



SPP *Southwest
Power Pool*

*Preliminary
System Impact Study
SPP-2004-030-1P
For The Designation of a New
Network Resource
Requested By
Empire District Electric Company*

From WFECE to EDE

*For a Reserved Amount Of 150MW
From 6/1/2005
To 6/1/2025*

SPP Engineering, Tariff Studies

System Impact Study

Empire District Electric Company has requested a system impact study to designate a New Network Resource in the WFEC Control Area for 150 MW to serve EDE Network Load in the EDE (EMDE) Control Area. The period of the service requested is from 6/1/2005 to 6/1/2025. The OASIS reservation numbers are 652342, 652345, and 652348. 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 WFEC to EDE 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 WFEC Control Area to the Network Load in the EDE Control Area. 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 WFEC to EDE 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 WFEC to EDE 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 WFEC to EDE request for the requested service period. The SPP 2004 Series Cases Update 5, 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 6/1/2005 to 6/1/2025. 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, and 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, and 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, and 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. 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 WFEC to EDE 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 Facility Study. Execution of a Facility Study Agreement is now required to maintain queue position. The final upgrade solutions, cost assignments and available redispatch and curtailment options will be determined upon the completion of the facility study.

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

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05AP	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	38	88.5	104.3	3.9750	56001 MORWODS4 138 54121 ELKCTY-4 138 1	109	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
05AP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	10.1	116.1	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	127	Solution Undetermined	TBD
05AP	WFEC-WFEC	55846 CARTERJ2 69 55876 DILL JT2 69 1	24	64.6	92.6	4.3990	55827 BINGERJ4 138 56017 ONEY 4 138 1	150	Current WFEC Work Plan to Reconductor from 4/0 to 795 - Complete by 2004 Winter	
05G	WFEC-WFEC	55846 CARTERJ2 69 55876 DILL JT2 69 1	24	94.7	120.1	3.9750	56001 MORWODS4 138 54121 ELKCTY-4 138 1	31	See Previous Upgrade Specified For Facility	
05G	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	10.0	116.1	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	127	Solution Undetermined	TBD
05G	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	272	94.8	97.5	4.8330	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05G	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	24.7	91.1	62.6380	3Wnd: OPEN *B1 1 1	150	Solution Undetermined	TBD
05G	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	38	81.1	96.9	3.9750	56001 MORWODS4 138 54121 ELKCTY-4 138 1	150	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
05SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	241	135.6	138.6	4.8060	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	13.3	119.2	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	123	Solution Undetermined	TBD
05SP	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	38	84.4	101.9	4.4880	55827 BINGERJ4 138 56050 SICKLES4 138 1	133	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
05SP	SWPA-SPRM	52692 SPRGLD5 161 59969 BRKLINE 5 161 1	317	88.5	91.3	6.0260	59955 JUNCTN 5 161 59969 BRKLINE 5 161 1	150	Upgrade the main and transfer buses and buswork within bay at Springfield to 1600 amps. Replace disconnect switches at Springfield.	\$ 250,000
05SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	208	90.9	93.7	3.9250	Base Case	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/2007	
05SP	AEPW-AEPW	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	349	94.5	95.8	3.0590	53154 CHAMSPR5 161 53170 TONTITN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/2007	
05SP	AEPW-AEPW	54110 CL-CITY2 69 54185 FOSSTAP2 69 1	51	57.9	92.8	11.9280	54197 CL-NGTP4 138 54199 WEATHTP4 138 1	150	Solution Undetermined	TBD
05SP	GRRD-GRRD	54435 KERR GR5 161 54437 412SUB 5 161 1	334	89.0	91.1	4.7990	54450 GRDA1 7 345 53140 FLINTCR7 345 1	150	Reconductor 12.5 miles with 1590MCM ACSR	\$ 1,918,000
05SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	24.6	91.0	62.6610	3Wnd: OPEN *B1 18 1	150	Solution Undetermined	TBD
05SP	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	212	92.5	95.9	4.8120	59476 ASB349 5 161 59491 PUR421 5 161 1	150	Reconductor with 795 ACSR	\$ 375,000
05SP	EMDE-EMDE	59483 JOP389 5 161 *B317 JOPLINSW 1 1	74	84.3	96.0	5.7800	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Replace 161/69 KV Transformer with a 150 MVA Transformer.	\$ 1,565,000
05SP	EMDE-EMDE	59592 JOP389 2 69 *B317 JOPLINSW 1 1	74	84.3	96.0	5.7800	59483 JOP389 5 161 59607 JOP422 5 161 1	150	See Previous Upgrade Specified For Facility	
05SH	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	115.0	118.0	4.8060	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	AEPW has plans to upgrade NW Arkansas Area by 6/1/2007	
05SH	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	284	97.9	101.0	5.8060	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	102	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05SH	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	12.7	118.7	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	124	Solution Undetermined	TBD
05SH	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	38	79.4	97.0	4.4880	55827 BINGERJ4 138 56050 SICKLES4 138 1	150	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
05SH	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	212	92.5	95.9	4.8180	59476 ASB349 5 161 59491 PUR421 5 161 1	150	See Previous Upgrade Specified For Facility	
05FA	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	284	97.7	100.8	5.8030	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	112	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05FA	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	10.0	116.0	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	127	Solution Undetermined	TBD

