 continued** – SPP facility overloads identified for the AECI to OKGE 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	SWPA-ENTR	52618 JONESBO5 161 99755 5JONES 161 1	216	258	0.2	52600 N MADRD5 161 52610 KENNETT5 161 1	0	Line belongs to Entergy. SWPA: Change the ratio on the metering CTs to 1200/5 and adjust the meters	\$2,000
09SP	SWPA-ENTR	52618 JONESBO5 161 99755 5JONES 161 1	216	241	0.3	52610 KENNETT5 161 52612 PARAGLD5 161 1	0	See Previous	-
09SP	SWPA-AECI	52634 IDALIA 5 161 96056 5ASHRVL 161 1	206	228	0.4	96073 5HARVELE 161 96114 5STFRAN 161 1	0	Reconductor line.	\$6,600,000
09SP	SWPA-AECI	52634 IDALIA 5 161 96056 5ASHRVL 161 1	206	216	0.6	96010 1STFRG1 16 96115 5STFRN1 161 1	0	See Previous	-
09SP	SWPA-AECI	52634 IDALIA 5 161 96056 5ASHRVL 161 1	206	216	0.6	96114 5STFRAN 161 96115 5STFRN1 161 1	0	"	-
09SP	SWPA-AECI	52634 IDALIA 5 161 96056 5ASHRVL 161 1	206	208	0.4	96073 5HARVELE 161 96084 5GRNFRT 161 1	0	"	-
09SP	SWPA-AECI	52638 POP BLF5 161 96056 5ASHRVL 161 1	167	185	0.4	96073 5HARVELE 161 96114 5STFRAN 161 1	0	Reconductor line with 795 ACSR.	\$4,000,000
09SP	SWPA-AECI	52638 POP BLF5 161 96056 5ASHRVL 161 1	167	173	0.6	96010 1STFRG1 16 96115 5STFRN1 161 1	0	See Previous	-
09SP	SWPA-AECI	52638 POP BLF5 161 96056 5ASHRVL 161 1	167	173	0.6	96114 5STFRAN 161 96115 5STFRN1 161 1	0	"	-
09SP	SWPA-AECI	52638 POP BLF5 161 96056 5ASHRVL 161 1	167	172	0.4	96073 5HARVELE 161 96084 5GRNFRT 161 1	0	"	-
09SP	AEPW-AEPW	53131 DYESS 5 161 53159 SOSPRDL5 161 1	312	351	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	355	0.5	52680 BEAVER 5 161 53191 AVOCA--5 161 1	0	Rebuild 19.16 miles of 2-397.5 ACSR with 2156 ACSR. Replace East Centeron Wavetrap & jumpers	\$8,000,000
09SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	307	474	0.1	53139 FLINTCR5 161 53187 GENTRYR5 161 1	0	See Previous	-
09SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	307	465	0.1	53133 ECNTRTN5 161 53187 GENTRYR5 161 1	0	"	-
09SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	307	387	0.3	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	"	-
09SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	307	373	0.3	53157 SFAYTVL5 161 53195 FARMGTN5 161 1	0	"	-
09SP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	307	356	0.2	53133 ECNTRTN5 161 53185 BENTVJ_5 161 1	0	"	-
09SP	AEPW-AEPW	53139 FLINTCR5 161 53187 GENTRYR5 161 1	350	378	0.5	52680 BEAVER 5 161 53191 AVOCA--5 161 1	0	Rebuild 1.09 miles of 2-397.5 ACSR with 2156 ACSR. Replace Flint Creek wavetrap & jumpers	\$450,000
09SP	AEPW-AEPW	53139 FLINTCR5 161 53187 GENTRYR5 161 1	350	352	0.5	53135 EROGERS5 161 53191 AVOCA--5 161 1	0	See Previous	-
09SP	AEPW-AEPW	53142 HUNTING2 69 53147 NHUNTNT2 69 1	48	48	0.4	55262 AES 5 161 55264 TARBY 5 161 1	0	Rebuild 0.24 miles of 4/0 ACSR with 795 ACSR & replace 4/0 jumpers @ Huntington	\$100,000
09SP	AEPW-AEPW	53142 HUNTING2 69 53202 MIDLREA2 69 1	36	39	0.4	55262 AES 5 161 55264 TARBY 5 161 1	0	Solution Undetermined	-
09SP	AEPW-AEPW	53142 HUNTING2 69 53202 MIDLREA2 69 1	36	37	0.4	55263 TARBY 2 69 55274 CAVANAL2 69 1	0	"	-
09SP	AEPW-AEPW	53374 FULTON 3 115 53383 HOPE 3 115 1	174	179	1.5	53592 PIRKEY 4 138 53708 PIRKEY 1 23.4 1	0	Solution Undetermined	-
09SP	AEPW-AEPW	53374 FULTON 3 115 53383 HOPE 3 115 1	174	178	1.5	55947 HUGO1 23.4 55948 HUGO PP4 138 1	0	"	-
09SP	AEPW-AEPW	53374 FULTON 3 115 53383 HOPE 3 115 1	174	178	1.5	53615 WELSH 7 345 53712 WELSH3-1 18 1	0	"	-
