



SPP *Southwest Power Pool*

*System Impact Study
SPP-2003-047-1
For Transmission Service
Requested By
Cargill - Alliant*

From WPEK To ERCOTN

*For a Reserved Amount Of 100 MW
From 1/1/2004 To 1/1/2007*

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 WPEK to ERCOTN. The period of the transaction is from 1/1/2004 to 1/1/2005. The request is for OASIS reservation 482568 for an 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 WPEK 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 WPEK to ERCOTN request.

SPP used eight seasonal models to study the WPEK 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), 2004/05 Winter Peak (04WP), 2009 Summer Peak (09SP), and 2009/10 Winter Peak (09WP) were used to study the impact of the 100 MW transfer on the SPP system during a the requested service period of 1/1/2004 to 1/1/2007. 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 WPEK to ERCOTN 100 MW show that a limiting constraint exists. Due to the limiting constraint 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 WPEK 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 CKT 1	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	\$ -
04G	WERE-WERE	AUBURN ROAD - SOUTH GAGE (WEST) 115KV	75	HOYT - JEFFERY ENERGY CENTER 345KV	0	WERE Operating Directive 400, Outage of Hoyt - Jeffery Energy Center 345KV	\$ -
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	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	105	HENRYET4 - KELCO 138KV	0	Replace Okmulgee Wavetrap	\$ 40,000
04SP	AEPW-AEPW	EAST CENTRAL HENRYETTA - WELEETKA 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	May have multiple upgrades required.	\$ -
04SP	SWPS-SWPS	PALODU - RANDALL COUNTY INTERCHANGE 115KV	99	AMARILLO S INTRCHNG - SWISHER COUNTY INTRCHNG 230KV	30	Rebuild 9 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 1,170,000
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	AEPW-AEPW	SAND SPRINGS - SHEFFIELD 138KV	139	WEKIWA - WEST EDISON TAP 138KV	30	Replace Sand Springs switch 1306, 1307, & 1308	\$ 75,000
04WP	AEPW-AEPW	CATOOSA - LYNN LANE EAST TAP 138KV	234	TULSA NORTH - WEKIWA 345KV	9	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	89	See Previous	\$ -
09SP	SWPS-SWPS	CANYON EAST - OSAGE SWITCHING STATION 115KV	99	BUSHLAND INTRCHNG - DEAF SMITH INTRCHNG 230KV	0	See Previous	\$ -
09SP	KACP-KACP	COLLEGE - CRAIG 161KV	330	BROOKRIDGE - OVERLAND PARK 161KV	0	Reconductor 4 miles with 1192.5 ACSS, 558 normal/emergency rating and upgrade breaker.	\$ 700,000
09SP	AEPW-AEPW	EAST CENTRAL HENRYETTA - OKMULGEE 138KV	104	KELCO - OKMULGEE 138KV	0	See Previous	\$ -
09SP	OKGE-WFEC	FRANKLIN SW - MIDWEST TAP 138KV	210	CROMWELL - WETUMKA 138KV	0	Replace 800 amp wavetrap with 2000 amp wavetrap at Franklin Switch and 795ACSR jumpers with 1590ACSR, connectors	\$ 24,000
09SP	OKGE-OKGE	FT SMITH 500/161KV TRANSFORMER	474	FT SMITH 345/161KV TRANSFORMER	0	Convert Ft. Smith 161kv to 1-1/2 breaker design and install 2nd 500-161kv transformer bank.	\$ 10,000,000
09SP	WERE-WERE	GILL ENERGY CENTER WEST - PECK 69KV	35	EL PASO - FARBER 138KV	0	Repole 10.1 miles and keep existing conductor.	\$ 3,100,000
09SP	SWPS-SWPS	HAPPY INTERCHANGE - PALODU 115KV	98	AMARILLO S INTRCHNG - SWISHER COUNTY INTRCHNG 230KV	91	Rebuild 24 miles of 115 kV circuit with 397 ACSR on T-0-102 structures.	\$ 3,130,000
09SP	OKGE-OKGE	MORRISON - STILLWATER 138KV	191	NORTHWEST - SPRING CREEK 345KV	0	Incorrect ratings in model.	\$ -
09SP	SWPS-SWPS	PALODU - RANDALL COUNTY INTERCHANGE 115KV	98	AMARILLO S INTRCHNG - SWISHER COUNTY INTRCHNG 230KV	8	See Previous	\$ -
09SP	MIDW-WEPL	SEWARD 115/69KV TRANSFORMER	44	HEIZER 230/115KV TRANSFORMER	0	Solution Undetermined	N/A
Total							\$ 20,189,000