



SPP *Southwest Power Pool*

*Preliminary
System Impact Study
SPP-2005-008-1P
For Transmission Service
Requested By
Calpine Energy Services L.P.*

From WERE to ERCOTE

*For a Reserved Amount Of 100MW
From 1/1/2006
To 1/1/2008*

SPP Engineering, Tariff Studies

System Impact Study

Calpine Energy Services L.P. has requested a system impact study for long-term Firm Point-to-Point transmission service from WR to ERCOTE for 100 MW. The period of the service requested is from 1/1/2006 to 1/1/2008. The OASIS reservation numbers are 826680 and 826681. This is a request to redirect previously confirmed OASIS reservations 696708 and 696705. Oasis Reservations 696708 and 696705 are 50 MW requests 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 WR 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 WR (WERE) 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 WR 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 WR 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 WR 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								100		
06G	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	94	122.2	126.6	4.1990	122.4	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	89	113.5	118.2	4.1990	113.8	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	88	110.1	114.9	4.1990	110.4	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	82.5	106.6	38.5040	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	73	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06G	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	92	81.7	105.6	21.8740	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	77	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06G	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	90.0	90.4	4.0320	90.1	0.3420	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
06G	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	235	79.1	93.0	32.5750	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	94.5	99.5	4.8190	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	109.2	111.0	9.9320	109.2	0.0680	56765 HOYT 7 345 56766 JECN 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	56920 TECHILL5 161 *B022 1 1	69	108.9	117.1	5.6040	109.1	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	111.6	115.0	3.2620	111.8	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	91	102.0	117.7	14.2740	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SP	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	103.0	118.8	25.1260	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SP	WERE-WERE	57182 TECHILE 3 115 *B022 1 1	69	108.7	116.9	5.6040	108.9	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SP	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	96	103.0	106.4	3.3010	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	0	Solution Undetermined	TBD
06SP	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	232	96.0	106.8	24.9980	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	37	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD

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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
06SP	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	91.9	102.4	11.0820	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	77	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
06SP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	89.8	92.0	24.0190	89.8	0.3430	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
06SP	WERE-WERE	56852 JEC 6 230 56861 EMANHAT 6 230 1	441	93.4	94.5	4.9430	93.4	0.1090	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	95.6	99.2	3.2620	95.8	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57180 TEC E 3 115 56672 TEC U8 16 1	170	86.4	94.1	13.0000	N/A*	N/A*	Unit:56751 WCGS U1 25.0 Id:1	100	Solution Undetermined	TBD
06SP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	91.1	94.8	3.2620	91.4	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57233 166TH 3 115 57243 JAGGARD3 115 1	96	86.7	90.1	3.3010	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06SH	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	104.8	107.1	13.3090	104.8	0.0680	56765 HOYT 7 345 56766 JECN 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	118.7	127.3	5.9330	118.8	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SH	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	111.1	115.0	3.6980	111.3	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57182 TECHILE 3 115 *B004 1 1	69	118.5	127.1	5.9330	118.6	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SH	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	98.8	102.9	3.6980	99.0	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	29	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	97.6	100.8	3.1140	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 115 1	76	Solution Undetermined	TBD
06SH	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	86.2	103.6	27.8180	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	79	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SH	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	92	85.5	102.8	15.8030	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	84	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SH	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	87.6	90.5	30.3380	87.7	0.3430	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
06SH	WERE-WERE	56852 JEC 6 230 56861 EMANHAT 6 230 1	444	90.2	91.5	5.9370	90.2	0.1090	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SH	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	80.4	92.8	13.0200	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	100	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD

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06SH	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	234	84.8	97.0	28.5210	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57182 TECHILE 3 115 57270 STULL T3 115 1	92	85.0	90.1	4.6580	85.1	0.0840	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	94.8	99.0	3.6980	95.1	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	105.4	107.3	11.0800	105.4	0.0630	56765 HOYT 7 345 56766 JECN 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	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	123.6	128.1	4.2680	123.8	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	114.6	119.4	4.2680	114.9	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	88	111.2	116.0	4.2680	111.4	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	56851 AUBURN 6 230 *B122 AUBRN77X 1 1	306	99.7	100.9	3.8370	99.7	0.1700	56765 HOYT 7 345 56766 JECN 7 345 1	27	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06FA	WERE-WERE	57151 AUBURN 3 115 *B122 AUBRN77X 1 1	307	99.3	100.5	3.8370	99.3	0.1700	56765 HOYT 7 345 56766 JECN 7 345 1	58	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06FA	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1076	89.9	92.5	27.0270	90.0	0.3440	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
06FA	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	92.5	97.0	4.3900	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06WP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	123.2	126.4	3.0450	123.4	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	116.4	119.8	3.0450	116.7	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	113.2	116.6	3.0450	113.5	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	96.6	96.9	3.0200	96.6	0.3590	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
07SP	WERE-WERE	56851 AUBURN 6 230 *B122 AUBRN77X 1 1	303	123.5	125.1	4.8250	123.5	0.2280	56765 HOYT 7 345 56766 JECN 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	56851 AUBURN 6 230 56852 JEC 6 230 1	564	113.0	116.1	17.5660	113.1	0.1860	56765 HOYT 7 345 56766 JECN 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	56920 TECHILL5 161 *B012 1 1	69	110.1	116.6	4.4090	110.2	0.0770	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD

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07SP	WERE-WERE	57151 AUBURN 3 115 *B122 AUBRN77X 1 1	306	122.2	123.8	4.8250	122.3	0.2280	56765 HOYT 7 345 56766 JECN 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	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	113.3	117.1	3.6090	113.6	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	91	107.5	114.8	6.6480	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
07SP	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	108.6	116.0	11.7010	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
07SP	WERE-WERE	57182 TECHILE 3 115 *B012 1 1	69	109.9	116.3	4.4090	110.0	0.0770	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
07SP	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	232	98.8	104.9	14.1550	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	20	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	96.9	100.9	3.6090	97.2	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	78	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	92.5	95.8	34.7390	92.6	0.5780	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
07SP	WERE-WERE	56852 JEC 6 230 56861 EMANHAT 6 230 1	443	90.2	91.8	7.3640	90.2	0.0840	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
07SP	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	91.1	96.8	5.9290	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	100	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
07SP	WERE-WERE	57180 TEC E 3 115 56672 TEC U8 16 1	169	86.7	94.4	13.0000	N/A*	N/A*	Unit:5 6751 WCGS U1 25.0 Id:1	100	Solution Undetermined	TBD
07SP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	92.6	96.6	3.6090	92.9	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	57236 COOP 3 115 57277 WAKARUS3 115 1	92	88.4	92.0	3.3810	88.4	0.0550	57271 SWLWRNC3 115 57277 WAKARUS3 115 1	100	Rebuild 1.53-mile line	\$390,000
07SP	WERE-WERE	57271 SWLWRNC3 115 57277 WAKARUS3 115 1	92	87.3	90.8	3.2730	87.3	0.0540	57236 COOP 3 115 57277 WAKARUS3 115 1	100	Rebuild 4.09-mile line	\$1,000,000
07WP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	118.6	121.8	3.0140	118.9	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	111.1	114.4	3.0140	111.4	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	108.0	111.4	3.0140	108.2	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD

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07WP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	92.9	93.2	3.0480	93.0	0.5790	56766 JECN 7 345 56770 MORRIS 7 345 1	100	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	\$1,390,000
											Total Cost with Facilities Monitored @ 100% Loading	\$-

