



SPP *Southwest Power Pool*

*System Impact Study
For Transmission Service
Requested By
Power Resource Group, Inc.*

From AEPW to Entergy

For a Reserved Amount Of 670MW

From 1/1/03

To 1/1/06

Supplemental Study

SPP Transmission Planning

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Revised August 22, 2001 To Include Revision of Tables 1, 2 and 3 with the assumption that the CPS CSWS to EES 250MW request and CPS CSWS to AMRN 150MW request are confirmed.

1. Executive Summary

Power Resource Group, Inc. has requested a system impact study for long-term Firm Point-to-Point transmission service from AEPW to Entergy. The period of the transaction is from 1/1/03 to 1/1/06. The request is for one reservation (212202), totaling 670MW.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the additional 670MW transfer while maintaining system reliability. New overloads caused by the 670MW transfer were monitored along with any previously assigned and identified facilities that were further overloaded by the transfer.

This study includes Constellation Power Source's reservations for 250MW from CSWS to EES and 150MW from CSWS to AMRN that are still in the study mode. The withdrawal of these requests will impact the results of this study. The proposed 345kV line from New Mountain to Wilkes was not modeled in this study. The line was proposed in System Impact Study SPP-2000-044 for the CPS reservation for 150MW from CSWS to AMRN.

Due to the significant number of facility overloads caused by the 670MW transfer, SPP proposes the addition of a 500kV transmission line connecting from Pittsburg to NW Texarkana to McNeil substations. Also proposed is a 345kV transmission line from Dolet Hills to tap the Mt. Olive - Hartburg 500kV line. Analysis will need to be performed to determine the facilities relieved by the addition of these projects on the SPP transmission system.

The SPP and effected member companies shall use due diligence to coordinate the addition of necessary facilities or transmission system upgrades to provide the requested transmission service. Power Resource Group, Inc. is to compensate SPP for such costs pursuant to the terms of section 27 of the SPP Open Access Transmission Tariff.

Expedited procedures for new facilities are available to Power Resource Group, Inc. per section 19.8 of the SPP Open Access Transmission Service Tariff.

Engineering and construction of any new facilities or modifications will not start until after a transmission service agreement and/or construction agreement is in place and effected member companies receives the appropriate authorization to proceed from the SPP after they receive authorization from the transmission customer.

2. Introduction

Power Resource Group, Inc. has requested an impact study for transmission service from AEPW control area with a sink of EES.

The principal objective of this study is to identify the restraints on the SPP Regional Tariff System that may limit the transfer to less than 670MW and to propose additional transmission projects that will relieve the overloads caused by the transfer.

The impact of the 670MW transfer was studied with no proposed transmission projects included. The proposed projects will need to be studied to determine the benefits to the transmission system.

This study includes a steady-state contingency analyses (PSS/E function ACCC) which considers the impact of the 670MW transfer on transmission line loading and transmission bus voltages for outages of single and selected multiple transmission lines and transformers on the SPP system.

3. Study Methodology

A. Description

Two analyses were conducted to determine the impact of the 670MW transfer on the system. The first analysis was conducted to identify any new overloads caused by the 670MW transfer. The second analysis was done to ensure that available capacity exists on previously identified circuits.

The first analysis was to study the steady-state analysis impact of the 670MW transfer on the system. The second step was to determine the Available Transfer Capability (ATC) of the facilities identified in the steady-state analysis impact. The steady-state analysis was done to ensure current SPP Criteria and NERC Planning Standards requirements are fulfilled. The Southwest Power Pool (SPP) conforms to the NERC Planning Standards, which provide the strictest requirements, related to thermal overloads with a contingency. It requires that all facilities be within emergency ratings after a contingency.

The second analysis was done to determine the impact of the transfer on previously assigned and identified facilities.

Any new facilities that were overloaded or any previously assigned and identified facilities further impacted by the transfer are documented in the report.

Looking at the revised analysis of 670MW transfer request, there are several limiting elements that restrict the AEPW to EES transfer. These overloaded facilities are listed in Table 1. Due to the limited number of upgrades that can be made each year because of reliability concerns during outages, the SPP has proposed the Pittsburg-NW Texarkana-McNeil 500kV line as an alternative to upgrading the identified facilities. This project was found to be the shortest path that provides the capability that is needed to allow the 670MW transfer. Further analysis of the Pittsburgh – NW Texarkana – McNeil 500kV line showed that with a double outage of the Welsh to NW Texarkana 345kV line and Welsh to Wilkes 345kV with the plant at Kiowa offline, the Welsh to Lydia 345kV line overloads. To relieve this overload, the 345kV line addition from Dolet Hills to tap the Mt. Olive to Hartburg 500kV line is also proposed. The Dolet Hills tap relieves the Welsh to Lydia 345kV line with no need for reconductoring.

	Branch	Length	R	X	B	Rate A	Rate B
Pittsburg – NW Texarkana	PITTSB-8 500 to NWTXARK8 500	140 miles	0.00232	0.03170	3.06700	1732	1732
NW Texarkana – McNeil	NWTXARK8 500 to 8MCNEIL 500	65 miles	0.00108	0.01471	1.42400	1732	1732
Dolet Hills – Coushatta	DOLHILL7 345 to CHOUSHT7 345	28 miles	0.00148	0.01352	0.23423	1011	1176

B. Model Updates

SPP used four seasonal models to study the 670MW request. The SPP 2001 Series Cases 2003 Spring Peak, 2004 Summer Peak, 2004/2005 Winter Peak, and 2006 Summer Peak were used to study the impact of the 670MW transfer on the SPP system during the

transaction period of 1/1/03 to 1/1/06. The 2003 Spring Peak model is representative of the Spring Seasons throughout the length of the reservation.

The chosen base case models were modified to reflect the most current modeling information. The cases were modified to reflect future firm transfers during the request period that were not already included in the January 2001 base case series models.

C. Transfer Analysis

Using the created models and the ACCC function of PSS/E, single and select double contingency outages were analyzed. Then full AC solution was used to obtain the most accurate results possible. Any facility overloaded, using MVA ratings, in the transfer case and not overloaded in the base case was flagged. The PSS/E options chosen to conduct the Impact Study analysis can be found in Appendix A.

4. Study Results

A. Study Analysis Results

Tables 1 thru 3 contain the analysis results of the System Impact Study. The tables identify the seasonal case in which the event occurred; the emergency rating of the overloaded circuit (Rate B), the contingent loading percentage of circuit with and without the studied transfer, the estimated ATC value using interpolation if calculated, any SPP identification or assignment of the event, and any solutions received from the transmission owners.

Tables 1 and 2 contain new facility overloads caused by the 670MW transfer. Table 1 contains the facility overloads on SPP Regional Tariff participants' transmission systems. Table 2 documents overloads on Non SPP Regional Tariff participants' transmission systems. These tables show the numerous facilities, which must be relieved in order to provide the capability needed for the 670MW transfer.

Table 3 documents the 670MW transfer impact on previously assigned and identified facilities. Several of these facilities that were previously assigned are further overloaded by the 670MW transaction. Many of these have been overloaded past the new limits provided by the previously assigned upgrades. The facilities must be further upgraded to allow the 670MW transfer from AEPW to EES.

Table 1 – SPP Facility Overloads caused by the 670MW AEPW to EES transfer.

