SPP Southwest Power Pool

Preliminary System Impact Study SPP-2004-075-2P (Option 3) For The Designation of a New Network Resource Requested By GDS Associates

From AEPW to AEPW

For a Reserved Amount Of 200MW From 1/1/2006 To 1/1/2009

SPP Engineering, Tariff Studies

System Impact Study

GDS Associates has requested a system impact study to designate a New Network Resource in the AEPW Control Area for 200 MW to serve Network Load in the AEPW Control Area. The period of the service requested is from 1/1/2006 to 1/1/2009. The principal objective of this study is to identify system constraints on the SPP Regional Tariff System and potential system facility upgrades that may be necessary to provide the requested service.

This study was performed for the AEPW to AEPW request in order to provide preliminary results identifying facility upgrades that may be required for the requested service. The requested service was modeled as a transfer from the new Network Resource in the AEPW control area to the Network Load in the AEPW control area. Positive impacts removed by the existing Network Resource were given as credits to the new Network Resource based upon the existing Network Resource being replaced by the new Network Resource. The preliminary study is performed with only confirmed reservations included in the models. The models do not include any reservations, even those with a higher priority, that are still in study mode. The results of the transfer analyses are documented in Tables 1, 2 and 3 of the report. Table 1 summarizes the results of the Scenario 1 system impact analysis. Table 2 summarizes the results of the Scenario 2 system impact analysis. Table 3 summarizes the results of the Scenario 3 system impact analysis. The results given in Tables 1, 2 and 3 include upgrades that may be assigned to higher priority requests. If a facility identified for the AEPW to AEPW study is also identified for a study with higher priority, the facility will be assigned to the request with the highest priority. If the higher priority customer does not take service, the facility would then be assigned to the AEPW to AEPW request. The primary purpose of this preliminary study is to provide the customer with an estimated cost of the facility upgrades that may be required in order to accommodate the requested service. The preliminary study is performed by monitoring each facility at 90% of its rating. This is done to provide an estimate of possible overloads that may be assigned to the customer if requests with higher priority are accepted.

Ten seasonal models were used to study the AEPW to AEPW request for the requested service period. The SPP 2004 Series Cases Update 2, 2005 April Minimum (05AP), 2005 Spring Peak (05G), 2005 Summer Peak (05SP), 2005 Summer Shoulder (05SH), 2005 Fall Peak (05FA), 2005/06 Winter Peak (05WP), 2007 Summer Peak (07SP), 2007/08 Winter Peak (07WP), 2010 Summer Peak (10SP) and 2010/11 Winter Peak (10WP) were used to study the impact of the request on the SPP system during the requested service period of 1/1/2006 to 1/1/2009. 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 2004 base case series models. From the ten seasonal models, three system scenarios were developed Scenario 1 includes confirmed West to East transfers not already included in the January 2004 base case series models, SPS Exporting (including the Lamar HVDC Tie flowing from SPS to Lamar), and ERCOT exporting. Scenario 2 includes confirmed East to West transfers not already included in the January 2004 base case series models, SPS Importing (including the Lamar HVDC Tie flowing from Lamar to SPS), and ERCOT importing. Scenario 3 includes confirmed West to East transfers not already included in the January 2004 base case series models, SPS Importing (including the Lamar HVDC Tie flowing from Lamar to SPS), and ERCOT importing.

PTI's MUST First Contingency Incremental Transfer Capability (FCITC) DC analysis was used to study the request. The MUST options chosen to conduct the System Impact Study analysis can be found in Appendix A. The MUST option to convert MVA branch ratings to estimated MW ratings was used to partially compensate for reactive loading.

These study results are preliminary estimates only and are not intended for use in final determination of the granting of service. 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. Also, these results do not include third party constraints. Any solutions, upgrades, and costs provided in the preliminary 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 and proposed transmission plans that will be identified during the facility study process, and the final results of the full AC analysis.

SPP will also review the possibility of curtailment of previously confirmed service and/or the redispatch of units as an option for relieving the additional impacts on the SPP facilities caused by the AEPW to AEPW request. It is the responsibility of the customer to reach an agreement with the applicable party concerning the curtailment of confirmed service and the redispatch of units. The curtailment and redispatch requirements would be called upon prior to implementing NERC TLR Level 5a. These options will be evaluated as part of the full AC analysis. The final upgrade solutions, cost assignments and available redispatch and curtailment options will be determined upon the completion of the full AC analysis.

