



# **SPP** *Southwest Power Pool*

***System Impact Study  
SPP-2003-076-1  
For Transmission Service  
Requested By  
Cargill - Alliant***

***From CLEC To ERCOTN***

***For a Reserved Amount Of  
200 MW From 1/1/2004 To 1/1/2005***

***SPP Engineering, Tariff Studies***

## **System Impact Study**

Cargill – Alliant has requested a system impact study for Point-to-Point transmission service from CLEC to ERCOTN for 200 MW. The period of the service requested is from 1/1/2004 to 1/1/2005. The OASIS reservation numbers are 495353 and 495354. 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 CLEC to ERCOTN 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 CLEC to ERCOTN 200 MW request.

Six seasonal models were used to study the CLEC to ERCOTN 200 MW 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), and 2004/05 Winter Peak (04WP) were used to study the impact of the 200 MW request on the SPP system during a the requested service period of 1/1/2004 to 1/1/2005. 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 CLEC to ERCOTN 200 MW 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. Evaluation of the right to renew service for future years was not performed. Renewal rights will be evaluated as part of the facility study. 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 CLEC to ERCOTN transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
03WP	WFEC-WFEC	55802 ACME 2 69 55916 FRNKLNS2 69 1	34	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	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR	\$ 525,000
03WP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 1	150	53802 CATOOSA4 138 54438 CATSAGR5 161 2	118	None - GRDA Mitigation Plan	\$ -
03WP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 2	150	53802 CATOOSA4 138 54438 CATSAGR5 161 1	92	None - GRDA Mitigation Plan	\$ -
03WP	SWPA-SWPA	52774 EUFAULA4 138 *B051 EUFAULA1 1 1	105	52752 GORE 5 161 52790 WEELETK5 161 1	186	Replace Eufaula Transformer	\$ 2,000,000
03WP	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	159	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	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	55841 CANADNS2 69 55842 CANADNS4 138 1	0	See Previous	\$ -
04AP	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	55841 CANADNS2 69 55842 CANADNS4 138 1	56	See Previous	\$ -
04G	WFEC-WFEC	55802 ACME 2 69 55916 FRNKLNS2 69 1	34	55841 CANADNS2 69 55842 CANADNS4 138 1	0	See Previous	\$ -
04G	SWPA-SWPA	52774 EUFAULA4 138 *B053 EUFAULA1 1 1	105	52752 GORE 5 161 52790 WEELETK5 161 1	0	See Previous	\$ -
04G	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 1	67	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	6	See Previous	\$ -
04SP	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	55841 CANADNS2 69 55842 CANADNS4 138 1	0	See Previous	\$ -
04SP	OKGE-OKGE	55237 TIBBENS2 69 55246 BEELINE2 69 1	66	55241 BLUEBEL2 69 55242 BLUEBEL4 138 1	0	OKGE Planned Upgrade for 2008. Possible expediting of in-service date.	N/A
04SP	SWPS-SWPS	51014 OSAGE--3 115 51080 CANYNE3 115 1	99	50993 BUSHLND6 230 51111 DFSMTH6 230 1	77	Rebuild 13 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 1,910,000
04SP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 1	150	53802 CATOOSA4 138 54438 CATSAGR5 161 2	0	None - GRDA Mitigation Plan	\$ -
04SP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 2	150	53802 CATOOSA4 138 54438 CATSAGR5 161 1	0	None - GRDA Mitigation Plan	\$ -
04SP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	105	54017 HENRYET4 138 54057 KELCO 4 138 1	0	Replace Okmulgee Wavetrap	\$ 40,000
04SP	OKGE-WFEC	54946 MIDWEST4 138 55917 FRNKLNS4 138 1	186	55869 CROMWEL4 138 56084 WETUMKA4 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	55300 FTSMITH5 161 55305 FTSMITH8 500 1	475	55300 FTSMITH5 161 55302 FTSMITH7 345 1	0	Convert Ft. Smith 161kv to 1-1/2 breaker design and install 2nd 500-161kV transformer bank.	\$ 7,000,000
04SP	OKGE-OKGE	54941 HSL 4 138 54973 RENO 4 138 1	287	54941 HSL 4 138 54966 MIDWAY 4 138 1	0	Replace switches & ct's at Horseshoe Lake in 2004 at OKGE expense.	\$ -
04SP	AEPW-AEPW	53142 HUNTING2 69 53202 MIDLREA2 69 1	36	55262 AES 5 161 55264 TARBY 5 161 1	0	Solution Undetermined	N/A
04SP	WERE-WERE	57604 WEAVER 2 69 57837 RH JCT 2 69 1	43	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
04FA	SWPA-WFEC	52802 S BROWN4 138 56044 RUSSETT4 138 1	95	52802 S BROWN4 138 55157 BROWN 4 138 1	160	Solution Undetermined	N/A
04FA	AEPW-AEPW	53783 LLAN ET4 138 53802 CATOOSA4 138 1	234	53758 BA81---4 138 53781 BA101-N4 138 1	0	Incorrect rating in the non-summer cases. Rate A/B = 237/265MVA	\$ -
04FA	WERE-WERE	57368 EXIDE J3 115 57372 PHILIPS3 115 1	196	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	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	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	\$ -
04FA	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 1	66	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	\$ -
04FA	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 2	90	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	53769 WEKIWA-4 138 53835 WED-TAP4 138 1	0	Replace Sand Springs switch 1306, 1307, & 1308	\$ 75,000
04FA	AEPW-AEPW	53827 S.S.---4 138 53835 WED-TAP4 138 1	143	53769 WEKIWA-4 138 53824 SHEFFD-4 138 1	94	Replace Sand Springs switches 1314, 1315, & 1316	\$ 75,000
04WP	SWPA-WFEC	52802 S BROWN4 138 56044 RUSSETT4 138 1	96	52802 S BROWN4 138 55157 BROWN 4 138 1	170	Solution Undetermined	N/A
04WP	AEPW-AEPW	53783 LLAN ET4 138 53802 CATOOSA4 138 1	234	53819 ONETA--7 345 53955 N.E.S.-7 345 1	0	Incorrect rating in the non-summer cases. Rate A/B = 237/265MVA	\$ -
04WP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 1	150	53802 CATOOSA4 138 54438 CATSAGR5 161 2	0	None - GRDA Mitigation Plan	\$ -
04WP	AEPW-GRRD	53802 CATOOSA4 138 54438 CATSAGR5 161 2	150	53802 CATOOSA4 138 54438 CATSAGR5 161 1	0	None - GRDA Mitigation Plan	\$ -
04WP	SWPA-SWPA	52774 EUFAULA4 138 *B051 EUFAULA1 1 1	105	52752 GORE 5 161 52790 WEELETK5 161 1	0	See Previous	\$ -
04WP	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	156	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	\$ -
04WP	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 1	66	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	\$ -
04WP	WERE-WERE	57374 SPHILPJ3 115 57438 WMCIPHER3 115 2	90	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	0	See Previous	\$ -
04WP	SWPA-WFEC	52800 TUPELO 4 138 56071 TUPLOTP4 138 1	96	54033 PITTSB-7 345 54037 VALIANT7 345 1	180	Solution Undetermined	N/A
Total Estimated Cost							\$ 23,319,220