Study Year	From Area To Area	Branch Over 100% of Rate B	RATE B	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Solution
03G	WERE-WERE	HOYT TO HOYT HTI SWITCHING JCT, 115 KV 57163 HOYT 3 115 to 57165 HTI JCT3 115 CKT 1	92	98.8	100.7	JEFFREY ENERGY CENTER TO EAST MANHATTAN, 230KV 56852 JEC 6 230 to 56861 EMANHAT6 230 CKT1	418	
03G	WERE-WERE	LAWRENCE HILL 230/115KV TRANSFORMER 56853 LAWHILL6 230 to 57250 LWRNCHL3 115 CKT 1	308	99.1	100.5	MIDLAND JUNCTION 230/115KV TRANSFORMER 56855 MIDLAND6 230 to 57252 MIDLAND3 115 CKT1	437	
03G	OKGE-OKGE	CHIKASKIA TAP TO BRAMAN, 69KV 54751 CHIKSTP269.0 to 54750 BRAMAN 269.0 CKT 1	38	93.2	101.1	KILDARE TO WHITE EAGLE, 138KV 54760 KILDARE4 138 to 54761 WHEAGLE4 138 CKT1	576	
03G	AEPW-AEPW	BARTLESVILLE SE TO NORTH BARTLESVILLE, 138KV 53940 BV-SE--4 138 to 53935 NBVILLE4 138 CKT 1	143	90.5	101.3	DELWARE TO NORTHEASTERN STATION, 345KV 53929 DELWARE7 345 to 53955 N.E.S.-7 345 CKT1	592	
04SP	AEPW-AEPW	ALUMAX TAP TO NORTHWEST TEXARKANA, 138KV 53245 ALUMXT 4 138 to 53300 NWTXARK4 138 CKT 1	261	99.9	103.3	BANN TO NW TEXARKANA-BANN T, 138KV 53250 BANN 4 138 to 53299 NWT-BNT4 138 CKT1	12	
04SP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 269.0 to 96649 2JASPER 69.0 CKT 1	47	99.9	104.3	FORT SMITH TO ARKANSAS NUCLEAR ONE, 500KV 55305 FTSMITH8 500 to 99486 8ANO 500 CKT1	22	
04SP	EMDE-EMDE	MONETT TO AURORA HT, 161KV 59480 MON383 5 161 to 59468 AUR124 5 161 CKT 1	157	99.6	107.9	FORT SMITH TO ARKANSAS NUCLEAR ONE, 500KV 55305 FTSMITH8 500 to 99486 8ANO 500 CKT1	29	
04SP	SWPA-AECI	CARTHAGE TO REEDS, 69KV 52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	36	99.8	104.5	MIAMI TO AFTON, 161KV 54431 MIAMI 5 161 to 54432 AFTON 5 161 CKT1	35	
04SP	AEPW-AEPW	FERNDALE LAKE TAP TO PITTSBURG, 69KV 53531 FERNDTP269.0 to 53310 PITTSB 269.0 CKT 1	72	99.9	101.0	HOPEWELL REC TO WINFIELD, 69KV 53262 HOPEWEL269.0 to 53335 WINFIEL269.0 CKT1	85	
04SP	EES-SWPA	MIDWAY TO BULL SHOALS, 161KV 99825 5MIDWAY# 161 to 52660 BULL SH5 161 CKT 1	162	98.8	105.5	BULL SHOALS TO GAINES, 161KV 52660 BULL SH5 161 to 96081 5GAINES 161 CKT1	117	
04SP	AEPW-WFEC	SOUTHWEST STATION TO ANADARKO, 138KV 54140 S.W.S.-4 138 to 55814 ANADARK4 138 CKT 1	203	99.4	101.4	CORNVILLE TO CORN TAP, 138KV 54112 CORNVIL4 138 to 55867 CORN TP4 138 CKT1	190	
04SP	EMDE-AECI	NEOSHO 161/69KV TRANSFORMER (AEC OWNER) 59471 NEO184 5 161 to 96748 2NEOSAC 69.0 CKT 1	56	98.8	102.5	BEAVER TO EUREKA SPRINGS, 161KV 52680 BEAVER 5 161 to 53136 EUREKA 5 161 CKT1	212	
04SP	EMDE-EMDE	REINMILLER 161/69KV TRANSFORMER 59595 RNM393 269.0 to 59500 RNM393 5 161 CKT 1	75	99.6	100.8	TIPTON FORD TO JOPLIN SOUTHWEST, 161KV 59472 TIP292 5 161 to 59483 JOP389 5 161 CKT1	214	
04SP	OKGE-OKGE	TINKER #4 TO TINKER #2, 138KV 54988 TINKER44 138 to 54990 TINKER24 138 CKT 1	100	98.6	102.7	NE 10TH TO MIDWAY, 138KV 54964 NE10TH 4 138 to 54966 MIDWAY 4 138 CKT1	226	
04SP	GRRD-GRRD	PENSACOLA TO GRAY TAP, 69KV 54428 PENS-A 269.0 to 54465 GRAY TP269.0 CKT 1	47	99.3	101.2	AFTON TO CLEORA TAP, 69KV 54433 AFTON 269.0 to 54492 CLEORTP269.0 CKT1	251	
04SP	AEPW-AEPW	WILBURTON TO LONE OAK, 69KV 54031 WILBURT269.0 to 54021 LONEOAK269.0 CKT 1	48	97.6	103.9	EUFAULA TO STIGLER TAP, 138KV 52774 EUFAULA4 138 to 54050 STIGLRT4 138 CKT1	258	
04SP	SWPA-SWPA	GORE TO SALLISAW, 161KV 52752 GORE 5 161 to 52750 SALLISAW5 161 CKT 1	167	92.5	112.0	MUSKOGEE TO FORT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	258	
04SP	WERE-WERE	SOUTH GAGE (WEST) TO AUBURN, 115 KV 57179 S GAGEW3 115 to 57151 AUBURN 3 115 CKT 1	91	99.7	100.5	SOUTH GAGE (WEST) TO AUBURN, 115 KV 57151 AUBURN 3 115 to 57179 S GAGEW3 115 CKT2	260	
04SP	WERE-WERE	GILL ENERGY CENTER EAST TO MACARTHUR, 69KV 57795 GILL E 269.0 to 57813 MACARTH269.0 CKT 1	68	99.9	100.2	MACARTHUR TO OATVILLE, 69KV 57813 MACARTH269.0 to 57825 OATVILL269.0 CKT1	262	
04SP	EMDE-EMDE	DIAMOND JCT. TO SARCOXIE SOUTHWEST TAP, 69KV 59538 DIA131 269.0 to 59582 SAR362T269.0 CKT 1	38	98.5	102.2	MONETT 161/69KV TRANSFORMER 59480 MON383 5 161 to 59591 MON383 269.0 CKT1	265	
04SP	WERE-WERE	HOYT HTI SWITCHING JCT TO CIRCLEVILLE, 115KV 57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	98.9	101.4	CLIFTON TO CONCORDIA, 115KV 58756 CLIFTON3 115 to 58757 CONCORD3 115 CKT1	294	
04SP	OKGE-OKGE	CHESTNUT TO ENID, 69KV 54726 CHSTNUT269.0 to 54727 ENID 269.0 CKT 1	66	99.3	100.8	CHESTNUT TO SOUTH 4TH ST, 69KV 54726 CHSTNUT269.0 to 54730 SO4TH2 269.0 CKT1	295	
04SP	OKGE-OKGE	MUSKOGEE 161/69KV TRANSFORMER 55222 MUSKOGEE5 161 to 55221 MUSKOGEE269.0 CKT 1	41	99.1	101.1	MUSKOGEE 161/69KV TRANSFORMER 55221 MUSKOGEE269.0 to 55222 MUSKOGEE5 161 CKT3	303	

Table 1 continued – SPP Facility Overloads caused by the 670MW AEPW to EES transfer.