Table 1 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 1

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05AP		NONE IDENTIFIED								200		
05G	AEPW-AEPW	53571 MARSHL-4 138 *B042 1 1	107	94.3	101.1	3.6590	101.0	3.5840	53623 MARAUTO2 69 *B017 1 2	167	Replace 755 ACAR Strain Bus & Replace 1033 AAC Jumpers	$ 40,000
05G	AEPW-AEPW	53623 MARAUTO2 69 *B042 1 1	107	94.3	101.1	3.6590	101.0	3.5840	53623 MARAUTO2 69 *B017 1 2	167	See Previous Upgrade Specified For Facility	
05G	AEPW-AEPW	53571 MARSHL-4 138 *B017 1 2	107	94.2	101.0	3.6550	100.9	3.5790	53623 MARAUTO2 69 *B042 1 1	170	See Previous Upgrade Specified For Facility	
05G	AEPW-AEPW	53623 MARAUTO2 69 *B017 1 2	107	94.2	101.0	3.6550	100.9	3.5790	53623 MARAUTO2 69 *B042 1 1	170	See Previous Upgrade Specified For Facility	
05SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	196	101.4	113.5	11.8850	113.4	11.7690	53619 WILKES 4 138 53622 WELSHRE4 138 1	0	Reset CT @ Pittsburg.	$ 10,000
05SP	AEPW-AEPW	53278 MAGNOLA2 69 53336 WINNSBO2 69 1	72	103.1	114.4	4.0220	114.0	3.8830	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	0	Replace Breaker, switches & jumpers @ Winnsboro. Replace switch # 9114 @ Magnolia Tap	$ 125,000
05SP	AEPW-AEPW	53278 MAGNOLA2 69 53532 FORSTHL2 69 1	71	102.6	113.9	4.0220	113.5	3.8830	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	0	Replace switch # 9116 @ Magnolia Tap	$ 40,000
05SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	58	118.9	129.7	3.1480	129.2	3.0080	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	0	Replace Quitman bus, switches & jumpers. Change relay settings @ Quitman	$ 150,000
05SP	AEPW-AEPW	53571 MARSHL-4 138 *B041 1 1	107	108.5	115.3	3.6390	114.6	3.2670	53623 MARAUTO2 69 *B142 1 2	0	See Previous Upgrade Specified For Facility	
05SP	AEPW-AEPW	53571 MARSHL-4 138 *B142 1 2	107	108.4	115.2	3.6350	114.5	3.2630	53571 MARSHL-4 138 *B041 1 1	0	See Previous Upgrade Specified For Facility	
05SP	AEPW-AEPW	53623 MARAUTO2 69 *B041 1 1	107	108.4	115.2	3.6390	114.5	3.2670	53571 MARSHL-4 138 *B142 1 2	0	See Previous Upgrade Specified For Facility	
05SP	AEPW-AEPW	53623 MARAUTO2 69 *B142 1 2	107	108.3	115.1	3.6350	114.4	3.2630	53623 MARAUTO2 69 *B041 1 1	0	See Previous Upgrade Specified For Facility	

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Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05SP	AEPW-AEPW	53245 ALUMXT 4 138 53250 BANN 4 138 1	260	88.7	94.4	7.3230	93.9	6.7510	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	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
05SP	AEPW-AEPW	53245 ALUMXT 4 138 53300 NWTXARK4 138 1	260	94.3	99.9	7.3230	99.5	6.7510	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	Rebuild 1.68 miles of 1024 ACAR with 2156 ACSR, Replace wavetrap jumpers with 2156 ACSR	$ 840,000
05SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	314	83.8	90.1	9.9070	89.8	9.4290	53619 WILKES 4 138 53622 WELSHRE4 138 1	200	Reset CTs	$ 2,000
05SP	AEPW-AEPW	53527 DIANA 4 138 53590 PERDUE 4 138 1	268	84.0	92.5	11.3840	92.2	11.0050	53542 HARRISN4 138 53561 LIBCYTP4 138 1	200	Replace Breaker 10070 @ Perdue	$ 150,000
05SP	AEPW-AEPW	53540 GREGGTN2 69 53562 LLAMOND2 69 1	107	88.4	95.3	3.6590	95.1	3.5740	53527 DIANA 4 138 53590 PERDUE 4 138 1	200	Rebuild 2.66 miles of 755 ACAR with 1590 ACSR	$ 1,100,000
05SP	AEPW-AEPW	53597 ROKHILL2 69 *B003 1 2	46	76.7	90.6	3.1830	90.5	3.1640	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	Requires addition of 3rd Rock Hill 138/69kV 46MVA Unit to eliminate overload of unit #1 and #2.	$ 1,400,000
05SP	AEPW-AEPW	53597 ROKHILL2 69 *B068 1 1	46	77.1	91.1	3.2060	91.0	3.1860	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility	
05SP	AEPW-AEPW	53598 ROKHILL4 138 *B003 1 2	46	76.9	90.8	3.1830	90.7	3.1640	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility	
05SP	AEPW-AEPW	53598 ROKHILL4 138 *B068 1 1	46	77.5	91.6	3.2060	91.5	3.1860	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility	
05SP	OKGE-OKGE	55234 PECANCK5 161 *B423 PECANCK1 1 1	369	88.7	92.4	6.7640	89.7	1.9360	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	Add 2nd 345/161 kV 369MVA transformer.	$ 3,000,000
05SP	OKGE-OKGE	55235 PECANCK7 345 *B423 PECANCK1 1 1	366	89.6	93.3	6.7640	90.6	1.9360	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility	
05SH	OKGE-OKGE	55235 PECANCK7 345 *B423 PECANCK1 1 1	367	97.4	101.0	6.7640	98.6	2.2230	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	144	See Previous Upgrade Specified For Facility	
05SH	OKGE-OKGE	55234 PECANCK5 161 *B423 PECANCK1 1 1	370	96.5	100.1	6.7640	97.7	2.2230	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	192	See Previous Upgrade Specified For Facility	

