



SPP *Southwest Power Pool*

*Preliminary
System Impact Study
SPP-2005-006-1P
For Transmission Service
Requested By
Calpine Energy Services L.P.*

From WPEK to ERCOTE

*For a Reserved Amount Of 50MW
From 1/1/2006
To 1/1/2008*

SPP Engineering, Tariff Studies

SPP IMPACT STUDY (SPP-2005-006-1P)

April 5, 2005

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System Impact Study

Calpine Energy Services L.P. has requested a system impact study for long-term Firm Point-to-Point transmission service from WPEK to ERCOTE for 50 MW. The period of the service requested is from 1/1/2006 to 1/1/2008. The OASIS reservation number is 826677. This is a request to redirect previously confirmed OASIS reservation 696712. Oasis Reservation 696712 is a 50 MW request from AEPW to ERCOTE. 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 WPEK to ERCOTE 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 WPEK Control Area to the ERCOTE HVDC Tie. 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 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.

Eight seasonal models were used to study the WPEK to ERCOTE request for the requested service period. The SPP 2005 Series Cases Update 1, 2006 April Minimum (06AP), 2006 Spring Peak (06G), 2006 Summer Peak (06SP), 2006 Summer Shoulder (06SH), 2006 Fall Peak (06FA), 2006/07 Winter Peak (06WP), 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 1/1/2006 to 1/1/2008. 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 2005 base case series models. From the eight seasonal models, three system scenarios were developed. Scenario 1 includes confirmed West to East transfers not already included in the January 2005 base case series models, SPS Exporting (including the Lamar HVDC Tie flowing from SPS to Lamar), and ERCOT importing. Scenario 2 includes confirmed East to West transfers not already included in the January 2005 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 2005 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 an evaluation of potential constraints in the planning horizon beyond the reservation period that may limit the right to renew service. Also, 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.

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 WPEK to ERCOTE 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 Aggregate System Impact Study. Execution of a Facility Study Agreement is not required at this time to maintain queue position. The final upgrade solutions, cost assignments, available redispatch, and curtailment options will be determined upon the completion of the Aggregate System Impact Study and Facility Study. An Aggregate System Impact Study Agreement will be tendered prior to the close of the first open season, June 1, 2005.

Table 1 – SPP facility overloads identified for the WPEK to ERCOTE transfer using Scenario 1

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Original %TC Loading	Original %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
06AP		NONE IDENTIFIED								50		
06G	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	105.5	106.6	11.6140	105.5	0.0640	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
06G	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	105.9	107.9	3.7970	105.9	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	100.9	102.9	3.7970	100.9	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	90.0	91.0	21.1100	90.0	0.3420	56766 JEC N 7 345 56770 MORRIS 7 345 1	50	Solution Undetermined	TBD
06SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	109.2	110.1	10.1540	109.2	0.0680	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
06SP		*B250 EMANHT3X 1 57326 EMANHAT3 115 1	306	90.3	91.2	5.3770	N/A*	N/A*	56765 HOYT 7 345 56766 JEC N 7 345 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	89.8	90.6	16.9400	89.8	0.3430	56766 JEC N 7 345 56770 MORRIS 7 345 1	50	Solution Undetermined	TBD
06SP	WERE-WERE	56861 EMANHAT6 230 *B250 EMANHT3X 1 1	303	91.4	92.2	5.3770	N/A*	N/A*	56765 HOYT 7 345 56766 JEC N 7 345 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	97.9	99.9	3.5410	98.0	0.0840	56765 HOYT 7 345 56772 STRANGR7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	91.0	92.9	3.5410	91.0	0.0840	56765 HOYT 7 345 56772 STRANGR7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	104.8	106.1	14.9130	104.8	0.0680	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
06SH	WERE-WERE	56920 TECHILL5 161 *B004 1 1	69	88.8	91.2	3.2150	88.9	0.0520	58756 CLIFTON3 115 58765 GRNLEAF3 115 1	50	Solution Undetermined	TBD
06SH	WERE-WERE	57182 TECHILE3 115 *B004 1 1	69	88.7	91.0	3.2150	88.7	0.0520	58756 CLIFTON3 115 58765 GRNLEAF3 115 1	50	Solution Undetermined	TBD
06FA	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	105.4	106.3	10.8730	105.4	0.0630	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
06FA	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	105.2	107.2	3.5660	105.3	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	100.2	102.2	3.5660	100.3	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1076	90.0	90.9	20.6410	90.0	0.3440	56766 JEC N 7 345 56770 MORRIS 7 345 1	50	Solution Undetermined	TBD