Study Year	From Area To Area	Branch Over 100% of Rate B	RATE B	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Solution
04SP	AEPW-AEPW	PATTERSON TO SOUTH NASHVILLE, 138KV 53306 PATTERS4 138 to 53321 SNASHVL4 138 CKT 1	118	92.2	108.6	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1	318	
04SP	AEPW-AEPW	PATTERSON TO SOUTH NASHVILLE, 138KV 53306 PATTERS4 138 to 53321 SNASHVL4 138 CKT 1	118	92.1	108.4	ELDORADO-EHV 500/345KV TRANSFORMER 99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1	324	
04SP	EMDE-EMDE	JOPLIN SOUTHWEST 161/69KV TRANSFORMER 59483 JOP389 5 161 to 59592 JOP389 269.0 CKT 1	75	99.7	100.2	TIPTON FORD TO JOPLIN SOUTHWEST, 161KV 59472 TIP292 5 161 to 59483 JOP389 5 161 CKT1	414	
04SP	AEPW-AEPW	PITTSBURG TO LONE STAR SOUTH, 138KV 53311 PITTSB 4 138 to 53276 LSSOUTH4 138 CKT 1	236	99.7	100.1	CHAPEL HILL REC TO WELSH REC, 138KV 53521 CHAPELH4 138 to 53622 WELSHRE4 138 CKT1	547	
04SP	AEPW-AEPW	FLOURNOY TO OAK REC, 138KV 53405 FLOURNY4 138 to 53457 OAKPH 4 138 CKT1	209	93.4	101.3	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 TO 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 TO 53528 DIANA 7 345 CKT 1	560	
04SP	EES-EMDE	OMAHA TO POWERSITE, 161KV 99831 5OMAHA * 161 to 59474 OZD312 5 161 CKT 1	162	93.0	100.6	EUREKA SPRINGS TO OSAGE, 161KV 53136 EUREKA 5 161 to 99832 5OSAGE # 161 CKT1	614	
04WP	SWPA-AECI	CARTHAGE TO REEDS SPRING, 69KV 52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	43	99.4	104.9	MUSKOGEE TO FORT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	70	
04WP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 269.0 to 96649 2JASPER 69.0 CKT 1	52	99.1	102.5	CARTHAGE TO LARUSSEL, 161KV 52688 CARTHAG5 161 to 59479 LAR382 5 161 CKT1	173	
04WP	AEPW-EES	SOUTH NASHVILLE TO MURFREESBORO, 138KV 53321 SNASHVL4 138 to 99389 4MURFRE 138 CKT 1	105	93.0	110.0	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1	276	
04WP	AEPW-EES	SOUTH NASHVILLE TO MURFREESBORO, 138KV 53321 SNASHVL4 138 to 99389 4MURFRE 138 CKT 1	105	92.9	110.0	ELDORADO-EHV 500/345KV TRANSFORMER 99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1	277	
04WP	WERE-WERE	MIDLAND 230/115KV TRANSFORMER 56855 MIDLAND6 230 to 57252 MIDLAND3 115 CKT 1	308	99.3	100.7	LAWRENCE HILL 230/115KV TRANSFORMER 56853 LAWHILL6 230 to 57250 LWRNCHL3 115 CKT1	351	
04WP	OKGE-OKGE	CHIKASKIA TAP TO BRAMAN,69KV 54751 CHIKSTP269.0 to 54750 BRAMAN 269.0 CKT 1	38	95.3	103.4	KILDARE TO WHITE EAGLE, 138KV 54760 KILDARE4 138 to 54761 WHEAGLE4 138 CKT1	388	
06SP	AEPW-AEPW	GENTRY REC TO FLINT CREEK, 161KV 53187 GENTRYR5 161 to 53139 FLINTCR5 161 CKT 1	353	99.9	102.0	ROGERS TO LOWELL REC, 161KV 53152 ROGERS 5 161 to 53200 LOWELLR5 161 CKT1	24	
06SP	AEPW-AEPW	SCROGNS TO FERNDAL LAKE TAP, 69KV 53316 SCROGNS269.0 to 53531 FERNDTP269.0 CKT 1	85	99.9	101.6	NORTH MINEOLA TO LAKE HAWKINS, 138KV 53581 NMINEOL4 138 to 53666 LHAWKIN4 138 CKT1	32	
06SP	SWPA-AECI	CARTHAGE TO REEDS, 69KV 52690 CARTHG 269.0 to 96751 2REEDS 69.0 CKT 1	36	99.7	104.6	NEOSHO 345/138 KV TRANSFORMER 56793 NEOSHO 7 345 to 56825 NEOSHO2X1.00 CKT1	40	
06SP	AEPW-AEPW	OAK HILL #2 TO KNOX LEE, 138KV 53586 OAK2HIL4 138 to 53557 KNOXLEE4 138 CKT 1	210	99.8	101.6	KNOX LEE TO MONROE CORNERS REC, 138KV 53557 KNOXLEE4 138 to 53574 MONROCR4 138 CKT1	63	
06SP	WERE-WERE	AUBURN ROAD 230/115KV TRANSFORMER 56851 AUBURN 6 230 to 57151 AUBURN 3 115 CKT 1	308	100.0	100.2	JEFFREY ENERGY CENTER TO EAST MANHATTAN, 230K 56852 JEC 6 230 to 56861 EMANHAT6 230 CKT1	64	
06SP	AEPW-AEPW	LELMDAL TO CHAMBER SPRINGS ROAD, 161KV 53175 LELMDAL5 161 to 53154 CHAMSPR5 161 CKT 1	244	99.6	103.0	CHAMBER SPRINGS ROAD TO LELMDAL, 345KV 53155 CHAMSPR7 345 to 53176 LELMDAL7 345 CKT1	76	
06SP	AEPW-AEPW	WINNSBORO TO SCROGNS, 69KV 53336 WINNSBO269.0 to 53316 SCROGNS269.0 CKT 1	72	99.6	102.0	PERDUE TO LAKE HAWKINS, 138KV 53590 PERDUE 4 138 to 53666 LHAWKIN4 138 CKT1	110	
06SP	AEPW-AEPW	SNYDER TO FREDERICK JCT, 69KV 54138 SNYDER-269.0 to 54123 FREDJC-269.0 CKT 1	26	99.8	100.7	ANADARKO TO PARADISE, 138KV 55814 ANADARK4 138 to 56024 PARADSE4 138 CKT1	129	
06SP	SWPA-SWPA	GORE TO SALLISAW, 161KV 52752 GORE 5 161 to 52750 SALLISAW5 161 CKT 1	167	95.5	115.0	MUSKOGEE TO FORT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	154	

Table 1 continued – SPP Facility Overloads caused by the 670MW AEPW to EES transfer.