09SP	AEPW-AEPW	53374 FULTON 3 115 53383 HOPE 3 115 1	174	178	1.5	53615 WELSH 7 345 53711 WELSH2-1 18 1	0	"	-
09SP	AEPW-AEPW	53374 FULTON 3 115 53383 HOPE 3 115 1	174	178	1.5	53615 WELSH 7 345 53710 WELSH1-1 18 1	0	"	-
09SP	AEPW-AEPW	53849 TERNITP4 138 53869 VERDIGS4 138 1	150	159	0.8	53857 OWASSOS4 138 53945 N.E.S.-4 138 1	0	Solution Undetermined	-
09SP	AEPW-AEPW	53849 TERNITP4 138 53869 VERDIGS4 138 1	150	151	0.8	53855 PCATSAT4 138 53857 OWASSOS4 138 1	0	"	-
09SP	AEPW-WFEC	54122 ELKCTY-2 69 55897 ELKCITY2 69 1	39	41	0.1	56027 PINERDG2 69 56088 WASHITA2 69 1	0	Elk(AEPW)>Elk WFEC: Upgrade 4/0 to 795 ACSR Plan Construction by 2009	-
09SP	GRRD-GRRD	54427 COLINS 5 161 54476 COLNSGR2 69 1	50	58	0.3	54427 COLINS 5 161 54476 COLNSGR2 69 2	0	Solution Undetermined	-
09SP	GRRD-GRRD	54427 COLINS 5 161 54476 COLNSGR2 69 2	56	58	0.3	54427 COLINS 5 161 54476 COLNSGR2 69 1	0	Solution Undetermined	-
09SP	WERE-WERE	57438 WMCIPHER3 115 57439 WHEATLD3 115 1	70	71	0.1	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	49	0.4	57604 WEAVER 2 69 B188 WEAVER2X 1 1	0	May be relieved due to Westar Transmission Operating Directive 634 Outage of the Weaver 138-69kV Transformer	-
09SP	WERE-WERE	57588 CHASE 2 69 57605 WHITE J2 69 1	42	49	0.4	56991 WEAVER 4 138 B188 WEAVER2X 1 1	0	"	-
09SP	WERE-WERE	57796 GILL W 2 69 57830 PECK 2 69 1	35	38	1.0	57039 ELPASO 4 138 57042 FARBER 4 138 1	0	Repole 10.1 miles and keep existing conductor.	\$3,100,000

**Table 1 continued** – SPP facility overloads identified for the AECI to OKGE 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	KACP-KACP	57978 CRAIG 5 161 58048 COLLEGE5 161 1	330	347	0.1	57969 STILWEL5 161 58050 ANTIOCH5 161 1	0	Reconductor 4 miles with 1192.5 ACSS, 558 normal/emergency rating and upgrade breaker.	\$700,000
09SP	KACP-KACP	57978 CRAIG 5 161 58048 COLLEGE5 161 1	330	341	0.7	58033 BRKRIDG5 161 58047 OVERLPK5 161 1	0	See Previous	-
09SP	KACP-KACP	58000 BLUEVLY5 161 58010 WINJT S5 161 1	222	229	2.8	57996 MIDTOWN5 161 57997 LEEDS 5 161 1	0	replace 800 amp wavetrap with 1200 amp wavetrap at Blue Valley	\$8,000
09SP	KACP-KACP	58000 BLUEVLY5 161 58010 WINJT S5 161 1	222	224	2.9	57989 NAVY 5 161 57991 TERRACE5 161 1	0	See Previous	-
09SP	AEPW-WFEC	54122 ELKCTY-2 69 55897 ELKCITY2 69 1	39	39	0.1	56003 MTNVIEW2 69 56027 PINERDG2 69 1	9	Elk(AEPW)>Elk WFEC: Upgrade 4/0 to 795 ACSR Plan Construction by 2009	-
09SP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 1	150	152	2.1	53802 CATOOSA4 138 54438 CATSAGR5 161 2	14	GRDA has mitigation plan for outage of Catoosa 161/138kV Ckts 1 or 2; 3rd Transformer in place if needed	-
09SP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 2	150	152	2.1	53802 CATOOSA4 138 54438 CATSAGR5 161 1	14	GRDA has mitigation plan for outage of Catoosa 161/138kV Ckts 1 or 2; 3rd Transformer in place if needed	-
09SP	OKGE-OKGE	54725 HEMLKTP2 69 54732 NE ENID2 69 1	48	48	0.2	54730 SO4TH2 2 69 54731 SO4TH4 4 138 1	14	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
09SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 1	489	512	1.0	54933 DRAPER 4 138 54934 DRAPER 7 345 2	14	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
09SP	OKGE-OKGE	54933 DRAPER 4 138 54934 DRAPER 7 345 2	489	512	1.0	54933 DRAPER 4 138 54934 DRAPER 7 345 1	14	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
09SP	OKGE-OKGE	55300 FTSMITH5 161 55302 FTSMITH7 345 1	489	489	2.2	55300 FTSMITH5 161 55305 FTSMITH8 500 1	14	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