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Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05SH	OKGE-OKGE	55228 5TRIBES5 161 55234 PECANCK5 161 1	223	96.3	99.2	3.2210	97.1	0.8570	55230 AGENCY 5 161 55234 PECANCK5 161 1	200	May be able to increase CTR (if relays will coordinate) at Five Tribes sub.	$ 5,000
05FA		NONE IDENTIFIED								200		
05WP		NONE IDENTIFIED								200		
07SP	AEPW-AEPW	53571 MARSHL-4 138 *B069 1 1	107	111.9	118.7	3.6200	118.3	3.4130	53623 MARAUTO2 69 *B099 1 2	0	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	53571 MARSHL-4 138 *B099 1 2	107	111.8	118.6	3.6160	118.2	3.4090	53623 MARAUTO2 69 *B069 1 1	0	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	53623 MARAUTO2 69 *B069 1 1	107	111.7	118.4	3.6200	118.1	3.4130	53571 MARSHL-4 138 *B099 1 2	0	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	53623 MARAUTO2 69 *B099 1 2	107	111.6	118.3	3.6160	118.0	3.4090	53571 MARSHL-4 138 *B069 1 1	0	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	53245 ALUMXT 4 138 53250 BANN 4 138 1	260	92.7	98.4	7.3340	98.3	7.2720	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	53423 LONGWD 4 138 53457 OAKPH 4 138 1	208	92.4	96.0	3.7610	94.7	2.4020	Multiple Outage Contingency 53454 SW SHV 7 345 53424 LONGWD 7 345 1 53454 SW SHV 7 345 53528 DIANA 7 345 1	200	Rebuild 1.8 miles of 666 ACSR with 1590 ACSR	$ 800,000
07SP	OKGE-OKGE	55234 PECANCK5 161 *B399 PECANCK1 1 1	369	89.2	92.8	6.5700	90.8	2.8940	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility	
07SP	OKGE-OKGE	55235 PECANCK7 345 *B399 PECANCK1 1 1	366	90.1	93.7	6.5700	91.7	2.8940	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility	
07WP	OKGE-OKGE	55234 PECANCK5 161 *B399 PECANCK1 1 1	370	90.3	93.8	6.5650	90.8	0.9300	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility	
07WP	OKGE-OKGE	55235 PECANCK7 345 *B399 PECANCK1 1 1	369	90.6	94.2	6.5650	91.1	0.9300	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	195	122.3	134.2	11.6650	134.0	11.4570	53619 WILKES 4 138 53622 WELSHRE4 138 1	0	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53597 ROKHILL2 69 *B039 1 1	46	88.9	102.9	3.1920	102.6	3.1280	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	159	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53598 ROKHILL4 138 *B039 1 1	46	88.9	102.9	3.1920	102.6	3.1280	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	159	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53597 ROKHILL2 69 *B130 1 2	46	88.3	102.1	3.1700	101.8	3.1060	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	170	See Previous Upgrade Specified For Facility	

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Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10SP	AEPW-AEPW	53598 ROKHILL4 138 *B130 1 2	46	88.3	102.1	3.1700	101.8	3.1060	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	170	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	58	86.9	101.0	4.1150	100.8	4.0670	53580 NMINEOL2 69 *B019 1 1	186	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	312	90.4	96.7	9.8390	95.9	8.6640	53619 WILKES 4 138 53622 WELSHRE4 138 1	200	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53278 MAGNOLA2 69 53336 WINNSBO2 69 1	72	78.0	91.9	4.9790	91.8	4.9310	53580 NMINEOL2 69 *B019 1 1	200	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53278 MAGNOLA2 69 53532 FORSTHL2 69 1	72	77.4	91.3	4.9790	91.2	4.9310	53580 NMINEOL2 69 *B019 1 1	200	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53453 SW SHV 4 138 *B003 1 1	657	90.4	94.1	12.1040	93.7	10.8780	53453 SW SHV 4 138 *B009 1 2	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53453 SW SHV 4 138 *B009 1 2	657	88.7	92.3	11.8860	91.9	10.6810	53454 SW SHV 7 345 *B003 1 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53453 SW SHV 4 138 53455 SW SHVT4 138 1	302	86.7	92.4	8.6420	91.8	7.7620	53464 Western Electric Tap 53453 SW Shreveport 138 1 53464 Western Electric Tap 53450 Stonewall 138 1 53464 Western Electric Tap 53463 Western Electric 138 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53454 SW SHV 7 345 *B003 1 1	653	90.9	94.6	12.1040	94.2	10.8780	53453 SW SHV 4 138 *B009 1 2	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53454 SW SHV 7 345 *B009 1 2	654	89.2	92.8	11.8860	92.4	10.6810	53453 SW SHV 4 138 *B003 1 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53527 DIANA 4 138 53590 PERDUE 4 138 1	268	88.2	96.6	11.1370	96.5	11.0990	53542 HARRISN4 138 53561 LIBCYTP4 138 1	200	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53584 NWHENDR4 138 53585 OAK1HIL4 138 1	237	91.1	94.0	3.4750	93.9	3.3740	53557 KNOXLEE4 138 53574 MONROER4 138 1	200	Replace wavetrap @ NW Henderson.	$ 30,000
10SP	AEPW-AEPW	53619 WILKES 4 138 53622 WELSHRE4 138 1	260	85.9	94.0	10.6050	93.8	10.3200	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	200	Solution Undetermined	TBD
10SP	AEPW-OKGE	53756 CLARKSV7 345 55224 MUSKOGE7 345 1	892	89.2	90.6	6.0710	90.1	4.0480	53794 R.S.S.-7 345 53819 ONETA--7 345 1	200	Increase CTR at Muskogee to 2000-5 amps.	$ 5,000
10SP	AEPW-AEPW	53785 RSSAUTO4 138 53795 R.S.S.-4 138 1	582	79.9	90.5	30.7590	80.7	2.2850	53794 R.S.S.-7 345 53819 ONETA--7 345 1	200	Solution Undetermined	TBD
10SP	OKGE-OKGE	55228 5TRIBES5 161 55234 PECANCK5 161 1	222	87.9	90.7	3.1240	89.6	1.8040	55230 AGENCY 5 161 55234 PECANCK5 161 1	200	See Previous Upgrade Specified For Facility	
10SP	OKGE-OKGE	55234 PECANCK5 161 *B399 PECANCK1 1 1	369	89.5	93.0	6.5650	91.3	3.4020	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility	
10SP	OKGE-OKGE	55235 PECANCK7 345 *B399 PECANCK1 1 1	366	90.4	94.0	6.5650	92.3	3.4020	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility	
10WP	AEPW-AEPW	53597 ROKHILL2 69 *B042 1 1	46	78.2	92.7	3.3130	92.5	3.2740	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility	

