



SPP *Southwest Power Pool*

***System Impact Study SPP-2001-011
For Transmission Service
Requested By
Coral Power***

From OKGE To AMRN

***For a Reserved Amount Of 300MW
From 5/1/03
To 6/1/06***

SPP Coordinated Planning

System Impact Study

Coral Power has requested a system impact study for long-term Firm Point-to-Point transmission service from OKGE to AMRN. The period of the transaction is from 5/1/03 to 6/1/06. The request is for OASIS reservation 228520 for an amount of 300 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 300 MW of service requested.

SPP used seven seasonal models to study the OKGE to AMRN 300 MW transfer for the requested service period for each scenario. The SPP 2002 Series Cases 2003 Spring Peak, 2003 Summer Peak, 2003 Fall Peak, 2003/04 Winter Peak, 2004 Spring Peak, 2005 Summer Peak, and 2005/06 Winter Peak were used to study the impact of the 300 MW transfer on the SPP system during the requested service period of 5/1/2003 to 6/1/2006. 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 the OKGE to AMRN 300 MW transfer as the highest priority request in the queue, the study results show that limiting constraints exist. These limitations are documented in Table 1. 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 unknown facility upgrades that will be identified during the facility study process and the final results of the full AC analysis. In addition to the transmission limitations identified, the SPP to AMRN interface is firm contract path limited to 1,287 MW. The tie lines that make up the 1,287 MW interface are listed in Table 2. Currently, SPP has 1,268 MW of reserved long-term firm transmission service with a POD of AMRN. These reservations have confirmed service during the requested service period or have the right to renew service during the requested service period. The long-term requests reserving capacity during the OKGE to AMRN requested service period are documented in Table 3. 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 required for the OKGE to AMRN transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
03G	WFEC-WFEC	Acme - Franklin Sw 69kV	34	Canadian Sw - Goldsby 69kV	0	Solution Undetermined	Not Available
03G	WERE-WERE	Athens Sw Station - Coffey County No. 4 69kV	45	Wolf Creek - Lacygne 345kV	0	May be relieved due to Westar Transmission Operating Directive 1304	Not Available
03G	WERE-WERE	Auburn Road - Indian Hills 115kV	118	Hoyt - Jeffery Energy Center 345kV	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
03G	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
03G	WERE-WERE	Auburn Road - South Gage (West) 115kV	75	Hoyt - Jeffery Energy Center 345kV	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
03G	WERE-WERE	Auburn Road - South Gage (West) 115kV Ckt 2	97	Hoyt - Jeffery Energy Center 345kV	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
03G	WERE-WERE	Circleville - Hoyt Hti Sw Junction 115kV	97	Hoyt - Stranger Creek 345kV	0	Replace 82 structures	\$ 742,000
03G	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	May be relieved due to Westar Transmission Operating Directive 803	Not Available
03G	WERE-WERE	Coffey County No. 4 Vernon - Green 69kV	45	Wolf Creek - Lacygne 345kV	0	May be relieved due to Westar Transmission Operating Directive 1304	Not Available
03G	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	Solution Undetermined	Not Available
03G	WERE-WERE	East Street - West Emporia 115kV	92	Morris County - West Emporia 115kV	194	May be relieved due to Westar Transmission Operating Directive 1209	Not Available
03G	WFEC-WFEC	Goldsby - Oklahoma University Sw 69kV	34	Franklin Sw 69/138kV Transformer	0	Solution Undetermined	Not Available
03G	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	May be relieved due to Westar Transmission Operating Directive 803	Not Available
03G	WERE-WERE	Tecumseh Hill - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	May be relieved due to Westar Transmission Operating Directive 803	Not Available
03SP	WERE-WERE	166Th Street - Jarbalo Junction Sw 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	Anadarko - Blanchard 69kV	0	See Previous	\$ -
03SP	WFEC-WFEC	Acme - West Norman 69kV	38	Canadian Sw - Goldsby 69kV	0	Solution Undetermined	Not Available
03SP	AEPW-AEPW	Alumax Tap - Bann 138kV	261	NW Texarkana-Bann T - NW Texarkana 138kV	0	Replace six (6) 138 kV switchesRebuild 0.67 miles of 1024 ACAR with 2156 ACSR. Replace wavetrapp jumpers and breaker 3300 @ Bann.	\$ 630,000
03SP	AEPW-AEPW	Alumax Tap - Northwest Texarkana 138kV	261	Nw Texarkana-Bann T - NW Texarkana 138kV	0	Replace Switches Alumax Tap	\$ 30,000
03SP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
03SP	WERE-WERE	Auburn Road - South Gage (West) 115kV	75	Auburn Road - Indian Hills 115kV	0	See Previous	\$ -
03SP	WERE-WERE	Auburn Road - South Gage (West) 115kV Ckt 1	75	Auburn Road - Sth Gage (West) 115kV Ckt 2	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 - Jeffery Energy Center 345kV	0	See Previous	\$ -
03SP	AEPW-AEPW	Big Sandy - Perdue 69kV	85	Perdue - Lake Hawkins 138kV	0	Solution Undetermined	Not Available
03SP	SWPA-EES	Bull Shoals - Midway 161kV	162	Batesville - Morefield 161kV	0	Replace disconnect switches, metering CTs and wave trap at Bull Shoals	\$ 150,000