Table 2 – SPP facility overloads identified for the WR 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								100		
06G	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	113.9	118.3	4.1990	114.1	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	89	104.6	109.3	4.1990	104.9	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	88	101.2	106.0	4.1990	101.5	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	82.3	106.5	38.5040	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	73	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06G	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	92	81.6	105.5	21.8740	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	77	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06G	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	235	79.0	92.8	32.5750	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	92.5	97.5	4.8190	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	107.1	108.8	9.9320	107.1	0.0680	56765 HOYT 7 345 56766 JECN 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	56920 TECHILL5 161 *B022 1 1	69	111.2	119.3	5.6040	111.3	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	104.3	107.7	3.2620	104.5	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	91	101.9	117.6	14.2740	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SP	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	102.8	118.7	25.1260	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SP	WERE-WERE	57182 TECHILE 3 115 *B022 1 1	69	110.9	119.1	5.6040	111.1	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SP	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	99.4	102.8	3.3010	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	17	Solution Undetermined	TBD
06SP	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	96.2	106.7	11.0820	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	37	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
06SP	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	232	95.7	106.5	24.9980	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	40	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	56852 JEC 6 230 56861 EMANHAT6 230 1	441	92.8	93.9	4.9430	92.8	0.1090	56765 HOYT 7 345 56766 JECN 7 345 1	100	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 WR 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
06SH	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	102.7	105.0	13.3090	102.7	0.0680	56765 HOYT 7 345 56766 JECN 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	120.9	129.6	5.9330	121.1	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SH	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	103.6	107.5	3.6980	103.8	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57182 TECHILE 3 115 *B004 1 1	69	120.5	129.1	5.9330	120.6	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SH	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	86.0	103.5	27.8180	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	80	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SH	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	92	85.3	102.6	15.8030	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	85	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SH	WERE-WERE	56852 JEC 6 230 56861 EMANHAT6 230 1	444	89.6	90.9	5.9370	89.6	0.1090	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SH	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	90.9	95.0	3.6980	91.1	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	85.3	97.6	13.0200	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	100	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
06SH	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	234	84.7	96.8	28.5210	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	87.1	91.2	3.6980	87.3	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	94.6	97.8	3.1140	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06FA	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	103.3	105.3	11.0800	103.3	0.0630	56765 HOYT 7 345 56766 JECN 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	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	114.8	119.3	4.2680	115.0	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	105.4	110.1	4.2680	105.6	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	101.7	106.5	4.2680	102.0	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD

Table 2 – SPP facility overloads identified for the WR 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
06FA	WERE-WERE	56851 AUBURN 6 230 *B122 AUBRN77X 1 1	306	96.3	97.6	3.8370	96.4	0.1700	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06FA	WERE-WERE	57151 AUBURN 3 115 *B122 AUBRN77X 1 1	307	95.9	97.2	3.8370	96.0	0.1700	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06FA	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	90.7	95.3	4.3900	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06WP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	116.3	119.5	3.0450	116.5	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	108.8	112.2	3.0450	109.1	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	105.7	109.1	3.0450	105.9	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	94.2	94.5	3.0200	94.3	0.3590	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
07SP	WERE-WERE	56851 AUBURN 6 230 *B122 AUBRN77X 1 1	303	120.3	121.9	4.8250	120.4	0.2280	56765 HOYT 7 345 56766 JECN 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	56851 AUBURN 6 230 56852 JEC 6 230 1	564	110.9	114.0	17.5660	110.9	0.1860	56765 HOYT 7 345 56766 JECN 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	56920 TECHILL5 161 *B012 1 1	68	111.0	117.5	4.4090	111.2	0.0770	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
07SP	WERE-WERE	57151 AUBURN 3 115 *B122 AUBRN77X 1 1	306	119.2	120.7	4.8250	119.2	0.2280	56765 HOYT 7 345 56766 JECN 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	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	105.2	109.0	3.6090	105.5	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	91	107.4	114.7	6.6480	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
07SP	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	108.4	115.8	11.7010	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
07SP	WERE-WERE	57182 TECHILE 3 115 *B012 1 1	69	110.6	117.1	4.4090	110.8	0.0770	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
07SP	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	232	98.6	104.7	14.1550	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	23	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD

Table 2 – SPP facility overloads identified for the WR 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
07SP	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	105	96.3	101.9	5.9290	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	67	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
07SP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	89.9	93.2	34.7390	90.0	0.5780	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
07SP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	88.8	91.8	32.3790	88.8	0.8460	56851 AUBURN 6 230 56852 JEC 6 230 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
07SP	WERE-WERE	56852 JEC 6 230 56861 EMANHAT6 230 1	443	89.7	91.3	7.3640	89.7	0.0840	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
07SP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	88.2	92.2	3.6090	88.5	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	111.2	114.4	3.0140	111.5	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	103.2	106.5	3.0140	103.4	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	100.0	103.4	3.0140	100.3	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1076	90.6	90.9	3.0480	90.7	0.5790	56766 JECN 7 345 56770 MORRIS 7 345 1	100	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 3 – SPP facility overloads identified for the WR 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								100		
06G	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	94	122.2	126.6	4.1990	122.4	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	89	113.5	118.2	4.1990	113.8	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	88	110.1	114.9	4.1990	110.4	0.2320	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	82.5	106.6	38.5040	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	73	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06G	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	92	81.7	105.6	21.8740	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	77	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06G	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	90.0	90.4	4.0320	90.1	0.3420	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
06G	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	235	79.1	93.0	32.5750	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06G	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	94.5	99.5	4.8190	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06SP	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	564	109.2	111.0	9.9320	109.2	0.0680	56765 HOYT 7 345 56766 JECN 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	56920 TECHILL5 161 *B022 1 1	69	108.9	117.1	5.6040	109.1	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	111.6	115.0	3.2620	111.8	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	91	102.0	117.7	14.2740	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SP	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	103.0	118.8	25.1260	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SP	WERE-WERE	57182 TECHILE 3 115 *B022 1 1	69	108.7	116.9	5.6040	108.9	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SP	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	232	96.0	106.8	24.9980	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	37	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	91.9	102.4	11.0820	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	77	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
06SP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	89.8	92.0	24.0190	89.8	0.3430	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD

Table 3 – SPP facility overloads identified for the WR 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
06SP	WERE-WERE	56852 JEC 6 230 56861 EMANHAT6 230 1	441	93.4	94.5	4.9430	93.4	0.1090	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	95.6	99.2	3.2620	95.8	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	91.1	94.8	3.2620	91.4	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SP	WERE-WERE	57233 166TH 3 115 57243 JAGGARD3 115 1	96	86.7	90.1	3.3010	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06SH	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	104.8	107.1	13.3090	104.8	0.0680	56765 HOYT 7 345 56766 JECN 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	118.7	127.3	5.9330	118.8	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SH	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	111.1	115.0	3.6980	111.3	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57182 TECHILE 3 115 *B004 1 1	69	118.5	127.1	5.9330	118.6	0.0940	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
06SH	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	98.8	102.9	3.6980	99.0	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	29	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	97.6	100.8	3.1140	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	76	Solution Undetermined	TBD
06SH	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	86.2	103.6	27.8180	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	79	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SH	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	92	85.5	102.8	15.8030	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	84	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
06SH	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	87.6	90.5	30.3380	87.7	0.3430	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
06SH	WERE-WERE	56852 JEC 6 230 56861 EMANHAT6 230 1	444	90.2	91.5	5.9370	90.2	0.1090	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06SH	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	80.4	92.8	13.0200	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	100	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
06SH	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	234	84.8	97.0	28.5210	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57182 TECHILE 3 115 57270 STULL T3 115 1	92	85.0	90.1	4.6580	85.1	0.0840	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06SH	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	94.8	99.0	3.6980	95.1	0.2190	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD

Table 3 – SPP facility overloads identified for the WR 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
06FA	WERE-WERE	56851 AUBURN 6 230 56852 JEC 6 230 1	565	105.4	107.3	11.0800	105.4	0.0630	56765 HOYT 7 345 56766 JECN 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	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	123.6	128.1	4.2680	123.8	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	114.6	119.4	4.2680	114.9	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	88	111.2	116.0	4.2680	111.4	0.2340	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06FA	WERE-WERE	56851 AUBURN 6 230 *B122 AUBRN77X 1 1	306	99.7	100.9	3.8370	99.7	0.1700	56765 HOYT 7 345 56766 JECN 7 345 1	27	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06FA	WERE-WERE	57151 AUBURN 3 115 *B122 AUBRN77X 1 1	307	99.3	100.5	3.8370	99.3	0.1700	56765 HOYT 7 345 56766 JECN 7 345 1	58	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
06FA	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1076	89.9	92.5	27.0270	90.0	0.3440	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
06FA	WERE-WERE	57233 166TH 3 115 57244 JARBALO 3 115 1	97	92.5	97.0	4.3900	N/A*	N/A*	57252 MIDLAND 3 115 57261 PENTAGN 3 115 1	100	Solution Undetermined	TBD
06WP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	123.2	126.4	3.0450	123.4	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	116.4	119.8	3.0450	116.7	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	113.2	116.6	3.0450	113.5	0.2350	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
06WP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	96.6	96.9	3.0200	96.6	0.3590	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
07SP	WERE-WERE	56851 AUBURN 6 230 *B122 AUBRN77X 1 1	303	123.5	125.1	4.8250	123.5	0.2280	56765 HOYT 7 345 56766 JECN 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	56851 AUBURN 6 230 56852 JEC 6 230 1	564	113.0	116.1	17.5660	113.1	0.1860	56765 HOYT 7 345 56766 JECN 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	56920 TECHILL5 161 *B012 1 1	69	110.1	116.6	4.4090	110.2	0.0770	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
07SP	WERE-WERE	57151 AUBURN 3 115 *B122 AUBRN77X 1 1	306	122.2	123.8	4.8250	122.3	0.2280	56765 HOYT 7 345 56766 JECN 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	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	113.3	117.1	3.6090	113.6	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD

Table 3 – SPP facility overloads identified for the WR 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
07SP	WERE-WERE	57153 COLINE 3 115 57192 HOOKJCT 3 115 1	91	107.5	114.8	6.6480	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
07SP	WERE-WERE	57180 TEC E 3 115 57192 HOOKJCT 3 115 1	159	108.6	116.0	11.7010	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	0	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV line.	TBD
07SP	WERE-WERE	57182 TECHILE 3 115 *B012 1 1	69	109.9	116.3	4.4090	110.0	0.0770	57163 HOYT 3 115 57165 HTI JCT 3 115 1	0	Solution Undetermined	TBD
07SP	WERE-WERE	57180 TEC E 3 115 57182 TECHILE 3 115 1	232	98.8	104.9	14.1550	N/A*	N/A*	56765 HOYT 7 345 56772 STRANGR 7 345 1	20	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	96.9	100.9	3.6090	97.2	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	78	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	92.5	95.8	34.7390	92.6	0.5780	56766 JECN 7 345 56770 MORRIS 7 345 1	100	Solution Undetermined	TBD
07SP	WERE-WERE	56852 JEC 6 230 56861 EMANHAT6 230 1	443	90.2	91.8	7.3640	90.2	0.0840	56765 HOYT 7 345 56766 JECN 7 345 1	100	May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line	TBD
07SP	WERE-WERE	57153 COLINE 3 115 57182 TECHILE 3 115 1	106	91.1	96.8	5.9290	N/A*	N/A*	57180 TEC E 3 115 57182 TECHILE 3 115 1	100	May be relieved due to Westar Operating Procedure 1203 - Outage of the Tecumseh Energy Center (TEC) to Tecumseh Hill 115 kV Line	TBD
07SP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	92.6	96.6	3.6090	92.9	0.2430	56765 HOYT 7 345 56772 STRANGR 7 345 1	100	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07SP	WERE-WERE	57236 COOP 3 115 57277 WAKARUS3 115 1	92	88.4	92.0	3.3810	88.4	0.0550	57271 SWLWRNC3 115 57277 WAKARUS3 115 1	100	See previous upgrade specified for facility in scenario 1	
07SP	WERE-WERE	57271 SWLWRNC3 115 57277 WAKARUS3 115 1	92	87.3	90.8	3.2730	87.3	0.0540	57236 COOP 3 115 57277 WAKARUS3 115 1	100	See previous upgrade specified for facility in scenario 1	
07WP	WERE-WERE	57152 CIRCLVL 3 115 57165 HTI JCT 3 115 1	95	118.6	121.8	3.0140	118.9	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57152 CIRCLVL 3 115 57331 KING HL3 115 1	90	111.1	114.4	3.0140	111.4	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	57217 KELLY 3 115 57331 KING HL3 115 1	89	108.0	111.4	3.0140	108.2	0.2570	56765 HOYT 7 345 56772 STRANGR 7 345 1	0	May be relieved due to Westar Operating Procedure 803 - Outage of the Hoyt to Stranger 345 kV line	TBD
07WP	WERE-WERE	56765 HOYT 7 345 56766 JECN 7 345 1	1075	92.9	93.2	3.0480	93.0	0.5790	56766 JECN 7 345 56770 MORRIS 7 345 1	100	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	\$-

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