



SPP *Southwest Power Pool*

*System Impact Study
SPP-2003-029-1
For Transmission Service
Requested By
Cargill - Alliant*

From GRDA To ERCOTN

*For a Reserved Amount Of 100 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 long-term Firm Point-to-Point transmission service from GRDA to ERCOTN. The period of the transaction is from 1/1/2004 to 1/1/2005. The request is for OASIS reservation 476248 for a total amount of 100 MW.

The principal objective of this study is to identify constraints on the SPP Regional Tariff System and potential facility upgrades that may be necessary to facilitate the additional 100 MW of service requested.

The GRDA to ERCOTN transfer 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 that have not gone to facility study were not included in the models. The results of the transfer analysis are documented in Table 1 of the report. 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 facility upgrades that may be required in order to accommodate the 100 MW GRDA to ERCOTN request.

SPP used six seasonal models to study the GRDA to ERCOTN 100 MW transfer 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 100 MW transfer on the SPP system during the requested service period of 1/1/2004 to 1/1/2005. The Spring Peak models apply to April and May, the Summer Peak models apply to June through September, the Fall Peak models apply to October and November, and the Winter Peak models apply to December through March. 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.

With only the higher priority requests that have signed Facility Study Agreements included in the models, the study results of the GRDA to ERCOTN 100 MW show that a limiting constraint exists. Due to the limiting constraints identified, the Transmission Service Request cannot be granted. These results do not include an evaluation of potential constraints in the planning horizon beyond the reservation period that may limit the right to renew service. The upgrades and cost 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 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 GRDA 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	AEPW-AEPW	CATOOSA - LYNN LANE EAST TAP 138KV	234	NORTHEAST STATION - ONETA 345KV	0	Incorrect rating in the non-summer cases. Rate B = 265MVA	\$ -
03WP	AEPW-GRRD	CATOOSA 161/138KV TRANSFORMER CKT 1	150	CATOOSA 161/138KV TRANSFORMER CKT 2	0	None - GRDA Mitigation Plan	\$ -
03WP	AEPW-GRRD	CATOOSA 161/138KV TRANSFORMER CKT 2	150	CATOOSA 161/138KV TRANSFORMER CKT 1	0	None - GRDA Mitigation Plan	\$ -
03WP	WERE-WERE	N.A. PHILIPS JCT (SOUTH) - W MCPHERSON 115KV CKT 1	67	EAST MCPHERSON - SUMMIT 230KV	0	Tear down double circuit, build single circuit with 1192.5 ACSR.	\$ 7,800,000
04G	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	104	KELCO - OKMULGEE 138KV	73	Replace Okmulgee Wavetrap	\$ 40,000
04G	WERE-WERE	N.A. PHILIPS JCT (SOUTH) - W MCPHERSON 115KV CKT 1	67	EAST MCPHERSON - SUMMIT 230KV	22	See Previous	\$ -
04SP	SWPS-SWPS	CANYON EAST - OSAGE SWITCHING STATION 115KV	98	BUSHLAND INTRCHNG - DEAF SMITH INTRCHNG 230KV	0	Rebuild 13 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 1,910,000
04SP	AEPW-GRRD	CATOOSA 161/138KV TRANSFORMER CKT 1	150	CATOOSA 161/138KV TRANSFORMER CKT 2	0	None - GRDA Mitigation Plan	\$ -
04SP	AEPW-GRRD	CATOOSA 161/138KV TRANSFORMER CKT 2	150	CATOOSA 161/138KV TRANSFORMER CKT 1	0	None - GRDA Mitigation Plan	\$ -
04SP	GRRD-GRRD	COLLINSVILLE 161/69KV TRANSFORMER CKT 1	50	COLLINSVILLE 161/69KV TRANSFORMER CKT 2	0	Solution Undetermined	N/A