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Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05FA	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	272	93.4	96.1	4.8030	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05FA	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	38	82.2	98.2	4.0400	56001 MORWODS4 138 54121 ELKCTY-4 138 1	150	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
05WP	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	38	88.3	104.1	4.0390	56001 MORWODS4 138 54121 ELKCTY-4 138 1	111	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
05WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	11.3	117.3	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	126	Solution Undetermined	TBD
05WP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	272	90.9	93.6	4.8650	53157 SFAYTVL5 161 53195 FARMGTN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05WP	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	284	95.2	98.2	5.7990	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	150	OKGE to increase CTR at Mustang sub by 6/1/2005	
05WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	24.7	91.0	62.6610	3Wnd: OPEN *B1 2 1	150	Solution Undetermined	TBD
07SP	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	38	87.0	104.5	4.4890	55950 HYDRO 4 138 56050 SICKLES4 138 1	111	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
07SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	13.8	119.7	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	122	Solution Undetermined	TBD
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	89.2	100.8	5.7530	59483 JOP389 5 161 59607 JOP422 5 161 1	139	See Previous Upgrade Specified For Facility	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	89.2	100.8	5.7530	59483 JOP389 5 161 59607 JOP422 5 161 1	140	See Previous Upgrade Specified For Facility	
07SP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	259	90.5	92.3	3.1320	AECI-MT107 59984 BRKLINE 7 345 59481 MON383 7 345 1 59481 MON383 7 345 53140 FLINTCR7 345 1	150	Reconductor 1.25 miles of 795 ACSR with 1590 ACSR.	\$ 470,000
07SP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	259	90.5	92.3	3.1320	59481 MON383 7 345 59984 BRKLINE 7 345 1	150	See Previous Upgrade Specified For Facility	
07SP	SWPA-SPRM	52692 SPRGLD5 161 59969 BRKLINE 5 161 1	317	91.2	94.1	5.9840	59955 JUNCTN 5 161 59969 BRKLINE 5 161 1	150	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	89.5	91.7	3.4510	53155 CHAMSPR7 345 53176 TONTITN7 345 1	150	Rebuild 12 miles with 2156MCM ACSR. Replace Chamber Springs wavetrap & reset relays.	\$ 7,200,000
07SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	89.4	91.6	3.4510	3Wnd: OPEN *B0 4 1	150	See Previous Upgrade Specified For Facility	
07SP	AEPW-AEPW	54110 CL-CITY2 69 54185 FOSSTAP2 69 1	51	58.8	93.8	11.9290	54197 CL-NGTP4 138 54199 WEATHTP4 138 1	150	Solution Undetermined	TBD
07SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	26.6	93.0	62.6610	3Wnd: OPEN *B1 16 1	150	Solution Undetermined	TBD
07SP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1065	90.7	91.2	3.2940	56851 AUBURN 6 230 56852 JEC 6 230 1	150	Solution Undetermined	TBD
07SP	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	212	95.8	99.2	4.7480	59476 ASB349 5 161 59491 PUR421 5 161 1	150	See Previous Upgrade Specified For Facility	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	83.0	94.3	5.5890	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	82.9	94.3	5.5890	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility	
07WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	11.2	117.3	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	126	Solution Undetermined	TBD
07WP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	256	92.7	95.4	4.4880	59481 MON383 7 345 53140 FLINTCR7 345 1	150	See Previous Upgrade Specified For Facility	
07WP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	256	92.7	95.4	4.4880	AECI-MT107 59984 BRKLINE 7 345 59481 MON383 7 345 1 59481 MON383 7 345 53140 FLINTCR7 345 1	150	See Previous Upgrade Specified For Facility	
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	94.3	105.9	5.7220	59483 JOP389 5 161 59607 JOP422 5 161 1	74	See Previous Upgrade Specified For Facility	
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	94.3	105.9	5.7220	59483 JOP389 5 161 59607 JOP422 5 161 1	74	See Previous Upgrade Specified For Facility	

