



# **SPP** *Southwest Power Pool*

*System Impact Studies  
SPP-2000-016 & 035  
For Transmission Service  
Requested By  
Southwestern Public Service  
Company*

*From Ameren to SPS*

*For a Reserved Amount Of 203MW  
From 1/1/02  
To 1/1/03*

*SPP Coordinated Planning*

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## **1. Executive Summary**

Southwestern Public Service Company has requested two system impact studies for long-term Firm Point-to-Point transmission service from Ameren to SPS. Since the period of the transactions is the same, from 1/1/02 to 1/1/03, and no other intermediate transmission requests exist that effect the evaluation, the study of the transmission requests has been combined in this study. The requests are for OASIS reservations 229925, 229926, 237266, 237267, and 237268, totaling 203MW.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the additional 203MW transfer while maintaining system reliability.

New overloads caused by the 203MW transfer were identified along with determining the impact of the transfer on any previously assigned and identified facilities.

The AMRN to SPS transfer overloads new facilities as well as impacts facilities that have been identified as limiting constraints for previously studied transfers. Tables 1 and 2 list the new overloads caused by the 203MW transfer. Table 3 lists the previously assigned and identified facilities impacted by the 203MW transfer. The facilities found in Table 3 limit the ATC to zero.

In addition to the thermal limitations identified, the SPP to SPS interface has Voltage Stability Limitations. The ATC determination and the higher priority transmission requests over the SPP to SPS interface are documented in Tables 4 and 5. The ATC was determined by using previously calculated Total Transfer Capability (TTC) for SPS Imports, the Transmission Reliability Margin for SPS Imports of 540MW, and the existing higher priority SPS Imports. For the 2002 Summer, the ATC has been determined to be 159MW.

The SPP and effected member companies shall use due diligence to coordinate the addition of necessary facilities or transmission system upgrades to provide the requested transmission service. SPSM is to compensate SPP for such costs pursuant to the terms of section 27 of the SPP Open Access Transmission Tariff.

Expedited procedures for new facilities and upgrades are available to SPSM per section 19.8 of the SPP Open Access Transmission Service Tariff.

Engineering and construction of any new facilities or modifications will not start until after a transmission service agreement and/or construction agreement is in place and effected member companies receive the appropriate authorization to proceed from the SPP after receiving authorization from the transmission customer.

## **2. Introduction**

SPSM has requested impact study for transmission service from Ameren control area with a point-of-delivery of SPS.

The principal objective of this study is to identify the restraints on the SPP Regional Tariff System that may limit the transfer to less than 203MW. This study includes steady-state contingency analyses (PSS/E function ACCC) and Available Transfer Capability (ATC) analyses.

The steady-state analyses consider the impact of the 203MW transfer on transmission line loading and transmission bus voltages for outages of single and selected multiple transmission lines and transformers on the SPP system.

ATC analyses show the amount of First Contingency Incremental Transfer Capabilities (FCITC) between the given study systems and what the limitations are, if any, for transferring up to 203MW.

### **3. Study Methodology**

#### **A. Description**

Three analyses were conducted to determine the impact of the 203MW transfer on the system. The first analysis was conducted to identify any new overloads caused by the 203MW transfer. The second analysis was done to ensure that available capacity exists on previously identified circuits. The final analysis was done to determine the ATC, using the calculated TTC of the posted SPS Voltage Constrained Import Limits Study.

The first analysis was to study the steady-state analysis impact of the 203MW transfer on the SPP system and surrounding systems. The second step was to study Available Transfer Capability (ATC) of the facilities identified in the steady-state analysis impact. The steady-state analysis was done to ensure current SPP Criteria and NERC Planning Standards requirements are fulfilled. The Southwest Power Pool (SPP) conforms to the NERC Planning Standards, which provide the strictest requirements, related to thermal overloads with a contingency. It requires that all facilities be within emergency ratings after a contingency.

The second analysis was done to determine the impact of the transfer on previously assigned and identified facilities.

#### **B. Model Updates**

SPP used three seasonal models to study the 203MW request. The SPP 2001 Series Cases 2001/02 Winter Peak, 2002 Summer Peak, and 2002/03 Winter Peak were used to study the impact of the 203MW transfer on the SPP system during the transaction period of 1/1/02 to 1/1/03.

The chosen base case models were modified to reflect the most current modeling information. The cases were modified to reflect future firm transfers during the request period that were not already included in the January 2001 base case series models.