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Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10WP	AEPW-AEPW	53597 ROKHILL2 69 *B140 1 2	46	77.8	92.1	3.2900	92.0	3.2520	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility	
10WP	AEPW-AEPW	53598 ROKHILL4 138 *B042 1 1	46	78.4	92.9	3.3130	92.7	3.2740	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility	
10WP	AEPW-AEPW	53598 ROKHILL4 138 *B140 1 2	46	78.0	92.4	3.2900	92.2	3.2520	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility	
											This cost may be higher due to additional facilities whose solutions will be determined during the Facility Study process	$*
											Total Cost with Facilities Monitored @ 90% Loading	$ 8,327,000
											Total Cost with Facilities Monitored @ 100% Loading	$ 4,765,000

*Existing Network Resource has a minimal positive impact or a negative impact on facility. No credit for positive impact removed can be given to the New Network Resource for this facility.

Table 2 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 2

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05AP		NONE IDENTIFIED								200		
05G	AEPW-AEPW	53571 MARSHL-4 138 *B017 1 2	107	86.5	93.4	3.6550	93.2	3.5790	53623 MARAUTO2 69 *B042 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05G	AEPW-AEPW	53571 MARSHL-4 138 *B042 1 1	107	86.6	93.5	3.6590	93.3	3.5840	53623 MARAUTO2 69 *B017 1 2	200	See Previous Upgrade Specified For Facility in Scenario 1	
05G	AEPW-AEPW	53623 MARAUTO2 69 *B017 1 2	107	86.4	93.3	3.6550	93.1	3.5790	53571 MARSHL-4 138 *B042 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05G	AEPW-AEPW	53623 MARAUTO2 69 *B042 1 1	107	86.5	93.4	3.6590	93.2	3.5840	53571 MARSHL-4 138 *B017 1 2	200	See Previous Upgrade Specified For Facility in Scenario 1	
05G	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	104	86.3	95.3	4.7000	91.9	2.9600	54023 OKMULGE4 138 54057 KELCO 4 138 1	200	Replace Okmulgee Wavetrap	$40,000
05G	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	104	82.7	91.7	4.7000	88.4	2.9600	54023 OKMULGE4 138 54057 KELCO 4 138 1	200	Replace Weleetka Wavetrap	$40,000
05SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	58	111.9	122.7	3.1480	122.3	3.0080	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53571 MARSHL-4 138 *B041 1 1	107	100.3	107.1	3.6390	106.4	3.2670	53571 MARSHL-4 138 *B142 1 2	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53571 MARSHL-4 138 *B142 1 2	107	100.2	107.0	3.6350	106.3	3.2630	53571 MARSHL-4 138 *B041 1 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53623 MARAUTO2 69 *B041 1 1	107	100.2	107.0	3.6390	106.3	3.2670	53571 MARSHL-4 138 *B142 1 2	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53623 MARAUTO2 69 *B142 1 2	107	100.1	106.9	3.6350	106.2	3.2630	53571 MARSHL-4 138 *B041 1 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	196	99.7	111.8	11.8850	111.7	11.7690	53619 WILKES 4 138 53622 WELSHRE4 138 1	5	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53278 MAGNOLA2 69 53336 WINNSBO2 69 1	72	97.4	108.6	4.0220	108.2	3.8830	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	46	See Previous Upgrade Specified For Facility in Scenario 1	

Table 2 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 2

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05SP	AEPW-AEPW	53278 MAGNOLA2 69 53532 FORSTHL2 69 1	72	97.0	108.2	4.0220	107.8	3.8830	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	54	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	314	86.0	92.3	9.9070	92.0	9.4290	53619 WILKES 4 138 53622 WELSHRE4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53540 GREGGTN2 69 53562 LLAMOND2 69 1	107	85.6	92.4	3.6590	92.3	3.5740	53527 DIANA 4 138 53590 PERDUE 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53597 ROKHILL2 69 *B003 1 2	46	79.3	93.2	3.1830	93.1	3.1640	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53598 ROKHILL4 138 *B003 1 2	46	79.3	93.2	3.1830	93.1	3.1640	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53598 ROKHILL4 138 *B068 1 1	46	80.0	94.0	3.2060	93.9	3.1860	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SH		NONE IDENTIFIED								200		
05FA		NONE IDENTIFIED								200		
05WP		NONE IDENTIFIED								200		
07SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	196	111.1	123.0	11.6270	122.8	11.4530	53619 WILKES 4 138 53622 WELSHRE4 138 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53571 MARSHL-4 138 *B069 1 1	107	104.8	111.6	3.6200	110.9	3.2520	53623 MARAUTO2 69 *B099 1 2	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53571 MARSHL-4 138 *B099 1 2	107	104.7	111.5	3.6160	110.8	3.2480	53571 MARSHL-4 138 *B069 1 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53623 MARAUTO2 69 *B069 1 1	107	104.6	111.3	3.6200	110.7	3.2520	53571 MARSHL-4 138 *B099 1 2	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53623 MARAUTO2 69 *B099 1 2	107	104.5	111.2	3.6160	110.6	3.2480	53571 MARSHL-4 138 *B069 1 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	314	97.2	103.5	9.8090	103.1	9.2740	53619 WILKES 4 138 53622 WELSHRE4 138 1	89	Reset CTs	$ 2,000