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

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10SP	EMDE-EMDE	59480 MON383 5 161 *B343 MONETT 1 1	146	97.1	102.0	4.6820	59468 AUR124 5 161 59480 MON383 5 161 1	89	Solution Undetermined	TBD
10SP	EMDE-EMDE	59591 MON383 2 69 *B343 MONETT 1 1	147	95.9	100.6	4.6820	59468 AUR124 5 161 59480 MON383 5 161 1	130	Solution Undetermined	TBD
10SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	7.7	113.7	100.0000	55950 HYDRO 4 138 56050 SICKLES4 138 1	131	Solution Undetermined	TBD
10SP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	260	89.2	91.0	3.2350	59481 MON383 7 345 53140 FLINTCR7 345 1	150	See Previous Upgrade Specified For Facility	
10SP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	260	89.2	91.0	3.2350	AECI-MT107 59984 BRKLINE 7 345 59481 MON383 7 345 1 59481 MON383 7 345 53140 FLINTCR7 345 1	150	See Previous Upgrade Specified For Facility	
10SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLINE 5 161 1	312	90.6	94.1	7.2380	59959 BATFLD 5 161 59960 SWDISP 5 161 1	150	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53131 DYESS 5 161 53135 EROGERS5 161 1	241	88.9	91.3	3.9090	53139 FLINTCR5 161 53187 GENTRYR5 161 1	150	Rebuild 13.42 miles of 666 ACSR with 1590 ACSR. Replace Dyess wavetrap	\$ 6,750,000
10SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	97.6	99.7	3.4600	53155 CHAMSPR7 345 53176 TONTITN7 345 1	150	See Previous Upgrade Specified For Facility	
10SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	97.4	99.6	3.4600	3Wnd: OPEN *B0 49 1	150	See Previous Upgrade Specified For Facility	
10SP	AEPW-OKGE	53756 CLARKSV7 345 55224 MUSKOGEE7 345 1	883	89.9	92.5	15.2880	53794 R.S.S.-7 345 53819 ONETA--7 345 1	150	Increase CTR at Muskogee to 2000-5 amps	\$5,000
10SP	AEPW-OKGE	54002 FIXCT4 138 55055 MAUD 4 138 1	105	90.5	94.9	3.0490	3Wnd: OPEN *B3 36 M AUD 1 1	150	Rebuild 11.83 miles of 3/0 shielded Copperweld with 795 ACSR.	\$ 3,305,000
10SP	AEPW-AEPW	54110 CL-CITY2 69 54185 FOSSTAP2 69 1	51	57.5	92.4	11.9250	54197 CL-NGTP4 138 54199 WEATHTP4 138 1	150	Solution Undetermined	TBD
10SP	GRRD-GRRD	54435 KERR GR5 161 54437 412SUB 5 161 1	334	91.9	93.7	4.1510	54450 GRDA1 7 345 53140 FLINTCR7 345 1	150	See Previous Upgrade Specified For Facility	
10SP	GRRD-GRRD	54437 412SUB 5 161 54514 KANSATP5 161 1	334	90.8	92.6	4.1510	54450 GRDA1 7 345 53140 FLINTCR7 345 1	150	Reconductor 9.7 miles with 1590MCM ACSR.	\$ 1,488,000
10SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	28.7	95.1	62.6580	SPP-SWPS-02 54121 Elkcity4 138 54153 Elkcity6 230 1 54153 Elkcity6 230 50827 Grapevn6 230 1	150	Solution Undetermined	TBD
10SP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	17.3	92.8	64.7200	Base Case	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59438 EXP449T2 69 59592 JOP389 2 69 1	39	83.1	95.3	3.1280	59543 NEO184 2 69 59563 LIN314 2 69 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	87.1	98.3	5.5290	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility	
10SP	EMDE-EMDE	59525 JOP 59 2 69 59551 GAT258 2 69 1	64	90.9	99.1	3.5230	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 59565 SOL315T2 69 1	64	84.8	95.0	4.3420	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59565 SOL315T2 69 59595 RNM393 2 69 1	64	84.2	94.3	4.2990	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	87.0	98.2	5.5290	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility	
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	67	82.9	96.5	6.1000	Base Case	150	Solution Undetermined	TBD
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	84	78.2	92.0	7.7360	59478 DAD368 5 161 96101 5MORGAN 161 1	150	Solution Undetermined	TBD
10WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	11.9	117.9	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	125	Solution Undetermined	TBD
10WP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	257	93.5	96.2	4.6680	59481 MON383 7 345 59984 BRKLINE 7 345 1	150	See Previous Upgrade Specified For Facility	
10WP	SWPA-AEPW	52680 BEAVER 5 161 53136 EUREKA 5 161 1	257	93.5	96.2	4.6680	AECI-MT107 59984 BRKLINE 7 345 59481 MON383 7 345 1 59481 MON383 7 345 53140 FLINTCR7 345 1	150	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										\$ 23,326,000
Total Cost with Facilities Monitored @ 100% Loading										\$ 1,565,000

