SPP Southwest Power Pool

System Impact Study for Transmission Service Request from Northern States Power to Southwestern Public Service

SPP Transmission Planning

Table of Contents

Executive Summary

Southwestern Public Service (SPS) has requested a system impact study for long-term firm point to point transmission service from Ameren to SPS for the years 2002 through 2006. These requests wheel through Ameren and originate in the Northern States Power (NSP) control area. The request is for 200 MW for the entire period.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the additional 200 MW transfer while maintaining system reliability.

The analysis in this document shows that to accommodate an additional 200 MW transfer, upgrades will be required on the SPP transmission systems. SPP has existing long-term firm service customers with a reservation priority for this requested transmission service as described in section 2.2 of the SPP Open Access Transmission Service Tariff. SPP will extend full priority rights to existing customers prior to contracting with new eligible customers.

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. SPS 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 are available to SPS per section 19.8 of the SPP Open Access Transmission Service Tariff.

The new 345 kV transmission facilities proposed by SPS from Potter to Holcomb and Potter to Northwest are a significant factor in evaluating this request. This service is contingent upon completion of those proposed facilities in the currently proposed schedule. Delays in completion of one of both of those facilities will alter the results of this study.

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 receives the appropriate authorization to proceed from the SPP after they receive authorization from the transmission customer.

Introduction

SPS has requested an impact study for transmission service from NSP control area with a sink of SPS. No specific generation was identified as being built to accommodate this transfer so it will be studied as a system dispatch from NSP to 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 200 MW. This study includes steady-state contingency analysis (PSS/E function ACCC) and Available Transfer Capability (ATC Linear) analysis.

The steady-state analysis considers the impact of a 200 MW transfer on transmission line loading and transmission bus voltages for outages of single transmission lines and autotransformers on the SPP system.

ATC analyses shows 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 200 MW.

Study Methodology

SPP has used methodologies consistent with SPP and NERC requirements.

This study was done in two different parts. The first part was to study the steady-state analysis impacts caused on the SPP system from the 200 MW transfer identified and the second part was to study Available Transfer Capability (ATC). The SPP base case models were modified to reflect the most current modeling information.

The steady-state analysis part was done to ensure current SPP Criteria and NERC Planning Standards requirements are fulfilled.

The Southwest Power Pool (SPP) Criteria states that the following conditions be met in order to maintain a reliable and stable system.

1) More probable contingency testing .... shall conclude that

   a) All facility loadings are within their emergency ratings and all voltages are within their emergency limits (0.90-1.05 per unit) and
   b) Facility loadings can be returned to their normal limits within four hours

2) Less probable contingency testing .... shall conclude that

   a) Neither uncontrolled islanding, nor uncontrolled loss of large amounts of load will result.

More probable contingency testing is defined as losing any single piece of equipment or multi-circuit circuit transmission lines. Less probable contingency testing involves the loss of any two critical pieces of equipment such as 345kV autotransformers and generating units or the loss of critical transmission lines in the same right-of-way.

The NERC Planning Standards, Table 1, provides the strictest requirements related to thermal overloads with a contingency. It requires that all facilities are within emergency ratings after a contingency.

The ATC study portion was done using the requirements specified in the current SPP Criteria related to determination of ATC. The linear analysis was first performed using the PSSE TLTG activity. The results were AC verified and validated.

When facilities were identified as being overloaded the facility owners were asked to review and confirm the validity of the limit. During this review the transmission providers would use available mitigation plans.

SPP built two models for each season representative of the system with and without the requested transfer. Base Southwest Power Pool Cases for 2002 April minimum and winter peaks were not available at the time of this study. Cases for year 2000 were used and they included the April minimum and winter peak cases. These cases were modified to reflect expected changes due to be in service by 2002 that were not included in the base cases. Additional summer and winter peak cases were used for the 2003 and 2005 time frames. Cases include anticipated additions and system improvements submitted by SPP members.

Using the created models and the ACCC function of PSS\E, single and select double contingency outages were analyzed. Then full AC solution was to obtain the most accurate results possible. Any facility which overloaded using MVA ratings in the transfer case and was not overloaded in the base case was flagged. This extensive list contained facilities owned by different SPP companies under the Regional Tariff. The overloaded facilities list was sent to the companies for review of mitigation plans and validity. The facilities identified in the Impact Study are only those which were considered valid and had no mitigation plan.

