SPP Southwest Power Pool

Preliminary System Impact Study SPP-2004-130-1P For The Designation of a New Network Resource Requested By Empire District Electric Company

From EES to EDE

For a Reserved Amount Of 200 MW From 1/1/2009 To 1/1/2029

SPP Engineering, Tariff Studies

System Impact Study

Empire District Electric Company has requested a system impact study to designate a New Network Resource in the EES (ENTR) Control Area for 200 MW to serve EDE Network Load in the EDE (EMDE) Control Area. The period of the service requested is from 1/1/2009 to 1/1/2029. The OASIS reservation numbers are 743379, 743382, 743384, and 743385. 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 EES to EDE 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 New Network Resource in the EES Control Area to the Network Load in the EDE 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 EES to EDE 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 EES to EDE 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.

Eight seasonal models were used to study the EES to EDE 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), 2007 Summer Peak (07SP), 2007/08 Winter Peak (07WP), 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 1/1/2009 to 1/1/2029. 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 eight 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 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 Facilities 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 EES to EDE 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 Facilities Study. Execution of a Facilities 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 Facilities Study.

Table 1 – SPP facility overloads identified for the EES to EDE 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						200		
05G		NONE IDENTIFIED						200		
05SH		NONE IDENTIFIED						200		
05FA	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	214	88.6	92.0	3.6140	59476 ASB349 5 161 59491 PUR421 5 161 1	200	Reconductor with 795 ACSR	$ 375,000
07SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLNE 5 161 1	320	89.1	91.5	3.8110	59955 JUNCTN 5 161 59969 BRKLNE 5 161 1	200	Upgrade the main and transfer buses and bus work within bay at Springfield to 1600 amps. Replace disconnect switches at Springfield.	$ 250,000
07SP	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	214	90.0	93.1	3.3200	59476 ASB349 5 161 59491 PUR421 5 161 1	200	See Previous Upgrade Specified For Facility	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	82.4	97.7	5.7500	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Replace 161/69 KV Transformer with a 150 MVA Transformer	$ 1,565,000
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	76.5	91.5	5.5960	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	82.4	97.8	5.7500	59483 JOP389 5 161 59607 JOP422 5 161 1	200	See Previous Upgrade Specified For Facility	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	76.5	91.5	5.5960	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility	
07WP		NONE IDENTIFIED						200		
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	89.1	104.4	5.7180	59483 JOP389 5 161 59607 JOP422 5 161 1	143	See Previous Upgrade Specified For Facility	
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	89.1	104.3	5.7180	59483 JOP389 5 161 59607 JOP422 5 161 1	143	See Previous Upgrade Specified For Facility	
10SP	SWPA-ENTR	52618 JONESBO5 161 99755 5JONES 161 1	209	87.6	91.0	3.5620	52610 KENNETT5 161 52612 PARAGLD5 161 1	200	Change the ratio on the metering CTs to 1200/5 and adjust the meters	$ 2,000
10SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLNE 5 161 1	315	89.4	92.9	5.5110	59959 BATFLD 5 161 59960 SWDISP 5 161 1	200	See Previous Upgrade Specified For Facility	
10SP	AEPW-OKGE	53756 CLARKSV7 345 55224 MUSKOGE7 345 1	892	89.0	91.8	12.2430	53794 R.S.S.-7 345 53819 ONETA--7 345 1	200	Increase CTR at Muskogee to 2000-5 amps.	$ 5,000
10SP	EMDE-EMDE	59438 EXP449T2 69 59592 JOP389 2 69 1	39	78.2	94.3	3.1280	59543 NEO184 2 69 59563 LIN314 2 69 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59480 MON383 5 161 *B343 MONETT 1 1	148	93.1	98.7	4.1000	59468 AUR124 5 161 59480 MON383 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	82.1	96.9	5.5360	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility	
10SP	EMDE-EMDE	59525 JOP 59 2 69 59551 GAT258 2 69 1	65	86.3	96.8	3.4050	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 59565 SOL315T2 69 1	65	79.7	93.0	4.3310	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59565 SOL315T2 69 59595 RNM393 2 69 1	65	79.2	92.4	4.2880	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59591 MON383 2 69 *B343 MONETT 1 1	149	91.9	97.5	4.1000	59468 AUR124 5 161 59480 MON383 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	82.1	96.9	5.5370	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility	
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	69	75.9	94.1	6.2710	Base Case	200	Solution Undetermined	TBD
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	86	72.1	90.8	7.9930	59478 DAD368 5 161 96101 5MORGAN 161 1	200	Solution Undetermined	TBD
10WP		NONE IDENTIFIED						200		
									This cost may be higher due to additional facilities whose solutions will be determined during the Facilities Study process	$*
									Total Cost with Facilities Monitored @ 90% Loading	$ 2,197,000
									Total Cost with Facilities Monitored @ 100% Loading	$ 1,565,000