#### **C. Transfer Analysis**

Using the created models and the ACCC function of PSS\E, single and select double contingency outages were analyzed. Then full AC solution was used to obtain the most accurate results possible. Any facility overloaded, using MVA ratings, in the transfer case and not overloaded in the base case was flagged. The PSS/E options chosen to conduct the Impact Study analysis can be found in Appendix A.

## **4. Study Results**

### **A. Study Analysis Results**

Tables 1, 2, and 3 contain the steady-state analysis results of the System Impact Study. The tables identify the seasonal case in which the event occurred; the emergency rating of the overloaded circuit (Rate B), the contingent loading percentage of circuit with and without the studied transfer, the estimated ATC value using interpolation if calculated, any SPP identification or assignment of the event, and any solutions received from the transmission owners. Tables 4 and 5 provide information from the previous Voltage Stability study regarding the import capability of the SPS system.

Table 1 shows the new facility overloads caused by the 203MW transfer. Upgrades associated with these new overloads can be directly assigned to the AMRN to SPS transfers.

Table 2 documents overloads on Non SPP Regional Tariff participants' transmission systems caused by the 203MW transfer.

Table 3 documents the 203MW transfer impact on previously assigned and identified facilities.

Table 4 lists the existing higher priority transmission requests over the SPS interface. Table 5 documents the ATC, using the results of Table 4 and the TTC for SPS imports due to voltage stability limitations.

