



SPP *Southwest Power Pool*

Preliminary

System Impact Study

SPP-2003-287-1P

For Transmission Service

Requested By

Southwestern Public Service

Company

From SPS to EDDY

For an Amount Of 200 MW From

6/1/2008

To 6/1/2028

SPP Engineering, Tariff Studies

System Impact Study

Southwestern Public Service Company has requested a system impact study for long-term Firm Point-to-Point transmission service from SPS to the Eddy Co. DC tie for 200 MW. The period of the service requested is from 6/1/2008 to 6/1/2028. The OASIS reservation number is 628572. 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 SPS to EDDY request in order to provide preliminary results identifying facility upgrades that may be required for the requested service. 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 analysis are documented in Table 1 of the report. The results given in Table 1 include upgrades that may be assigned to higher priority requests. If a facility identified for the SPS to EDDY 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 SPS to EDDY 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.

Ten seasonal models were used to study the SPS to EDDY request for the requested service period. The SPP 2004 Series Cases used to study the impact of the request on the SPP system during the requested service period of 6/1/2008 to 6/1/2028 were: 2005 April Minimum, 2005 Spring Peak, 2005 Summer Shoulder, 2005 Summer Peak, 2005 Fall Peak, 2005/06 Winter Peak, 2007 Summer Peak, 2007/08 Winter Peak, 2010 Summer Peak, and 2010/11 Winter Peak. 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. The scenario studied 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 Lamar to SPS.

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.

The study results of the SPS to EDDY transfer show that limiting constraints exist. Due to the limiting constraints identified, the Transmission Service Request cannot be granted. 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 SPS to EDDY 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 SPS to EDDY transfer.

Study Case	From Area - From Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	Solution	Estimated Cost
05FA	OKGE-OKGE	54721 IMO 2 69 54722 CLEVETP2 69 1	36	38	0.0530	54730 SO4TH2 2 69 *B458 SO4TH 1 1 1	Solution Undetermined	TBD
05SH	WFEC-WFEC	55898 ELMORE 2 69 56087 WALVILL2 69 1	26	30	0.0080	55911 FLETCHR2 69 55990 MARLOWJ2 69 1	Solution Undetermined	TBD
05SH	WFEC-WFEC	55979 LNDYSW2 69 56087 WALVILL2 69 1	26	27	0.0080	55911 FLETCHR2 69 55990 MARLOWJ2 69 1	Lindsay>Wallville: 4.9 miles, 1/0 to 336	\$ 1,000,000
05SH	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	571	0.3400	56765 HOYT 7 345 56766 JEC N 7 345 1	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
05SH	AEPW-AEPW	54023 OKMULGE4 138 54049 EC.HEN-4 138 1	104	124	0.1130	54023 OKMULGE4 138 54057 KELCO 4 138 1	Replace Okmulgee Wavetrap	\$ 40,000
05SH	AEPW-AEPW	54028 WELETK4 138 54049 EC.HEN-4 138 1	104	120	0.1130	54023 OKMULGE4 138 54057 KELCO 4 138 1	Replace Weleetka Wavetrap	\$ 40,000
05SP	WFEC-WFEC	55897 ELKCITY2 69 54122 ELKCTY-2 69 1	39	41	0.0100	56027 PINERDG2 69 56088 WASHITA2 69 1	Elk(AEPW)>Elk WFEC: Upgrade 4/0 to 795 ACSR	\$ 414,000
05WP	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 1	68	81	0.0550	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
05WP	WERE-WERE	57167 KEENE 3 115 57339 S ALMA 3 115 1	68	77	0.0550	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
05WP	WERE-WERE	57335 MCDOWEL3 115 57340 SMANHAT3 115 1	68	72	0.0550	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
05WP	WERE-WERE	57339 S ALMA 3 115 57340 SMANHAT3 115 1	68	72	0.0550	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
05WP	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 2	92	94	0.0630	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
05WP	WERE-WERE	57372 PHILIPS3 115 57374 SPHILPJ3 115 1	159	160	0.3150	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	Rebuild 0.88 miles and reconductor with 1192.5 ACSR.	\$ 417,200
05WP	WERE-WERE	57374 SPHILPJ3 115 57438 WMCPHER3 115 1	67	74	0.1460	56872 EMCIPHER6 230 56873 SUMMIT 6 230 1	Tear down double circuit, build single circuit with 1192.5 ACSR.	\$ 7,800,000
05WP	WERE-WERE	57039 ELPASO 4 138 57046 GILL S 4 138 1	210	216	0.1210	57040 EVANS N4 138 57041 EVANS S4 138 1	Invalid Contingency	TBD
07SP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	188	196	0.0700	55842 CANADNS4 138 54947 CANADN-4 138 1	Replace 800 amp wavetrap with 2000 amp wavetrap at Franklin Switch and 795ACSR jumpers with 1590ACSR, connectors	\$ 24,000
07SP	OMPA-OMPA	56204 OMDUNCN4 138 54157 COMMTAP4 138 1	117	122	0.0470	54112 CORNVIL4 138 54155 RUSHNGT4 138 1	Rebuild 17.81 miles of 266 ACSR with 795 ACSR	\$ 6,100,000
07SP	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 1	68	98	0.0340	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
07SP	WERE-WERE	57167 KEENE 3 115 57339 S ALMA 3 115 1	68	92	0.0340	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
07SP	WERE-WERE	57335 MCDOWEL3 115 57340 SMANHAT3 115 1	68	83	0.0340	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
07SP	WERE-WERE	57339 S ALMA 3 115 57340 SMANHAT3 115 1	68	84	0.0340	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
07SP	WERE-WERE	57151 AUBURN 3 115 57167 KEENE 3 115 2	92	114	0.0390	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
07SP	WERE-WERE	57167 KEENE 3 115 57339 S ALMA 3 115 2	92	106	0.0390	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD

