



SPP *Southwest Power Pool*

***System Impact Study SPP-2001-351
For Transmission Service
Requested By
Entergy-Koch Trading, LP***

From CSWS To KACY

***For a Reserved Amount Of 100MW
From 6/1/03
To 6/1/05***

SPP Coordinated Planning

System Impact Study

Entergy-Koch Trading, LP (ENKO) has requested a system impact study for long-term Firm Point-to-Point transmission service from CSWS to KACY. The period of the transaction is from 6/1/03 to 6/1/05. The request is for OASIS reservation 310349 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 CSWS to KACY 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. These results 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 give the customer an estimated cost of facility upgrades that may be required in order to accommodate the 100 MW CSWS to KACY transfer.

SPP used four seasonal models to study the CSWS to KACY 100 MW transfer for the requested service period. The SPP 2002 Series Cases 2003 Summer Peak, 2003 Fall Peak, 2003/04 Winter Peak, and 2004 Spring Peak were used to study the impact of the 100 MW transfer on the SPP system during the requested service period of 6/1/2003 to 6/1/2005. 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 2002 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 CSWS to KACY 100 MW show that limiting constraints exist. Due to the number of 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 upgrades identified for the CSWS to KACY transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
03SP	WERE-WERE	166Th Street - Jarbalo Junction Switching Station 115kV	97	Midland Junction - Pentagon 115kV	0	May be relieved due to Westar Transmission Operating Directive 1202	Not Available
03SP	WFEC-WFEC	Acme - Franklin Sw 69kV	34	Canadian Sw - Goldsby 69kV	0	See Previous	See Previous
03SP	WFEC-WFEC	Acme - West Norman 69kV	38	Canadian Sw - Goldsby 69kV	0	Solution Undetermined	Not Available
03SP	GRRD-GRRD	Afton 161/69kV Transformer	50	Miami - Afton 161kV	0	Replace 50 MVA Transformer with 84 MVA unit	\$ 833,000
03SP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffrey Energy Center 345kV	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
03SP	WERE-WERE	Auburn Road - South Gage (West) 115kV ckt 1	75	Hoyt - Jeffrey Energy Center 345kV	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
03SP	WERE-WERE	Auburn Road - South Gage (West) 115kV ckt 2	97	Hoyt - Jeffrey Energy Center 345kV Ckt 1	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
03SP	AEPW-AEPW	Big Sandy - Perdue 69kV	85	Perdue - Lake Hawkins 138kV	0	Solution Undetermined	Not Available
03SP	AEPW-AEPW	Carson-Center 138/13.8kV Transformer	33	Carson South - Tulsa Power Station 138kV	0	Solution Undetermined	Not Available
03SP	WFEC-WFEC	Carter Jct - Lake Creek 69kV	26	Elk City 138/69kV Transformer	0	Solution Undetermined	Not Available
03SP	SWPA-EES	Carthage - Reed Springs 69kV	36	Carthage - Jasper 69kV	0	Third Party Facility	\$ -