**Table 1** – SPP Facility Overloads caused by the AMRN to SPS 203MW Transfer

Study Year	From Area - To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Solution
01WP	SWPA-WFEC	<b>BROWN TO RUSSETT, 138KV</b> 52802 S BROWN4 138 to 56044 RUSSETT4 138 CKT 1	96	100.0	105.5	<b>BROWN TAP TO EXPLORER TAP, 138KV</b> 55152 BROWNTP4 138 to 55153 EXPLRTP4 138 CKT1	0	
01WP	WERE-WERE	<b>WEST JCT CITY TO WEST JCT CITY JCT (WEST), 115KV</b> 57342 WJCCTY 3 115 to 57344 WJCCTYW3 115 CKT 1	141	99.4	103.7	<b>JEFFREY ENERGY CENTER NORTH TO SUMMIT, 345KV</b> 56766 JEC N 7 345 to 56773 SUMMIT 7 345 CKT1	28	
01WP	SPS-SPS	<b>ROSWELL INTERCHNG 115/69KV TRANSFORMER</b> 52093 ROSWIN2 69.0 to 52094 ROSWIN3 115 CKT 1	40	99.3	101.1	<b>NAVAJO TO EDDY COUNTY INTERCHNG, 115KV</b> 52166 NAVAJ43 115 to 52184 EDDYCO3 115 CKT1	78	
01WP	WFEC-WFEC	<b>GOLDSBY TO OKLAHOMA UNIVERSITY SW, 69KV</b> 55924 GOLDSBY269.0 to 56018 OU SW 269.0 CKT 1	34	97.0	100.4	<b>FRANKLIN SW TO ACME, 69KV</b> 55916 FRNKLSN269.0 to 55802 ACME 269.0 CKT 1	178	
01WP	WERE-WERE	<b>MCDOWELL CREEK TO FORT JCT , 115 KV</b> 57335 MCDOWEL3 115 to 57328 FT JCT 3 115 CKT 1	68	97.1	100.1	<b>JEFFREY ENERGY CENTER NORTH BUS TO SUMMIT, 345KV</b> 56766 JEC N 7 345 to 56773 SUMMIT 7 345 CKT1	193	
02SP	SPS-SPS	<b>OSAGE SS TO CANYON EAST, 115KV</b> 51014 OSAGE--3 115 to 51080 CANYNE3 115 CKT 1	90	99.9	103.4	<b>POTTER CO TO BUSHLAND, 230KV</b> 50887 POTTRC6 230 to 50993 BUSHLND6 230 CKT1	7	
02SP	OKGE-OKGE	<b>RUSSETT TO GLASSES, 138KV</b> 55120 RUSSETT4 138 to 55147 GLASSES4 138 CKT 1	96	99.8	102.4	<b>EXPLORER TAP TO BROWN, 138KV</b> 55153 EXPLRTP4 138 to 55157 BROWN 4 138 CKT1	17	
02SP	WFEC-OKGE	<b>FRANKLIN SW TO MIDWEST TAP, 138KV</b> 55917 FRNKLSN4 138 to 54946 MIDWEST4 138 CKT 1	215	99.6	102.6	<b>CROMWELL TO WETUMKA, 138KV</b> 55869 CROMWEL4 138 to 56084 WETUMKA4 138 CKT1	26	
02SP	SPS-SPS	<b>DEAF SMITH INTERCHNG 230/115KV TRANSFORMER</b> 51111 DFSMTH6 230 to 51110 DFSMTH3 115 CKT 1	150	99.0	101.5	<b>DEAF SMITH INTERCHNG TO PLANT X INTERCHNG, 230KV</b> 51111 DFSMTH6 230 to 51419 PLANTX6 230 CKT1	82	
02SP	OKGE-OKGE	<b>ARKOMA TO FT SMITH, 161KV</b> 55306 ARKOMA 5 161 to 55300 FTSMITH5 161 CKT 1	335	99.4	100.7	<b>MASSARD TO RYE HILL, 161KV</b> 55343 MASSARD5 161 to 55344 RYEHILL5 161 CKT1	93	
02SP	SPS-SPS	<b>RANDALL COUNTY INTERCHNG 230/115KV TRANSFORMER</b> 51021 RANDALL6 230 to 51020 RANDALL3 115 CKT 1	225	99.5	100.6	<b>EAST PLANT INTERCHNG TO PIERCT3, 115KV</b> 50956 EASTPL3 115 to 50964 PIERCT3 115 CKT1	93	
02SP	SPS-SPS	<b>CANYON EAST TO CANYON WEST, 115KV</b> 51080 CANYNE3 115 to 51078 CANYNW3 115 CKT 1	90	97.8	102.6	<b>BUSHLAND INTERCHNG TO DEAF SMITH INTERCHNG, 230KV</b> 50993 BUSHLND6 230 to 51111 DFSMTH6 230 CKT1	94	
02SP	SPS-SPS	<b>LUBBOCK EAST INTERCHNG 230/115/KV TRANSFORMER</b> 51689 LUBE6 230 to 51688 LUBE3 115 CKT 1	150	99.8	100.2	<b>TUCO INTERCHNG 230/115KV TRANSFORMER</b> 51532 TUCO3 115 to 51533 TUCO6 230 CKT1	101	
02SP	OKGE-OKGE	<b>3RD ST TO ARKOMA, 161KV</b> 55308 3RDST 5 161 to 55306 ARKOMA 5 161 CKT 1	335	99.3	100.5	<b>FT SMITH TO COLONY, 161KV</b> 55300 FTSMITH5 161 to 55345 COLONY 5 161 CKT1	119	
02SP	WFEC-AEPW	<b>ESQUANDALE JCT TO WALTERS JCT, 69KV</b> 55905 ESQNDLJ269.0 to 54097 WALTRS-269.0 CKT 1	48	97.7	101.3	<b>ANADARKO TO PARADISE, 138KV</b> 55814 ANADARK4 138 to 56024 PARADSE4 138 CKT1	131	
02SP	EES-AEPW	<b>DANVILLE (APL) TO MAGAZINE REC, 161KV</b> 99496 5DANVI 161 to 53201 MAGZREA5 161 CKT 1	155	96.4	101.9	<b>FT SMITH TO ARKANSAS NUCLEAR ONE, 500KV</b> 55305 FTSMITH8 500 to 99486 8ANO 500 CKT1	132	
02SP	OKGE-OKGE	<b>FT SMITH 500/161KV TRANSFORMER</b> 55305 FTSMITH8 500 to 55300 FTSMITH5 161 CKT 1	480	98.8	100.5	<b>FT SMITH 345/161KV TRANSFORMER</b> 55300 FTSMITH5 161 to 55302 FTSMITH7 345 CKT1	142	
02SP	WERE-WERE	<b>WEST EMPORIA TO EAST STREET, 115KV</b> 57309 WEMPORI3 115 to 57301 EAST ST3 115 CKT 1	92	98.6	100.6	<b>MORRIS COUNTY TO WEST EMPORIA, 115 KV</b> 57305 MORRIS 3 115 to 57309 WEMPORI3 115 CKT1	143	
02SP	SPS-SPS	<b>CARLSBAD PLANT 115/69KV TRANSFORMER</b> 52310 CARLSBD3 115 to 52309 CARLSBD269.0 CKT 1	40	72.0	110.4	<b>CARLSBAD PLANT 115/69KV TRANSFORMER</b> 52309 CARLSBD269.0 to 52310 CARLSBD3 115 CKT2	148	
02SP	AEPW-AEPW	<b>SNYDER TO TIPTON &amp; HEADERICK, 69KV</b> 54138 SNYDER-269.0 to 54125 TIP&HED269.0 CKT 1	53	93.2	101.4	<b>HOBART JCT TO TAMARAC TAP, 138KV</b> 54126 HOB-JCT4 138 to 54158 TAMARTP4 138 CKT1	169	
02WP	WERE-WERE	<b>MCDOWELL CREEK TO FORT JCT , 115 KV</b> 57335 MCDOWEL3 115 to 57328 FT JCT 3 115 CKT 1	68	99.7	102.7	<b>JEFFREY ENERGY CENTER NORTH TO SUMMIT, 345KV</b> 56766 JEC N 7 345 to 56773 SUMMIT 7 345 CKT1	23	
02WP	WERE-WERE	<b>WEST JCT CITY JCT (WEST) TO CHAPMAN, 115KV</b> 57344 WJCCTYW3 115 to 57362 CHAPMAN3 115 CKT 1	68	96.9	100.7	<b>JEFFREY ENERGY CENTER NORTH TO SUMMIT, 345KV</b> 56766 JEC N 7 345 to 56773 SUMMIT 7 345 CKT1	165	

