



SPP *Southwest Power Pool*

*System Impact Study
SPP-2003-045-1
For Transmission Service
Requested By
Cargill - Alliant*

From SECI 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 long-term Firm Point-to-Point transmission service from SECI to ERCOTN. The period of the transaction is from 1/1/2004 to 1/1/2005. The request is for OASIS reservations 482555 and 482558 for a total amount of 200 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 200 MW of service requested.

The SECI 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 200 MW SECI to ERCOTN request.

SPP used six seasonal models to study the SECI to ERCOTN 200 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 200 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 SECI to ERCOTN 200 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 SECI 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	WERE-WERE	AUBURN ROAD - SOUTH GAGE (WEST) 115KV CKT 1	75	HOYT - JEFFERY ENERGY CENTER 345KV	0	WERE Operating Directive 400, Outage of Hoyt - Jeffery Energy Center 345KV	\$ -
03WP	WERE-WERE	AUBURN ROAD - SOUTH GAGE (WEST) 115KV CKT 2	97	HOYT - JEFFERY ENERGY CENTER 345KV	0	WERE Operating Directive 400, Outage of Hoyt - Jeffery Energy Center 345KV	\$ -
03WP	AEPW-AEPW	CATOOSA - LYNN LANE EAST TAP 138KV	234	NORTHEAST STATION - ONETA 345KV	0	Incorrect rating in the non-summer cases. Rate A/B = 237/265MVA	\$ -
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	\$ -
04AP	SWPS-SWPS	CANYON EAST - OSAGE SWITCHING STATION 115KV	98	BUSHLAND INTRCHNG - DEAF SMITH INTRCHNG 230KV	16	Rebuild 13 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 1,910,000
04AP	SWPS-SWPS	HAPPY INTRCHNG - PALODU 115KV	98	AMARILLO S INTRCHNG - SWISHER CO INTRCHNG 230KV	113	Rebuild 24 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 3,130,000
04AP	SWPS-SWPS	PALODU - RANDALL COUNTY INTRCHNG 115KV	98	AMARILLO S INTRCHNG - SWISHER CO INTRCHNG 230KV	57	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	100	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 - BROKEN ARROW 81ST 138KV	0	Incorrect rating in the non-summer cases. Rate A/B = 237/265MVA	\$ -
04FA	OKGE-OKGE	PANTHER - SILVER LAKE 138KV	286	LONEOAK - NORTHWEST 138KV	0	Upgrade completed by OKGE. Rate A/B = 478/478MVA	\$ -
04FA	AEPW-AEPW	SAND SPRINGS - SHEFFIELD 138KV	139	WEKIWA - WEST EDISON TAP 138KV	0	Replace Sand Springs switch 1306, 1307, & 1308	\$ 75,000
04FA	AEPW-AEPW	SAND SPRINGS - WEST EDISON TAP 138KV	143	SHEFFIELD - WEKIWA 138KV	0	Replace Sand Springs switches 1314, 1315, & 1316	\$ 75,000
04G	WERE-WERE	AUBURN ROAD - SOUTH GAGE (WEST) 115KV CKT 1	75	HOYT - JEFFERY ENERGY CENTER 345KV	0	WERE Operating Directive 400, Outage of Hoyt - Jeffery Energy Center 345KV	\$ -
04G	SWPS-SWPS	CANYON EAST - OSAGE SWITCHING STATION 115KV	98	BUSHLAND INTRCHNG - DEAF SMITH INTRCHNG 230KV	39	See Previous	\$ -
04G	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	104	KELCO - OKMULGEE 138KV	27	Replace Okmulgee Wavetrap	\$ 40,000
04G	WERE-WERE	GATZ - GOLDEN PLAINS JUNCTION 69KV	32	HALSTEAD - MUD CREEK JUNCTION 69KV	152	None - Local area problem within Newton division	\$ -
04G	WERE-WERE	GOLDEN PLAINS JUNCTION - HESSTON 69KV	32	HALSTEAD - MUD CREEK JUNCTION 69KV	63	None - Local area problem within Newton division	\$ -
04G	SWPS-SWPS	HAPPY INTRCHNG - PALODU 115KV	98	AMARILLO S INTRCHNG - SWISHER CO INTRCHNG 230KV	172	See Previous	\$ -
04G	SWPS-SWPS	PALODU - RANDALL COUNTY INTRCHNG 115KV	99	AMARILLO S INTRCHNG - SWISHER CO INTRCHNG 230KV	111	See Previous	\$ -
04SP	SWPS-SWPS	CANYON EAST - CANYON WEST 115KV	99	BUSHLAND INTRCHNG - DEAF SMITH INTRCHNG 230KV	0	Rebuild 4 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 590,000
04SP	SWPS-SWPS	CANYON EAST - OSAGE SWITCHING STATION 115KV	98	BUSHLAND INTRCHNG - DEAF SMITH INTRCHNG 230KV	0	See Previous	\$ -
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	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	105	HENRYET4 - KELCO 138KV	0	See Previous	\$ -
04SP	AEPW-AEPW	EAST CENTRAL HENRYETTA - WEELETKA 138KV	104	HENRYET4 - KELCO 138KV	0	Replace Weleetka Wavetrap	\$ 40,000
04SP	AEPW-AEPW	FLINT CREEK - TONTITOWN 161KV	311	CHAMBER SPRINGS - FLINT CREEK 161KV	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-WFEC	FRANKLIN SW - MIDWEST TAP 138KV	211	PHAROAH - WETUMKA 138KV	100	Replace 800 amp wavetrap with 2000 amp wavetrap at Franklin Switch and 795ACSR jumpers with 1590ACSR, connectors	\$ 24,000

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

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
04SP	OKGE-OKGE	FT SMITH 500/161KV TRANSFORMER	475	FT SMITH 345/161KV TRANSFORMER	73	Convert Ft. Smith 161kv to 1-1/2 breaker design and install 2nd 500-161kv transformer bank.	\$ 7,000,000
04SP	SWPS-SWPS	HAPPY INTRCHNG - PALODU 115KV	98	AMARILLO S INTRCHNG - SWISHER CO INTRCHNG 230KV	1	See Previous	\$ -
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	0	See Previous	\$ -
04SP	WERE-WERE	ROSE HILL JUNCTION - WEAVER 69KV	43	EL PASO - FARBER 138KV	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	AEPW-AEPW	TERRA NITROGEN TAP - VERDIGRIS 138KV	149	NORTHEAST STATION - OWASSO SOUTH 138KV	0	Solution Undetermined	N/A
04WP	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	\$ -
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	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	105	KELCO - OKMULGEE 138KV	0	See Previous	\$ -
04WP	OKGE-OKGE	PANTHER - SILVER LAKE 138KV	287	LONEOAK - NORTHWEST 138KV	0	Upgrade completed by OKGE. Rate A/B = 478/478MVA	\$ -
Total							\$ 23,654,000