03SP	AEPW-AEPW	Catoosa 138/69kV Transformer	55	Lynn Lane West Tap - Lynn Lane Tap 138kV	0	Solution Undetermined	Not Available
03SP	AEPW-AEPW	Cherokee Rec - Knox Lee 138kV	209	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	Reconductor 3.25 miles of 666 ACSR with 1272 ACSR	\$ 981,000
03SP	AEPW-AEPW	Cherokee Rec - Tatum 138kV	209	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	Reconductor 6.25 miles of 666 ACSR with 1272 ACSR	\$ 1,641,000
03SP	GRRD-GRRD	Claremore 161/69kV Transformer ckt 1	84	Claremore 161/69kV Transformer Ckt 2	0	Solution Undetermined	Not Available
03SP	GRRD-GRRD	Claremore 161/69kV Transformer ckt 2	84	Claremore 161/69kV Transformer Ckt 1	0	Solution Undetermined	Not Available
03SP	WERE-WERE	County Line - Hook Jct 115kV	92	Tecumseh Energy Center - Tecumseh Hill 115kV	0	Solution Undetermined	Not Available
03SP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	Solution Undetermined	Not Available
03SP	AEPW-AEPW	Denver-West 138/13.8kV Transformer	33	Carson South - Kenosha West 138kV	0	Solution Undetermined	Not Available
03SP	SWPA-AECI	Doniphan 161/69kV Transformer ckt 1	18.8	Doniphan 161/69kV Transformer Ckt 2	0	Solution Undetermined	Not Available
03SP	OKGE-OKGE	Draper Lake 138/345kV Transformer ckt 1	493	Draper Lake 138/345kV Transformer Ckt 2	0	May be relieved due to OKGE Operating Guide	Not Available
03SP	OKGE-OKGE	Draper Lake 138/345kV Transformer ckt 2	493	Draper Lake 138/345kV Transformer Ckt 1	0	May be relieved due to OKGE Operating Guide	Not Available
03SP	AEPW-AEPW	Dyess - Chamber Springs 161kV	244	Chamber Springs - Farmington Aecc 161kV	0	AEPW Planned Tontitown Project	\$ -
03SP	AEPW-AEPW	Dyess - East Rogers 161kV	244	Flint Creek - Gentry Rec 161kV	0	AEPW Planned Tontitown Project	\$ -
03SP	AEPW-AEPW	East Centerton - Gentry Rec 161kV	353	Dyess - East Rogers 161kV	0	Rebuild 19.16 miles of 2-397.5 ACSR with 2156 ACSR	\$ 8,000,000
03SP	AEPW-AEPW	Flint Creek - Gentry Rec 161kV	353	Dyess - East Rogers 161kV	0	Rebuild 1.09 miles of 2-397.5 ACSR with 2156 ACSR.	\$ 400,000
03SP	WERE-WERE	Gill Energy Center East - MacArthur 69kV	68	Gill Energy Center East - Oatville 69kV	0	Replace substation bus and jumpers at MacArthur 69 kV	\$ 22,000
03SP	WERE-WERE	Gill Energy Center East - Oatville 69kV	72	Gill Energy Center East - MacArthur 69kV	0	Replace disconnect switches at Gill 69 kV (use 800 A.), Replace line switch at Oatville 69 kV (use 800 A.)	\$ 45,000
03SP	WFEC-WFEC	Goldsby - Oklahoma University Sw 69kV	34	Franklin Sw 69/138kV Transformer	0	Solution Undetermined	Not Available
03SP	AEPW-AEPW	Greggton - Lake Lamond 69kV	107	Diana - Perdue 138kV	0	Solution Undetermined	Not Available
03SP	KACP-KACP	Hawthorn - Randolph 161kV	335	Levee - Neast 5 161kV	41.7	Solution Undetermined	Not Available
03SP	SWPA-EES	Hergett - Jonesboro 161kV	148	5HRBRG* - 5MTREE 161kV	0	Solution Undetermined	Not Available