**Table 2** – Non - SPP Facility Overloads caused by the AMRN to SPS 203MW Transfer

Study Year	From Area - To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload
01WP	AECI-AECI	96067 5CHAMOI 161 to 96626 2CHAMOI 69.0 CKT 1	50	98.9	101.1	31088 MCCREDIE 345 to 31230 MONTGMRY 345 CKT1
02SP	AECI-AMRN	96079 5FREDTN 161 to 30583 FRED TAP 161 CKT 1	56	98.8	100.3	52634 IDALIA 5 161 to 96075 5ESSEX 161 CKT1
02SP	EES-EES	99172 3SAREPT 115 to 99171 3SPRINGH 115 CKT 1	120	100.0	100.2	99266 3MAG-ST 115 to 99308 3MAG-E 115 CKT1
02SP	EES-EES	99769 5PARAG 161 to 99768 5PARA-S# 161 CKT 1	148	99.7	100.5	99763 5NEW-IN 161 to 99764 5NEWPO 161 CKT1
02SP	EES-EES	99798 5BATEVL 161 to 99808 5CUSHMN 161 CKT 1	148	99.3	100.3	53866 T.NO.--7 345 to 54450 GRDA1 7 345 CKT1
02SP	EES-EES	99808 5CUSHMN 161 to 99834 5SAGE * 161 CKT 1	148	100.0	101.0	99816 5HRDY-N 161 to 99821 5MAMSPR# 161 CKT1
02SP	EES-EES	99817 5ISES 1 161 to 99826 5MORFLD 161 CKT 1	223	99.9	100.6	96040 7FLETCH 345 to 96051 7WILHLM 345 CKT1
02SP	EES-EES	99826 5MORFLD 161 to 99817 5ISES 1 161 CKT 1	223	99.5	100.2	53136 EUREKA 5 161 to 99832 5OSAGE # 161 CKT1
02SP	EES-EES	99834 5SAGE * 161 to 99824 5MELBRN 161 CKT 1	148	99.8	100.2	99742 8DELL 5 500 to 99818 8ISES 5 500 CKT1
02WP	AMRN-AMRN	30999 MAKANDA 138 to 31383 ORDILL 138 CKT 1	180	100.0	100.7	30292 CARBD NW 138 to 31584 REEDS 138 CKT1
02WP	AECI-AECI	96067 5CHAMOI 161 to 96626 2CHAMOI 69.0 CKT 1	50	99.0	101.4	96041 7FRANKS 345 to 96042 7HUBEN 345 CKT1
02WP	EES-EES	99798 5BATEVL 161 to 99808 5CUSHMN 161 CKT 1	148	99.9	101.0	99799 5BEE BR 161 to 99807 5ECLINTN 161 CKT1
02WP	EES-EES	99817 5ISES 1 161 to 99826 5MORFLD 161 CKT 1	223	99.8	100.1	99742 8DELL 5 500 to 99818 8ISES 5 500 CKT1



