



SPP *Southwest Power Pool*

*Preliminary
System Impact Study
SPP-2005-026-1P
For Transmission Service
Requested By
Sunflower Electric Cooperative*

From SECI to AEPW/OKGE/WFEC

*For a Reserved Amount Of 100MW
From 6/1/2007
To 6/1/2017*

SPP Engineering, Tariff Studies

System Impact Study

Sunflower Electric Cooperative has requested a system impact study for transmission service from SECI to Network Load in the AEPW, OKGE, and WFEC Control Areas for 100 MW. The period of the service requested is from 6/1/2007 to 6/1/2017. 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 SECI to AEPW/OKGE/WFEC 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 SECI Control Area to network load in the AEPW, OKGE, and WFEC Control Areas. The preliminary study was performed with only confirmed reservations included in the models. At the request of the customer, a SECI to SPS 150 MW transfer, a SECI to EDE 100 MW transfer, and a SECI to SECI 50 MW transfer were included in the models. 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 SECI to AEPW/OKGE/WFEC 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 6/1/2007 to 6/1/2017. 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. In order to have seasonal cases for the study that serve as a good proxy for future seasonal models not available from the SPP MDWG 2004 Series Cases, the 2005 and 2007 seasonal cases were modified to include planned SECI upgrades with in-service dates prior to the start date of the requested service. These included 115 kV line upgrades in the SECI area. 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 Lamar to SPS), 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. 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 SECI to AEPW/OKGE/WFEC 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. 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 SECI to AEPW/OKGE/WFEC 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 | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 80.9 | 91.7 | 8.5670 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 100 | Solution Undetermined | TBD |
| 05G | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 78 | 100.5 | 111.4 | 8.5480 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 0 | Solution Undetermined | TBD |
| 05G | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 635 | 88.6 | 91.5 | 18.4920 | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 100 | Solution Undetermined | TBD |
| 05G | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 635 | 88.4 | 91.3 | 18.4510 | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 100 | Solution Undetermined | TBD |
| 05G | SUNC-SUNC | 56469 SPERVL7 345 *B427 SPEARVL 1 1 | 334 | 85.8 | 93.0 | 24.0020 | Unit:58770 JUD- LRG 113.8 Id:4 | 100 | Solution Undetermined | TBD |
| 05G | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 96.4 | 97.1 | 3.9280 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05G | WEPL-SUNC | 58754 CIM-PLT3 115 56455 NCIMARN3 115 1 | 142 | 85.3 | 90.8 | 7.7610 | 56449 HOLCOMB7 345 56469 SPERVL7 345 1 | 100 | Solution Undetermined | TBD |
| 05G | WEPL-SUNC | 58754 CIM-PLT3 115 56455 NCIMARN3 115 1 | 142 | 85.1 | 90.5 | 7.7610 | 3Wnd: OPEN *B42 7 SPEARVL 1 | 100 | Solution Undetermined | TBD |
| 05G | WEPL-WEPL | 58795 SPEARVL6 230 *B427 SPEARVL 1 1 | 335 | 85.6 | 92.7 | 24.0020 | Unit:58770 JUD- LRG 113.8 Id:4 | 100 | Solution Undetermined | TBD |
| 05G | SUNC-SUNC | 56469 SPERVL7 345 *B427 SPEARVL 1 1 | 334 | 94.8 | 105.7 | 36.1660 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 78.0 | 92.3 | 8.9420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 316 | 83.8 | 93.8 | 31.6140 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58795 SPEARVL6 230 *B427 SPEARVL 1 1 | 335 | 94.6 | 105.4 | 36.1660 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 99.6 | 100.4 | 4.7000 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 51 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05SH | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 89.5 | 100.3 | 8.5210 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 97 | Solution Undetermined | TBD |
| 05SH | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 635 | 91.6 | 94.6 | 18.6260 | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 100 | Solution Undetermined | TBD |
| 05SH | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 635 | 91.4 | 94.4 | 18.5840 | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 100 | Solution Undetermined | TBD |
| 05SH | OMPA-OKGE | 56151 OMPONCA2 69 54742 OSAGE 2 69 2 | 72 | 80.0 | 98.7 | 13.4410 | Unit:56151 OMPONCA 269.0 Id:1 | 100 | Solution Undetermined | TBD |
| 05SH | SUNC-SUNC | 56469 SPERVL7 345 *B435 SPEARVL 1 1 | 334 | 80.8 | 91.3 | 35.3170 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | WEPL-WEPL | 58795 SPEARVL6 230 *B435 SPEARVL 1 1 | 335 | 80.4 | 91.0 | 35.3170 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 78 | 100.0 | 110.9 | 8.4990 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 0 | Solution Undetermined | TBD |
| 05FA | SUNC-SUNC | 56469 SPERVL7 345 *B435 SPEARVL 1 1 | 335 | 85.5 | 92.5 | 23.2510 | Unit:58770 JUD- LRG 113.8 Id:4 | 100 | Solution Undetermined | TBD |
| 05FA | MIDW-MIDW | 56606 ALXNDR 3 115 56607 NESCTY 3 115 1 | 101 | 84.8 | 92.2 | 7.3680 | 56449 HOLCOMB7 345 56469 SPERVL7 345 1 | 100 | Solution Undetermined | TBD |
| 05FA | MIDW-MIDW | 56606 ALXNDR 3 115 56607 NESCTY 3 115 1 | 101 | 84.5 | 91.9 | 7.3680 | 3Wnd: OPEN *B43 5 SPEARVL 1 | 100 | Solution Undetermined | TBD |
| 05FA | MIDW-MIDW | 56606 ALXNDR 3 115 56608 NEKOMA 3 115 1 | 101 | 83.3 | 90.7 | 7.3680 | 56449 HOLCOMB7 345 56469 SPERVL7 345 1 | 100 | Solution Undetermined | TBD |
| 05FA | MIDW-MIDW | 56606 ALXNDR 3 115 56608 NEKOMA 3 115 1 | 101 | 83.0 | 90.4 | 7.3680 | 3Wnd: OPEN *B43 5 SPEARVL 1 | 100 | Solution Undetermined | TBD |
| 05FA | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 96.9 | 97.7 | 4.6610 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05FA | WEPL-SUNC | 58754 CIM-PLT3 115 56455 NCIMARN3 115 1 | 141 | 85.9 | 91.3 | 7.6110 | 56449 HOLCOMB7 345 56469 SPERVL7 345 1 | 100 | Solution Undetermined | TBD |
| 05FA | WEPL-SUNC | 58754 CIM-PLT3 115 56455 NCIMARN3 115 1 | 141 | 85.6 | 91.0 | 7.6110 | 3Wnd: OPEN *B43 5 SPEARVL 1 | 100 | Solution Undetermined | TBD |