Table 2 – SPP facility overloads identified for the EES to EDE 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						200		
05G		NONE IDENTIFIED						200		
05SH		NONE IDENTIFIED						200		
05FA	SWPA-ENTR	52648 NORFORK5 161 99803 5CALCR 161 1	147	87.1	92.3	3.8230	99742 8DELL 5 500 99818 8ISES 5 500 1	200	Solution Undetermined	TBD
07SP	SWPA-ENTR	52618 JONESBO5 161 99755 5JONES 161 1	212	94.3	97.6	3.5060	52600 N MADRD5 161 52610 KENNETT5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	SWPA-ENTR	52648 NORFORK5 161 99803 5CALCR 161 1	148	84.9	90.0	3.7800	99742 8DELL 5 500 99818 8ISES 5 500 1	200	Solution Undetermined	TBD
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	83.2	98.6	5.7500	59483 JOP389 5 161 59607 JOP422 5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	77.8	92.8	5.5960	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	83.0	98.4	5.7500	59483 JOP389 5 161 59607 JOP422 5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	77.7	92.7	5.5960	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	88	73.8	92.1	8.0230	59478 DAD368 5 161 96101 5MORGAN 161 1	200	Solution Undetermined	TBD
07WP		NONE IDENTIFIED						200		
10SP	SWPA-ENTR	52618 JONESBO5 161 99755 5JONES 161 1	207	99.1	102.6	3.5620	52610 KENNETT5 161 52612 PARAGLD5 161 1	51	Change the ratio on the metering CTs to 1200/5 and adjust the meters	$ 2,000
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	90.0	105.3	5.7180	59483 JOP389 5 161 59607 JOP422 5 161 1	131	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	89.9	105.2	5.7180	59483 JOP389 5 161 59607 JOP422 5 161 1	132	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	AEPW-ENTR	53201 MAGZREA5 161 99496 5DANVI 161 1	148	93.9	100.2	4.7010	55305 FTSMITH8 500 99486 8ANO 50 500 1	193	Solution Undetermined	TBD
10SP	SWPA-ENTR	52648 NORFORK5 161 99803 5CALCR 161 1	148	86.9	94.0	5.2230	56751 WCGS U1 25 56797 WOLFCRK7 345 1	200	Solution Undetermined	TBD
10SP	SWPA-ENTR	52648 NORFORK5 161 99803 5CALCR 161 1	148	83.0	90.1	5.2230	Unit: 56751 WCGSU 1 25.0 Id:1	200	Solution Undetermined	TBD
10SP	AEPW-AEPW	53149 NMAGZIN5 161 53201 MAGZREA5 161 1	155	85.3	91.4	4.7010	55305 FTSMITH8 500 99486 8ANO 50 500 1	200	Solution Undetermined	TBD
10SP	AEPW-OKGE	53756 CLARKSV7 345 55224 MUSKOGE7 345 1	894	93.3	96.2	12.8820	53794 R.S.S.-7 345 55224 MUSKOGE7 345 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59438 EXP449T2 69 59592 JOP389 2 69 1	39	78.4	94.5	3.1280	59543 NEO184 2 69 59563 LIN314 2 69 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59466 ATL109 5 161 *B162 ATLAS 1 1	75	74.6	92.1	6.5550	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59480 MON383 5 161 *B343 MONETT 1 1	148	86.4	92.0	4.1000	59468 AUR124 5 161 59480 MON383 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	83.4	98.3	5.5360	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59525 JOP 59 2 69 59551 GAT258 2 69 1	65	82.8	93.3	3.4050	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 *B162 ATLAS 1 1	75	74.5	92.0	6.5550	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 59565 SOL315T2 69 1	65	80.8	94.1	4.3310	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59565 SOL315T2 69 59595 RNM393 2 69 1	65	80.1	93.4	4.2880	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59591 MON383 2 69 *B343 MONETT 1 1	149	85.4	90.9	4.1000	59468 AUR124 5 161 59480 MON383 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	83.4	98.3	5.5370	3Wnd: OPEN *B2 97 JOPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	69	78.3	96.4	6.2710	Base Case	200	Solution Undetermined	TBD
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	86	77.1	95.7	7.9930	59478 DAD368 5 161 96101 5MORGAN 161 1	200	Solution Undetermined	TBD
10WP		NONE IDENTIFIED						200		
									This cost may be higher due to additional facilities whose solutions will be determined during the Facilities Study process	$*
									Total Cost with Facilities Monitored @ 90% Loading	$ -
									Total Cost with Facilities Monitored @ 100% Loading	$ 2,000