Table 1 - continued – SPP facility upgrades required for the OKGE to AMRN 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	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 - Jasper 69kV	47	Milo - Clark 69kV	294	Third Party Facility	\$ -
03SP	SWPA-EES	Carthage - Reed Springs 69kV	36	Beaver - Eureka Springs 161kV	0	Third Party Facility	\$ -
03SP	SWPA-SWPA	Carthage 161/69kV Transformer Ckt 1	84	Carthage 161/69kV Transformer Ckt 2	0	Third Party Facility	\$ -
03SP	SWPA-SWPA	Carthage 161/69kV Transformer Ckt 2	84	Carthage 161/69kV Transformer Ckt 1	66	Third Party Facility	\$ -
03SP	AEPW-AEPW	Catoosa 138/69kV Transformer	55	Lynn Lane West Tap - Dawson 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	WERE-WERE	Circleville - Hoyt Hti Sw Junction 115kV	97	Clifton - Greenleaf 115kV	0	See Previous	\$ -
03SP	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03SP	GRRD-GRRD	Claremore 161/69kV Transformer Ckt 1	84	Claremore 161/69kV Transformer Ckt 2	136	Solution Undetermined	Not Available
03SP	GRRD-GRRD	Claremore 161/69kV Transformer Ckt 2	84	Claremore 161/69kV Transformer Ckt 1	21	Solution Undetermined	Not Available
03SP	WERE-WERE	County Line - Hook Jct 115kV	92	Tecumseh Energy - Tecumseh Hill 115kV	0	Solution Undetermined	Not Available
03SP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Denver Tap - 46Th Street East 138kV	0	See Previous	\$ -
03SP	AEPW-AEPW	Denver-West 138/13.8kV Transformer	33	Carson South - Kenosha West 138kV	0	See Previous	\$ -
03SP	AEPW-AEPW	Diana - Perdue 138kV	237	Harrison Road - Liberty City Tap 138kV	0	Replace Breaker 10070 @ Perdue	\$ 150,000
03SP	SWPA-AECI	Doniphan 161/69kV Transformer Ckt 1	18.8	Doniphan 161/69kV Transformer Ckt 2	0	Solution Undetermined	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	Flint Creek - Elm Springs Rec 161kV	0	Rebuild 19.16 miles of 2-397.5 ACSR with 2156	\$ 8,000,000
03SP	AEPW-AEPW	Flint Creek - Elm Springs Rec 161kV	312	East Centerton - Gentry Rec 161kV	0	AEPW Planned Tontitown Project	\$ -
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	\$ 400,000
03SP	WERE-WERE	Gatz - Golden Plains Junction 69kV	32	Halstead - Mud Creek Junction 69kV	0	Local area problem within Newton division	\$ -
03SP	WERE-WERE	Gill Energy Center East - Macarthur 69kV	68	Gill Energy Center East - Oatville 69kV	0	Replace sub 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 (800 A.), Replace line switch at Oatville 69 kV (800 A.)	\$ 45,000
03SP	WERE-WERE	Golden Plains Junction - Hesston 69kV	32	Halstead - Mud Creek Junction 69kV	0	Local area problem within Newton division	\$ -
03SP	WFEC-WFEC	Goldsby - Oklahoma University Sw 69kV	34	Acme - Franklin Sw 69kV	0	See Previous	\$ -
03SP	AEPW-AEPW	Greggton - Lake Lamond 69kV	107	Diana - Perdue 138kV	0	Solution Undetermined	Not Available
03SP	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
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 Sw Station - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	May be relieved due to Westar Transmission Operating Directive 803	Not Available