Shown in table 1 are the outages that caused overloads and the upgrades needed to solve the overloading problems in the appropriate year cases.

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 automatically
4. Solution options - X Phase shift adjustment
_ Flat start
_ Lock DC taps
_ Lock switched shunts

ACCC CASES:
Solutions – AC contingency checking (ACCC)
1. MW mismatch tolerance – 0.50
2. Contingency case rating – Rate B
3. Percent of rating – 100
4. Output code – Summary
5. Min flow change in overload report – 1mw
6. Excld 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 – 6000
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 - X Phase shift adjustment
_ Flat start
_ Lock DC taps
_ Lock switched shunts

Table No. 1: NSP to SPS Transmission Service Study – 200 MW

Study Year	Load flow case description (outaged branch(es))	Overloaded lines	% load	Solutions
00WP	RIVERSIDE STATION TO OKMULGEE 138kV 53795 [R.S.S.-4] TO 54023 [OKMULGE4]	WELEETKA TO WELEETKA 138kV 53068 WELEETK4 54028 WELETK4 1	102.9	replace switch
03SP	OXFORD TO SUMNER COUNTY NO.10 BELLE PLAIN 56667 [OXFORD 4] TO 56719 [SC10BEL4]	WEAVER TO ROSE HILL JCT. 69kV 57037 WEAVER 2 57234 RH JCT 2 1	100.2	
03SP	FARBER TO SUMNER COUNTY NO.10 BELLE PLAIN 56711 [FARBER 4] TO 56719 [SC10BEL4]	WEAVER TO ROSE HILL JCT. 69kV 57037 WEAVER 2 57234 RH JCT 2 1	101.5	
03WP	EAST McPHERSON TO SUMMIT 230kV 56639 [EMCPHER6] TO 56645 [SUMMIT 6]	EXIDE JCT.TO SUMMIT 56872 EXIDE J3 56883 SUMMIT 3 1	102.4	
05SP	EAST MANHATTAN TO JEFFREY ENERGY CENTER 56638 [EMANHAT6] TO 56640 [JEC 6]	McDOWELL CREEK SW. TO S.MANHATTAN 56852 MCDOWEL3 56856 SMANHAT3 1	100.3	
05SP	EAST MANHATTAN 230/115 kV XFMR 56638 [EMANHAT6] TO 56844 [EMANHAT3]	KEENE TO SOUTH ALMA 115kV 56747 KEENE 3 56855 S ALMA 3 2 McDOWELL CREEK SW. TO S.MANHATTAN 56852 MCDOWEL3 56856 SMANHAT3 1	100.1 100.5	
05SP	SUMMIT 230/115 Kv 56645 [SUMMIT 6] TO 56883 [SUMMIT 3]	WEST JCT.CITY TO WEST JCT.CITY JCT.E 56858 WJCCTY 3 56859 WJCCTYE3 1	100.6	
05SP	CANAL TO RUTAN 69kV 57186 [CANAL 2] TO 57235 [RUTAN 2]	GLENDALE TO OLIVER 69kV 57198 GLENDAL2 57225 OLIVER 2 1	100.1	
05SP	WELEETKA 138/69kV XFMR CKT 1 54028 [WELETK4] TO 54029 [WELEETK2]	WELEETKA 138/69kV XFMR CKT 2 54028 WELETK4 54029 WELEETK2 2	101.3	Replace transformer
05SP	CRESWELL TO OXFORD 138kV 56666 [CRESWEL4] TO 56667 [OXFORD 4]	WEAVER TO ROSE HILL JCT. 69kV 57037 WEAVER 2 57234 RH JCT 2 1	101.4	
05SP	OXFORD TO SUMNER COUNTY NO.10 BELLE PLAIN 56667 [OXFORD 4] TO 56719 [SC10BEL4]	WEAVER TO ROSE HILL JCT. 69kV 57037 WEAVER 2 57234 RH JCT 2 1	102.8	
05SP	CENTENNIAL TO WACO 138kV 56705 [CENTENN4) TO 56725 [WACO 4]	GILL ENERGY CENTER TO GILL UNIT 4 56713 GILL 4 56559 GEC U4 1	100.1	
05SP	SIBLEY TO ORRICK 161 kV 57502 [SIBLEY 5] TO 57544 [ORRICK 5]	SIBLEY TO DUNCAN ROAD 161kV 57502 SIBLEY 5 57535 DUNCAN 5 1	100.1	
05WP	JEFFREY ENERGY CENTER TO SUMMIT 345kV 56603 [JEC 7] TO 56609 [SUMMIT 7]	WEST JCT.CITY TO WEST JCT.CITY JCT.W 56858 WJCCTY 3 56860 WJCCTYW3 1	100.9	
05WP	EAST McPHERSON TO SUMMIT 230kV 56639 [EMCPHER6] TO 56645 [SUMMIT 6]	EXIDE JCT. TO NORTH AMERICAN PHILIPS 56872 EXIDE J3 56876 PHILIPS3 1	100.4	