Table 2 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 2

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
07SP	AEPW-AEPW	53245 ALUMXT 4 138 53300 NWTXARK4 138 1	260	86.3	92.0	7.3340	90.7	5.7300	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	59	80.3	94.3	4.1130	94.1	4.0520	53581 NMINEOL4 138 *B073 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53540 GREGGTN2 69 53562 LLAMOND2 69 1	107	84.3	90.8	3.4690	90.7	3.4270	53527 DIANA 4 138 53590 PERDUE 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53597 ROKHILL2 69 *B140 1 1	46	84.3	98.3	3.1960	98.2	3.1780	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53598 ROKHILL4 138 *B003 1 2	46	84.1	98.0	3.1740	97.9	3.1560	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07WP		NONE IDENTIFIED								200		
10SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	195	120.9	132.8	11.6650	132.5	11.3690	53619 WILKES 4 138 53622 WELSHRE4 138 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53374 FULTON 3 115 53383 HOPE 3 115 1	174	108.4	113.0	4.0060	110.6	1.9540	99294 7ELDEHV 345 99295 8ELDEHV 500 1	0	Solution Undetermined	TBD
10SP	AEPW-AEPW	53557 KNOXLEE4 138 53586 OAK2HIL4 138 1	206	103.6	108.3	4.7990	108.1	4.6240	53557 KNOXLEE4 138 53574 MONROER4 138 1	0	Reset relays & replace wavetrap @ Knoxlee	$ 50,000
10SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	313	97.1	103.3	9.8390	102.3	8.2450	53619 WILKES 4 138 53622 WELSHRE4 138 1	94	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53598 ROKHILL4 138 *B039 1 1	46	91.5	105.5	3.1920	105.1	3.1090	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	121	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53597 ROKHILL2 69 *B039 1 1	46	91.1	105.0	3.1920	104.6	3.1090	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	128	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53598 ROKHILL4 138 *B130 1 2	46	90.9	104.7	3.1700	104.4	3.0870	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	132	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53597 ROKHILL2 69 *B130 1 2	46	90.4	104.3	3.1700	103.9	3.0870	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	138	See Previous Upgrade Specified For Facility in Scenario 1	

Table 2 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 2

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	58	86.9	101.0	4.1150	100.8	4.0440	53580 NMINEOL2 69 *B019 1 1	186	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53245 ALUMXT 4 138 53250 BANN 4 138 1	260	85.3	91.0	7.3410	90.9	7.2160	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53245 ALUMXT 4 138 53300 NWTXARK4 138 1	260	91.2	96.8	7.3410	96.7	7.2160	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53278 MAGNOLA2 69 53336 WINNSBO2 69 1	72	77.9	91.8	4.9790	91.6	4.9080	53581 NMINEOL4 138 *B019 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53278 MAGNOLA2 69 53532 FORSTHL2 69 1	72	77.4	91.3	4.9790	91.1	4.9080	53580 NMINEOL2 69 *B019 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53453 SW SHV 4 138 *B003 1 1	657	92.7	96.4	12.1040	95.9	10.4780	53453 SW SHV 4 138 *B009 1 2	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53453 SW SHV 4 138 *B009 1 2	657	91.0	94.6	11.8860	94.1	10.2890	53453 SW SHV 4 138 *B003 1 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53453 SW SHV 4 138 53455 SW SHVT4 138 1	302	90.7	96.4	8.6420	95.6	7.4800	53464 Western Electric Tap 53453 SW Shreveport 138 1 53464 Western Electric Tap 53450 Stonewall 138 1 53464 Western Electric Tap 53463 Western Electric 138 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53454 SW SHV 7 345 *B003 1 1	653	93.3	97.0	12.1040	96.5	10.4780	53453 SW SHV 4 138 *B009 1 2	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53454 SW SHV 7 345 *B009 1 2	654	91.5	95.1	11.8860	94.7	10.2890	53454 SW SHV 7 345 *B003 1 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53527 DIANA 4 138 53590 PERDUE 4 138 1	268	83.5	91.9	11.1370	91.8	11.0450	53542 HARRISN4 138 53561 LIBCYTP4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53619 WILKES 4 138 53622 WELSHRE4 138 1	260	86.2	94.3	10.6050	94.0	10.2130	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	200	Solution Undetermined	TBD
10WP	AEPW-AEPW	53597 ROKHILL2 69 *B042 1 1	46	80.6	95.1	3.3130	94.9	3.2740	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10WP	AEPW-AEPW	53597 ROKHILL2 69 *B140 1 2	46	80.2	94.5	3.2900	94.4	3.2520	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10WP	AEPW-AEPW	53598 ROKHILL4 138 *B042 1 1	46	80.8	95.3	3.3130	95.1	3.2740	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	

Table 2 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 2

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10WP	AEPW-AEPW	53598 ROKHILL4 138 *B140 1 2	46	80.2	94.5	3.2900	94.4	3.2520	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
											This cost may be higher due to additional facilities whose solutions will be determined during the Facility Study process	$*
											Total Cost with Facilities Monitored @ 90% Loading	$ 130,000
											Total Cost with Facilities Monitored @ 100% Loading	$ 52,000

*Existing Network Resource has a minimal positive impact or a negative impact on facility. No credit for positive impact removed can be given to the New Network Resource for this facility.

