



***System Impact Study SPP-2001-364
For Transmission Service
Requested By
Empire District Electric Company***

From SECI To EDE

***For a Reserved Amount Of 150MW
From 3/1/06
To 4/1/08***

SPP Coordinated Planning

System Impact Study

Empire District Electric Company (EDE) has requested a system impact study for Network Service from SECI to EDE. The period of the transaction is from 3/1/06 to 4/1/08. The request is for OASIS reservation 318877 for an amount of 150 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 150 MW of service requested.

The SECI to EDE 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 150 MW SECI to EDE transfer.

SPP used four seasonal models to study the SECI to EDE 150 MW transfer for the requested service period. The SPP 2002 Series Cases 2005 Summer Peak, 2005/06 Winter Peak, 2008 Summer Peak and 2008/2009 Winter Peak were used to study the impact of the 100 MW transfer on the SPP system during the requested service period of 3/1/2006 to 4/1/2008. 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 SECI to EDE 150 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 SECI to EDE transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
05SP	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
05SP	GRRD-GRRD	Afton 161/69kV Transformer	50	Miami - Afton 161kV	0	Replace 50 MVA Transformer with 84 MVA unit	\$ 833,000
05SP	AEPW-AEPW	Alumax Tap - Northwest Texarkana 138kV	261	Nw Texarkana-Bann T - Northwest Texarkana 138kV	0	Replace Switches Alumax Tap	\$ 30,000
05SP	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
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	Broken Arrow North - North Tap - Oneta 138kV	0	Replace wavetrap	\$ 30,000
05SP	AEPW-AEPW	Carson-Center 138/13.8kV Transformer	33	Carson South - Tulsa Power Station 138kV	0	Solution Undetermined	Not Available
05SP	SWPA-EES	Carthage - Reed Springs 69kV	36	Sub 124 - Aurora H.T. - Sub 383 - Monett 161kV	145	Third Party Facility	\$ -
05SP	AEPW-AEPW	Catoosa 138/69kV Transformer	55	Lynn Lane West Tap - Lynn Lane Tap 138kV	0	Solution Undetermined	Not Available
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	Flint Creek - Tontitown 161kV	0	Rebuild 12 miles with 2156ACSR	\$ 7,200,000
05SP	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
05SP	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
05SP	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
05SP	GRRD-GRRD	Claremore 161/69kV Transformer ckt 1	84	Claremore 161/69kV Transformer Ckt 2	0	Solution Undetermined	Not Available
05SP	GRRD-GRRD	Claremore 161/69kV Transformer ckt 2	84	Claremore 161/69kV Transformer Ckt 1	0	Solution Undetermined	Not Available
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 Center - Tecumseh Hill 115kV	0	Solution Undetermined	Not Available
05SP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Denver-West - Sand Springs 138kV	0	Solution Undetermined	Not Available
05SP	AEPW-AEPW	Denver-West 138/13.8kV Transformer	33	Carson South - Kenosha West 138kV	0	Solution Undetermined	Not Available
05SP	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	\$ 8,000,000
05SP	AEPW-AEPW	Elm Springs Rec - Tontitown 161kV	306	Dyess - Tontitown 161kV	0	Replace Switch and Elm Springs Strain Bus	\$ 100,000
05SP	AEPW-AEPW	Flint Creek - Gentry Rec 161kV	353	Flint Creek - Tontitown 161kV	0	Rebuild 1.09 miles of 2-397.5 ACSR with 2156 ACSR.	\$ 400,000
05SP	AEPW-AEPW	Flint Creek - Tontitown 161kV	312	Chamber Springs - Tontitown 161kV	0	Replace switch and jumpers	\$ 45,000
05SP	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
05SP	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
05SP	SWPA-EES	Hergett - Jonesboro 161kV	148	Jonesboro - Jonesboro 161kV	0	Solution Undetermined	Not Available