04SP	AEPW-AEPW	EAST CENTERTON - GENTRY REC 161KV	353	FLINT CREEK - TONTITOWN 161KV	0	Rebuild 19.16 miles of 2-397.5 ACSR with 2156 ACSR. Replace East Centerton Wavetrap & jumpers	\$ 8,000,000
04SP	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	105	HENRYET4 - KELCO 138KV	0	See Previous	\$ -
04SP	AEPW-AEPW	EAST CENTRAL HENRYETTA - WELEETKA 138KV	104	HENRYET4 - KELCO 138KV	0	Replace Weleetka Wavetrap	\$ 40,000
04SP	AEPW-AEPW	FLINT CREEK - GENTRY REC 161KV	354	FLINT CREEK - TONTITOWN 161KV	0	Rebuild 1.09 miles of 2-397.5 ACSR with 2156 ACSR. Replace Flint Creek wavetrap & jumpers	\$ 450,000
04SP	AEPW-AEPW	FLINT CREEK - TONTITOWN 161KV	311	CHAMBER SPRINGS - CLARKSVILLE 345KV	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	OKGE-OKGE	HORSESHOE LAKE - RENO 138KV	287	HORSESHOE LAKE - MIDWAY 138KV	0	Replace switches & ct's at Horseshoe Lake in 2004 at OKGE expense.	\$ -
04SP	SWPS-SWPS	PALODU - RANDALL COUNTY INTRCHNG 115KV	99	AMARILLO S INTRCHNG - SWISHER CO INTRCHNG 230KV	49	Rebuild 9 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 1,170,000
04FA	AEPW-AEPW	21ST STREET TAP - TULSA SOUTHEAST 138KV	171	NORTHEAST STATION - ONETA 345KV	72	In house upgrade scheduled for May 2004. New Summer Rate B = 235MVA. New Other Rate B = 263MVA.	\$ -
04FA	AEPW-AEPW	CATOOSA - LYNN LANE EAST TAP 138KV	234	BROKEN ARROW 101ST NORTH - ONETA 138KV	0	Incorrect rating in the non-summer cases. Rate A/B = 237/265MVA	\$ -
04FA	WERE-WERE	EXIDE JCT - N.A. PHILIPS 115KV	196	EAST MCPHERSON - SUMMIT 230KV	32	Rebuild and reconductor 0.34 miles with 1192 ACSR.	\$ 95,200
04FA	WERE-WERE	EXIDE JCT - SUMMIT 115KV	196	EAST MCPHERSON - SUMMIT 230KV	0	Rebuild and reconductor 4.94 miles with 1192 ACSR.	\$ 1,100,000
04FA	WERE-WERE	N.A. PHILIPS - N.A. PHILIPS JCT (SOUTH) 115KV	155	EAST MCPHERSON - SUMMIT 230KV	0	Rebuild 0.88 miles and reconductor with 1192.5 ACSR.	\$ 417,200
04FA	WERE-WERE	N.A. PHILIPS JCT (SOUTH) - W MCPHERSON 115KV CKT 1	66	EAST MCPHERSON - SUMMIT 230KV	0	See Previous	\$ -
04FA	WERE-WERE	N.A. PHILIPS JCT (SOUTH) - W MCPHERSON 115KV CKT 2	90	EAST MCPHERSON - SUMMIT 230KV CKT 1	0	See Previous	\$ -
04FA	AEPW-AEPW	SAND SPRINGS - SHEFFIELD 138KV	139	WEKIWA - WEST EDISON TAP 138KV	13	Replace Sand Springs switch 1306, 1307, & 1308	\$ 75,000
04FA	AEPW-AEPW	SAND SPRINGS - WEST EDISON TAP 138KV	143	SHEFFIELD - WEKIWA 138KV	43	Replace Sand Springs switches 1314, 1315, & 1316	\$ 75,000
04WP	AEPW-AEPW	CATOOSA - LYNN LANE EAST TAP 138KV	234	TULSA NORTH - WEKIWA 345KV	3	Incorrect rating in the non-summer cases. Rate A/B = 237/265MVA	\$ -
04WP	AEPW-GRRD	CATOOSA 161/138KV TRANSFORMER CKT 1	150	CATOOSA 161/138KV TRANSFORMER CKT 2	0	None - GRDA Mitigation Plan	\$ -
04WP	AEPW-GRRD	CATOOSA 161/138KV TRANSFORMER CKT 2	150	CATOOSA 161/138KV TRANSFORMER CKT 1	0	None - GRDA Mitigation Plan	\$ -
04WP	GRRD-GRRD	COLLINSVILLE 161/69KV TRANSFORMER CKT 1	50	COLLINSVILLE 161/69KV TRANSFORMER CKT 2	34	Solution Undetermined	N/A
04WP	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	105	KELCO - OKMULGEE 138KV	44	See Previous	\$ -
04WP	AEPW-AEPW	FLINT CREEK - TONTITOWN 161KV	334	EAST CENTERTON - GENTRY REC 161KV	0	See Previous	\$ -
04WP	WERE-WERE	N.A. PHILIPS - N.A. PHILIPS JCT (SOUTH) 115KV	156	EAST MCPHERSON - SUMMIT 230KV	0	See Previous	\$ -
04WP	WERE-WERE	N.A. PHILIPS JCT (SOUTH) - W MCPHERSON 115KV CKT 1	66	EAST MCPHERSON - SUMMIT 230KV	0	See Previous	\$ -
04WP	WERE-WERE	N.A. PHILIPS JCT (SOUTH) - W MCPHERSON 115KV CKT 2	90	EAST MCPHERSON - SUMMIT 230KV CKT 1	0	See Previous	\$ -
Total							\$ 29,372,400