Table 3 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05AP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	103	88.7	97.9	4.7040	96.5	4.0210	54023 OKMULGE4 138 54057 KELCO 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 2	
05AP	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	103	86.7	95.8	4.7040	94.5	4.0210	54023 OKMULGE4 138 54057 KELCO 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 2	
05AP	WFEC-AEPW	55948 HUGO PP4 138 54044 VALIANT4 138 1	288	90.9	94.8	5.5450	94.6	5.3440	55948 HUGO PP4 138 56079 VALLANT4 138 1	200	Replace Wavetrap @ Valliant.	$ 30,000
05G	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	103	106.9	116.0	4.7000	112.6	2.9600	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	Replace Okmulgee Wavetrap	$ 40,000
05G	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	103	103.3	112.4	4.7000	109.0	2.9600	54023 OKMULGE4 138 54057 KELCO 4 138 1	0	Replace Weleetka Wavetrap	$ 40,000
05G	SWPA-AEPW	52814 BRKN BW4 138 54015 CRAIGJT4 138 1	107	85.0	94.8	5.2420	92.6	2.6250	56004 MTRIVER4 138 54015 CRAIGJT4 138 1	200	Rebuild 7.66 miles of 3/0 CW CU with 795 ACSR	$ 2,700,000
05G	AEPW-AEPW	53571 MARSHL-4 138 *B017 1 2	107	88.0	94.9	3.6550	94.7	3.5790	53571 MARSHL-4 138 *B042 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05G	AEPW-AEPW	53571 MARSHL-4 138 *B042 1 1	107	88.1	95.0	3.6590	94.8	3.5840	53571 MARSHL-4 138 *B017 1 2	200	See Previous Upgrade Specified For Facility in Scenario 1	
05G	AEPW-AEPW	53623 MARAUTO2 69 *B017 1 2	107	87.9	94.8	3.6550	94.6	3.5790	53623 MARAUTO2 69 *B042 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05G	AEPW-AEPW	53623 MARAUTO2 69 *B042 1 1	107	88.1	95.0	3.6590	94.8	3.5840	53623 MARAUTO2 69 *B017 1 2	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	58	113.8	124.6	3.1480	124.1	3.0080	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53571 MARSHL-4 138 *B041 1 1	107	102.1	108.9	3.6390	108.2	3.2670	53623 MARAUTO2 69 *B142 1 2	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53571 MARSHL-4 138 *B142 1 2	107	102.0	108.8	3.6350	108.1	3.2630	53571 MARSHL-4 138 *B041 1 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53623 MARAUTO2 69 *B041 1 1	107	102.1	108.9	3.6390	108.2	3.2670	53623 MARAUTO2 69 *B142 1 2	0	See Previous Upgrade Specified For Facility in Scenario 1	

Table 3 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05SP	AEPW-AEPW	53623 MARAUTO2 69 *B142 1 2	107	101.9	108.7	3.6350	108.0	3.2630	53571 MARSHL-4 138 *B041 1 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	196	99.6	111.7	11.8850	111.6	11.769	53619 WILKES 4 138 53622 WELSHRE4 138 1	7	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53278 MAGNOLA2 69 53336 WINNSBO2 69 1	72	98.9	110.2	4.0220	N/A*	N/A*	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	19	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53278 MAGNOLA2 69 53532 FORSTHL2 69 1	72	98.5	109.8	4.0220	N/A*	N/A*	53590 PERDUE 4 138 53666 LHAWKIN4 138 1	26	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	SWPA-AEPW	52814 BRKN BW4 138 54015 CRAIGJT4 138 1	107	83.5	93.3	5.2430	92.0	4.5540	56004 MTRIVER4 138 54015 CRAIGJT4 138 1	200	See Previous Upgrade Specified For Facility	
05SP	AEPW-AEPW	53245 ALUMXT 4 138 53300 NWTXARK4 138 1	260	88.0	93.7	7.3230	93.2	6.7510	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	314	85.6	91.9	9.9070	91.6	9.4290	53619 WILKES 4 138 53622 WELSHRE4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53540 GREGGTN2 69 53562 LLAMOND2 69 1	107	86.2	93.0	3.6590	92.9	3.5740	53527 DIANA 4 138 53590 PERDUE 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53597 ROKHILL2 69 *B003 1 2	46	78.9	92.8	3.1830	92.7	3.1640	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53597 ROKHILL2 69 *B068 1 1	46	79.3	93.3	3.2060	93.2	3.1860	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53598 ROKHILL4 138 *B003 1 2	46	78.9	92.8	3.1830	92.7	3.1640	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	AEPW-AEPW	53598 ROKHILL4 138 *B068 1 1	46	79.3	93.3	3.2060	93.2	3.1860	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SH	OKGE-OKGE	55228 5TRIBES5 161 55234 PECANCK5 161 1	223	88.8	91.7	3.2210	89.6	0.8570	55230 AGENCY 5 161 55234 PECANCK5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	