Table 1 - continued – SPP facility upgrades identified for the SECI to EDE transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
05SP	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
05SP	WERE-WERE	Lawrence Hill - Wren 115kV	141	Mockingbird Hill Switching Station - SW Lawrence 115kV	0	May be relieved due to Westar Transmission Operating Directive 1210	Not Available
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	Longwood - Wilkes 345kV	0	Replace 350 CU bus & jumpers @ North Marshall.	\$ 23,300
05SP	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
05SP	WEPL-WEPL	Phillipsburg - Smith Center 115kV	40	Knoll 230/115kV Transformer	125	Solution Undetermined	Not Available
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	WERE-WERE	SW Lawrence - Wakarusa Junction Switching Sta 115kV	92	Ku Campus - 19Th Street Junction 115kV	82	Solution Undetermined	Not Available
05SP	AEPW-WFEC	Southwest Station - Anadarko 138kV	203	Fort Cobb - Southwest Station 138kV	0	Replace bus, jumpers, switches, supports and foundations at Anadarko Switch Station	\$ 450,000
05SP	SWPA-SPRM	Springfield - Brookline 161kV	323	Southwest - Southwest Disposal 161kV	0	Solution Undetermined	Not Available
05SP	WERE-WERE	Tecumseh Energy Center - Hook Jct 115kV	160	Tecumseh Energy Center - Tecumseh Hill 115kV	0	Solution Undetermined	Not Available
05SP	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
05WP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	See Previous
05WP	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Iatan - St Joe 345kV	72	See Previous	See Previous
05WP	WERE-WERE	Fort Junction Swi Sta - West Jct City Jct (East) 115kV ckt 1	68	Fort Junction Swi Sta - West Jct City Jct (East) 115kV ckt 2	47	May be relieved due to Westar Transmission Operating Directive 1217	Not Available
05WP	WERE-WERE	Mockingbird Hill Switching Sta - Stull Switching Sta 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
05WP	WERE-WERE	Tecumseh Hill - Stull Switching Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
08SP	WERE-WERE	166Th Street - Jarbalo Junction Switching Station 115kV	97	Midland Junction - Pentagon 115kV	0	See Previous	See Previous
08SP	GRRD-GRRD	412Sub - Kansas Tap 161kV	338	Flint Creek - Grda1 345kV	0	Reconductor 9.7 miles with 1590MCM ACSR	\$ 1,488,000
08SP	GRRD-GRRD	Afton 161/69kV Transformer	50	Miami - Afton 161kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Alumax Tap - Bann 138kV	261	Nw Texarkana-Bann T - Northwest Texarkana 138kV	0	Replace six (6) 138 kV switches, five at Bann & one at Alumax Tap. Rebuild 0.67 miles of 1024 ACAR with 2156 ACSR. Replace wavetrap jumpers @ Bann. Replace breaker 3300 @ Bann.	\$ 630,000
08SP	AEPW-AEPW	Alumax Tap - Northwest Texarkana 138kV	261	Nw Texarkana-Bann T - Northwest Texarkana 138kV	0	See Previous	See Previous
08SP	WFEC-WFEC	Anadarko - Cyril 69kV	61	Anadarko - Georgia 138kV	139	Reconductor 13 miles of 336MCM ACSR with 795MCM	\$ 2,626,000
08SP	WERE-WERE	Auburn Road - Indian Hills 115kV	223	Hoyt - Jeffery Energy Center 345kV	0	May be relieved due to Westar Transmission Operating Directive 400	Not Available
08SP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Blue Circle - Catoosa 69kV	72	Lynn Lane West Tap - Lynn Lane Tap 138kV	0	See Previous	See Previous