Table 1 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 |
|------------|---------------------|---|-------------|--------------|--------------|---------|---|----------|--|----------------|
| 05FA | WEPL-WEPL | 58795 SPEARVL6 230 *B435 SPEARVL 1 1 | 335 | 85.5 | 92.5 | 23.2510 | Unit:58770 JUD- LRG 113.8 Id:4 | 100 | Solution Undetermined | TBD |
| 05FA | SUNC-SUNC | 56469 SPERVIL7 345 *B435 SPEARVL 1 1 | 335 | 96.4 | 106.9 | 35.3210 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 63 | 79.2 | 94.7 | 9.7880 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 314 | 84.9 | 94.6 | 30.5820 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58795 SPEARVL6 230 *B435 SPEARVL 1 1 | 335 | 96.4 | 106.9 | 35.3210 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 564 | 115.0 | 115.8 | 4.7000 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 07SP | OMPA-AEPW | 56204 OMDUNCN4 138 54157 COMMTAP4 138 1 | 116 | 98.3 | 106.1 | 9.1380 | 54112 CORNVIL4 138 54155 RUSHNGT4 138 1 | 22 | Rebuild 17.81 miles of 266 ACSR with 795 ACSR | \$6,100,000 |
| 07SP | AEPW-AEPW | 54125 HEADRIK2 69 54138 SNYDER-2 69 1 | 53 | 88.5 | 94.9 | 3.3810 | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 100 | Replace Snyder wavetrap | \$40,000 |
| 07SP | WERE-WERE | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 1075 | 94.6 | 95.4 | 8.2840 | 56766 JEC N 7 345 56770 MORRIS 7 345 1 | 100 | Solution Undetermined | TBD |
| 07SP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 87.3 | 98.1 | 8.5140 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 100 | Solution Undetermined | TBD |
| 07SP | SUNC-SUNC | 56469 SPERVIL7 345 *B436 SPEARVL 1 1 | 333 | 82.7 | 93.3 | 35.3150 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | WEPL-WEPL | 58795 SPEARVL6 230 *B436 SPEARVL 1 1 | 336 | 82.1 | 92.6 | 35.3150 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 107.8 | 108.6 | 4.6690 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 07WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 78 | 113.1 | 124.0 | 8.5190 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 0 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 78 | 99.3 | 110.3 | 8.5190 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 6 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 93.7 | 104.2 | 6.4900 | Unit:56751 WCGS U1 25.0 Id:1 | 60 | Solution Undetermined | TBD |
| 07WP | WERE-WERE | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 1076 | 92.7 | 93.4 | 8.2920 | 56766 JEC N 7 345 56770 MORRIS 7 345 1 | 100 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 78 | 93.1 | 99.9 | 5.3320 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 70 | 81.9 | 91.3 | 6.4900 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 07WP | SUNC-SUNC | 56469 SPERVIL7 345 *B436 SPEARVL 1 1 | 335 | 83.3 | 93.9 | 35.3190 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 70 | 81.2 | 95.3 | 9.7920 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 93.1 | 108.9 | 9.7920 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58795 SPEARVL6 230 *B436 SPEARVL 1 1 | 335 | 83.2 | 93.8 | 35.3190 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10SP | OMPA-AEPW | 56204 OMDUNCN4 138 54157 COMMTAP4 138 1 | 116 | 105.6 | 113.5 | 9.1250 | 54112 CORNVIL4 138 54155 RUSHNGT4 138 1 | 0 | See Previous Upgrade Specified For Facility | TBD |