Table 1 - continued – SPP facility upgrades required for the OKGE to AMRN transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
03SP	SWPA-SWPA	Norfolk 161/69kV Transformer Ckt 1	25	Norfolk 161/69kV Transformer Ckt 2	0	Replace Transformer by SWPA In-Service 6/1/2005	\$ -
03SP	AEPW-AEPW	Pittsburg - Ferndale Lake Tap 69kV	79	Adora Rec - Adora T 69kV	0	Reset CTs @ Pittsburg	\$ 10,000
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	Build new Linn County substation with 345/161kV 400 Mva transformer. Tap Wolf Creek to LaCygne 345kV line and Centerville to Paola 161kV line	\$ 6,945,000
03SP	WERE-WERE	Tecumseh Energy Center - Hook Jct 115kV	160	Tecumseh Energy - Tecumseh Hill 115kV	0	Solution Undetermined	Not Available
03SP	WERE-WERE	Tecumseh Hill - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03FA	WFEC-WFEC	Acme - Franklin Sw 69kV	34	Canadian Sw - Goldsby 69kV	0	See Previous	\$ -
03FA	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
03FA	WERE-WERE	Auburn Road - South Gage (West) 115kV	75	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
03FA	WERE-WERE	Auburn Road - South Gage (West) 115kV Ckt 2	97	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
03FA	SWPA-EES	Bull Shoals - Midway 161kV	162	Bull Shoals - Buford Tap 161kV	0	See Previous	\$ -
03FA	WERE-WERE	Circleville - Hoyt Hti Sw Junction 115kV	97	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03FA	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03FA	WERE-WERE	Coffey County No. 4 Vernon - Green 69kV	45	Wolf Creek - Lacygne 345kV	125	See Previous	\$ -
03FA	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	See Previous	\$ -
03FA	SWPA-AECI	Doniphan 161/69kV Transformer Ckt 1	18.8	Doniphan 161/69kV Transformer Ckt 2	0	See Previous	\$ -
03FA	WERE-WERE	El Paso - Gill Energy Center South 138kV	210	Evans Energy Nth - Evans Energy Sth 138kV	0	Solution Undetermined	Not Available
03FA	WFEC-WFEC	Goldsby - Oklahoma University Sw 69kV	34	Franklin Sw 69/138kV Transformer	0	See Previous	\$ -
03FA	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03FA	WERE-WERE	Tecumseh Hill - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03WP	WFEC-WFEC	Acme - Franklin Sw 69kV	34	Canadian Sw - Goldsby 69kV	0	See Previous	\$ -
03WP	WFEC-WFEC	Acme - West Norman 69kV	38	Canadian Sw 69/138kV Transformer	0	See Previous	\$ -
03WP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
03WP	WERE-WERE	Auburn Road - South Gage (West) 115kV	75	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
03WP	SWPA-EES	Carthage - Reed Springs 69kV	43	Carthage - Jasper 69kV	2	See Previous	\$ -
03WP	WERE-WERE	Circleville - Hoyt Hti Sw Junction 115kV	97	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03WP	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
03WP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	See Previous	\$ -
03WP	AEPW-AEPW	Diana - Perdue 138kV	237	Harrison Road - Liberty City Tap 138kV	0	See Previous	\$ -
03WP	SWPA-AECI	Doniphan 161/69kV Transformer Ckt 1	18.7	Doniphan 161/69kV Transformer Ckt 2	0	See Previous	\$ -
03WP	WERE-WERE	El Paso - Gill Energy Center South 138kV	210	Evans Energy Nth - Evans Energy Sth 138kV	0	See Previous	\$ -
03WP	WFEC-WFEC	Goldsby - Oklahoma University Sw 69kV	34	Acme - Franklin Sw 69kV	0	See Previous	\$ -
03WP	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -

Table 1 - continued – SPP facility upgrades required for the OKGE to AMRN 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	Lexington - Paoli 69kV	34	Canadian Sw 69/138kV Transformer	51	Solution Undetermined	Not Available
03WP	WFEC-WFEC	Little Axe - Noble 69kV	26	Paoli 69/138kV Transformer	0	Solution Undetermined	Not Available
03WP	WERE-WERE	Mockingbird Hill Sw Station - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	83	See Previous	\$ -
03WP	SWPA-SWPA	Norfolk 161/69kV Transformer Ckt 1	25	Norfolk 161/69kV Transformer Ckt 2	274	See Previous	\$ -
03WP	WERE-WERE	Tecumseh Hill - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
04G	WFEC-WFEC	Acme - Franklin Sw 69kV	34	Canadian Sw 69/138kV Transformer	0	See Previous	\$ -
04G	WERE-WERE	Athens Sw Station - Coffey County No. 4 69kV	45	Wolf Creek - Lacygne 345kV	0	See Previous	\$ -
04G	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
04G	WERE-WERE	Auburn Road - South Gage (West) 115kV	75	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
04G	WERE-WERE	Auburn Road - South Gage (West) 115kV Ckt 2	97	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
04G	SWPA-EES	Bull Shoals - Midway 161kV	162	Bull Shoals - Buford Tap 161kV	237	See Previous	\$ -
04G	WERE-WERE	Circleville - Hoyt Hti Sw Junction 115kV	97	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
04G	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
04G	WERE-WERE	Coffey County No. 4 Vernon - Green 69kV	45	Wolf Creek - Lacygne 345kV	0	See Previous	\$ -
04G	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Tulsa North - 46Th Street East 138kV	0	See Previous	\$ -
04G	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
04G	WERE-WERE	Mockingbird Hill Sw Station - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
04G	WERE-WERE	Tecumseh Hill - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05SP	WERE-WERE	166Th Street - Jarbalo Junction Sw Station 115kV	97	Midland Junction - Pentagon 115kV	0	See Previous	\$ -
05SP	GRRD-GRRD	Afton 161/69kV Transformer	50	Miami - Afton 161kV	225	Replace 50 MVA Transformer with 84 MVA unit	\$ 833,000
05SP	AEPW-AEPW	Alumax Tap - Northwest Texarkana 138kV	261	NW Texarkana-Bann T - NW Texarkana 138kV	0	See Previous	\$ -
05SP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Blue Circle - Catoosa 69kV	72	Lynn Lane West Tap - Lynn Lane Tap 138kV	0	Solution Undetermined	Not Available
05SP	AECI-AECI	Bristow 138/69kV Transformer Ckt 1	56	Bristow 138/69kV Transformer Ckt 2	0	Solution Undetermined	Not Available
05SP	AECI-AECI	Bristow 138/69kV Transformer Ckt 2	56	Bristow 138/69kV Transformer Ckt 1	0	Solution Undetermined	Not Available
05SP	AEPW-AEPW	Broken Arrow 101St North - Oneta 138kV	210	Riverside Sta Auto - Riverside Sta 138kV	0	Replace wavetrapp	\$ 30,000
05SP	SWPA-EES	Bull Shoals - Midway 161kV	162	Batesville - Morefield 161kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Carson-Center 138/13.8kV Transformer	33	Carson South - Tulsa Power Station 138kV	0	See Previous	\$ -
05SP	SWPA-EES	Carthage - Jasper 69kV	47	Milo - Clark 69kV	0	See Previous	\$ -
05SP	SWPA-EES	Carthage - Reed Springs 69kV	36	Beaver - Eureka Springs 161kV	0	See Previous	\$ -
05SP	SWPA-SWPA	Carthage 161/69kV Transformer Ckt 1	84	Carthage 161/69kV Transformer Ckt 2	0	See Previous	\$ -
05SP	SWPA-SWPA	Carthage 161/69kV Transformer Ckt 2	84	Carthage 161/69kV Transformer Ckt 1	0	See Previous	\$ -
05SP	AEPW-AEPW	Catoosa 138/69kV Transformer	55	Lynn Lane West Tap - Dawson Tap 138kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Chamber Springs - Farmington Aecc 161kV	335	Chamber Springs - Tontitown 161kV	0	Replace Farmington switch	\$ 60,000
05SP	AEPW-AEPW	Chamber Springs - Tontitown 161kV	244	Chamber Springs - Farmington Aecc 161kV	0	Rebuild 12 miles with 2156ACSR	\$ 7,200,000