05WP	**SUMMIT 230/115 Kv**	**WEST JCT.CITY TO WEST JCT.CITY JCT.W**	101.0
	56645 [SUMMIT 6] TO 56883 [SUMMIT 3]	56858 WJCCTY 3 56860 WJCCTYW3 1	
05WP	**SUMMIT 345/230 Kv XFMR**	**WEST JCT.CITY TO WEST JCT.CITY JCT.W**	100.2
	56609 [SUMMIT 7] TO 56628 [SUMMIT7X]	56858 WJCCTY 3 56860 WJCCTYW3 1	
	56645 [SUMMIT 6] TO 56628 [SUMMIT7X]		
05WP	**GOLDSBY TO OKLAHOMA UNIVERSITY SW**	**ACME TO FRANKLIN SW 69kV**	100.5
	55374 [GOLDSBY2] TO 55468 [OU SW 2]	55252 ACME 2 55366 FRNKLNS2 1	
05WP	**IDALIA TO**		100.6
	52910 [IDALIA 5] TO 58742 [5ESSEX]	30583 FRED TAP 58756 5FREDTN 1	

Available Transfer Capability Existing System

ATC studies were run using default participation points for both Southwestern Public Service and Northern States Power. To accomplish this, the generation was scaled among all available on-line generators at both companies. The purpose of these studies was to ensure that the desired power transfer (200 MW) could be accomplished while maintaining system reliability.

The results for the studies have not shown additional problems.