09SP	OKGE-OKGE	55300 FTSMITH5 161 55305 FTSMITH8 500 1	474	523	3.4	55300 FTSMITH5 161 55302 FTSMITH7 345 1	14	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
09SP	OKGE-OKGE	55300 FTSMITH5 161 55305 FTSMITH8 500 1	474	480	9.5	55302 FTSMITH7 345 55305 FTSMITH8 500 1	14	Exclude Facility as a limitation to due Grandfathered Transmission Agreement between AECI/KAMO and OKGE.	-
09SP	WERE-WERE	57182 TECHILE3 115 57187 27CROCO3 115 1	67	77	0.1	57182 TECHILE3 115 57187 27CROCO3 115 2	14	Invalid Contingency	-
09WP	CELE-AEPW	50090 IPAPER 4 138 53461 WALLAKE4 138 1	235	273	2.3	50045 DOLHILL7 345 53454 SW SHV 7 345 1	0	May be relieved due to Dolet Hills Operating Directive	-
09WP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	331	402	0.4	53139 FLINTCR5 161 53187 GENTRYR5 161 1	0	See Previous	-
09WP	AEPW-AEPW	53139 FLINTCR5 161 53170 TONTITN5 161 1	331	395	0.4	53133 ECNTRTN5 161 53187 GENTRYR5 161 1	0	"	-
09WP	GRRD-GRRD	54427 COLINS 5 161 54476 COLNSGR2 69 1	50	50	0.4	54427 COLINS 5 161 54476 COLNSGR2 69 2	0	Solution Undetermined	-
09WP	WERE-WERE	57321 ANZIO 3 115 57328 FT JCT 3 115 1	92	103	0.3	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	0	May be relieved due to Westar Transmission Operating Directive 1217 Outage of the Fort Junction-West Junction City 115kV Line	-
09WP	WERE-WERE	57328 FT JCT 3 115 57335 MCDOWEL3 115 1	67	69	0.2	56766 JEC N 7 345 56773 SUMMIT 7 345 1	0	May be relieved due to Westar Transmission Operating Directive 402 Outage of the Jeffrey Energy Center to Summit 345 kV Line	-
09WP	WERE-WERE	57328 FT JCT 3 115 57335 MCDOWEL3 115 1	67	69	0.2	56773 SUMMIT 7 345 B171 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
09WP	WERE-WERE	57328 FT JCT 3 115 57335 MCDOWEL3 115 1	67	69	0.2	56873 SUMMIT 6 230 B171 SUMMIT1X 1 1	0	"	-



**Table 1 continued** – SPP facility overloads identified for the AECI to OKGE transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
09WP	WERE-WERE	57328 FT JCT 3 115 57343 WJCCTYE3 115 1	68	76	0.3	56873 SUMMIT 6 230 B171 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
09WP	WERE-WERE	57328 FT JCT 3 115 57343 WJCCTYE3 115 1	68	76	0.3	56773 SUMMIT 7 345 B171 SUMMIT1X 1 1	0	"	-
09WP	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	164	0.6	56873 SUMMIT 6 230 B171 SUMMIT1X 1 1	0	May be relieved due to Westar Transmission Operating Directive 617 Outage of the Summit 345/230kV Transformer	-
09WP	WERE-WERE	57342 WJCCTY 3 115 57343 WJCCTYE3 115 1	141	164	0.6	56773 SUMMIT 7 345 B171 SUMMIT1X 1 1	0	"	-
09WP	WERE-WERE	57368 EXIDE J3 115 57381 SUMMIT 3 115 1	195	200	0.8	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
09WP	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	160	175	1.4	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
09WP	WERE-WERE	57374 SPHILPJ3 115 57438 WMCPHER3 115 1	68	81	0.7	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
09WP	WERE-WERE	57374 SPHILPJ3 115 57438 WMCPHER3 115 2	92	94	0.8	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	-
09WP	WERE-WERE	57631 CC4VERN2 69 57636 GREEN 2 69 1	43	44	0.2	56791 BENTON 7 345 56797 WOLFCRK7 345 1	0	May be relieved due to Westar Transmission Operating Directive 1304 Overload of the Athens to Wolf Creek 69 kV Line	-
09WP	WERE-WERE	57631 CC4VERN2 69 57636 GREEN 2 69 1	43	44	0.2	56794 ROSEHIL7 345 56797 WOLFCRK7 345 1	0	"	-
Total Estimated Cost									\$49,491,100