Table 1 - continued – SPP facility upgrades required for the OKGE to AMRN transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
05SP	AEPW-AEPW	Cherokee Rec - Knox Lee 138kV	209	Blocker Tap - Marshall 69kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Cherokee Rec - Tatum 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	\$ 1,641,000
05SP	WERE-WERE	Circleville - Hoyt Hti Sw Junction 115kV	97	Clifton - Greenleaf 115kV	0	See Previous	\$ -
05SP	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05SP	GRRD-GRRD	Claremore 161/69kV Transformer Ckt 1	84	Claremore 161/69kV Transformer Ckt 2	0	See Previous	\$ -
05SP	GRRD-GRRD	Claremore 161/69kV Transformer Ckt 2	84	Claremore 161/69kV Transformer Ckt 1	0	See Previous	\$ -
05SP	SPRM-AECI	Clay - Logan 161kV	185	Multiple Outage Contingency Franks - Huben 345kV Huben - Morgan 345kV	0	Replace transmission line structures to allow operation at 100C	\$ 250,000
05SP	AEPW-WFEC	Cornville - Corn Tap 138kV	105	Southwest Station - Anadarko 138kV	0	Solution Undetermined	Not Available
05SP	WERE-WERE	County Line - Hook Jct 115kV	92	Tecumseh Energy - Tecumseh Hill 115kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Denver East - Denver Tap 138kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Denver-West 138/13.8kV Transformer	33	Carson South - Kenosha West 138kV	0	See Previous	\$ -
05SP	AEPW-AEPW	East Centerton - Gentry Rec 161kV	353	Flint Creek - Tontitown 161kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Elm Springs Rec - Tontitown 161kV	306	Chamber Springs - Farmington Aecc 161kV	0	Replace Switch and Elm Springs Strain Bus	\$ 100,000
05SP	AEPW-AEPW	Flint Creek - Gentry Rec 161kV	353	Chamber Springs - Farmington Aecc 161kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Flint Creek - Tontitown 161kV	312	Chamber Springs - Clarksville 345kV	0	Replace switch and jumpers	\$ 45,000
05SP	WERE-WERE	Gill Energy Center East - Macarthur 69kV	68	Gill Energy Center East - Oatville 69kV	0	See Previous	\$ -
05SP	WERE-WERE	Gill Energy Center East - Oatville 69kV	72	Gill Energy Center East - Macarthur 69kV	0	See Previous	\$ -
05SP	AEPW-AEPW	Hallsville - Longview Heights 69kV	48	Marshall - Marshall Auto 69kV	0	Rebuild 7.07 miles of 4/0 ACSR with 795 ACSR	\$ 3,000,000
05SP	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05SP	WERE-WERE	Lawrence Hill - Wren 115kV	141	Bismark Jct Sw- Farmer's Consumer 115kV	0	May be relieved due to Westar Transmission Operating Directive 1210	Not Available
05SP	WFEC-WFEC	Little Axe - Noble 69kV	26	Paoli 69/138kV Transformer	162	See Previous	\$ -
05SP	AEPW-AEPW	Longwood - Noram 138kV	234	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	Reconductor 4.66 miles of bundled 266 ACSR with 1590 ACSR and replace jumpers & Bus Riser jumpers	\$ 1,577,000
05SP	AEPW-AEPW	Marshall - North Marshall 69kV	72	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	Replace 350 CU bus & jumpers @ North Marshall.	\$ 23,356
05SP	AEPW-AEPW	Marshall 138/69kV Transformer Ckt 1	107	Marshall 138/69kV Transformer Ckt 2	0	See Previous	\$ -
05SP	AEPW-AEPW	Marshall 138/69kV Transformer Ckt 2	107	Marshall 138/69kV Transformer Ckt 1	0	See Previous	\$ -
05SP	WERE-WERE	Mockingbird Hill Sw Station - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05SP	SWPA-SWPA	Norfolk 161/69kV Transformer Ckt 1	25	Norfolk 161/69kV Transformer Ckt 2	0	See Previous	\$ -
05SP	OKGE-OKGE	Pecan Creek 161/345kV Transformer	369	Muskogee - Ft Smith 345kV	261	Add 2nd 345/161 kV 369MVA transformer.	\$ 3,000,000

