SPP Southwest Power Pool

Preliminary System Impact Study SPP-2003-283-1P For Transmission Service Requested By InterGen Services, Inc.

From OKGE to WFEC

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 WFEC for 200 MW. The period of the service requested is from 5/1/2004 to 5/1/2007. The OASIS reservation number is 623287. 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 WFEC 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 WFEC 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 WFEC 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 WFEC 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 importing, 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.

The study results of the OKGE to WFEC 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 WFEC 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 WFEC transfer

Study Case	From Area - To Area	Branch Overload	Rating <MW>	Pre Transfer Loading	%TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
04G	WFEC-WFEC	55802 ACME 2 69 55916 FRNKLNS2 69 1	34	40	3.1250	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Jct to Acme Sub: Upgrade From 3/0 To 795MCM. WFEC Current Work Plan.	TBD
04G	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	36	3.1250	55841 CANADNS2 69 55842 CANADNS4 138 1	52	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR. WFEC Current Work Plan.	TBD
04SP	OKGE-OKGE	54722 CLEVETP2 69 54730 SO4TH2 2 69 1	92	51	22.9820	54731 SO4TH4 4 138 54790 IMO TAP4 138 1	177	Solution Undetermined	TBD
04SP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	187	215	3.6190	56026 PHAROAH4 138 56084 WETUMKA4 138 1	0	Replace 800 amp wavetrap with 2000 amp wavetrap at Franklin Switch and 795ACSR jumpers with 1590ACSR, connectors	$ 24,000
04SP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	187	203	3.4090	Unit:5 4208 SWS 38047 24.0 I d:1	0	Solution Undetermined	TBD
04SH	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	35	3.2900	55841 CANADNS2 69 55842 CANADNS4 138 1	101	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR. WFEC Current Work Plan.	TBD
04SH	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	190	167	17.0240	56026 PHAROAH4 138 56084 WETUMKA4 138 1	131	See Previous Upgrade Specified For Facility	
04FA	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	41	3.0720	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR. WFEC Current Work Plan.	TBD
04WP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	190	203	3.6110	56026 PHAROAH4 138 56084 WETUMKA4 138 1	0	See Previous Upgrade Specified For Facility	
05AP	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	41	3.2290	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR. WFEC Current Work Plan.	TBD
05G	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	40	3.0800	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR. WFEC Current Work Plan.	TBD
05SP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	188	212	3.6200	56026 PHAROAH4 138 56084 WETUMKA4 138 1	0	See Previous Upgrade Specified For Facility	
05SP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	188	191	3.4200	Unit:5 4208 SWS 38047 24.0 I d:1	0	Solution Undetermined	TBD
05SH	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	188	203	3.6180	56026 PHAROAH4 138 56084 WETUMKA4 138 1	0	See Previous Upgrade Specified For Facility	
05FA	WFEC-WFEC	55802 ACME 2 69 56095 WNORMAN2 69 1	38	41	3.1500	55841 CANADNS2 69 55842 CANADNS4 138 1	0	Acme Sub > West Norman: Upgrade from 3/0 to 795 ACSR. WFEC Current Work Plan.	TBD
05WP		NONE IDENTIFIED					200		
07SP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	188	218	6.3490	56026 PHAROAH4 138 56084 WETUMKA4 138 1	0	See Previous Upgrade Specified For Facility	
07SP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	188	202	6.0390	Unit:5 4208 SWS 38047 24.0 I d:1	0	Solution Undetermined	TBD
07WP	WFEC-WFEC	55917 FRNKLNS4 138 54946 MIDWEST4 138 1	191	185	6.8460	56026 PHAROAH4 138 56084 WETUMKA4 138 1	74	See Previous Upgrade Specified For Facility	
								This cost may be significantly higher due to additional facilities whose solutions will be determined during the Facility Study process	$*
								Total Estimated Cost	$ 24,000

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