Study Year	From Area To Area	Branch Over 100% of Rate B	RATE B	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Solution
06SP	EMDE-SWPA	LARUSSEL TO SPRINGFIELD, 161KV 59479 LAR382 5 161 to 52692 SPRGFLD5 161 CKT 1	167	98.9	103.5	LARUSSEL TO MONETT, 161KV 59479 LAR382 5 161 to 59480 MON383 5 161 CKT1	157	
06SP	AEPW-AEPW	FLOURNOY TO OAK REC, 138KV 53405 FLOURNY4 138 to 53457 OAKPH 4 138 CKT 1	209	97.9	106.0	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 TO 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 TO 53528 DIANA 7 345 CKT 1	174	
06SP	WFEC-SWPA	WELEETKA TO PHAROAH, 138KV 56026 PHAROAH4 138 to 52792 WELEETK4 138 CKT 1	191	99.6	101.0	FRANKLIN TO FRANKLIN SW, 138KV 55913 FRANKLN4 138 to 55917 FRNKLNS4 138 CKT1	194	
06SP	GRRD-GRRD	PENSACOLA TO GRAY, 69KV 54428 PENZA 269.0 to 54465 GRAY TP269.0 CKT 1	47	99.6	101.0	GROVE TO COWSKIN, 138KV 53951 GROVE 4 138 to 54519 COWSKIN 138 CKT1	194	
06SP	EES-SWPA	MIDWAY TO BULL SHOALS, 161KV 99825 5MIDWAY# 161 to 52660 BULL SH5 161 CKT 1	162	96.8	106.6	FORT SMITH TO ANO, 500KV 55305 FTSMITH8 500 to 99486 8ANO 500 CKT1	220	
06SP	EMDE-EMDE	AURORA TO MONETT, 161KV 59480 MON383 5 161 to 59468 AUR124 5 161 CKT 1	157	98.0	104.0	LARUSSEL TO MONETT, 161KV 59479 LAR382 5 161 to 59480 MON383 5 161 CKT1	221	
06SP	WERE-WERE	GILL ENERGY CENTER EAST TO OATVILLE, 69KV 57795 GILL E 269.0 to 57825 OATVILL269.0 CKT 1	72	99.8	100.3	CANAL TO RUTAN, 69KV 57784 CANAL 269.0 to 57838 RUTAN 269.0 CKT1	234	
06SP	OKGE-OKGE	TINKER #2 TO TINKER #4, 138KV 54990 TINKER24 138 to 54988 TINKER44 138 CKT 1	100	97.3	103.6	OAK CREEK TO GM, 138KV 54960 OAKCRK 4 138 to 54961 GM 4 138 CKT1	287	
06SP	AEPW-AEPW	FERDALE LAKE TAP TO PITTSBURG, 69KV 53531 FERNDTP269.0 to 53310 PITTSB 269.0 CKT 1	72	99.4	100.7	MOBIL-TEXOMA T TO NEW HOPE, 69KV 53282 MOBILTXT269.0 to 53296 NEWHOPE269.0 CKT1	315	
06SP	OKGE-OKGE	HELBERG 161/69KV TRANSFORMER 55327 HELBERG5 161 to 55325 HELBERG269.0 CKT 1	134	97.2	103.0	CLARKSVILLE TO OZARK, 161KV 52714 CLARKSV5 161 to 52716 OZARK H5 161 CKT1	325	
06SP	AEPW-WERE	COFFEYVILLE TAP TO DEARING, 138KV 53972 COFFEYT4 138 to 57002 DEARING4 138 CKT 1	210	96.3	103.9	DELAWARE TO NEOSHO, 345KV 53929 DELWARE7 345 to 56793 NEOSHO 7 345 CKT1	326	
06SP	WERE-WERE	HOYT HTI SWITCHING JCT TO CIRCLEVILLE, 115KV 57165 HTI JCT3 115 to 57152 CIRCLVL3 115 CKT 1	92	98.1	101.2	KELLY TO TECUMSEH HILL, 161KV 56913 KELLY 5 161 to 56920 TECHILL5 161 CKT1	409	
06SP	WERE-WERE	WEST MCPHERSON TO N AMERICAN PHILIPS JCT, 115KV 57438 WMCIPHER3 115 to 57374 SPHILPJ3 115 CKT 2	92	98.4	100.8	EAST MCPHERSON TO SUMMIT, 230KV 56872 EMCIPHER6 230 to 56873 SUMMIT 6 230 CKT1	446	
06SP	SWPA-AECI	CARTHAGE TO JASPER, 69KV 52690 CARTHG 269.0 to 96649 2JASPER 69.0 CKT 1	47	98.0	100.9	AFTON TO PENSACOLA, 161KV 54432 AFTON 5 161 to 54454 PENZA 5 161 CKT1	453	
06SP	AEPW-AEPW	PATTERSON TO SOUTH NASHVILLE, 138KV 53306 PATTERS4 138 to 53321 SNASHVL4 138 CKT 1	118	87.8	104.7	LONGWOOD TO ELDORADO-EHV, 345KV 53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1	484	
06SP	AEPW-AEPW	PATTERSON TO SOUTH NASHVILLE, 138KV 53306 PATTERS4 138 to 53321 SNASHVL4 138 CKT 1	118	87.8	104.5	LONGWOOD TO ELDORADO-EHV, V 345KV 99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1	491	
06SP	SWPA-SWPA	GLENCOE TO NORFORK, 161KV 52646 GLENCOE5 161 to 52648 NORFORK5 161 CKT 1	112	96.2	101.4	NEWPORT INDUSTRIAL TO NEWPORT, 161KV 99763 5NEW-IN 161 to 99764 5NEWPO 161 CKT1	492	
06SP	AEPW-AEPW	WILKES TO JEFFERSON SWITCHING, 138KV 53619 WILKES 4 138 to 53551 JEFFRSN4 138 CKT 1	261	91.5	102.8	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	503	
06SP	AEPW-AEPW	ARSENAL HILL TO RAINES, 138KV 53386 ARSHILL4 138 to 53439 RAINES 4 138 CKT 1	234	95.6	101.4	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 TO 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 TO 53528 DIANA 7 345 CKT 1	508	
06SP	WFEC-OKGE	FRANKLIN SW TO MIDWEST TAP, 138KV 55917 FRNKLNS4 138 to 54946 MIDWEST4 138 CKT 1	215	96.9	100.8	WELEETKA TO PHAROAH, 138KV 52792 WELEETK4 138 to 56026 PHAROAH4 138 CKT1	533	
06SP	GRRD-OKGE	TAHLEQUAH TO HIGHWAY 59, 161KV 54455 TAHLQH 5 161 to 55347 HWY59 5 161 CKT 1	167	83.9	104.1	MUSKOGEE TO FORT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	533	

Table 1 continued – SPP Facility Overloads caused by the 670MW AEPW to EES transfer.

Study Year	From Area To Area	Branch Over 100% of Rate B	RATE B	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Solution
06SP	SWPA-SWPA	MUSKOGEE TAP TO GORE, 161KV 52758 MUSKTAP5 161 to 52752 GORE 5 161 CKT 1	206	88.7	102.7	MUSKOGEE TO FORT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	540	
06SP	OKGE-AEPW	BONANZA TAP TO BONANZA, 161KV 55261 BONANZT5 161 to 53126 BONANZA5 161 CKT 1	177	89.8	102.4	FORT SMITH TO ARKANSAS NUCLEAR ONE, 500KV 55305 FTSMITH8 500 to 99486 8ANO 500 CKT1	544	
06SP	AEPW-AEPW	SOUTH TEXARKANA REC TO TEXARKANA PLANT, 69KV 53189 STXREC269.0 to 53329 TEXARK 269.0 CKT 1	59	95.5	100.8	ATLANTA TO WEST ATLANTA, 69KV 53248 ATLANTA269.0 to 53333 WATLANT269.0 CKT1	566	
06SP	OKGE-OKGE	FORT SMITH 345/161KV TRANSFORMER 55302 FTSMITH7 345 to 55300 FTSMITH5 161 CKT 1	493	86.1	101.5	FORT SMITH 500/345KV TRANSFORMER 55302 FTSMITH7 345 to 55305 FTSMITH8 500 CKT1	604	
06SP	OKGE-OKGE	TARBY TO PANAMA, 69KV 55263 TARBY 269.0 to 55272 PANAMA 269.0 CKT 1	49	97.4	100.2	BONANZA TAP TO AES, 161KV 55261 BONANZT5 161 to 55262 AES 5 161 CKT1	616	

Table 2 – Non SPP Facility Overloads caused by the 670MW AEPW to EES transfer.