SPP-1999-017 REPORT

THE OVERLOADS LISTED IN THIS FILE ARE ELEMENTS NOT ORIGINALLY LISTED IN THE BEFORE TRANSFER REPORT
BUT ARE INTRODUCED IN THE TRANSFER STUDY REPORT. --- ALL CONTINGENCIES ARE ASSUMED TO BE OPEN LINES

```
     OWNER(S)
00WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     CESW-CESW  OPEN LINE FROM BUS 53795 [R.S.S.-4138.00] TO BUS 54023 [OKMULGE4138.00] CKT 1 ------------------------------ CONTINGENCY
       SWPA-CESW                                                 53068 WELEETK4 138 54028 WELETK4  138 1      62.1    145.5    143.0    102.9

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999   7:42
 0-00WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2000/01 WINTER PEAK - FINAL REV. 5 (B00WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 53068* WELEETK4 138   15  54028  WELETK4  138   20  1    139.2   143.0    97.4

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999   7:55
 -200-00WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2000/01 WINTER PEAK - FINAL REV. 5 (B00WP5)

 53068* WELEETK4 138   15  54028  WELETK4  138   20  1    147.1   143.0   102.9

00WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     CESW-CESW  OPEN LINE FROM BUS 54026 [REDOAK-269.000] TO BUS 54040 [REDOK-4 138.00] CKT 1 ------------------------------ CONTINGENCY
       CESW-OKGE                                                 54003 WISTER-269.0 55159   HOWEI267.0 1      12.3     24.0     24.0    101.3

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999   7:44
 0-00WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2000/01 WINTER PEAK - FINAL REV. 5 (B00WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     22.9    24.0    95.4

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999   7:57
 -200-00WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2000/01 WINTER PEAK - FINAL REV. 5 (B00WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     24.3    24.0   101.3
```

```
00WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     CESW-CESW  OPEN LINE FROM BUS 54040 [REDOK-4 138.00] TO BUS 54048 [LEQUIRE4138.00] CKT 1 ------------------------------ CONTINGENCY
       CESW-OKGE                                                 54003 WISTER-269.0 55159   HOWEI267.0 1      12.3     24.0     24.0    101.3


      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999   7:46
 0-00WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2000/01 WINTER PEAK - FINAL REV. 5 (B00WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     22.9    24.0    95.4

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999   7:59
 -200-00WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2000/01 WINTER PEAK - FINAL REV. 5 (B00WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     24.3    24.0   101.3

03SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WERE-WERE  OPEN LINE FROM BUS 56667 [OXFORD 4138.00] TO BUS 56719 [SC10BEL4138.00] CKT 1 ------------------------------ CONTINGENCY
       WERE-WERE                                                 57037 WEAVER 269.0 57234 RH JCT 269.0 1      35.7     44.0     43.0    100.1

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999
 0-03SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2003 SUMMER PEAK - FINAL REV. 5 (B03SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
57037  WEAVER 269.0   36  57234* RH JCT 269.0   36  1     41.8    43.0    97.2


      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   7:57
 -200-03SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2003 SUMMER PEAK - FINAL REV. 5 (B03SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57037  WEAVER 269.0   36  57234* RH JCT 269.0   36  1     43.1    43.0   100.2
```

```
03SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    WERE-WERE  OPEN LINE FROM BUS 56711 [FARBER 4138.00] TO BUS 56719 [SC10BEL4138.00] CKT 1 ------------------------------ CONTINGENCY
      WERE-WERE                                                 57037 WEAVER 269.0 57234 RH JCT 269.0 1      35.7     44.6     43.0    101.4

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      TUE, NOV 02 1999   8:45
 0-03SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2003 SUMMER PEAK - FINAL REV. 5 (B03SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
57037  WEAVER 269.0   36  57234* RH JCT 269.0   36  1     42.4    43.0    98.5

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   7:59
 -200-03SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2003 SUMMER PEAK - FINAL REV. 5 (B03SP5)

 BRANCH LOADINGS ABOVE   0.0 % OF RATING SET B:

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57037  WEAVER 269.0   36  57234* RH JCT 269.0   36  1     43.7    43.0   101.5

03WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    WERE-WERE  OPEN LINE FROM BUS 56639 [EMCPHER6230.00] TO BUS 56645 [SUMMIT 6230.00] CKT 1 ------------------------------ CONTINGENCY
      WERE-WERE                                                 56872 EXIDE J3 115 56883 SUMMIT 3 115 1      112.5    184.8    181.0    102.4

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   8:06