Table 1 - continued – SPP facility upgrades identified for the SECI to EDE transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
08SP	AEPW-OKGE	Bonanza - Bonanza Tap 161kV	177	Aes - Tarby 161kV	0	Rebuild 0.06 miles of 397.5 ACSR with 795MCM ACSR	\$ 50,000
08SP	AECI-AECI	Bristow 138/69kV Transformer ckt 1	56	Bristow 138/69kV Transformer Ckt 2	0	See Previous	See Previous
08SP	AECI-AECI	Bristow 138/69kV Transformer ckt 2	56	Bristow 138/69kV Transformer Ckt 1	0	See Previous	See Previous
08SP	AEPW-AEPW	Broken Arrow 101St North - Oneta 138kV	210	Broken Arrow 101St South Tap - Oneta 138kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Broken Arrow 81St - Broken Arrow 101St North 138kV	235	Riverside Station Auto 138/345kV Transformer	0	Rebuild 2.05 miles of 795 ACSR with 1590 ACSR	\$ 1,100,000
08SP	AEPW-AEPW	Broken Arrow North - North Tap - Oneta 138kV	235	Broken Arrow 101St North - Oneta 138kV	0	Solution Undetermined	Not Available
08SP	AEPW-AEPW	Broken Arrow North - South Tap - Lynn Lane Tap 138kV	235	Tulsa North - Northeast Station 345kV	0	Rebuild 4.63 miles of 795 ACSR with 1590 ACSR	\$ 2,600,000
08SP	AEPW-AEPW	Broken Arrow North - South Tap - Oneta 138kV	235	Tulsa North - Northeast Station 345kV	0	Rebuild 4.31 miles of 795 ACSR with 1590 ACSR.	\$ 2,370,500
08SP	SWPA-EES	Bull Shoals - Midway 161kV	162	Cushman - Sage 161kV	36	Replace disconnect switches, metering CTs and wave trap at Bull Shoals	\$ 150,000
08SP	AEPW-AEPW	Carson-Center 138/13.8kV Transformer	33	Carson South - Tulsa Power Station 138kV	0	See Previous	See Previous
08SP	WFEC-WFEC	Carter Jct - Dill Jct 69kV	26	Pine Ridge - Washita 69kV	0	Solution Undetermined	Not Available
08SP	SWPA-EES	Carthage - Reed Springs 69kV	36	Stilwell - Lacygne 345kV	14	See Previous	See Previous
08SP	SWPA-SWPA	Carthage 161/69kV Transformer ckt 1	84	Carthage 161/69kV Transformer Ckt 2	131	Third Party Facility	\$ -
08SP	SWPA-SWPA	Carthage 161/69kV Transformer ckt 2	84	Carthage 161/69kV Transformer Ckt 1	115	Transformers owned by City of Carthage and AECI	\$ -
08SP	AEPW-AEPW	Catoosa 138/69kV Transformer	55	Lynn Lane West Tap - Lynn Lane Tap 138kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Chamber Springs - Tontitown 161kV	244	Chamber Springs - Farmington Aecc 161kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Chamber Springs 161/345kV Transformer	660	Flint Creek - Grda1 345kV	0	Install 2nd 345/161 kV Auto-transformer	\$ 4,000,000
08SP	AEPW-AEPW	Cherokee Rec - Knox Lee 138kV	209	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Cherokee Rec - Tatum 138kV	209	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	See Previous	See Previous
08SP	WERE-WERE	Chisholm - Evans Energy Center North 138kV	382	Evans Energy Center South - Lakeridge 138kV	0	Solution Undetermined	Not Available
08SP	WERE-WERE	Circleville - Hoyt Hti Switching Junction 115kV	97	Hoyt - Stranger Creek 345kV	0	Replace 82 structures	\$ 742,000
08SP	WERE-WERE	Circleville - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
08SP	GRRD-GRRD	Claremore 161/69kV Transformer ckt 1	84	Claremore 161/69kV Transformer Ckt 2	0	See Previous	See Previous
08SP	GRRD-GRRD	Claremore 161/69kV Transformer ckt 2	84	Claremore 161/69kV Transformer Ckt 1	0	See Previous	See Previous
08SP	SPRM-AECI	Clay - Logan 161kV	185	Multiple Outage Contingency Franks - Huben 345kV Huben - Morgan 345kV	42	Replace transmission line structures to allow operation at 100C	\$ 250,000
08SP	AEPW-WERE	Coffeyville Tap - Dearing 138kV	210	Delaware - Neosho 345kV	129	Replace wave trap to increase rating to conductor rating (2000 A)	\$ 20,000
08SP	WERE-WERE	County Line - Hook Jct 115kV	92	Tecumseh Energy Center - Tecumseh Hill 115kV	0	See Previous	See Previous
08SP	WERE-WERE	County Line - Rock Creek 69kV	41	Hoyt - Stranger Creek 345kV	0	Solution Undetermined	Not Available
08SP	WERE-WERE	County Line - Tecumseh Hill 115kV	106	Tecumseh Energy Center - Tecumseh Hill 115kV	0	May be relieved due to Westar Transmission Operating Directive 1203	Not Available
08SP	KACP-KACP	Craig - College 161kV	335	Stilwell - Antioch 161kV	0	Solution Undetermined	Not Available