Study Year	From Area To Area	Branch Over 100% of Rate B	RATE B	BC %Loading	TC %Loading	From Area To Area
03G	CELE-EES	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	97.3	105.5	50027 CLARN 6 230 to 99116 6MONTGY 230 CKT1
03G	CELE-CELE	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT 1	700	99.1	110.5	99294 TELDEHV 345 to 99295 8ELDEHV 500 CKT1
03G	CELE-CELE	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT 1	700	98.7	110.2	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
03G	CELE-CELE	50090 IPAPER 4 138 to 50113 MANSFLD4 138 CKT 1	232	90.3	105.6	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1
03G	EES-EES	97454 4WALDEN 138 to 97469 4APRIL 138 CKT 1	206	90.3	100.1	97487 4MT.ZION 138 to 97514 4GRIMES 138 CKT1
03G	EES-EES	97480 L558T485 138 to 97484 4HUNTSVL 138 CKT 1	206	98.7	111.2	97470 4LFOREST 138 to 97539 4WDHAVN 138 CKT1
03G	EES-EES	97487 4MT.ZION 138 to 97480 L558T485 138 CKT 1	206	95.0	107.7	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
03G	EES-EES	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT 1	525	91.7	102.2	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT2
03G	EES-EES	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT 2	525	91.7	102.2	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT1
03G	EES-EES	97514 4GRIMES 138 to 97454 4WALDEN 138 CKT 1	206	94.4	104.2	97487 4MT.ZION 138 to 97514 4GRIMES 138 CKT1
03G	EES-EES	97522 4TUBULAR 138 to 97453 4DOBBLN 138 CKT 1	112	90.3	102.3	97487 4MT.ZION 138 to 97514 4GRIMES 138 CKT1
03G	EES-EES	97618 4NEWTONB 138 to 97768 4HLYSPG# 138 CKT 1	112	92.9	100.4	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
03G	EES-EES	97686 4LEACH 138 to 97618 4NEWTONB 138 CKT 1	144.6	96.8	105.7	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
03G	EES-CELE	97708 4TOLEDO 138 to 50098 LEESV 4 138 CKT 1	148	90.3	101.2	97686 4LEACH 138 to 97708 4TOLEDO 138 CKT1
03G	EES-EES	97708 4TOLEDO 138 to 97686 4LEACH 138 CKT 1	144.6	97.6	106.5	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
03G	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	99.2	103.4	99309 8MCNEIL 500 to 99310 3MCNEIL 115 CKT1
03G	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	90.2	116.4	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
04SP	CELE-EES	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	98.5	102.9	50037 COOPER 4 138 to 50098 LEESV 4 138 CKT1
04SP	CELE-CELE	50031 COCODR 6 230 to 50039 COUGH 4 138 CKT 1	386	96.8	102.1	50303 BONIN 6 230 to 50310 PMOUTON6 230 CKT1
04SP	CELE-CELE	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT 1	700	93.7	105.2	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
04SP	CELE-CELE	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT 1	700	93.5	104.8	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
04SP	RCEC-RCEC	53549 JACKSNV4 138 to 53588 OVERTON4 138 CKT 1	235	99.0	107.1	53526 CROCKET7 345 to 53637 TENRUSK7 345 CKT1
04SP	MIPU-AECI	59217 WINDSR 5 161 to 96071 5CLINTN 161 CKT 1	123	99.1	104.5	52702 TRUMAN 5 161 to 96555 5GRAVOI 161 CKT1
04SP	NPPD-NPPD	64181 MAXWELL7 115 to 64039 CALAWAY7 115 CKT 1	105	99.7	100.8	64102 GENTLMN3 345 to 64282 SWEET W3 345 CKT2
04SP	NPPD-NPPD	64265 ST.LIB 7 115 to 64173 LOUPCTY7 115 CKT 1	92	100.0	100.7	64181 MAXWELL7 115 to 64204 N.PLATT7 115 CKT1
04SP	SJLP-SJLP	69703 ST JOE 5 161 to 69701 MIDWAY 5 161 CKT 1	164	99.8	103.0	96039 7FAIRPT 345 to 96076 5FAIRPT 161 CKT3
04SP	AECI-AECI	96120 5THMHIL 161 to 96172 2TMHILL 69.0 CKT 2	84	99.0	100.4	96044 7MCCRED 345 to 96049 7THOMHL 345 CKT1
04SP	EES-EES	97487 4MT.ZION 138 to 97480 L558T485 138 CKT 1	206	92.8	105.0	97454 4WALDEN 138 to 97514 4GRIMES 138 CKT1
04SP	EES-EES	97514 4GRIMES 138 to 97487 4MT.ZION 138 CKT 1	206	99.3	111.6	97454 4WALDEN 138 to 97514 4GRIMES 138 CKT1
04SP	EES-EES	97686 4LEACH 138 to 97618 4NEWTONB 138 CKT 1	144.6	94.2	103.0	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
04SP	EES-EES	97708 4TOLEDO 138 to 97686 4LEACH 138 CKT 1	144.6	95.8	104.6	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
04SP	EES-EES	97768 4HLYSPG# 138 to 97698 4JASPER 138 CKT 1	112	97.3	103.0	53526 CROCKET7 345 to 53637 TENRUSK7 345 CKT1
04SP	EES-EES	97919 6VERDINE 230 to 97917 6NELSN 230 CKT 1	470	99.1	100.7	97917 6NELSN 230 to 97921 6CARLYSS 230 CKT1
04SP	EES-EES	98229 4PT HUD 138 to 98230 2PT.HUD 69.0 CKT 2	100	99.7	100.2	97301 CAJUN2 8 500 to 98430 8WEBRE 500 CKT1
04SP	EES-CELE	99115 3FISHER 115 to 50057 FISHER 4 138 CKT 1	83	98.4	104.6	50023 CARROLL6 230 to 50046 DOLHILL6 230 CKT1
04SP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	98.0	108.0	50027 CLARN 6 230 to 99116 6MONTGY 230 CKT1
04SP	EES-EES	99168 3SAILES 115 to 99179 3ADA 11 115 CKT 1	115	99.4	101.4	53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT1
04SP	EES-EES	99171 3SPRINGH 115 to 99280 3TAYLOR 115 CKT 1	120	98.4	100.3	99182 3DANVLL 115 to 99188 3JNSBRO 115 CKT1
04SP	EES-EES	99173 3HAYNVL 115 to 99249 3EMERSN 115 CKT 1	114	99.3	101.4	99171 3SPRINGH 115 to 99280 3TAYLOR 115 CKT1
04SP	EES-EES	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT 1	167	97.5	115.3	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
04SP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	95.8	117.6	53301 NWTXARK7 345 to 53615 WELSH 7 345 CKT1
04SP	EES-EES	99387 3MURF-S 115 to 99388 3MURF-E# 115 CKT 1	98	82.4	101.2	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
04SP	EES-EES	99387 3MURF-S 115 to 99388 3MURF-E# 115 CKT 1	98	82.3	101.0	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
04SP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	99.1	122.0	53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT1
04WP	CELE-EES	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	99.5	104.8	50057 FISHER 4 138 to 50199 VP TAP 4 138 CKT1
04WP	CELE-CELE	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT 1	700	91.6	102.3	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
04WP	CELE-CELE	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT 1	700	91.3	102.1	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1

Table 2 continued – Non SPP Facility Overloads caused by the 670MW AEPW to EES transfer.