Table 1 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 |
|------------|---------------------|---|-------------|--------------|--------------|--------|---|----------|---|----------------|
| 10SP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 564 | 104.9 | 105.8 | 4.7590 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 10SP | AEPW-AEPW | 54125 HEADRIK2 69 54138 SNYDER-2 69 1 | 53 | 97.9 | 104.1 | 3.2610 | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 34 | See Previous Upgrade Specified For Facility | |
| 10SP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 89.4 | 100.2 | 8.5430 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 98 | Solution Undetermined | TBD |
| 10WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 78 | 110.3 | 121.3 | 8.5440 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 0 | Solution Undetermined | TBD |
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 78 | 95.2 | 106.1 | 8.5440 | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 44 | Solution Undetermined | TBD |
| 10WP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 95.4 | 96.2 | 4.7250 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 10WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 78 | 90.3 | 97.2 | 5.3810 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 81.4 | 91.8 | 6.5400 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 79.8 | 95.5 | 9.8420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| | | | | | | | | | 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 | \$6,140,000 |
| | | | | | | | | | Total Cost with Facilities Monitored @ 100% Loading | \$6,140,000 |

Table 2 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 64 | 87.3 | 101.4 | 8.9530 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 635 | 88.0 | 90.9 | 18.4920 | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 100 | Solution Undetermined | TBD |
| 05G | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 635 | 87.8 | 90.7 | 18.4510 | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 100 | Solution Undetermined | TBD |
| 05G | WERE-WERE | 57013 MOUND 4 138 *B340 MOUND10X 1 1 | 108 | 83.7 | 90.0 | 6.8130 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 05G | WERE-WERE | 57413 CIRCLE 3 115 57429 MOUNDRG3 115 1 | 91 | 86.2 | 94.2 | 7.3480 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 05G | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 91.2 | 91.9 | 3.9280 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05G | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 81.5 | 91.1 | 5.9570 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 05G | SUNC-SUNC | 56469 SPERVIL7 345 *B427 SPEARVL 1 1 | 335 | 103.6 | 114.4 | 36.1660 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WERE-WERE | 57013 MOUND 4 138 *B340 MOUND10X 1 1 | 108 | 92.2 | 101.7 | 10.2080 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WERE-WERE | 57413 CIRCLE 3 115 57429 MOUNDRG3 115 1 | 91 | 102.6 | 114.7 | 11.0330 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WERE-WERE | 57429 MOUNDRG3 115 *B340 MOUND10X 1 1 | 108 | 92.1 | 101.5 | 10.2080 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 70 | 95.3 | 108.0 | 8.9420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 108.3 | 122.6 | 8.9420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 94.4 | 104.5 | 7.9050 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 317 | 90.5 | 100.5 | 31.6140 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58795 SPEARVL6 230 *B427 SPEARVL 1 1 | 335 | 103.7 | 114.5 | 36.1660 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 635 | 89.3 | 92.3 | 18.6260 | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 100 | Solution Undetermined | TBD |
| 05SH | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 635 | 89.1 | 92.0 | 18.5840 | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 100 | Solution Undetermined | TBD |
| 05SH | OMPA-OKGE | 56151 OMPONCA2 69 54742 OSAGE 2 69 2 | 72 | 79.9 | 98.5 | 13.4410 | Unit:56151 OMPO NCA 269.0 Id:1 | 100 | Solution Undetermined | TBD |
| 05SH | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 92.0 | 92.9 | 4.7000 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05SH | SUNC-SUNC | 56469 SPERVIL7 345 *B435 SPEARVL 1 1 | 335 | 90.4 | 100.9 | 35.3170 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 71 | 82.2 | 96.1 | 9.7850 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |

Table 2 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 |
|------------|---------------------|---|-------------|--------------|--------------|---------|---|----------|--|----------------|
| 05SH | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 63 | 93.0 | 108.5 | 9.7850 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 86.8 | 97.0 | 8.0620 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | WEPL-WEPL | 58795 SPEARVL6 230 *B435 SPEARVL 1 1 | 335 | 90.1 | 100.7 | 35.3170 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | ENTR-ENTR | 98937 8B.WLSN 500 99203 8PERYVIL 500 1 | 1732 | 107.5 | 107.7 | 3.1590 | 98107 8RICHARD 500 98430 8WEBRE 500 1 | 0 | Third Party Limitation | |
| 05FA | OMPA-OKGE | 56151 OMPONCA2 69 54742 OSAGE 2 69 2 | 71 | 69.5 | 90.9 | 15.2610 | 56151 OMPONCA26 9 54742 OSAGE 2 69 1 | 100 | Solution Undetermined | TBD |
| 05FA | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 92.2 | 93.0 | 4.6610 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05FA | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 63 | 85.9 | 96.1 | 6.4710 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 05FA | SUNC-SUNC | 56469 SPERVIL7 345 *B435 SPEARVL 1 1 | 335 | 103.7 | 114.3 | 35.3210 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 71 | 101.8 | 115.6 | 9.7880 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 63 | 115.2 | 130.8 | 9.7880 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 93.8 | 104.1 | 8.0630 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 316 | 89.8 | 99.4 | 30.5820 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58795 SPEARVL6 230 *B435 SPEARVL 1 1 | 334 | 104.1 | 114.7 | 35.3210 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | AEPW-AEPW | 54125 HEADRIK2 69 54138 SNYDER-2 69 1 | 53 | 100.2 | 106.6 | 3.3810 | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 0 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 07SP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 564 | 105.9 | 106.7 | 4.7000 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 07SP | OMPA-AEPW | 56204 OMDUNCN4 138 54157 COMMTAP4 138 1 | 117 | 95.1 | 103.0 | 9.1380 | 54112 CORNVIL4 138 54155 RUSHNGT4 138 1 | 62 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 07SP | OMPA-OKGE | 56151 OMPONCA2 69 54742 OSAGE 2 69 1 | 96 | 76.0 | 92.8 | 16.1270 | 56151 OMPONCA26 9 54742 OSAGE 2 69 2 | 100 | Solution Undetermined | TBD |
| 07SP | OMPA-OKGE | 56151 OMPONCA2 69 54742 OSAGE 2 69 2 | 95 | 76.6 | 93.5 | 16.1270 | 56151 OMPONCA26 9 54742 OSAGE 2 69 1 | 100 | Solution Undetermined | TBD |
| 07SP | ENTR-ENTR | 98937 8B.WLSN 500 99203 8PERYVIL 500 1 | 1731 | 98.2 | 98.3 | 3.1350 | 98107 8RICHARD 500 98430 8WEBRE 500 1 | 100 | Third Party Limitation | |
| 07SP | SUNC-SUNC | 56469 SPERVIL7 345 *B436 SPEARVL 1 1 | 334 | 94.6 | 105.2 | 35.3150 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 64 | 81.7 | 97.1 | 9.7810 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 80 | 84.5 | 94.6 | 8.0600 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |

Table 2 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 |
|------------|---------------------|---|-------------|--------------|--------------|---------|---|----------|--|----------------|
| 07SP | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 319 | 81.7 | 91.3 | 30.5790 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | WEPL-WEPL | 58795 SPEARVL6 230 *B436 SPEARVL 1 1 | 336 | 94.2 | 104.7 | 35.3150 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 106.4 | 107.2 | 4.6690 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 07WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 79 | 106.4 | 116.6 | 8.0640 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 0 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 70 | 102.6 | 116.5 | 9.7920 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 0 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 63 | 116.4 | 132.0 | 9.7920 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 0 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 63 | 89.8 | 100.2 | 6.4900 | Unit:56751 WCGS U1 25.0 Id:1 | 98 | Solution Undetermined | TBD |
| 07WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 79 | 85.9 | 92.7 | 5.3320 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 07WP | SUNC-SUNC | 56469 SPERVIL7 345 *B436 SPEARVL 1 1 | 335 | 90.7 | 101.3 | 35.3190 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 92.8 | 103.0 | 8.0640 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 318 | 81.2 | 90.8 | 30.5790 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58795 SPEARVL6 230 *B436 SPEARVL 1 1 | 335 | 90.9 | 101.4 | 35.3190 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10SP | AEPW-AEPW | 54125 HEADRIK2 69 54138 SNYDER-2 69 1 | 53 | 110.0 | 116.2 | 3.2610 | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 0 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 10SP | OMPA-AEPW | 56204 OMDUNCN4 138 54157 COMMTAP4 138 1 | 117 | 102.3 | 110.2 | 9.1250 | 54112 CORNVIL4 138 54155 RUSHNGT4 138 1 | 0 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 10SP | AEPW-AEPW | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 105 | 90.7 | 95.7 | 5.2590 | 54125 HEADRIK2 69 54138 SNYDER-2 69 1 | 100 | Replace Wavetrap & Jumpers @ Hobart Jct | \$45,000 |
| 10SP | AEPW-AEPW | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 105 | 86.1 | 90.5 | 4.5720 | 3Wnd: OPEN *B01 1 1 | 100 | Solution Undetermined | TBD |
| 10SP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 564 | 93.8 | 94.7 | 4.7590 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 10SP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 80.8 | 91.0 | 8.1150 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10SP | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 318 | 88.1 | 98.0 | 31.1680 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10SP | ENTR-ENTR | 98937 8B.WLSN 500 99203 8PERYVIL 500 1 | 1730 | 91.9 | 92.1 | 3.1830 | 98107 8RICHARD 500 98430 8WEBRE 500 1 | 100 | Third Party Limitation | TBD |
| 10WP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 91.7 | 92.6 | 4.7250 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 10WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 78 | 86.2 | 93.0 | 5.3810 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |

Table 2 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 |
|------------|---------------------|---|-------------|--------------|--------------|---------|---------------------------------------|----------|---|----------------|
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 87.8 | 98.2 | 6.5400 | Unit:56751 WCGS U1 25.0 Id:1 | 100 | Solution Undetermined | TBD |
| 10WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 78 | 106.1 | 116.5 | 8.1160 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10WP | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 70 | 99.4 | 113.5 | 9.8420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 62 | 112.9 | 128.7 | 9.8420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 91.6 | 101.9 | 8.1160 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10WP | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 317 | 82.7 | 92.5 | 31.1590 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| | | | | | | | | | 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 | \$45,000 |
| | | | | | | | | | Total Cost with Facilities Monitored @ 100% Loading | \$- |