Table 1 - continued – SPP facility up grades required for the OKGE to AMRN transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
05SP	AEPW-AEPW	Raines - Noram 138kV	234	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	267	Rebuild 5.58 miles of 2-266 ACSR with 1590 ACSR	\$ 2,000,000
05SP	AEPW-AEPW	Rock Hill - Tatum 138kV	209	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	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
05SP	MIDW-WEPL	Seward 69/115kV Transformer	44	Heizer 115/230kV Transformer	0	See Previous	\$ -
05SP	AEPW-WFEC	Southwest Station - Anadarko 138kV	203	Cornville - Corn Tap 138kV	0	Replace bus, jumpers, switches, supports and foundations at Anadarko Switch Station	\$ 450,000
05SP	KACP-KACP	Stilwell - Lacygne 345kV	1251	West Gardner - Lacygne 345kV	0	See Previous	\$ -
05SP	EMDE-EMDE	Oronogo Jct. - Joplin Oakland North 161kV	214	Tipton Ford - Joplin Southwest 161kV	149	Reconstruct and replace 1.4 miles of 556 ACSR with Bundled 556 ACSR	\$ 800,000
05SP	WERE-WERE	Tecumseh Energy Center - Hook Jct 115kV	160	Tecumseh Energy - Tecumseh Hill 115kV	0	See Previous	\$ -
05SP	WERE-WERE	Tecumseh Hill - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05WP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	\$ -
05WP	SWPA-EES	Carthage - Reed Springs 69kV	43	Carthage - Jasper 69kV	0	See Previous	\$ -
05WP	AEPW-AEPW	Catoosa 138/69kV Transformer	55	Lynn Lane West Tap - Lynn Lane Tap 138kV	0	See Previous	\$ -
05WP	WERE-WERE	Circleville - Hoyt Hti Sw Junction 115kV	97	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05WP	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05WP	SPRM-AECI	Clay - Logan 161kV	232	Multiple Outage Contingency Franks - Huben 345kV Huben - Morgan 345kV	59	See Previous	\$ -
05WP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Denver Tap - 46Th Street East 138kV	0	See Previous	\$ -
05WP	WERE-WERE	El Paso - Gill Energy Center South 138kV	210	Evans Energy Nth - Evans Energy Sth 138kV	0	See Previous	\$ -
05WP	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05WP	WERE-WERE	Mockingbird Hill Sw Station - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
05WP	SWPA-SWPA	Norfolk 161/69kV Transformer Ckt 1	25	Norfolk 161/69kV Transformer Ckt 2	0	See Previous	\$ -
05WP	SWPA-SPRM	Springfield - Clay 161kV	167	Multiple Outage Contingency Franks - Huben 345kV Huben - Morgan 345kV	54	Replace disconnect switches at Springfield	\$ 200,000
05WP	WERE-WERE	Tecumseh Hill - Stull Sw Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	\$ -
Total (Excludes Costs Not Available)							\$ 39,707,270