Study Year	From Area To Area	Branch Over 100% of Rate B	RATE B	BC %Loading	TC %Loading	From Area To Area
04WP	AECI-AECI	96082 5GEORGE 161 to 96531 2GEORGE 69.0 CKT 1	56	99.5	100.2	96057 5BARNET 161 to 96618 2BARNET 69.0 CKT1
04WP	AECI-AECI	96090 5KINGDM 161 to 96517 2KINGDM 69.0 CKT 1	29	99.9	101.0	96099 5MONTCT 161 to 96523 5WLMSBG 161 CKT1
04WP	AECI-AECI	96090 5KINGDM 161 to 96517 2KINGDM 69.0 CKT 2	29	99.8	100.9	96099 5MONTCT 161 to 96523 5WLMSBG 161 CKT1
04WP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	99.6	104.6	97686 4LEACH 138 to 97708 4TOLEDO 138 CKT1
04WP	EES-EES	99168 3SAILES 115 to 99179 3ADA 11 115 CKT 1	115	99.9	101.8	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
04WP	EES-EES	99171 3SPRINGH 115 to 99280 3TAYLOR 115 CKT 1	120	96.4	101.2	99168 3SAILES 115 to 99179 3ADA 11 115 CKT1
04WP	EES-EES	99177 3TEXASE 115 to 99168 3SAILES 115 CKT 1	80	100.0	102.3	99182 3DANVLL 115 to 99188 3JNSBRO 115 CKT1
04WP	EES-EES	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT 1	167	81.8	100.6	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
04WP	EES-EES	99263 3LEWIS # 115 to 99230 3COUCH 115 CKT 1	159	95.3	106.9	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT1
04WP	EES-EES	99264 3MAG-DW 115 to 99230 3COUCH 115 CKT 1	108	98.3	100.9	99308 3MAG-E 115 to 99310 3MCNEIL 115 CKT1
04WP	EES-EES	99387 3MURF-S 115 to 99388 3MURF-E# 115 CKT 1	98	95.0	112.5	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
04WP	EES-EES	99387 3MURF-S 115 to 99388 3MURF-E# 115 CKT 1	98	94.9	112.5	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
04WP	EES-EES	99388 3MURF-E# 115 to 99347 3AMITY * 115 CKT 1	98	90.7	108.2	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
04WP	EES-EES	99388 3MURF-E# 115 to 99347 3AMITY * 115 CKT 1	98	90.8	108.1	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
04WP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	97.3	121.2	53277 LYDIA 7 345 to 53615 WELSH 7 345 CKT1
06SP	CELE-EES	50024 CARROLL4 138 to 99167 3RINGLD 115 CKT 1	125	98.2	103.3	99230 3COUCH 115 to 99263 3LEWIS # 115 CKT1
06SP	CELE-CELE	50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT 1	700	93.8	105.4	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
06SP	CELE-CELE	50046 DOLHILL6 230 to 50045 DOLHILL7 345 CKT 1	700	93.5	104.9	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
06SP	MIPU-AECI	59216 BUTLER_5 161 to 96689 2BUTLER 69.0 CKT 1	56	99.8	101.7	57995 MONTROS5 161 to 96071 5CLINTN 161 CKT1
06SP	MIPU-AECI	59217 WINDSR 5 161 to 96071 5CLINTN 161 CKT 1	123	99.7	104.4	30558 EX SPRNG 161 to 96098 5MOCITY 161 CKT1
06SP	LES-NPPD	60338 20&PIO 7 115 to 64257 SHELTON7 115 CKT 1	145	99.5	100.2	60320 NW68HOL3 345 to 64194 MOORE 3 345 CKT1
06SP	NPPD-NPPD	64181 MAXWELL7 115 to 64039 CALAWAY7 115 CKT 1	105	99.7	100.9	64037 C.CREEK4 230 to 64203 N.PLATT4 230 CKT1
06SP	AECI-AECI	96154 1MOCTN2 100 to 96304 2MOCITY 69.0 CKT 2	34	99.4	101.0	96153 1MOCTN1 100 to 96304 2MOCITY 69.0 CKT1
06SP	EES-EES	97480 L558T485 138 to 97484 4HUNTSVL 138 CKT 1	206	88.8	102.4	97454 4WALDEN 138 to 97514 4GRIMES 138 CKT1
06SP	EES-EES	97487 4MT.ZION 138 to 97480 L558T485 138 CKT 1	206	96.7	110.1	97454 4WALDEN 138 to 97514 4GRIMES 138 CKT1
06SP	EES-EES	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT 1	525	94.5	103.6	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT2
06SP	EES-EES	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT 2	525	94.5	103.6	97513 7GRIMES 345 to 97514 4GRIMES 138 CKT1
06SP	EES-EES	97514 4GRIMES 138 to 97454 4WALDEN 138 CKT 1	206	90.0	101.1	97487 4MT.ZION 138 to 97514 4GRIMES 138 CKT1
06SP	EES-EES	97514 4GRIMES 138 to 97487 4MT.ZION 138 CKT 1	206	98.3	111.6	97469 4APRIL 138 to 97470 4LFOREST 138 CKT1
06SP	EES-EES	97618 4NEWTONB 138 to 97768 4HLYSPG# 138 CKT 1	112	99.9	103.6	97691 8CYPRESS 500 to 97717 8HARTBRG 500 CKT1
06SP	EES-EES	97686 4LEACH 138 to 97618 4NEWTONB 138 CKT 1	144.6	97.2	106.1	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
06SP	EES-EES	97708 4TOLEDO 138 to 97686 4LEACH 138 CKT 1	144.6	98.7	107.7	53526 CROCKET7 345 to 97513 7GRIMES 345 CKT1
06SP	EES-EES	98273 4OAKGROV 138 to 98283 T300/331 138 CKT 1	135	97.3	102.7	98246 8WGLEN 500 to 98539 8WATERFO 500 CKT1
06SP	EES-EES	99122 3ALTO 1 115 to 99123 3SWARTZ 115 CKT 1	114	99.5	101.8	98938 3B.WLSN 115 to 98950 3VKSBS-S 115 CKT1
06SP	EES-CELE	99167 3RINGLD 115 to 50024 CARROLL4 138 CKT 1	125	97.6	100.8	99309 8MCNEIL 500 to 99310 3MCNEIL 115 CKT1
06SP	EES-EES	99167 3RINGLD 115 to 99168 3SAILES 115 CKT 1	115	98.8	105.5	53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT1
06SP	EES-EES	99171 3SPRINGH 115 to 99280 3TAYLOR 115 CKT 1	120	99.3	101.8	99249 3EMERSN 115 to 99288 3KERLIN* 115 CKT1
06SP	EES-EES	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT 1	167	90.0	110.7	53424 LONGWD 7 345 to 99294 7ELDEHV 345 CKT1
06SP	EES-EES	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT 1	167	89.8	110.5	99294 7ELDEHV 345 to 99295 8ELDEHV 500 CKT1
06SP	EES-EES	99264 3MAG-DW 115 to 99230 3COUCH 115 CKT 1	108	97.4	100.5	99167 3RINGLD 115 to 99168 3SAILES 115 CKT1
06SP	EES-EES	99303 3PATMOS# 115 to 99263 3LEWIS # 115 CKT 1	159	92.5	106.6	99230 3COUCH 115 to 99310 3MCNEIL 115 CKT1
06SP	EES-EES	99389 4MURFRE 138 to 99387 3MURF-S 115 CKT 1	60	90.6	117.8	55305 FTSMITH8 500 to 99486 8ANO 500 CKT1

Table 3 – AEPW – EES 670MW transfer impact on previously assigned and identified SPP Facilities.

Study Year	From Area To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
03G	AEPW-AEPW	IPC JEFFERSON TO LIEBERMAN, 138KV 53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	102.2	116.0	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	0	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 3/1/2004 Additional Upgrades Required for SPP-2000-043 194656 194657 New Spring Emergency Rating is 179MVA 25.2% Increase
03G	AEPW-AEPW	WALLACE LAKE TO SOUTH SHREVEPORT, 138KV 53461 WALLAKE4 138 to 53446 S SHV 4 138 CKT 1	236	99.0	112.2	DOLET HILLS 345/230KV TRANSFORMER 50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1	52	Dolet Hills Operating Guide Monitor Line At 260MVA 10.2% Increase Upgrades Required
03G	AEPW-CELE	WALLACE LAKE TO INTERNATIONAL PAPER, 138KV 53461 WALLAKE4 138 to 50090 IPAPER 4 138 CKT 1	236	98.6	113.7	DOLET HILLS 345/230KV TRANSFORMER 50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1	62	Dolet Hills Operating Guide Monitor Line At 260MVA 10.2% Increase Upgrades Required
03G	OKGE-OKGE	PECAN CREEK 345/161KV TRANSFORMER 55235 PECANCK7 345 to 55234 PECANCK5 161 CKT 1	369	92.3	105.1	MUSKOGEE TO FORT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	402	Identified in SPP-2000-044
04SP	KACP-KACP	STILWELL TO LACYGNE, 345KV 57968 STILWEL7 345 to 57981 LACYGNE7 345 CKT 1	1251	111.9	115.5	WEST GARDNER TO LACYGNE, 345KV 57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	0	SPP Flowgate
04SP	AEPW-AEPW	IPC JEFFERSON TO LIEBERMAN, 138KV 53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	105.3	118.6	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	0	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 2/1/2004 Additional Upgrades Required for SPP-2000-043 194656 194657 New Summer Emergency Rating is 179MVA 25.2% Increase
04SP	AEPW-AEPW	LONGWOOD TO NORAM, 138KV 53423 LONGWD 4 138 to 53473 NORAM 4 138 CKT1	234	105.4	111.2	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 262MVA 12.0% Increase
04SP	AEPW-EES	FULTON TO PATMOS-WEST SS, 115KV 53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	174	119.0	138.4	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 239MVA 37.4% Increase Addition Upgrade Required

Table 3 continued – AEPW – EES 670MW transfer impact on previously assigned and identified SPP Facilities.