 0-03WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2003/04 WINTER PEAK - FINAL REV. 5 (B03WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
56872  EXIDE J3 115   36  56883* SUMMIT 3 115   36  1    179.7   181.0    99.3

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   8:33
 -200-03WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2003/04 WINTER PEAK - FINAL REV. 5 (B03WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56872  EXIDE J3 115   36  56883* SUMMIT 3 115   36  1    185.3   181.0   102.4
```

```
03WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     CESW-CESW  OPEN LINE FROM BUS 54026 [REDOAK-269.000] TO BUS 54040 [REDOK-4 138.00] CKT 1 ------------------------------ CONTINGENCY
       CESW-OKGE                                                 54003 WISTER-269.0 55159   HOWEI267.0 1      13.5     23.9     24.0    101.9

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   8:11
 0-03WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2003/04 WINTER PEAK - FINAL REV. 5 (B03WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     23.6    24.0    98.3

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   8:37
 -200-03WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2003/04 WINTER PEAK - FINAL REV. 5 (B03WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     24.5    24.0   102.0


03WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     CESW-CESW  OPEN LINE FROM BUS 54040 [REDOK-4 138.00] TO BUS 54048 [LEQUIRE4138.00] CKT 1 ------------------------------ CONTINGENCY
       CESW-OKGE                                                 54003 WISTER-269.0 55159   HOWEI267.0 1      13.5     23.8     24.0    101.5

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   8:15
 0-03WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2003/04 WINTER PEAK - FINAL REV. 5 (B03WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     23.6    24.0    98.3

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   8:40
 -200-03WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2003/04 WINTER PEAK - FINAL REV. 5 (B03WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 54003  WISTER-269.0   20  55159*   HOWEI267.0   24  1     24.5    24.0   102.0
```

```
05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    WERE-WERE  OPEN LINE FROM BUS 56638 [EMANHAT6230.00] TO BUS 56640 [JEC    6230.00] CKT 1 ------------------------------ CONTINGENCY
      WERE-WERE                                                  56852 MCDOWEL3 115 56856 SMANHAT3 115 1      11.0     61.6     68.0    100.3

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   9:44
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56852  MCDOWEL3 115   36  56856* SMANHAT3 115   36  1     67.1    68.0    98.7

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  15:16
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56852  MCDOWEL3 115   36  56856* SMANHAT3 115   36  1     68.2    68.0   100.3

05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    WERE-WERE  OPEN LINE FROM BUS 56638 [EMANHAT6230.00] TO BUS 56844 [EMANHAT3115.00] CKT 1 ------------------------------ CONTINGENCY
      WERE-WERE                                                  56747 KEENE  3 115 56855 S ALMA 3 115 2      23.1     84.0     92.0    100.1
      WERE-WERE                                                  56852 MCDOWEL3 115 56856 SMANHAT3 115 1      11.0     58.9     68.0    100.5

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   9:47
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 BRANCH LOADINGS ABOVE   0.0 % OF RATING SET B:

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56747  KEENE  3 115   36  56855* S ALMA 3 115   36  2     91.0    92.0    98.9
 56852* MCDOWEL3 115   36  56856  SMANHAT3 115   36  2     79.7    92.0    86.6

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  15:20
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 BRANCH LOADINGS ABOVE  90.0 % OF RATING SET B:

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56747  KEENE  3 115   36  56855* S ALMA 3 115   36  2     92.1    92.0   100.1
 56852* MCDOWEL3 115   36  56856  SMANHAT3 115   36  1     68.4    68.0   100.5
```

```
05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    WERE-WERE  OPEN LINE FROM BUS 56645 [SUMMIT 6230.00] TO BUS 56883 [SUMMIT 3115.00] CKT 1 ------------------------------ CONTINGENCY
      WERE-WERE                                                 56858 WJCCTY 3 115 56859 WJCCTYE3 115 1      65.6     135.0     141.0    100.6

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999   9:50
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56858* WJCCTY 3 115   36  56859  WJCCTYE3 115   36  1    139.6   141.0    99.0

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  15:28
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56858* WJCCTY 3 115   36  56859  WJCCTYE3 115   36  1    141.8   141.0   100.6

05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    WERE-WERE  OPEN LINE FROM BUS 57186 [CANAL  269.000] TO BUS 57235 [RUTAN  269.000] CKT 1 ------------------------------ CONTINGENCY