**Table 3** – Previously Assigned or Identified SPP Facilities Impacted by the AMRN to SPS 203MW Transfer

Study Year	From Area - To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
01WP	SWPA-WFEC	TUPELO TO TUPELO TAP, 138KV 52800 TUPELO 4 138 to 56071 TUPLOTP4 138 CKT 1	96	116.2	125.5	PITTSBURG TO VALLIANT, 345KV 54033 PITTSB-7 345 to 54037 VALIANT7 345 CKT1	0	SPP Flowgate
01WP	WERE-WERE	PHILIPS TO SOUTH PHILIPS JCT, 115KV 57372 PHILIPS3 115 to 57374 SPHILPJ3 115 CKT 1	160	110.6	117.5	SUMMIT TO EAST MCPHERSON, 230KV 56873 SUMMIT 6 230 to 56872 EMCIPHER6 230 CKT1	0	SPP Flowgate
01WP	WERE-WERE	EXIDE JCT TO PHILIPS, 115KV 57368 EXIDE J3 115 to 57372 PHILIPS3 115 CKT 1	181	100.3	103.9	SUMMIT TO EAST MCPHERSON, 230KV 56873 SUMMIT 6 230 to 56872 EMCIPHER6 230 CKT1	0	1999-017
01WP	WERE-WERE	EXIDE JCT TO SUMMIT, 115KV 57368 EXIDE J3 115 to 57381 SUMMIT 3 115 CKT 1	181	105.4	109.1	SUMMIT TO EAST MCPHERSON, 230KV 56873 SUMMIT 6 230 to 56872 EMCIPHER6 230 CKT1	0	1999-017
01WP	WFEC-WFEC	FRANKLIN SW TO ACME, 69KV 55916 FRNKLNS269.0 to 55802 ACME 269.0 CKT 1	34	98.4	101.7	GOLDSBY TO OKLAHOMA UNIVERSITY SW, 69KV 55924 GOLDSBY269.0 to 56018 OU SW 269.0 CKT1	99	1999-017
02SP	AEPW-AEPW	WELEETKA 138/69KV TRANSFORMER 2 54028 WELETK4 138 to 54029 WELEETK269.0 CKT 2	36	101.9	103.4	WELEETKA 138/69KV TRANSFORMER 1 54028 WELETK4 138 to 54029 WELEETK269.0 CKT1	0	1999-017
02SP	SPS-SPS	ROOSEVELT CO TO TOLK, 230KV CKT 2 51203 ROOSEVL6 230 to 51435 TOLKE6 230 CKT 2	451	106.8	108.8	ROOSEVELT CO TO TOLK, 230KV CKT 1 51203 ROOSEVL6 230 to 51437 TOLKW6 230 CKT1	0	
02SP	SPS-SPS	ROOSEVELT CO TO TOLK, 230KV CKT 1 51203 ROOSEVL6 230 to 51437 TOLKW6 230 CKT 1	451	106.8	108.6	ROOSEVELT CO TO TOLK, 230KV CKT 2 51203 ROOSEVL6 230 to 51435 TOLKE6 230 CKT2	0	
02SP	SWPA-WFEC	TUPELO TO TUPELO TAP, 138KV 52800 TUPELO 4 138 to 56071 TUPLOTP4 138 CKT 1	96	95.3	104.2	PITTSBURG TO VALLIANT, 345KV 54033 PITTSB-7 345 to 54037 VALIANT7 345 CKT1	108	SPP Flowgate
02WP	WERE-WERE	PHILIPS TO SOUTH PHILIPS JCT, 115KV 57372 PHILIPS3 115 to 57374 SPHILPJ3 115 CKT 1	160	112.1	119.0	SUMMIT TO EAST MCPHERSON, 230KV 56873 SUMMIT 6 230 to 56872 EMCIPHER6 230 CKT1	0	SPP Flowgate
02WP	SWPA-WFEC	TUPELO TO TUPELO TAP, 138KV 52800 TUPELO 4 138 to 56071 TUPLOTP4 138 CKT 1	96	119.5	128.7	PITTSBURG TO VALLIANT, 345KV 54033 PITTSB-7 345 to 54037 VALIANT7 345 CKT1	0	SPP Flowgate
02WP	WFEC-WFEC	FRANKLIN SW TO ACME, 69KV 55916 FRNKLNS269.0 to 55802 ACME 269.0 CKT 1	34	123.6	126.5	GOLDSBY TO OKLAHOMA UNIVERSITY SW, 69KV 55924 GOLDSBY269.0 to 56018 OU SW 269.0 CKT1	0	1999-017
02WP	WERE-WERE	EXIDE JCT TO PHILIPS, 115KV 57368 EXIDE J3 115 to 57372 PHILIPS3 115 CKT 1	181	101.9	105.6	SUMMIT TO EAST MCPHERSON, 230KV 56873 SUMMIT 6 230 to 56872 EMCIPHER6 230 CKT1	0	1999-017
02WP	WERE-WERE	EXIDE JCT TO SUMMIT, 115KV 57368 EXIDE J3 115 to 57381 SUMMIT 3 115 CKT 1	181	107.0	110.7	SUMMIT TO EAST MCPHERSON, 230KV 56873 SUMMIT 6 230 to 56872 EMCIPHER6 230 CKT1	0	1999-017