Table 1 – SPP facility overloads identified for the WPEK to ERCOTE transfer using Scenario 1

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Original %TC Loading	Original %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
06WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	110.9	111.8	10.8040	110.9	0.0660	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
06WP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	118.5	120.4	3.5130	118.6	0.0940	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	113.8	115.7	3.5130	113.9	0.0940	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	96.6	97.6	20.3980	96.6	0.3590	56766 JEC N 7 345 56770 MORRIS 7 345 1	50	Solution Undetermined	TBD
07SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	113.0	113.9	9.2680	113.1	0.1860	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
07SP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	106.2	107.9	3.1870	106.3	0.1540	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	99.2	100.9	3.1870	99.2	0.1540	56765 HOYT 7 345 56772 STRANGR7 345 1	24	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	92.6	93.4	15.8190	92.7	0.8460	56851 AUBURN 6 230 56852 JEC 6 230 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
07WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	111.4	112.3	10.8600	111.4	0.1830	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
07WP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	114.4	116.3	3.5890	114.5	0.1620	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	109.6	111.6	3.5890	109.7	0.1620	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	93.0	93.9	20.3650	93.0	0.5790	56766 JEC N 7 345 56770 MORRIS 7 345 1	50	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 2 – SPP facility overloads identified for the WPEK to ERCOTE transfer using Scenario 2

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Original %TC Loading	Original %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
06AP		NONE IDENTIFIED								50		
06G	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	99.2	100.3	11.6140	99.2	0.0640	56765 HOYT 7 345 56766 JEC N 7 345 1	37	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06G	SWPS-SWPS	50907 HARRNG 6 230 50915 NICHOL 6 230 1	634	95.6	96.3	8.2030	N/A*	N/A*	50907 HARRNG 6 230 50915 NICHOL 6 230 2	50	Solution Undetermined	TBD
06G	SWPS-SWPS	50907 HARRNG 6 230 50915 NICHOL 6 230 2	634	95.4	96.1	8.1850	N/A*	N/A*	50907 HARRNG 6 230 50915 NICHOL 6 230 1	50	Solution Undetermined	TBD
06SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	104.3	105.2	10.1540	104.3	0.0680	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
06SP	WERE-WERE	*B250 EMANHT3X 1 57326 EMANHAT 3 115 1	306	90.8	91.7	5.3770	N/A*	N/A*	56765 HOYT 7 345 56766 JEC N 7 345 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SP	WERE-WERE	56861 EMANHAT 6 230 *B250 EMANHT 3X 1 1	303	91.9	92.8	5.3770	N/A*	N/A*	56765 HOYT 7 345 56766 JEC N 7 345 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SH	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	99.9	101.3	14.9130	99.9	0.0680	56765 HOYT 7 345 56766 JEC N 7 345 1	3	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SH	WERE-WERE	56920 TECHILL 5 161 *B004 1 1	69	90.3	92.6	3.2150	90.3	0.0520	58756 CLIFTON 3 115 58765 GRNLEAF 3 115 1	50	Solution Undetermined	TBD
06SH	WERE-WERE	57182 TECHILE 3 115 *B004 1 1	69	90.1	92.5	3.2150	90.2	0.0520	58756 CLIFTON 3 115 58765 GRNLEAF 3 115 1	50	Solution Undetermined	TBD
06FA	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	100.3	101.2	10.8730	100.3	0.0630	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
06WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	104.5	105.5	10.8040	104.5	0.0660	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
06WP	WERE-WERE	57182 TECHILE 3 115 57270 STULL T3 115 1	92	98.3	100.2	3.5130	98.3	0.0940	56765 HOYT 7 345 56772 STRANGR 7 345 1	46	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	89.7	90.6	20.3980	89.7	0.3590	56766 JEC N 7 345 56770 MORRIS 7 345 1	50	Solution Undetermined	TBD
06WP	WERE-WERE	57253 MOCKBRD 3 115 57270 STULL T3 115 1	92	93.8	95.7	3.5130	93.9	0.0940	56765 HOYT 7 345 56772 STRANGR 7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	108.4	109.2	9.2680	108.4	0.1860	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
07WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	104.8	105.7	10.8600	104.8	0.1830	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

Table 2 – SPP facility overloads identified for the WPEK to ERCOTE transfer using Scenario 2