Study Year	From Area To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
04SP	AEPW-AEPW	RAINES TO NORAM, 138KV 53439 RAINES 4 138 to 53473 NORAM 4 138 CKT1	234	103.8	109.6	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 268MVA 14.5% Increase
04SP	AEPW-SWPA	EUREKA SPRINGS TO BEAVER, 161KV 53136 EUREKA 5 161 to 52680 BEAVER 5 161 CKT 1	274	104.6	115.8	MONETT TO BROOKLINE, 345KV 59481 MON383 7 345 to 59984 BRKLINE 7 345 CKT1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 286MVA 4.4% Increase Addition Upgrades Required
04SP	AEPW-AEPW	TATUM TO ROCKHILL, 138KV 53611 TATUM 4 138 to 53598 ROKHILL4 138 CKT 1	235	101.7	109.1	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	0	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 4/1/2002 Additional Upgrades Required Identified in SPP-2000-044
04SP	AEPW-AEPW	WALLACE LAKE TO SOUTH SHREVEPORT, 138KV 53461 WALLAKE4 138 to 53446 S SHV 4 138 CKT 1	209	105.5	119.9	DOLET HILLS 230/345 TRANSFORMER 50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1	0	Dolet Hills Operating Guide Monitor Line At 260MVA 24.4% Increase
04SP	AEPW-WERE	COFFEYVILLE TAP TO DEARING, 138 KV 53972 COFFEYT4 138 to 57002 DEARING4 138 CKT 1	210	100.3	108.0	DELWARE TO NEOSHO, 345KV 53929 DELWARE7 345 to 56793 NEOSHO 7 345 CKT1	0	Identified in SPP-2000-044
04SP	AEPW-AEPW	NEW MOUNTAIN TO DIANA, 345KV CKT 1 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT 1	1059	103.2	113.7	NEW MOUNTAIN TO DIANA, 345KV CKT 2 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT2	0	Identified in SPP-2000-044
04SP	AEPW-AEPW	NEW MOUNTAIN TO DIANA, 345KV CKT 2 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT 2	1059	103.0	113.5	NEW MOUNTAIN TO DIANA, 345KV CKT 1 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT1	0	Identified in SPP-2000-044
04SP	OKGE-OKGE	PECAN CREEK 345/161KV TRANSFORMER 55235 PECANCK7 345 to 55234 PECANCK5 161 CKT 1	369	101.1	113.8	MUSKOGEE TO FT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	0	Identified in SPP-2000-044

Table 3 continued – AEPW – EES 670MW transfer impact on previously assigned and identified SPP Facilities.

Study Year	From Area To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
04SP	AEPW-CELE	WALLACE LAKE TO INTERNATIONAL PAPER, 138KV 53461 WALLAKE4 138 to 50090 IPAPER 4 138 CKT 1	209	100.4	116.8	DOLET HILLS 345/230KV TRANSFORMER 50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1	0	Dolet Hills Operating Guide Monitor Line At 260MVA 24.4% Increase
04SP	SWPA-SWPA	BUFORD TAP TO BULL SHOALS, 161KV 52661 BUFRDTP5 161 to 52660 BULL SH5 161 CKT 1	167	105.9	117.4	BULL SHOALS TO MIDWAY, 161KV 52660 BULL SH5 161 to 99825 5MIDWAY# 161 CKT1	0	
04SP	SWPA-SWPA	NORFORK TO BUFORD TAP, 161KV 52648 NORFORK5 161 to 52661 BUFRDTP5 161 CKT 1	167	104.7	116.2	BULL SHOALS TO MIDWAY, 161KV 52660 BULL SH5 161 to 99825 5MIDWAY# 161 CKT1	0	
04SP	KACP-KACP	WEST GARDNER TO LACYGNE, 345KV 57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	1251	99.8	103.0	STILWELL TO LACYGNE, 345KV 57968 STILWEL7 345 to 57981 LACYGNE7 345 CKT 1	42	
04SP	AEPW-AEPW	CHEROKEE REC TO KNOX LEE, 138KV 53522 CHEROKE4 138 to 53557 KNOXLEE4 138 CKT 1	287	88.9	95.0	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	670	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 4/1/2002
04SP	AEPW-AEPW	CHEROKEE REC TO TATUM, 138KV 53522 CHEROKE4 138 to 53611 TATUM 4 138 CKT 1	287	84.6	90.6	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	670	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 2/1/2003
04WP	KACP-KACP	STILWELL TO LACYGNE, 345KV 57968 STILWEL7 345 to 57981 LACYGNE7 345 CKT 1	1315	100.4	103.7	WEST GARDNER TO LACYGNE, 345KV 57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	0	SPP Flowgate
04WP	AEPW-EES	FULTON TO PATMOS-WEST SS, 115KV 53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	197	115.3	131.6	WELSH TO WILKES, 345KV 53615 WELSH 7 345 to 53620 WILKES 7 345 CKT1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Winter Emergency Rating is 239MVA 21.3% Increase Additional Upgrade Required

Table 3 continued – AEPW – EES 670MW transfer impact on previously assigned and identified SPP Facilities.

Study Year	From Area To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
04WP	AEPW-SWPA	EUREKA SPRINGS TO BEAVER , 161KV 53136 EUREKA 5 161 to 52680 BEAVER 5 161 CKT 1	287	97.1	107.5	MONETT TO BROOKLINE, 345KV 59481 MON383 7 345 to 59984 BRKLINE 7 345 CKT1	187	Upgrade is Assigned to SPP-2000-043 194656 194657 New Winter Emergency Rating is 320MVA 11.5% Increase
04WP	OKGE-OKGE	PECAN CREEK 345/161KV TRANSFORMER 55235 PECANCK7 345 to 55234 PECANCK5 161 CKT 1	369	95.6	108.1	MUSKOGEE TO FORT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	233	Identified in SPP-2000-044
04WP	AEPW-AEPW	IPC JEFFERSON TO LIEBERMAN, 138KV 53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	90.5	103.7	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	482	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 3/1/2004 Additional Upgrades Required for SPP-2000-043 194656 194657 New Spring Emergency Rating is 179MVA 25.2% Increase
06SP	KACP-KACP	STILWELL TO LACYGNE, 345KV 57968 STILWEL7 345 to 57981 LACYGNE7 345 CKT 1	1251	107.2	110.7	WEST GARDNER TO LACYGNE, 345KV 57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	0	SPP Flowgate
06SP	AEPW-AEPW	IPC JEFFERSON TO LIEBERMAN, 138KV 53548 IPCJEFF4 138 to 53420 LIEBERM4 138 CKT 1	143	107.8	121.5	LONGWOOD TO WILKES, 345KV 53424 LONGWD 7 345 to 53620 WILKES 7 345 CKT1	0	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 2/1/2004 Additional Upgrades Required for SPP-2000-043 194656 194657 New Summer Emergency Rating is 179MVA 25.2% Increase
06SP	AEPW-AEPW	LONGWOOD TO NORAM, 138KV 53423 LONGWD 4 138 to 53473 NORAM 4 138 CKT1	234	109.5	115.5	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 262MVA 12.0% Increase Additional Upgrades Required
06SP	AEPW-EES	FULTON TO PATMOS-WEST SS, 115KV 53374 FULTON 3 115 to 99303 3PATMOS# 115 CKT 1	174	122.5	142.7	SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 239MVA 37.4% Increase Addition Upgrades Required
06SP	AEPW-AEPW	RAINES TO NORAM, 138KV 53439 RAINES 4 138 to 53473 NORAM 4 138 CKT1	234	107.9	113.9	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	0	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 268MVA 14.5% Increase

Table 3 continued – AEPW – EES 670MW transfer impact on previously assigned and identified SPP Facilities.