Table 1 - continued – SPP facility upgrades identified for the SECI to EDE transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
08SP	WERE-WERE	Crawford - Neosho 69kV	57	Neosho 345/791kV Transformer Ckt 0	104	Solution Undetermined	Not Available
08SP	WERE-WERE	Crawford - Sekan No. 1 Greenbush 69kV	57	Neosho 345/791kV Transformer Ckt 0	140	Solution Undetermined	Not Available
08SP	SWPS-SWPS	Curry County - Roosevelt County ckt 2	161	Oasis Interchange 115/230kV Transformer	0	Solution Undetermined	Not Available
08SP	AEPW-AEPW	Denver Center 138/13.8kV Transformer	33	Denver-West - Sand Springs 138kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Denver-West 138/13.8kV Transformer	33	Carson South - Kenosha West 138kV	0	See Previous	See Previous
08SP	AEPW-AEPW	East Centerton - Gentry Rec 161kV	353	Flint Creek - East Centerton 345kV	0	See Previous	See Previous
08SP	AEPW-WFEC	Elk City - Elk City 69kV	39	Pine Ridge - Washita 69kV	117	Solution Undetermined	Not Available
08SP	AEPW-AEPW	Elm Springs Rec - Tontitown 161kV	306	Chamber Springs - Farmington Aecc 161kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Flint Creek - Gentry Rec 161kV	353	Flint Creek - East Centerton 345kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Flint Creek - Tontitown 161kV	312	Chamber Springs - Clarksville 345kV	0	See Previous	See Previous
08SP	AEPW-EES	Fulton - Patmos 115kV	174	Lydia - Valliant 345kV	0	Using 1590MCM ACSR, reconductor 7.1 miles	\$ 2,300,000
08SP	WERE-WERE	Gill Energy Center East - Macarthur 69kV	68	Gill Energy Center East - Oatville 69kV	0	See Previous	See Previous
08SP	WERE-WERE	Gill Energy Center West - Haysville Junction 69kV	80	Canal 138/211kV Transformer Ckt 0	0	Solution Undetermined	Not Available
08SP	WERE-WERE	Gill Energy Center West - Haysville Junction 69kV	80	Canal 69/211kV Transformer Ckt 0	0	See Previous	See Previous
08SP	SWPA-EES	Hergett - Jonesboro 161kV	148	Jonesboro - Jonesboro 161kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Jacksonville (Swe-Rc-Etec) - Overton 138kV	235	Crockett - Tenaska Rusk County 345kV	0	Reset relays at Jacksonville & Overton	\$ 15,000
08SP	SWPA-EES	Jonesboro - Jonesboro 161kV	223	New Madrid - Kennett 161kV	0	Solution Undetermined	Not Available
08SP	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
08SP	GRRD-GRRD	Kerr - 412Sub 161kV	338	Flint Creek - Grda1 345kV	0	Reconductor 12.5 miles with 1590MCM ACSR.	\$ 1,918,000
08SP	OKGE-WFEC	Knobhill - Mooreland 138kV	59	Cleveland Tap - South 4Th St 69kV	137	Solution Undetermined	Not Available
08SP	WERE-WERE	Lawrence Hill - Wren 115kV	141	Bismark Jct Swi Sta - Farmer's Consumer Co-Op 115kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Lieberman - IPC Jefferson 138kV	136	Longwood - Wilkes 345kV	0	Reconductor 26.35 miles of 336 ACSR with 795 ACSR, Replace Switches @ Lieberman, Reset Relays @ Jefferson IPC, & Reconductor 0.65 miles 397MCM to 795MCM	\$ 7,411,000
08SP	AEPW-AEPW	Longwood - Noram 138kV	234	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	See Previous	See Previous
08SP	AEPW-AEPW	Marshall - North Marshall 69kV	72	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	See Previous	See Previous
08SP	OKGE-WFEC	Midwest Tap - Franklin Sw 138kV	215	Anadarko - Pocasset 138kV	0	Replace 600A metering CTs with 1200A	\$ 55,000
08SP	WERE-WERE	Mockingbird Hill Switching Sta - Stull Switching Sta 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
08SP	WERE-WERE	NA Philips - NA Philips Junction (South) 115kV	160	East Mcperson - Summit 230kV	94	Solution Undetermined	Not Available
08SP	WERE-WERE	NA Philips Junction (North) - Smoky Hill 115kV ckt 1	68	NA Philips Junction (North) - Smoky Hill 115kV Ckt 2	0	Solution Undetermined	Not Available
08SP	WERE-WERE	NA Philips Junction (South) - West Mcperson 115kV	68	East Mcperson - Summit 230kV	0	May be relieved due to Westar Transmission Operating Directive 613	Not Available
08SP	WERE-WERE	NA Philips Junction (South) - West Mcperson 115kV	68	NA Philips Junction (South) - West Mcperson 115kV Ckt 2	42	May be relieved due to Westar Transmission Operating Directive 613	Not Available