Table 3 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05SH	OKGE-OKGE	55234 PECANCK5 161 *B423 PECANCK1 1 1	370	89.7	93.3	6.7640	90.9	2.2230	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05SH	OKGE-OKGE	55235 PECANCK7 345 *B423 PECANCK1 1 1	367	90.5	94.2	6.7640	91.7	2.2230	55224 MUSKOGE7 345 55302 FTSMITH7 345 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
05FA		NONE IDENTIFIED								200		
05WP	SWPA-AEPW	52814 BRKN BW4 138 54015 CRAIGJT4 138 1	107	93.3	103.1	5.2480	98.1	2.5740	55823 BBDAMTP4 138 56004 MTRIVER4 138 1	137	See Previous Upgrade Specified For Facility	
05WP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	104	84.2	93.2	4.6990	85.3	0.5940	54023 OKMULGE4 138 54057 KELCO 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 2	
07SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	196	110.9	122.8	11.6270	122.4	11.207	53619 WILKES 4 138 53622 WELSHRE4 138 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53571 MARSHL-4 138 *B069 1 1	107	106.4	113.1	3.6200	112.3	3.1820	3Wnd: OPEN *B0 99 2	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53571 MARSHL-4 138 *B099 1 2	107	106.3	113.0	3.6160	112.2	3.1790	3Wnd: OPEN *B0 69 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53623 MARAUTO2 69 *B069 1 1	107	106.2	112.9	3.6200	112.1	3.1820	3Wnd: OPEN *B0 99 2	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53623 MARAUTO2 69 *B099 1 2	107	106.1	112.8	3.6160	112.0	3.1790	3Wnd: OPEN *B0 69 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	314	94.7	101.0	9.8090	100.3	8.8490	53619 WILKES 4 138 53622 WELSHRE4 138 1	169	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	SWPA-AEPW	52814 BRKN BW4 138 54015 CRAIGJT4 138 1	107	86.8	96.6	5.2420	94.3	4.0160	56004 MTRIVER4 138 54015 CRAIGJT4 138 1	200	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	53245 ALUMXT 4 138 53250 BANN 4 138 1	260	85.9	91.5	7.3340	91.1	6.7660	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53245 ALUMXT 4 138 53300 NWTXARK4 138 1	260	91.5	97.1	7.3340	96.7	6.7660	53299 NW Texarkana Bann Tap 53300 N New Boston 138 1 53299 NW Texarkana Bann Tap 53298 NW Texarkana 138 1 53299 NW Texarkana Bann Tap 53250 Bann 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	

Table 3 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
07SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	59	80.5	94.5	4.1130	94.1	4.0170	3Wnd: OPEN *B0 73 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53540 GREGGTN2 69 53562 LLAMOND2 69 1	107	85.0	91.4	3.4690	91.3	3.4020	53527 DIANA 4 138 53590 PERDUE 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53597 ROKHILL2 69 *B003 1 2	46	83.4	97.3	3.1740	97.1	3.1220	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53597 ROKHILL2 69 *B140 1 1	46	84.1	98.1	3.1960	97.8	3.1440	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53598 ROKHILL4 138 *B003 1 2	46	83.6	97.6	3.1740	97.3	3.1220	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	53598 ROKHILL4 138 *B140 1 1	46	84.3	98.3	3.1960	98.1	3.1440	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	105	82.5	91.4	4.6860	90.1	4.0230	54023 OKMULGE4 138 54057 KELCO 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 2	
07WP	SWPA-AEPW	52814 BRKN BW4 138 54015 CRAIGJT4 138 1	107	98.7	108.5	5.2460	103.5	2.5760	55823 BBDAMTP4 138 56004 MTRIVER4 138 1	27	See Previous Upgrade Specified For Facility	
07WP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	104	93.2	102.2	4.6860	94.3	0.5930	54023 OKMULGE4 138 54057 KELCO 4 138 1	152	See Previous Upgrade Specified For Facility in Scenario 2	
07WP	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	104	88.6	97.6	4.6860	89.7	0.5930	54023 OKMULGE4 138 54057 KELCO 4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 2	
10SP	AEPW-AEPW	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	195	120.6	132.6	11.6650	132.3	11.413	53619 WILKES 4 138 53622 WELSHRE4 138 1	0	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53557 KNOXLEE4 138 53586 OAK2HIL4 138 1	206	105.3	109.9	4.7990	109.8	4.6600	53557 KNOXLEE4 138 53574 MONROER4 138 1	0	See Previous Upgrade Specified For Facility in Scenario 2	
10SP	AEPW-AEPW	53598 ROKHILL4 138 *B039 1 1	46	91.1	105.0	3.1920	104.7	3.1180	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	128	See Previous Upgrade Specified For Facility in Scenario 1	