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

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05AP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	10.1	116.1	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	127	Solution Undetermined	TBD
05G	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	7.3	113.2	100.0000	55950 HYDRO 4 138 56050 SICKLES4 138 1	131	Solution Undetermined	TBD
05G	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	27.3	95.9	64.7080	Unit: 51441 TOLK1 124.0 Id:1	150	Solution Undetermined	TBD
05G	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	21.4	96.9	64.7080	Base Case	150	Solution Undetermined	TBD
05SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	241	118.1	121.1	4.8060	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	3.8	110.0	100.0000	55950 HYDRO 4 138 56092 WEATHFD4 138 1	136	Solution Undetermined	TBD
05SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	29.0	97.8	64.7240	Unit: 51442 TOLK2 124.0 Id:1	150	Solution Undetermined	TBD
05SP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	128	23.0	98.6	64.7240	Base Case	150	Solution Undetermined	TBD
05SP	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	39	78.0	91.8	3.5730	54109 CL-AFTP4 138 54121 ELKCTY-4 138 1	150	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
05SP	EMDE-EMDE	59483 JOP389 5 161 *B317 JOPLINSW 1 1	74	85.1	96.8	5.7800	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
05SP	EMDE-EMDE	59483 JOP389 5 161 *B317 JOPLINSW 1 1	74	80.1	91.5	5.6360	3Wnd: OPEN *B3 18 J OPLINW 1	150	Solution Undetermined	TBD
05SP	EMDE-EMDE	59592 JOP389 2 69 *B317 JOPLINSW 1 1	74	85.0	96.7	5.7800	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
05SP	EMDE-EMDE	59592 JOP389 2 69 *B317 JOPLINSW 1 1	74	80.0	91.4	5.6360	3Wnd: OPEN *B3 18 J OPLINW 1	150	Solution Undetermined	TBD
05SH	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	12.9	119.0	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	123	Solution Undetermined	TBD
05SH	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	97.3	100.3	4.8060	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	134	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05SH	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	284	90.5	93.6	5.8060	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	150	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05SH	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	23.4	92.0	64.7240	Unit: 51442 TOLK2 124.0 Id:1	150	Solution Undetermined	TBD
05SH	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	17.5	93.0	64.7240	Base Case	150	Solution Undetermined	TBD
05FA	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	7.3	113.2	100.0000	55950 HYDRO 4 138 56050 SICKLES4 138 1	131	Solution Undetermined	TBD
05FA	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	284	90.1	93.2	5.8030	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	150	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05FA	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	26.6	95.1	64.7250	Unit: 50893 HARRNG3 124.0 Id:1	150	Solution Undetermined	TBD
05FA	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	21.4	96.9	64.7250	Base Case	150	Solution Undetermined	TBD
05WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	6.2	112.2	100.0000	55950 HYDRO 4 138 56050 SICKLES4 138 1	133	Solution Undetermined	TBD
05WP	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	283	88.2	91.3	5.7990	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	150	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	28.3	96.9	64.7250	Unit: 51442 TOLK2 124.0 Id:1	150	Solution Undetermined	TBD
05WP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	21.7	97.1	64.7250	Base Case	150	Solution Undetermined	TBD
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	90.0	101.6	5.7530	59483 JOP389 5 161 59607 JOP422 5 161 1	129	Solution Undetermined	TBD
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	90.0	101.6	5.7530	59483 JOP389 5 161 59607 JOP422 5 161 1	129	Solution Undetermined	TBD
07SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	0.9	107.1	100.0000	56092 WEATHFD4 138 55800 CLINWEA 1	140	Solution Undetermined	TBD
07SP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	128	24.7	100.3	64.7220	Base Case	149	Solution Undetermined	TBD
07SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	31.6	100.1	64.4610	SPP-SWPS-01 54119 O.K.U.-7 345 51534 Tuco 345 1 51534 Tuco 345 51533 Tuco 230 1	150	Solution Undetermined	TBD
07SP	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	39	79.0	92.9	3.5740	54109 CL-AFTP4 138 54126 HOB-JCT4 138 1	150	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	84.3	95.6	5.5890	3Wnd: OPEN *B2 97 J OPLINW 1	150	Solution Undetermined	TBD
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	84.3	95.6	5.5890	3Wnd: OPEN *B2 97 J OPLINW 1	150	Solution Undetermined	TBD
07SP	EMDE-AECI	59604 BHH415 2 69 96673 2JAMESV 69 1	87	78.6	92.0	7.7650	59478 DAD368 5 161 96101 5MORGAN 161 1	150	Solution Undetermined	TBD
07WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	11.3	117.3	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	126	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	95.0	106.6	5.7220	59483 JOP389 5 161 59607 JOP422 5 161 1	65	Solution Undetermined	TBD
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	95.0	106.5	5.7220	59483 JOP389 5 161 59607 JOP422 5 161 1	65	Solution Undetermined	TBD
10SP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	128	27.2	102.8	64.7200	Base Case	144	Solution Undetermined	TBD
10SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	32.4	101.1	64.7200	Unit: 51442 TOLK2 124.0 Id:1	148	Solution Undetermined	TBD