Table 1 - continued – SPP facility upgrades identified for the CSWS to KACY transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
03SP	AEPW-AEPW	Longwood - Noram 138kV	234	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	86.3	Reconductor 4.66 miles of bundled 266 ACSR with 1590 ACSR and replace jumpers & Bus Riser jumpers	\$ 1,577,000
03SP	AEPW-AEPW	Marshall 138/69kV Transformer ckt 1	107	Marshall 138/69kV Transformer Ckt 2	0	Replace 755 ACAR Strain Bus	\$ 25,000
03SP	AEPW-AEPW	Marshall 138/69kV Transformer ckt 2	107	Marshall 138/69kV Transformer Ckt 1	0	Replace 755 ACAR Strain Bus	\$ 25,000
03SP	WERE-WERE	Mockingbird Hill Switching Sta - Stull Switching Sta 115kV	92	Hoyt - Stranger Creek 345kV	0	May be relieved due to Westar Transmission Operating Directive 803	Not Available
03SP	SWPA-SWPA	Norfolk 161/69kV Transformer ckt 1	25	Norfolk 161/69kV Transformer Ckt 2	0	Replace Norfolk Transformer by SWPA In-Service Date 6/1/2005	Not Available
03SP	AEPW-AEPW	Rock Hill - Tatum 138kV	209	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	36.3	Reconductor 0.81 miles 666MCM to 1272 ACSR - Reconductor other 5.76 miles of 795 ACSR with 1272 ACSR. Reset CTs and relay settings @ Rock Hill	\$ 342,970
03SP	MIDW-WEPL	Seward 69/115kV Transformer	44	Heizer 115/230kV Transformer	0	Solution Undetermined	Not Available
03SP	KACP-KACP	Stilwell - Lacygne 345kV	1251	West Gardner - Lacygne 345kV	0	Upgrade to be completed 7/1/2003	\$ -
03SP	WERE-WERE	Tecumseh Energy Center - Hook Jct 115kV	160	Tecumseh Energy Center - Tecumseh Hill 115kV	0	Solution Undetermined	Not Available
03SP	WERE-WERE	Tecumseh Hill - Stull Switching Station 115kV	92	Hoyt - Stranger Creek 345kV	0	May be relieved due to Westar Transmission Operating Directive 803	Not Available
03SP	OKGE-OKGE	Tinker #4 - Tinker #2 138kV	100	Horseshoe Lake - Midway 138kV	0	Invalid Overload	\$ -
03FA	WFEC-WFEC	Acme - Franklin Sw 69kV	34	Canadian Sw - Goldsby 69kV	0	Solution Undetermined	Not Available
03FA	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffrey Energy Center 345kV	0	See Previous	See Previous
03FA	WERE-WERE	Auburn Road - South Gage (West) 115kV ckt 1	75	Hoyt - Jeffrey Energy Center 345kV	0	See Previous	See Previous
03FA	WERE-WERE	Auburn Road - South Gage (West) 115kV ckt 2	97	Hoyt - Jeffrey Energy Center 345kV Ckt 1	0	See Previous	See Previous
03FA	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	See Previous	See Previous
03FA	SWPA-AECI	Doniphan 161/69kV Transformer ckt 1	18.8	Doniphan 161/69kV Transformer Ckt 2	0	See Previous	See Previous
03FA	WERE-WERE	El Paso - Gill Energy Center South 138kV	210	Evans Energy Ctr Nth - Evans Energy Ctr Sth 138kV	0	Solution Undetermined	Not Available
03FA	WFEC-WFEC	Goldsby - Oklahoma University Sw 69kV	34	Franklin Sw 69/138kV Transformer	0	See Previous	See Previous
03FA	WERE-WERE	Tecumseh Hill - Stull Switching Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
03WP	WFEC-WFEC	Acme - Franklin Sw 69kV	34	Canadian Sw - Goldsby 69kV	0	See Previous	See Previous
03WP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffrey Energy Center 345kV	0	See Previous	See Previous
03WP	WERE-WERE	Auburn Road - South Gage (West) 115kV ckt 1	75	Hoyt - Jeffrey Energy Center 345kV	0	See Previous	See Previous
03WP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	See Previous	See Previous
03WP	AEPW-AEPW	Diana - Perdue 138kV	237	Harrison Road - Liberty City Tap 138kV	46.3	Replace Breaker 10070 @ Perdue	\$ 150,000
03WP	SWPA-AECI	Doniphan 161/69kV Transformer ckt 1	18.8	Doniphan 161/69kV Transformer Ckt 2	0	See Previous	See Previous
03WP	WERE-WERE	El Paso - Gill Energy Center South 138kV	210	Evans Energy Ctr Nth - Evans Energy Ctr Sth 138kV	0	See Previous	See Previous
03WP	WFEC-WFEC	Goldsby - Oklahoma University Sw 69kV	34	Franklin Sw 69/138kV Transformer	0	See Previous	See Previous
03WP	WFEC-WFEC	Lexington - Paoli 69kV	34	Canadian Sw 69/138kV Transformer	0	Solution Undetermined	Not Available
03WP	WERE-WERE	Mockingbird Hill Switching Sta - Stull Switching Sta 115kV	92	Hoyt - Stranger Creek 345kV	17.3	See Previous	See Previous
03WP	WFEC-WFEC	Paoli 69/138kV Transformer	42	Canadian Sw - Noble 69kV	0	Solution Undetermined	Not Available

Table 1 - continued – SPP facility upgrades identified for the CSWS to KACY 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	Tecumseh Hill - Stull Switching Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
04G	WERE-WERE	166Th Street - Jarbalo Junction Switching Station 115kV	97	Midland Junction - Pentagon 115kV	99.8	See Previous	See Previous
04G	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	See Previous
04G	WERE-WERE	Auburn Road - South Gage (West) 115kV ckt 1	75	Hoyt - Jeffery Energy Center 345kV	0	See Previous	See Previous
04G	WERE-WERE	Auburn Road - South Gage (West) 115kV ckt 2	97	Hoyt - Jeffery Energy Center 345kV Ckt 1	0	See Previous	See Previous
04G	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	See Previous	See Previous
04G	WERE-WERE	Mockingbird Hill Switching Sta - Stull Switching Sta 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
04G	KACY-KACY	Owens Corning 2 - Quindaro 2 69kV ckt 2	82	Owens Corning 2 - Quindaro 2 69kV Ckt 1	82.6	Solution Undetermined	Not Available
04G	WERE-WERE	Tecumseh Hill - Stull Switching Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
							\$ 14,041,970