



SPP

*Southwest
Power Pool*

*Preliminary
System Impact Study
SPP-2004-149-2P
For Transmission Service
Requested By
City Power & Light of Independence,
MO*

From KACY to INDN

*For a Reserved Amount Of 75MW
From 6/1/2012
To 6/1/2013*

SPP Engineering, Tariff Studies

System Impact Study

City Power & Light of Independence, MO has requested a system impact study for long-term Firm Point-to-Point transmission service from KACY to INDN for 75 MW. The period of the service requested is from 6/1/2012 to 6/1/2013. The OASIS reservation number is 759688. 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 KACY to INDN 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 specified source in the KACY Control Area to marginally dispatched units in the INDN 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 KACY to INDN 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 KACY to INDN 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.

Six seasonal models were used to study the KACY to INDN request for the requested service period. The SPP 2004 Series Cases Update 2, 2005 April Minimum (05AP), 2005 Spring Peak (05G), 2005 Summer Shoulder (05SH), 2005 Fall Peak (05FA), 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 6/1/2012 to 6/1/2013. 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 six 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 (including 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 (including 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 (including 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 third party constraints in Non-SPP control areas. 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 KACY to INDN 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 KACY to INDN 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		NONE IDENTIFIED						75		
05G		NONE IDENTIFIED						75		
05SH	KACY-KACY	58683 OWN COR2 69 58686 LEVEE 2 69 1	82	97.1	99.9	3.0580	8652 QUIND 5 161 58663 GM PLT 5 161 1	75	Third Party in SPP	
05FA		NONE IDENTIFIED						75		
10SP	KACP-KACP	58031 GRNWOOD5 161 58032 MERRIAM5 161 1	334	87.0	90.9	17.6070	57978 CRAIG 5 161 57979 PFLUMM 5 161 1	75	Solution Undetermined	TBD
10SP	KACY-KACY	58683 OWN COR2 69 58686 LEVEE 2 69 1	82	94.3	97.2	3.2200	8652 QUIND 5 161 58663 GM PLT 5 161 1	75	Third Party in SPP	
10SP	INDN-INDN	59814 SUB M 5 161 59815 SUB M 2 69 1	97	77.5	99.5	28.5600	58004 BLUMILS5 161 59808 ECKLES 5 161 1	75	Third Party in SPP	
10WP		NONE IDENTIFIED						75		
									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 2 – SPP facility overloads identified for the KACY to INDN 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		NONE IDENTIFIED						75		
05G		NONE IDENTIFIED						75		
05SH	KACY-KACY	58683 OWN COR2 69 58686 LEVEE 2 69 1	82	96.7	99.5	3.0580	8652 QUIND 5 161 58663 GM PLT 5 161 1	75	Third Party in SPP	
05FA		NONE IDENTIFIED						75		
10SP	KACY-KACY	58683 OWN COR2 69 58686 LEVEE 2 69 1	82	93.8	96.8	3.2200	8652 QUIND 5 161 58663 GM PLT 5 161 1	75	Third Party in SPP	
10SP	INDN-INDN	59814 SUB M 5 161 59815 SUB M 2 69 1	97	77.0	99.0	28.5600	58004 BLUMILS5 161 59808 ECKLES 5 161 1	75	Third Party in SPP	
10WP		NONE IDENTIFIED						75		
									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 KACY to INDN 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		NONE IDENTIFIED						75			
05G		NONE IDENTIFIED						75			
05SH	KACY-KACY	58683 OWN COR2 69 58686 LEVEE 2 69 1	82	97.0	99.7	3.0580	8652 QUIND 5 161 58663 GM PLT 5 161 1	75	Third Party in SPP		
05FA		NONE IDENTIFIED						75			
10SP	KACP-KACP	58031 GRNWOOD5 161 58032 MERRIAM5 161 1	334	86.7	90.7	17.6070	57978 CRAIG 5 161 57979 PFLUMM 5 161 1	75	Solution Undetermined	TBD	
10SP	KACY-KACY	58683 OWN COR2 69 58686 LEVEE 2 69 1	82	94.2	97.1	3.2200	8652 QUIND 5 161 58663 GM PLT 5 161 1	75	Third Party in SPP		
10SP	INDN-INDN	59814 SUB M 5 161 59815 SUB M 2 69 1	97	77.2	99.2	28.5600	58004 BLUMILS5 161 59808 ECKLES 5 161 1	75	Third Party in SPP		
10WP		NONE IDENTIFIED						75			
										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