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

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
10SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLINE 5 161 1	310	88.0	91.0	6.0800	59955 JUNCTN 5 161 59969 BRKLINE 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-OKGE	53756 CLARKSV7 345 55224 MUSKOGEE7 345 1	885	94.5	96.0	8.7490	53794 R.S.S.-7 345 55224 MUSKOGEE7 345 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	54126 HOB-JCT4 138 54158 TAMARTP4 138 1	104	86.8	91.3	3.1080	3Wnd: OPEN *B0 35 1	150	Solution Undetermined	TBD
10SP	AEPW-AEPW	54126 HOB-JCT4 138 54158 TAMARTP4 138 1	104	86.7	91.2	3.1080	54127 HOB-JCT2 69 54128 HOBART-2 69 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59438 EXP449T2 69 59592 JOP389 2 69 1	38	83.4	95.6	3.1280	59543 NEO184 2 69 59563 LIN314 2 69 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59466 ATL109 5 161 *B162 ATLAS 1 1	74	80.1	93.3	6.5100	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59480 MON383 5 161 *B343 MONETT 1 1	146	90.1	94.9	4.6820	59468 AUR124 5 161 59480 MON383 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	88.3	99.5	5.5290	3Wnd: OPEN *B2 97 J OPLINW 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59525 JOP 59 2 69 59551 GAT258 2 69 1	64	87.2	95.4	3.5230	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 *B162 ATLAS 1 1	74	80.0	93.2	6.5100	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 59565 SOL315T2 69 1	64	85.9	96.1	4.3420	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59565 SOL315T2 69 59595 RNM393 2 69 1	64	85.3	95.3	4.2990	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59591 MON383 2 69 *B343 MONETT 1 1	147	88.9	93.6	4.6820	59468 AUR124 5 161 59480 MON383 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	88.2	99.4	5.5290	3Wnd: OPEN *B2 97 J OPLINW 1	150	Solution Undetermined	TBD
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	68	83.4	96.8	6.1000	Base Case	150	Solution Undetermined	TBD
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	85	82.2	95.9	7.7360	59478 DAD368 5 161 96101 5MORGAN 161 1	150	Solution Undetermined	TBD
10WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	12.0	118.0	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	125	Solution Undetermined	TBD
									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	\$ -
									Total Cost with Facilities Monitored @ 100% Loading	\$ -