Study Year	From Area To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
06SP	AEPW-AEPW	TATUM TO ROCKHILL, 138KV 53611 TATUM 4 138 to 53598 ROKHILL4 138 CKT 1	235	103.4	111.3	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	0	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 4/1/2002 Additional Upgrades Required Identified in SPP-2000-044
06SP	AEPW-AEPW	WALLACE LAKE TO SOUTH SHREVEPORT, 138KV 53461 WALLAKE4 138 to 53446 S SHV 4 138 CKT 1	209	106.4	121.2	DOLET HILLS 230/345 TRANSFORMER 50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1	0	Dolet Hills Operating Guide Monitor Line At 260MVA 24.4% Increase
06SP	AEPW-AEPW	NEW MOUNTAIN TO DIANA, 345KV CKT 1 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT 1	1059	109.0	119.4	NEW MOUNTAIN TO DIANA, 345KV CKT 2 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT2	0	Identified in SPP-2000-044
06SP	AEPW-AEPW	NEW MOUNTAIN TO DIANA, 345KV CKT 2 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT 2	1059	108.8	119.2	NEW MOUNTAIN TO DIANA, 345KV CKT 1 53635 NWMOUNT7 to 53528 DIANA 7 345 CKT1	0	Identified in SPP-2000-044
04SP	OKGE-OKGE	PECAN CREEK 345/161KV TRANSFORMER 55235 PECANCK7 345 to 55234 PECANCK5 161 CKT 1	369	107.6	120.1	MUSKOGEE TO FT SMITH, 345KV 55224 MUSKOGEE7 345 to 55302 FTSMITH7 345 CKT1	0	Identified in SPP-2000-044
06SP	AEPW-CELE	WALLACE LAKE TO INTERNATIONAL PAPER, 138KV 53461 WALLAKE4 138 to 50090 IPAPER 4 138 CKT 1	209	100.7	117.7	DOLET HILLS 345/230KV TRANSFORMER 50045 DOLHILL7 345 to 50046 DOLHILL6 230 CKT1	0	Dolet Hills Operating Guide Monitor Line At 260MVA 24.4% Increase
06SP	SWPA-SWPA	BUFORD TAP TO BULL SHOALS, 161KV 52661 BUFDRTP5 161 to 52660 BULL SH5 161 CKT 1	167	113.6	125.2	BULL SHOALS TO MIDWAY, 161KV 52660 BULL SH5 161 to 99825 5MIDWAY# 161 CKT1	0	
06SP	SWPA-SWPA	NORFORK TO BUFORD TAP, 161KV 52648 NORFORK5 161 to 52661 BUFDRTP5 161 CKT 1	167	112.3	123.9	BULL SHOALS TO MIDWAY, 161KV 52660 BULL SH5 161 to 99825 5MIDWAY# 161 CKT1	0	
06SP	AEPW-SWPA	EUREKA SPRINGS TO BEAVER, 161KV 53136 EUREKA 5 161 to 52680 BEAVER 5 161 CKT 1	274	99.4	110.5	FLINT CREEK TO MONETT, 345KV 53140 FLINTCR7 345 to 59481 MON383 7 345 CKT1	36	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 286MVA 4.4% Increase Addition Upgrades Required

Table 3 continued – AEPW – EES 670MW transfer impact on previously assigned and identified SPP Facilities.

Study Year	From Area To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
06SP	AEPW-WERE	COFFEYVILLE TAP TO DEARING, 138 KV 53972 COFFEYT4 138 to 57002 DEARING4 138 CKT 1	210	96.3	103.9	DELAWARE TO NEOSHO, 345KV 53929 DELWARE7 345 to 56793 NEOSHO 7 345 CKT1	326	Identified in SPP-2000-044
06SP	AEPW-SWPA	EUREKA SPRINGS TO BEAVER, 161KV 53136 EUREKA 5 161 to 52680 BEAVER 5 161 CKT 1	274	92.2	102.6	MONETT TO BROOKLINE, 345KV 59481 MON383 7 345 to 59984 BRKLINE 7 345 CKT1	501	Upgrade is Assigned to SPP-2000-043 194656 194657 New Summer Emergency Rating is 286MVA 4.4% Increase
06SP	AEPW-AEPW	CHEROKEE REC TO KNOX LEE, 138KV 53522 CHEROKE4 138 to 53557 KNOXLEE4 138 CKT 1	287	90.4	96.9	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	670	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 4/1/2002
06SP	AEPW-AEPW	CHEROKEE REC TO TATUM, 138KV 53522 CHEROKE4 138 to 53611 TATUM 4 138 CKT 1	287	86.0	92.5	Multiple Outage Contingency SOUTHWEST SHREVEPORT TO LONGWOOD, 345KV 53454 SW SHV 7 345 to 53424 LONGWD 7 345 CKT 1 SOUTHWEST SHREVEPORT TO DIANA, 345KV 53454 SW SHV 7 345 to 53528 DIANA 7 345 CKT 1	670	Upgrade Modeled is Assigned to SPP-2000-086 150680 Est. In-Service Date 2/1/2003

5. Conclusion

The results of the study show that before the 670MW transfer can take place system improvements will need to be completed.

1. The upgrades associated with the facility overloads identified in Table 1 will be required before the start of service.
2. Any previously assigned upgrades and additional upgrades associated with the facilities in Table 3 will be required.
3. The upgrade associated with the La Cygne to Stilwell 345kV line overload will be required.
4. Third-party system additions will need to be reviewed with affected transmission owners.

The results of this analysis of the transfer show that the 670MW transfer from AEPW to EES creates many new overloads in the system. In order to relieve these overloads, the Pittsburg-NW Texarkana-McNeil 500kV line and Dolet Hill tap are proposed. These projects are proposed as an effective means of providing the amount of capability that is needed for the 670MW transfer. Additional analysis will be required to determine the benefits of the proposed lines.

The final cost assignment of facilities and ATC to Power Resource Group, Inc. will be determined upon the completion of a facility study.

Appendix A

PSS/E CHOICES IN RUNNING LOAD FLOW PROGRAM AND ACCC

BASE CASES:

Solutions - Fixed slope decoupled Newton-Raphson solution (FDNS)

1. Tap adjustment – Stepping
2. Area interchange control – Tie lines only
3. Var limits – Apply immediately
4. Solution options - Phase shift adjustment
 - Flat start
 - Lock DC taps
 - Lock switched shunts

ACCC CASES:

Solutions – AC contingency checking (ACCC)

1. MW mismatch tolerance –0.5
2. Contingency case rating – Rate B
3. Percent of rating – 100
4. Output code – Summary
5. Min flow change in overload report – 1mw
6. Excl'd cases w/ no overloads form report – YES
7. Exclude interfaces from report – NO
8. Perform voltage limit check – YES
9. Elements in available capacity table – 60000
10. Cutoff threshold for available capacity table – 99999.0
11. Min. contng. case Vltg chng for report – 0.02
12. Sorted output – None

Newton Solution:

1. Tap adjustment – Stepping
2. Area interchange control – Tie lines only
3. Var limits - Apply automatically
4. Solution options - Phase shift adjustment
 - Flat start
 - Lock DC taps
 - Lock switched shunts