Table 2 – SPP to AMRN Firm Contract Path Interface Capacity

POR	Transmission Tie Lines	Rate A (MVA)	Firm Contract Path Capacity
KCPL	MIPU - AMRN / Sibley to Overton, 345 kV 59201 SIBLEY 7 345 to 31408 OVERTON 345 1	956	557
"	KACP - AMRN / Salisbury to Moberly, 161 kV 58062 SALSBRY5 161 to 31221 MOBERLY 161 1	180	180
SPA	SWPA - AMRN / Sikeston to Miner, 161 kV 52628 SIKESTN5 161 to 31203 MINER 161 1	248	248
CSWS (PSO)	Mokanok Agreement: Neosho - Morgan - Franks, 345 kV 450MW of Firm Capacity	N/A	113
WR (KGE)	"	N/A	90
MOKANOK/AMRN	"	N/A	99
Total Firm Contract Path Capacity			1287

Table 3 – Confirmed Long-Term Firm reservations with POD of AMRN with right to renew service

Request	Customer	POR	POD	Status	Start Date	End Date	Amount (MW)
171	KCPL	KACY	AMRN	CONFIRMED	5/1/1983	1/1/2014	20
109431	KCPS	KCPL	AMRN	CONFIRMED	4/1/1999	4/1/2004	200
119231	SPA	SPA	AMRN	CONFIRMED	6/1/1999	6/1/2011	125
314301	SPA	SPA	AMRN	CONFIRMED	11/7/2001	6/1/2012	78
119224	SPA	SPA	AMRN	CONFIRMED	6/1/1999	6/1/2020	11
265435	SPA	SPA	AMRN	CONFIRMED	6/1/2002	6/1/2003	3
265434	SPA	SPA	AMRN	CONFIRMED	6/1/2002	6/1/2003	2
133602	SPSM	SPS	AMRN	CONFIRMED	1/1/2002	1/1/2005	50
133608	SPSM	SPS	AMRN	CONFIRMED	1/1/2002	1/1/2005	50
297069	SPSM	SPS	AMRN	CONFIRMED	1/1/2002	1/1/2012	50
297076	SPSM	SPS	AMRN	CONFIRMED	1/1/2002	1/1/2012	50
381154	SPSM	SPS	AMRN	CONFIRMED	6/1/2002	1/1/2012	50
381165	SPSM	SPS	AMRN	CONFIRMED	6/1/2002	1/1/2012	50
356281	WRGS	WR	AMRN	CONFIRMED	4/1/2002	4/1/2003	29
429242	WRGS	WR	AMRN	CONFIRMED	1/1/2003	1/1/2004	50
429244	WRGS	WR	AMRN	CONFIRMED	1/1/2003	1/1/2004	50
397067	EXGN	CSWS	AMRN	CONFIRMED	1/1/2003	1/1/2004	400
Total SPP - AMRN Confirmed Transfers							1268