Table 1 - continued – SPP facility upgrades identified for the SECI to EDE transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
08SP	AEPW-AEPW	North Marshall - Woodlawn 69kV	51	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	Replace 3/0 CU jumpers @ North Marshall	\$ 15,000
08SP	OKGE-OKGE	Pecan Creek 161/345kV Transformer	369	Muskogee - Ft Smith 345kV	0	Add 2nd 345/161 kV 369MVA transformer.	\$ 3,000,000
08SP	AEPW-AEPW	Raines - Noram 138kV	234	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	Rebuild 5.58 miles of 2-266 ACSR with 1590 ACSR	\$ 2,000,000
08SP	AEPW-AEPW	Rock Hill - Tatum 138kV	209	Multiple Outage Contingency Southwest Shreveport - Longwood 345kV Southwest Shreveport to Diana 345kV	0	See Previous	See Previous
08SP	WFEC-WFEC	Russell 69/138kV Transformer	25	Anadarko - Paradise 138kV	0	Solution Undetermined	Not Available
08SP	AEPW-AEPW	South Fayetteville - Farmington Aecc 161kV	313	Chamber Springs - Tontitown 161kV	0	Solution Undetermined	Not Available
08SP	WERE-WERE	SW Lawrence - Wakarusa Junction Switching Station 115kV	92	Ku Campus - 19Th Street Junction 115kV	0	See Previous	See Previous
08SP	SWPA-SPRM	Springfield - Brookline 161kV	323	Southwest - Southwest Disposal 161kV	0	See Previous	See Previous
08SP	AECI-AECI	Stilwell - Titanic Tap 69kV	36	Sallisaw - Brushy 69kV	0	Line Owned by GRDA - Solution Undetermined	Not Available
08SP	WERE-WERE	Tecumseh Energy Center - Hook Jct 115kV	160	Tecumseh Energy Center - Tecumseh Hill 115kV	0	See Previous	See Previous
08SP	WERE-WERE	Tecumseh Energy Center - Tecumseh Hill 115kV	236	Hoyt - Stranger Creek 345kV	0	May be relieved due to Westar Transmission Operating Directive 803	Not Available
08SP	WERE-WERE	Tecumseh Hill - 27Th & Croco 115kV ckt 1	68	Tecumseh Hill - 27Th & Croco 115kV Ckt 2	7	Solution Undetermined	Not Available
08SP	WERE-WERE	Tecumseh Hill - Stull Switching Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
08WP	WERE-WERE	166Th Street - Jarbalo Junction Switching Station 115kV	97	Midland Junction - Pentagon 115kV	0	See Previous	See Previous
08WP	GRRD-GRRD	Afton 161/69kV Transformer	50	Miami - Afton 161kV	90	See Previous	See Previous
08WP	WERE-WERE	Auburn Road - Jeffrey Energy Center 230kV	565	Hoyt - Jeffery Energy Center 345kV	0	See Previous	See Previous
08WP	SWPA-EES	Carthage - Reed Springs 69kV	43	Sub 124 - Aurora H.T. - Sub 383 - Monett 161kV	14	See Previous	See Previous
08WP	AEPW-AEPW	Catoosa 138/69kV Transformer	55	Lynn Lane West Tap - Lynn Lane Tap 138kV	0	See Previous	See Previous
08WP	AEPW-AEPW	Chamber Springs - Tontitown 161kV	275	Chamber Springs - Farmington Aecc 161kV	0	See Previous	See Previous
08WP	WERE-WERE	County Line - Hook Jct 115kV	92	Tecumseh Energy Center - Tecumseh Hill 115kV	0	See Previous	See Previous
08WP	AEPW-AEPW	Denver-West 138/13.8kV Transformer	33	Carson South - Kenosha West 138kV	0	See Previous	See Previous
08WP	AEPW-AEPW	Diana - Perdue 138kV	237	Harrison Road - Liberty City Tap 138kV	0	Replace Breaker 10070 @ Perdue	\$ 150,000
08WP	AEPW-AEPW	Jacksonville (Swe-Rc-Etec) - Overton 138kV	265	Crockett - Tenaska Rusk County 345kV	0	See Previous	See Previous
08WP	WERE-WERE	Kelly - King Hill N.M. Coop 115kV	92	Iatan - St Joe 345kV	120	See Previous	See Previous
08WP	WERE-WERE	Mockingbird Hill Switching Sta - Stull Switching Sta 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
08WP	WERE-WERE	SW Lawrence - Wakarusa Junction Switching Sta 115kV	92	Ku Campus - 19Th Street Junction 115kV	0	See Previous	See Previous
08WP	WERE-WERE	Tecumseh Energy Center - Hook Jct 115kV	160	Tecumseh Energy Center - Tecumseh Hill 115kV	0	See Previous	See Previous
08WP	WERE-WERE	Tecumseh Hill - Stull Switching Station 115kV	92	Hoyt - Stranger Creek 345kV	0	See Previous	See Previous
Total (Excludes Costs Not Available)							\$ 54,670,770