



SPP *Southwest Power Pool*

*Preliminary
System Impact Study
SPP-2003-284-1P
For Transmission Service
Requested By
InterGen Services, Inc.*

From OKGE to WR

*For a Amount Of 200MW From
5/1/2004
To 5/1/2007*

SPP Engineering, Tariff Studies

System Impact Study

InterGen Services, Inc. has requested a system impact study for long-term Firm Point-to-Point transmission service from OKGE to WR for 200 MW. The period of the service requested is from 5/1/2004 to 5/1/2007. The OASIS reservation number is 623292. 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 OKGE to WR 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 OKGE to WR 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 OKGE to WR 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.

Thirteen seasonal models were used to study the OKGE to WR request for the requested service period. The SPP 2004 Series Cases 2004 Spring Peak (04G), 2004 Summer Peak (04SP), 2004 Summer Shoulder (04SH), 2004 Fall Peak (04FA), 2004/05 Winter Peak (04WP), 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), and the 2007 Summer Peak (07SP), and 2007/08 Winter Peak (07WP) were used to study the impact of the request on the SPP system during the requested service period of 5/1/2004 to 5/1/2007. 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, the Lamar HVDC Tie flowing from SPS to Lamar, and ERCOT Exporting.

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 OKGE to WR transfer show that limiting constraints exist. Due to the limiting constraints identified, the Transmission Service Request cannot be granted. These results do not include an evaluation of potential constraints in the planning horizon beyond the reservation period that may limit the right to renew service. 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 OKGE to WR 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 OKGE to WR transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
04G		NONE IDENTIFIED						200		
04SP		NONE IDENTIFIED						200		
04SH	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	244	97.8	101.7	4.8100	53157 SFAYTVL5 161 53195 FARMGTN5 161 1	112	May be relieved by AEPW plans to build a new Chamber Springs to Tontitown 345kV line and a new Siloam Springs to Chamber Springs 161kV line by 5/1/2007. The in-service date of the new lines can be expedited by six months.	TBD
04FA		NONE IDENTIFIED						200		
04WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	103.9	105.7	4.9520	56765 HOYT 7 345 56766 JEC N 7 345 1	0	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
05AP		NONE IDENTIFIED						200		
05G		NONE IDENTIFIED						200		
05SP		NONE IDENTIFIED						200		
05SH	AEPW-AEPW	53154 CHAMSPR5 161 53170 TONTITN5 161 1	244	115.0	118.9	4.7900	53154 CHAMSPR5 161 53195 FARMGTN5 161 1	0	May be relieved by AEPW plans to build a new Chamber Springs to Tontitown 345kV line and a new Siloam Springs to Chamber Springs 161kV line by 5/1/2007. The in-service date of the new lines can be expedited by six months.	TBD
05SH	OKGE-OKGE	55235 PECANCK7 345 *B399 PECANCK1 1 1	368	98.6	100.4	3.4110	55224 MUSKOGEE7 345 55302 FTSMITH7 345 1	152	Add 2nd 345/161 kV 369MVA transformer.	\$ 3,000,000
05SH	OKGE-OKGE	55228 5TRIBES5 161 55234 PECANCK5 161 1	223	97.4	100.5	3.3690	55230 AGENCY 5 161 55234 PECANCK5 161 1	168	May be able to increase CTR (if relays will coordinate) at Five Tribes sub.	\$ 5,000
05FA		NONE IDENTIFIED						200		
05WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	103.9	105.8	5.5100	56765 HOYT 7 345 56766 JEC N 7 345 1	0	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
05WP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	83.8	109.7	11.9340	56765 HOYT 7 345 56772 STRANGR7 345 1	125	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
05WP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	79.8	105.7	11.9340	56765 HOYT 7 345 56772 STRANGR7 345 1	156	Rebuild 5.67 miles with 1192.5 kcmil ACSR conductor on wood H-frame.	\$ 1,655,172
07SP	WERE-WERE	57412 ARKVALJ3 115 57413 CIRCLE 3 115 1	68	100.7	129.7	9.8330	57413 CIRCLE 3 115 57419 HEC 3 115 1	0	May be relieved due to Westar Operating Procedure 1204 - Outage of the Circle to Hutchinson Energy Center (HEC) GT 115 kV Line	TBD
07SP	WERE-WERE	57412 ARKVALJ3 115 57435 3 VANBU3 115 1	68	95.3	124.3	9.8330	57413 CIRCLE 3 115 57419 HEC 3 115 1	33	May be relieved due to Westar Operating Procedure 1204 - Outage of the Circle to Hutchinson Energy Center (HEC) GT 115 kV Line	TBD

07SP	WERE-WERE	57796 GILL W 2 69 *B264 GEC3 GSU 1 1	137	95.4	103.2	5.3350	57046 GILL S 4 138 *B266 GILL 5X 1 1	118	May be relieved due to Westar Operating Procedure 606 Outage of the Murray Gill #5 138/69kV Transformer or the Murray Gill Bus Tie breaker 138-24	TBD
07SP	WERE-WERE	57301 EAST ST3 115 57309 WEMPORI3 115 1	91	95.3	102.9	3.4740	57305 MORRIS 3 115 57309 WEMPORI3 115 1	123	May be relieved due to Westar Operating Procedure 1209 - Outage of the Morris to West Emporia 115kV Line	TBD
07SP	WERE-WERE	57514 HEC GT 2 69 56696 HEC GT2 13.8 1	65	75.5	104.9	9.5440	57413 CIRCLE 3 115 57419 HEC 3 115 1	166	May be relieved due to Westar Operating Procedure 1204 - Outage of the Circle to Hutchinson Energy Center (HEC) GT 115 kV Line	TBD
07SP	WERE-WERE	57526 16WOODJ2 69 57527 3 VANBU2 69 1	65	45.8	102.6	18.4560	57413 CIRCLE 3 115 57419 HEC 3 115 1	191	May be relieved due to Westar Operating Procedure 1204 - Outage of the Circle to Hutchinson Energy Center (HEC) GT 115 kV Line	TBD
07WP		NONE IDENTIFIED						200		
									This cost may be significantly higher due to additional facilities whose solutions will be determined during the Facility Study process	\$*
									Total Estimated Cost of Know Solutions	\$ 4,660,172

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 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