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Original %TC Loading	Original %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
07WP	WERE-WERE	57182 TECHILE 3 115 57270 STULL T3 115 1	92	93.0	95.0	3.5890	93.1	0.1620	56765 HOYT 7 345 56772 STRANGR 7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57253 MOCKBRD 3 115 57270 STULL T3 115 1	92	88.5	90.4	3.5890	88.6	0.1620	56765 HOYT 7 345 56772 STRANGR 7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	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 WPEK to ERCOTE transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Original %TC Loading	Original %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
06AP		NONE IDENTIFIED								50		
06G	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	104.3	105.4	11.6140	104.3	0.0640	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
06G	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	100.4	102.5	3.7970	100.5	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	SWPS-SWPS	50907 HARRNG6 230 50915 NICHOL6 230 1	634	94.1	94.8	8.2030	N/A*	N/A*	50907 HARRNG6 230 50915 NICHOL6 230 2	50	Solution Undetermined	TBD
06G	SWPS-SWPS	50907 HARRNG6 230 50915 NICHOL6 230 2	634	93.9	94.6	8.1850	N/A*	N/A*	50907 HARRNG6 230 50915 NICHOL6 230 1	50	Solution Undetermined	TBD
06G	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	95.4	97.5	3.7970	95.5	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	108.1	109.0	10.1540	108.2	0.0680	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
06SP	WERE-WERE	*B250 EMANHT3X 1 57326 EMANHAT3 115 1	306	90.3	91.1	5.3770	N/A*	N/A*	56765 HOYT 7 345 56766 JEC N 7 345 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SP	WERE-WERE	56861 EMANHAT6 230 *B250 EMANHT3X 1 1	303	91.3	92.2	5.3770	N/A*	N/A*	56765 HOYT 7 345 56766 JEC N 7 345 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	93.0	95.0	3.5410	93.1	0.0840	56765 HOYT 7 345 56772 STRANGR7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	103.7	105.1	14.9130	103.7	0.0680	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
06SH	WERE-WERE	56920 TECHILL5 161 *B004 1 1	69	88.5	90.9	3.2150	88.6	0.0520	57332 KNOB HL3 115 58765 GRNLEAF3 115 1	50	Solution Undetermined	TBD
06SH	WERE-WERE	57182 TECHILE3 115 *B004 1 1	69	88.4	90.7	3.2150	88.4	0.0520	57332 KNOB HL3 115 58765 GRNLEAF3 115 1	50	Solution Undetermined	TBD
06FA	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	104.4	105.4	10.8730	104.4	0.0630	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
06FA	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	99.8	101.7	3.5660	99.8	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	6	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	94.9	96.8	3.5660	94.9	0.0920	56765 HOYT 7 345 56772 STRANGR7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	109.8	110.8	10.8040	109.8	0.0660	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
06WP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	113.8	115.7	3.5130	113.9	0.0940	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	109.4	111.3	3.5130	109.4	0.0940	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD

Table 3 – SPP facility overloads identified for the WPEK to ERCOTE transfer using Scenario 3

Study Case	From Area - To Area	Branch Overload	Rating <MW>	BC % Loading	TC % Loading	%TDF	Original %TC Loading	Original %TDF	Outaged Branch Causing Overload	ATC <MW>	Solution	Estimated Cost
06WP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	93.8	94.8	21.0030	93.9	0.5470	56851 AUBURN 6 230 56852 JEC 6 230 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
07SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	112.0	112.9	9.2680	112.1	0.1860	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
07SP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	101.2	102.9	3.1870	101.3	0.1540	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1075	90.8	91.6	15.8190	90.9	0.8460	56851 AUBURN 6 230 56852 JEC 6 230 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
07SP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	94.2	96.0	3.1870	94.3	0.1540	56765 HOYT 7 345 56772 STRANGR7 345 1	50	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	110.6	111.5	10.8600	110.6	0.1830	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
07WP	WERE-WERE	57182 TECHILE3 115 57270 STULL T3 115 1	92	110.2	112.2	3.5890	110.3	0.1620	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57253 MOCKBRD3 115 57270 STULL T3 115 1	92	105.5	107.4	3.5890	105.5	0.1620	56765 HOYT 7 345 56772 STRANGR7 345 1	0	May be relieved due to Westar Operating Procedure 0803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	56765 HOYT 7 345 56766 JEC N 7 345 1	1076	90.4	91.4	21.0050	90.5	0.8470	56851 AUBURN 6 230 56852 JEC 6 230 1	50	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	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