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

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
05AP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	10.1	116.1	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	127	Solution Undetermined	TBD
05G	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	7.3	113.2	100.0000	55950 HYDRO 4 138 56050 SICKLES4 138 1	131	Solution Undetermined	TBD
05G	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	272	90.0	92.7	4.8330	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05G	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	27.3	95.8	64.7080	Unit: 51441 TOLK1 124.0 Id:1	150	Solution Undetermined	TBD
05G	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	21.3	96.7	64.7080	Base Case	150	Solution Undetermined	TBD
05SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	241	129.9	132.9	4.8060	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	3.8	110.0	100.0000	55950 HYDRO 4 138 56092 WEATHFD4 138 1	136	Solution Undetermined	TBD
05SP	AEPW-AEPW	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	349	91.9	93.2	3.0590	53154 CHAMSPR5 161 53170 TONTITN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	29.5	98.0	64.4640	SPP-AEPW-03 54119 O.K.U.-7 345 54131 L.E.S. 345 1 54119 O.K.U.-7 345 59991 OKLAUN 7 345 1	150	Solution Undetermined	TBD
05SP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	128	23.1	98.7	64.7240	Base Case	150	Solution Undetermined	TBD
05SP	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	212	88.9	92.3	4.8120	59476 ASB349 5 161 59491 PUR421 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	EMDE-EMDE	59483 JOP389 5 161 *B317 JOPLINSW 1 1	74	84.7	96.4	5.7800	59483 JOP389 5 161 59607 JOP422 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
05SP	EMDE-EMDE	59592 JOP389 2 69 *B317 JOPLINSW 1 1	74	84.6	96.3	5.7800	59483 JOP389 5 161 59607 JOP422 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
05SH	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	109.4	112.4	4.8060	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05SH	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	12.9	119.0	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	123	Solution Undetermined	TBD
05SH	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	284	91.2	94.3	5.8060	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	150	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05SH	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	23.9	92.2	64.4640	SPP-AEPW-03 54119 O.K.U.-7 345 54131 L.E.S. 345 1 54119 O.K.U.-7 345 59991 OKLAUN 7 345 1	150	Solution Undetermined	TBD
05SH	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	17.5	93.0	64.7240	Base Case	150	Solution Undetermined	TBD
05SH	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	212	89.0	92.4	4.8180	59476 ASB349 5 161 59491 PUR421 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
05FA	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	7.3	113.2	100.0000	55950 HYDRO 4 138 56050 SICKLES4 138 1	131	Solution Undetermined	TBD
05FA	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	272	88.5	91.2	4.8030	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05FA	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	284	91.1	94.2	5.8030	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	150	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05FA	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	27.5	96.1	64.7250	Unit: 51442 TOLK2 124.0 Id:1	150	Solution Undetermined	TBD
05FA	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	21.4	96.8	64.7250	Base Case	150	Solution Undetermined	TBD
05WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	6.2	112.2	100.0000	55950 HYDRO 4 138 56050 SICKLES4 138 1	133	Solution Undetermined	TBD
05WP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	272	96.5	99.2	4.8650	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	150	AEPW has plans to upgrade NW Arkansas Area by 6/1/07	
05WP	OKGE-OKGE	54861 MUSTANG4 138 54896 MORGAN 4 138 1	283	89.0	92.0	5.7990	54902 MCCLAIN4 138 54929 PLVALLY4 138 1	150	OKGE to Increase CTR at Mustang sub by 6/1/2005	
05WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	28.3	96.8	64.7250	Unit: 51442 TOLK2 124.0 Id:1	150	Solution Undetermined	TBD
05WP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	129	21.5	97.0	64.7250	Base Case	150	Solution Undetermined	TBD
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	89.4	101.1	5.7530	59483 JOP389 5 161 59607 JOP422 5 161 1	136	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	89.4	101.1	5.7530	59483 JOP389 5 161 59607 JOP422 5 161 1	136	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	0.9	107.1	100.0000	56092 WEATHFD4 138 55800 CLINWEA 1	140	Solution Undetermined	TBD