Table 3 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10SP	AEPW-AEPW	53597 ROKHILL2 69 *B039 1 1	46	90.7	104.6	3.1920	104.2	3.1180	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	134	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53598 ROKHILL4 138 *B130 1 2	46	90.4	104.3	3.1700	104.0	3.0960	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	138	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53597 ROKHILL2 69 *B130 1 2	46	90.0	103.8	3.1700	103.5	3.0960	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	145	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53276 LSSOUTH4 138 53619 WILKES 4 138 1	313	95.2	101.5	9.8390	100.6	8.4550	53619 WILKES 4 138 53622 WELSHRE4 138 1	152	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53532 FORSTHL2 69 53596 QUITMAN2 69 1	58	86.9	101.0	4.1150	100.8	4.0550	53580 NMINEOL2 69 *B019 1 1	186	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	SWPA-AEPW	52814 BRKN BW4 138 54015 CRAIGJT4 138 1	107	82.6	92.4	5.2400	88.7	3.2560	55823 BBDAMTP4 138 56004 MTRIVER4 138 1	200	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53278 MAGNOLA2 69 53336 WINNSBO2 69 1	72	77.9	91.8	4.9790	91.6	4.9190	53580 NMINEOL2 69 *B019 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53278 MAGNOLA2 69 53532 FORSTHL2 69 1	72	77.4	91.3	4.9790	91.2	4.9190	53581 NMINEOL4 138 *B019 1 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53374 FULTON 3 115 53383 HOPE 3 115 1	174	94.0	98.6	4.0060	96.3	2.0380	99294 7ELDEHV 345 99295 8ELDEHV 500 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53453 SW SHV 4 138 *B003 1 1	657	92.1	95.8	12.1040	95.3	10.678	53453 SW SHV 4 138 *B009 1 2	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53453 SW SHV 4 138 *B009 1 2	657	90.4	94.0	11.8860	93.6	10.485	53453 SW SHV 4 138 *B003 1 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53453 SW SHV 4 138 53455 SW SHVT4 138 1	302	89.8	95.5	8.6420	94.8	7.6210	53464 Western Electric Tap 53453 SW Shreveport 138 1 53464 Western Electric Tap 53450 Stonewall 138 1 53464 Western Electric Tap 53463 Western Electric 138 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53454 SW SHV 7 345 *B003 1 1	653	92.6	96.4	12.1040	95.9	10.678	53454 SW SHV 7 345 *B009 1 2	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53454 SW SHV 7 345 *B009 1 2	654	90.9	94.5	11.8860	94.1	10.485	53453 SW SHV 4 138 *B003 1 1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53584 NWHENDR4 138 53585 OAK1HIL4 138 1	237	87.8	90.7	3.4750	90.6	3.3370	53557 KNOXLEE4 138 53574 MONROER4 138 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53619 WILKES 4 138 53622 WELSHRE4 138 1	260	85.7	93.9	10.6050	93.6	10.267	53276 LSSOUTH4 138 53311 PITTSB_4 138 1	200	Solution Undetermined	TBD

Table 3 – SPP facility overloads identified for the AEPW to AEPW transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Existing TC % Loading	Existing %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10WP	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	105	98.7	107.7	4.6850	99.8	0.5940	54023 OKMULGE4 138 54057 KELCO 4 138 1	29	See Previous Upgrade Specified For Facility in Scenario 2	
10WP	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	104	93.7	102.7	4.6850	94.9	0.5940	54023 OKMULGE4 138 54057 KELCO 4 138 1	139	See Previous Upgrade Specified For Facility in Scenario 2	
10WP	SWPA-AEPW	52814 BRKN BW4 138 54015 CRAIGJT4 138 1	107	81.1	90.9	5.2430	89.0	2.5740	56004 MTRIVER4 138 54015 CRAIGJT4 138 1	200	See Previous Upgrade Specified For Facility	
10WP	AEPW-AEPW	53597 ROKHILL2 69 *B042 1 1	46	80.2	94.6	3.3130	94.5	3.2740	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10WP	AEPW-AEPW	53597 ROKHILL2 69 *B140 1 2	46	79.7	94.1	3.2900	93.9	3.2520	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10WP	AEPW-AEPW	53598 ROKHILL4 138 *B042 1 1	46	80.6	95.1	3.3130	94.9	3.2740	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10WP	AEPW-AEPW	53598 ROKHILL4 138 *B140 1 2	46	79.7	94.1	3.2900	93.9	3.2520	53516 BLOCKRT2 69 53570 MARSHAL2 69 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
											This cost may be higher due to additional facilities whose solutions will be determined during the Facility Study process	$*
											Total Cost with Facilities Monitored @ 90% Loading	$ 2,730,000
											Total Cost with Facilities Monitored @ 100% Loading	$ 2,780,000

*Existing Network Resource has a minimal positive impact or a negative impact on facility. No credit for positive impact removed can be given to the New Network Resource for this facility.

Appendix A

MUST CHOICES IN RUNNING FCITC DC ANALYSIS

CONSTRAINTS/CONTINGENCY INPUT OPTIONS

1. AC Mismatch Tolerance – 2 MW
2. Base Case Rating – Rate A
3. Base Case % of Rating – 90%
4. Contingency Case Rating – Rate B
5. Contingency Case % of Rating – 90%
6. Base Case Load Flow – Do not solve AC
7. Convert branch ratings to estimated MW ratings – Yes
8. Contingency ID Reporting – Labels
9. Maximum number of contingencies to process - 50000

MUST CALCULATION OPTIONS

1. Phase Shifters Model for DC Linear Analysis – Constant flow for Base Case and Contingencies
2. Report Base Case Violations with FCITC – Yes
3. Maximum number of violations to report in FCITC table - 50000
4. Distribution Factor (OTDF and PTDF) Cutoff – 0.03
5. Maximum times to report the same elements - 10
6. Apply Distribution Factor to Contingency Analysis – Yes
7. Apply Distribution Factor to FCITC Reports – Yes
8. Minimum Contingency Case flow change – 1 MW
9. Minimum Contingency Case Distribution Factor change – 0.0
10. Minimum Distribution Factor for Transfer Sensitivity Analysis – 0.0