**Table 4** – Existing Higher Priority Transmission Requests Over the SPP to SPS Interface During the Reservation Period

Request	From	To	POR	POD	Amnt	Customer	Status	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02		
136714	1/1/2002	1/1/2007	AMRN	SPS	50	SPSM	Confirmed	50	50	50	50	50	50	50	50	50	50	50	50	50	
136717	1/1/2002	1/1/2007	AMRN	SPS	50	SPSM	Confirmed	50	50	50	50	50	50	50	50	50	50	50	50	50	50
136718	1/1/2002	1/1/2007	AMRN	SPS	50	SPSM	Confirmed	50	50	50	50	50	50	50	50	50	50	50	50	50	50
136724	1/1/2002	1/1/2007	AMRN	SPS	50	SPSM	Confirmed	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Total Amount of Requests								200	200	200	200	200	200	200	200	200	200	200	200	200	

**Table 5** – Available Transfer Capability During the Reservation Period for SPS Imports Due To Voltage Stability Limitations

	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02	Aug-02	Sep-02	Oct-02	Nov-02	Dec-02
Total Transfer Capability (TTC)	993	993	993	985	985	899	899	899	899	1009	1009	929
Transmission Reliability Margin (TRM)	540	540	540	540	540	540	540	540	540	540	540	540
Sum of Requests from <u>Table 4</u>	200	200	200	200	200	200	200	200	200	200	200	200
Available Transfer Capability (ATC)	253	253	253	245	245	159	159	159	159	269	269	189

## **5. Conclusion**

The results of the study show that before the 203MW transfer can take place system improvements are required because of thermal overloads and voltage stability.

1. The upgrades associated with the facility overloads identified in Table 1 will be required before the start of service.
2. Any upgrades associated with the previously assigned and identified facilities in Table 3 will be required before the start of service.
3. Upgrades will be required before the start of service to increase the voltage stability ATC above 159MW for the 2002 Summer.
4. Third-party system overloads will need to be reviewed with affected transmission owners.

The final cost assignment of facilities and ATC granted to SPSM will be determined upon the completion of a facility study.

## **Appendix A**

### PSS/E CHOICES IN RUNNING LOAD FLOW PROGRAM AND ACCC

#### BASE CASES:

Solutions - Fixed slope decoupled Newton-Raphson solution (FDNS)

1. Tap adjustment – Stepping
2. Area interchange control – Tie lines only
3. Var limits – Apply immediately
4. Solution options -  Phase shift adjustment
  - Flat start
  - Lock DC taps
  - Lock switched shunts

#### ACCC CASES:

Solutions – AC contingency checking (ACCC)

1. MW mismatch tolerance –0.5
2. Contingency case rating – Rate B
3. Percent of rating – 100
4. Output code – Summary
5. Min flow change in overload report – 1mw
6. Excl'd cases w/ no overloads form report – YES
7. Exclude interfaces from report – NO
8. Perform voltage limit check – YES
9. Elements in available capacity table – 60000
10. Cutoff threshold for available capacity table – 99999.0
11. Min. contng. case Vltg chng for report – 0.02
12. Sorted output – None

#### Newton Solution:

1. Tap adjustment – Stepping
2. Area interchange control – Tie lines only
3. Var limits - Apply automatically
4. Solution options -  Phase shift adjustment
  - Flat start
  - Lock DC taps
  - Lock switched shunts