      WERE-WERE                                                 57198 GLENDAL269.0 57225 OLIVER 269.0 1      5.0      58.7      63.0    100.0

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999  10:28
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57198* GLENDAL269.0   36  57225  OLIVER 269.0   36  1     63.0    63.0   100.0

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999  13:02
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57198* GLENDAL269.0   36  57225  OLIVER 269.0   36  1     63.0    63.0   100.1
```

```
05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    ENTR-ENTR  OPEN LINE FROM BUS 16828 [8RICHARD500.00] TO BUS 17026 [8WEBRE  500.00] CKT 1 ------------------------------ CONTINGENCY
      ENTR-CAJN                                                 16844 4CHAMPNE 138 50278 KSPRGS 4 138 1      84.0     268.5     289.0    100.2

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999  10:34
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 16844  4CHAMPNE 138  151  50278* KSPRGS 4 138  506  1    287.6   289.0    99.5

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999  13:08
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 16844  4CHAMPNE 138  151  50278* KSPRGS 4 138  506  1    289.7   289.0   100.2


05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    CESW-CESW  OPEN LINE FROM BUS 54028 [WELETK4 138.00] TO BUS 54029 [WELEETK269.000] CKT 1 ------------------------------ CONTINGENCY
      CESW-CESW                                                 54028 WELETK4  138 54029 WELEETK269.0 2      18.6      36.4      36.0    101.1

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999  14:52
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 54028* WELETK4  138   20  54029  WELEETK269.0   20  2     36.0    36.0    99.9

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      WED, NOV 03 1999  15:08
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 54028* WELETK4  138   20  54029  WELEETK269.0   20  2     36.5    36.0   101.3
```

```
05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WERE-WERE  OPEN LINE FROM BUS 56666 [CRESWEL4138.00] TO BUS 56667 [OXFORD 4138.00] CKT 1 ------------------------------ CONTINGENCY
       WERE-WERE                                                 57037 WEAVER 269.0 57234 RH JCT 269.0 1      36.5     44.2     43.0    101.3

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999   8:42
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57037  WEAVER 269.0   36  57234* RH JCT 269.0   36  1     42.0    43.0    97.6

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999   8:59
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57037  WEAVER 269.0   36  57234* RH JCT 269.0   36  1     43.6    43.0   101.4

05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WERE-WERE  OPEN LINE FROM BUS 56667 [OXFORD 4138.00] TO BUS 56719 [SC10BEL4138.00] CKT 1 ------------------------------ CONTINGENCY
       WERE-WERE                                                 57037 WEAVER 269.0 57234 RH JCT 269.0 1      36.5     44.8     43.0    102.7

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999   8:44
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57037  WEAVER 269.0   36  57234* RH JCT 269.0   36  1     42.6    43.0    99.1

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999   9:02
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57037* WEAVER 269.0   36  57234  RH JCT 269.0   36  1     44.2    43.0   102.8
```

```
05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    WERE-WERE  OPEN LINE FROM BUS 56705 [CENTENN4138.00] TO BUS 56725 [WACO   4138.00] CKT 1 ------------------------------ CONTINGENCY
      WERE-WERE                                                 56713 GILL   4 138 56559 GEC U4  14.4 1     132.0    128.8    125.0    103.1

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999   8:48
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56559* GEC U4  14.4   36  56713  GILL   4 138   36  1    124.3   125.0    99.4

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999   9:05
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56559* GEC U4  14.4   36  56713  GILL   4 138   36  1    125.1   125.0   100.1

05SP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
    MIPU-MIPU  OPEN LINE FROM BUS 57502 [SIBLEY 5161.00] TO BUS 57544 [ORRICK 5161.00] CKT 1 ------------------------------ CONTINGENCY
      MIPU-MIPU                                                 57502 SIBLEY 5 161 57535 DUNCAN 5 161 1     196.8    243.4    245.0    100.1

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  10:08
 0-05SP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57502  SIBLEY 5 161   40  57535* DUNCAN 5 161   40  1    242.8   245.0    99.1

     PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  10:26
 -200-05SP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005 SUMMER PEAK - FINAL REV. 5 (B05SP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 57502  SIBLEY 5 161   40  57535* DUNCAN 5 161   40  1    245.2   245.0   100.1