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

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
07SP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	128	24.9	100.6	64.7220	Base Case	149	Solution Undetermined	TBD
07SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLINE 5 161 1	316	89.5	92.3	5.9840	59955 JUNCTN 5 161 59969 BRKLINE 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	30.9	99.6	64.7220	Unit: 51442 TOLK2 124.0 Id:1	150	Solution Undetermined	TBD
07SP	WFEC-AEPW	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	39	77.4	91.3	3.5740	54109 CL-AFTP4 138 54126 HOB-JCT4 138 1	150	Current WFEC Work Plan to Reconductor to be Complete by 2005 Winter. May be relieved by Interim WFEC Op Guide	TBD
07SP	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	212	92.8	96.2	4.7480	59476 ASB349 5 161 59491 PUR421 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	83.4	94.7	5.5890	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	83.3	94.7	5.5890	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
07WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	11.3	117.3	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	126	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	94.6	106.2	5.7220	59483 JOP389 5 161 59607 JOP422 5 161 1	70	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	94.6	106.1	5.7220	59483 JOP389 5 161 59607 JOP422 5 161 1	71	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	WFEC-WFEC	55856 CLINTON4 138 55800 CLINWEA 1	128	27.4	103.0	64.7200	Base Case	144	Solution Undetermined	TBD
10SP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	141	32.7	101.4	64.7200	Unit: 51442 TOLK2 124.0 Id:1	147	Solution Undetermined	TBD
10SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLINE 5 161 1	311	89.4	92.9	7.2380	59959 BATFLD 5 161 59960 SWDISP 5 161 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	93.4	95.5	3.4600	53155 CHAMSPR7 345 53176 TONTITN7 345 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	242	93.2	95.4	3.4600	3Wnd: OPEN *B0 49 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-AEPW	54126 HOB-JCT4 138 54158 TAMARTP4 138 1	104	87.4	91.9	3.1080	54127 HOB-JCT2 69 54128 HOBART-2 69 1	150	Solution Undetermined	TBD
10SP	AEPW-AEPW	54126 HOB-JCT4 138 54158 TAMARTP4 138 1	104	87.4	91.9	3.1080	3Wnd: OPEN *B0 35 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59438 EXP449T2 69 59592 JOP389 2 69 1	38	83.4	95.6	3.1280	59543 NEO184 2 69 59563 LIN314 2 69 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59466 ATL109 5 161 *B162 ATLAS 1 1	74	78.7	91.8	6.5100	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59480 MON383 5 161 *B343 MONETT 1 1	146	94.8	99.6	4.6820	59468 AUR124 5 161 59480 MON383 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	74	87.7	98.9	5.5290	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59525 JOP 59 2 69 59551 GAT258 2 69 1	64	89.4	97.6	3.5230	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 *B162 ATLAS 1 1	74	78.6	91.8	6.5100	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 59565 SOL315T2 69 1	64	85.5	95.6	4.3420	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59565 SOL315T2 69 59595 RNM393 2 69 1	64	85.0	95.0	4.2990	59483 JOP389 5 161 59607 JOP422 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59591 MON383 2 69 *B343 MONETT 1 1	147	93.6	98.3	4.6820	59468 AUR124 5 161 59480 MON383 5 161 1	150	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	74	87.5	98.7	5.5290	3Wnd: OPEN *B2 97 J OPLINW 1	150	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	68	82.4	95.8	6.1000	Base Case	150	Solution Undetermined	TBD
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	85	79.3	93.0	7.7360	59478 DAD368 5 161 96101 5MORGAN 161 1	150	Solution Undetermined	TBD
10WP	WFEC-AEPW	55856 CLINTON4 138 54148 CLINTN-4 138 1	142	12.0	118.0	100.0000	55827 BINGERJ4 138 56050 SICKLES4 138 1	125	Solution Undetermined	TBD
									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	\$ -
									Total Cost with Facilities Monitored @ 100% Loading	\$ -

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