Table 3 – SPP facility overloads identified for the EES to EDE 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						200		
05G		NONE IDENTIFIED						200		
05SH		NONE IDENTIFIED						200		
05FA		NONE IDENTIFIED						200		
07SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLNE 5 161 1	320	88.2	90.6	3.8110	59955 JUNCTN 5 161 59969 BRKLNE 5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59467 ORO110 5 161 59494 OAK432 5 161 1	214	88.0	91.1	3.3200	59476 ASB349 5 161 59491 PUR421 5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	82.8	98.2	5.7500	59483 JOP389 5 161 59607 JOP422 5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	77.0	92.0	5.5960	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	82.6	98.0	5.7500	59483 JOP389 5 161 59607 JOP422 5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	76.9	91.9	5.5960	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
07WP		NONE IDENTIFIED						200		
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	89.5	104.8	5.7180	59483 JOP389 5 161 59607 JOP422 5 161 1	138	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	89.3	104.6	5.7180	59483 JOP389 5 161 59607 JOP422 5 161 1	139	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	SWPA-ENTR	52618 JONESBO5 161 99755 5JONES 161 1	209	91.0	94.4	3.5620	52610 KENNETT5 161 52612 PARAGLD5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	SWPA-SPRM	52692 SPRGFLD5 161 59969 BRKLNE 5 161 1	315	88.3	91.8	5.5110	59959 BATFLD 5 161 59960 SWDISP 5 161 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59438 EXP449T2 69 59592 JOP389 2 69 1	39	78.4	94.5	3.1280	59543 NEO184 2 69 59563 LIN314 2 69 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59466 ATL109 5 161 *B162 ATLAS 1 1	75	73.3	90.8	6.5550	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59480 MON383 5 161 *B343 MONETT 1 1	148	90.7	96.3	4.1000	59468 AUR124 5 161 59480 MON383 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59483 JOP389 5 161 *B296 JOPLINSW 1 1	75	82.8	97.6	5.5360	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-EMDE	59525 JOP 59 2 69 59551 GAT258 2 69 1	65	85.1	95.6	3.4050	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 *B162 ATLAS 1 1	75	73.2	90.7	6.5550	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59533 ATL109 2 69 59565 SOL315T2 69 1	65	80.3	93.6	4.3310	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59565 SOL315T2 69 59595 RNM393 2 69 1	65	79.8	93.0	4.2880	59483 JOP389 5 161 59607 JOP422 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59591 MON383 2 69 *B343 MONETT 1 1	149	89.7	95.2	4.1000	59468 AUR124 5 161 59480 MON383 5 161 1	200	Solution Undetermined	TBD
10SP	EMDE-EMDE	59592 JOP389 2 69 *B296 JOPLINSW 1 1	75	82.6	97.5	5.5370	3Wnd: OPEN *B2 97 J OPLINW 1	200	See Previous Upgrade Specified For Facility in Scenario 1	
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	69	76.7	94.8	6.2710	Base Case	200	Solution Undetermined	TBD
10SP	EMDE-AECI	59604 BHJ415 2 69 96673 2JAMESV 69 1	86	74.3	92.9	7.9930	59478 DAD368 5 161 96101 5MORGAN 161 1	200	Solution Undetermined	TBD
10WP		NONE IDENTIFIED						200		

This cost may be higher due to additional facilities whose solutions will be determined during the Facilities 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