```

```
05WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WERE-WERE  OPEN LINE FROM BUS 56603 [JEC    7345.00] TO BUS 56609 [SUMMIT 7345.00] CKT 1 ------------------------------ CONTINGENCY
       WERE-WERE                                                 56858 WJCCTY 3 115 56860 WJCCTYW3 115 1      70.4    139.2    141.0    100.9

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  12:45
 0-05WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
56858* WJCCTY 3 115   36  56860  WJCCTYW3 115   36  1    137.9   141.0    97.8

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  13:05
 -200-05WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
56858* WJCCTY 3 115   36  56860  WJCCTYW3 115   36  1    142.3   141.0   100.9

05WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WERE-WERE  OPEN LINE FROM BUS 56639 [EMCPHER6230.00] TO BUS 56645 [SUMMIT 6230.00] CKT 1 ------------------------------ CONTINGENCY
       WERE-WERE                                                 56872 EXIDE J3 115 56876 PHILIPS3 115 1     107.7    179.4    181.0    100.4

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  12:47
 0-05WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56872* EXIDE J3 115   36  56876  PHILIPS3 115   36  1    177.4   181.0    98.0

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  13:08
 -200-05WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56872* EXIDE J3 115   36  56876  PHILIPS3 115   36  1    181.7   181.0   100.4
```

```
05WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WERE-WERE  OPEN LINE FROM BUS 56645 [SUMMIT 6230.00] TO BUS 56883 [SUMMIT 3115.00] CKT 1 ------------------------------ CONTINGENCY
       WERE-WERE                                                 56858 WJCCTY 3 115 56860 WJCCTYW3 115 1      70.4    142.1    141.0    101.0

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  12:49
 0-05WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56858* WJCCTY 3 115   36  56860  WJCCTYW3 115   36  1    139.4   141.0    98.8

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  13:11
 -200-05WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56858* WJCCTY 3 115   36  56860  WJCCTYW3 115   36  1    142.4   141.0   101.0


05WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WERE-WERE  OPEN LINE FROM BUS 56609 [SUMMIT 7345.00] TO BUS 56628 [SUMMIT7X] CKT 1       ------------------------------ CONTINGENCY
     WERE-WERE  OPEN LINE FROM BUS 56645 [SUMMIT 6230.00] TO BUS 56628 [SUMMIT7X] CKT 1       ------------------------------ CONTINGENCY
       WERE-WERE                                                 56858 WJCCTY 3 115 56860 WJCCTYW3 115 1      70.4    139.5    141.0    100.2

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  12:54
 0-05WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56858* WJCCTY 3 115   36  56860  WJCCTYW3 115   36  1    136.9   141.0    97.1

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  13:15
 -200-05WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 56858* WJCCTY 3 115   36  56860  WJCCTYW3 115   36  1    141.3   141.0   100.2
```

```
05WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     WFEC-WFEC  OPEN LINE FROM BUS 55374 [GOLDSBY269.000] TO BUS 55468 [OU SW  269.000] CKT 1 ------------------------------ CONTINGENCY
       WFEC-WFEC                                                  55252 ACME   269.0 55366 FRNKLNS269.0 1      22.9     33.1     34.0    100.8

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  13:28
 0-05WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 55252* ACME   269.0   25  55366  FRNKLNS269.0   25  1     33.6    34.0    99.0

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  14:04
 -200-05WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 55252* ACME   269.0   25  55366  FRNKLNS269.0   25  1     34.2    34.0   100.5

05WP     X-------- C O N T I N G E N C Y   E V E N T S --------X X-- O V E R L O A D E D   L I N E S --X  X--MVA(MW)FLOW--X
                          X---- MULTI-SECTION LINE GROUPINGS ----X   FROM     NAME        TO     NAME    CKT  PRE-CNT  POST-CNT  RATING  PERCENT
     SWPA-AECI  OPEN LINE FROM BUS 52910 [IDALIA 5161.00] TO BUS 58742 [5ESSEX  161.00] CKT 1 ------------------------------ CONTINGENCY
       AMRN-AECI                                                  30583 FRED TAP 161 58756 5FREDTN  161 1      50.8     56.7     56.0    100.6

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  13:42
 0-05WP SWPS TO NSP -200 MW (0 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 30583  FRED TAP 161  356  58756* 5FREDTN  161  130  1     55.9    56.0    99.9

      PTI INTERACTIVE POWER SYSTEM SIMULATOR--PSS/E      THU, NOV 04 1999  14:07
 -200-05WP SWPS TO NSP -400 MW (-200 MW TOTAL)
 2005/06 WINTER PEAK - FINAL REV. 5 (B05WP5)

 X-------FROM BUS-------X  X--------TO BUS--------X       CURRENT(MVA)
   BUS    NAME  BSKV AREA    BUS    NAME  BSKV AREA CKT LOADING  RATING PERCENT
 30583  FRED TAP 161  356  58756* 5FREDTN  161  130  1     56.3    56.0   100.6
```