07SP	WERE-WERE	57335 MCDOWEL3 115 57340 SMANHAT3 115 2	92	95	0.0390	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
07SP	WERE-WERE	57339 S ALMA 3 115 57340 SMANHAT3 115 2	92	97	0.0390	56852 JEC 6 230 56861 EMANHAT6 230 1	May be relieved due to Westar Operating Procedure 900 - Outage of the JEC to East Manhattan 230kV Line	TBD
07SP	AEPW-AEPW	54125 HEADRIK2 69 54138 SNYDER-2 69 1	53	60	0.1090	54126 HOB-JCT4 138 54158 TAMARTP4 138 1	Replace Snyder wavetrapp	\$ 40,000
07SP	SPS-SPS	50517 LP-SINT2 69 50526 LP-OLIV2 69 1	77	79	0.4340	50515 LP-CHAL2 69 50517 LP-SINT2 69 1	Solution Undetermined	TBD
07SP	WERE-WERE	57301 EAST ST3 115 57309 WEMPORI3 115 1	91	94	0.0470	57305 MORRIS 3 115 *B370 MORRIS2X 1 1	May be relieved due to Westar Operating Procedure 625 - Outage of the Morris 230/115 kV transformer	TBD
07SP	SPS-SPS	50517 LP-SINT2 69 50518 LP-SINT6 230 1	95	118	0.3230	Unit:5 0520 LP- HOLL 269.0 l d:1	Solution Undetermined	TBD
10SP	AEPW-AEPW	54125 HEADRIK2 69 54138 SNYDER-2 69 1	53	64	0.0340	54126 HOB-JCT4 138 54158 TAMARTP4 138 1	See Previously Specified Upgrades	\$ -
10SP	SPS-SPS	50517 LP-SINT2 69 50526 LP-OLIV2 69 1	77	78	0.1490	50515 LP-CHAL2 69 50517 LP-SINT2 69 1	Solution Undetermined	TBD
10SP	SPS-SPS	50517 LP-SINT2 69 50518 LP-SINT6 230 1	95	118	0.0610	Unit:5 0520 LP- HOLL 269.0 l d:1	Solution Undetermined	TBD
							This cost may be significantly higher due to additional facilities whose solutions will be determined during the Facility Study process.	\$ *
							Total Estimated Cost of Known Solutions	\$ 15,875,200

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 – 100%
4. Contingency Case Rating – Rate B
5. Contingency Case % of Rating – 100%
6. Base Case Load Flow – PSS/E
7. Convert branch ratings to estimated MW ratings – Yes
8. Contingency ID ReSPSting – 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. ReSPSt Base Case Violations with FCITC – Yes
3. Maximum number of violations to reSPSt in FCITC table - 50000
4. Distribution Factor (OTDF and PTDF) Cutoff – 0.0
5. Maximum times to reSPSt the same elements - 10
6. Apply Distribution Factor to Contingency Analysis – Yes
7. Apply Distribution Factor to FCITC ReSPSts – 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