Table 3 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 | | | | | | 100 | | |
| 05G | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 93.2 | 93.9 | 3.9280 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05G | SUNC-SUNC | 56469 SPERVIL7 345 *B427 SPEARVL 1 1 | 335 | 97.8 | 108.6 | 36.1660 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 71 | 78.0 | 90.6 | 8.9420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 64 | 87.8 | 101.9 | 8.9420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 84.7 | 94.7 | 7.9050 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 317 | 85.6 | 95.6 | 31.6140 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05G | WEPL-WEPL | 58795 SPEARVL6 230 *B427 SPEARVL 1 1 | 335 | 97.9 | 108.7 | 36.1660 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 635 | 87.5 | 90.4 | 18.6260 | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 100 | Solution Undetermined | TBD |
| 05SH | SWPS-SWPS | 50907 HARRNG6 230 50915 NICHOL6 230 2 | 635 | 87.3 | 90.2 | 18.5840 | 50907 HARRNG6 230 50915 NICHOL6 230 1 | 100 | Solution Undetermined | TBD |
| 05SH | OMPA-OKGE | 56151 OMPONCA2 69 54742 OSAGE 2 69 2 | 72 | 79.9 | 98.5 | 13.4410 | Unit:56151 OMPO NCA 269.0 Id:1 | 100 | Solution Undetermined | TBD |
| 05SH | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 95.9 | 96.8 | 4.7000 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05SH | SUNC-SUNC | 56469 SPERVIL7 345 *B435 SPEARVL 1 1 | 335 | 83.2 | 93.7 | 35.3170 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05SH | WEPL-WEPL | 58795 SPEARVL6 230 *B435 SPEARVL 1 1 | 335 | 83.0 | 93.6 | 35.3170 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 93.3 | 94.1 | 4.6610 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 05FA | ENTR-ENTR | 98937 8B.WLSN 500 99203 8PERYVIL 500 1 | 1731 | 97.2 | 97.4 | 3.1590 | 98107 8RICHARD 500 98430 8WEBRE 500 1 | 100 | Third Party Limitation | |
| 05FA | SUNC-SUNC | 56469 SPERVIL7 345 *B435 SPEARVL 1 1 | 335 | 98.8 | 109.4 | 35.3210 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 72 | 82.3 | 96.0 | 9.7880 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 64 | 92.5 | 107.8 | 9.7880 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 84.2 | 94.4 | 8.0630 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |

Table 3 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 |
|------------|---------------------|---|-------------|--------------|--------------|---------|---|----------|--|----------------|
| 05FA | WEPL-WEPL | 58779 MULGREN6 230 58795 SPEARVL6 230 1 | 316 | 85.8 | 95.5 | 30.5820 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 05FA | WEPL-WEPL | 58795 SPEARVL6 230 *B435 SPEARVL 1 1 | 334 | 99.2 | 109.7 | 35.3210 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | AEPW-AEPW | 54125 HEADRIK2 69 54138 SNYDER-2 69 1 | 53 | 100.9 | 107.3 | 3.3810 | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 0 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 07SP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 564 | 111.3 | 112.1 | 4.7000 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 07SP | OMPA-AEPW | 56204 OMDUNCN4 138 54157 COMMTAP4 138 1 | 117 | 95.7 | 103.5 | 9.1380 | 54112 CORNVIL4 138 54155 RUSHNGT4 138 1 | 55 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 07SP | WERE-WERE | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 1075 | 90.8 | 91.6 | 8.2840 | 56766 JEC N 7 345 56770 MORRIS 7 345 1 | 100 | Solution Undetermined | TBD |
| 07SP | SUNC-SUNC | 56469 SPERVIL7 345 *B436 SPEARVL 1 1 | 334 | 85.3 | 95.8 | 35.3150 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 64 | 76.6 | 92.0 | 9.7810 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07SP | WEPL-WEPL | 58795 SPEARVL6 230 *B436 SPEARVL 1 1 | 336 | 84.9 | 95.4 | 35.3150 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 104.3 | 105.1 | 4.6690 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 07WP | SUNC-SUNC | 56469 SPERVIL7 345 *B436 SPEARVL 1 1 | 335 | 85.9 | 96.4 | 35.3190 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 79 | 100.0 | 110.2 | 8.0640 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 71 | 92.7 | 106.5 | 9.7920 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 64 | 104.6 | 120.0 | 9.7920 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 86.6 | 96.8 | 8.0640 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 07WP | WEPL-WEPL | 58795 SPEARVL6 230 *B436 SPEARVL 1 1 | 335 | 85.9 | 96.5 | 35.3190 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10SP | AEPW-AEPW | 54125 HEADRIK2 69 54138 SNYDER-2 69 1 | 53 | 110.6 | 116.7 | 3.2610 | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 0 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 10SP | OMPA-AEPW | 56204 OMDUNCN4 138 54157 COMMTAP4 138 1 | 117 | 103.0 | 110.9 | 9.1250 | 54112 CORNVIL4 138 54155 RUSHNGT4 138 1 | 0 | See Previous Upgrade Specified For Facility in Scenario 1 | |
| 10SP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 564 | 101.5 | 102.3 | 4.7590 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 0 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |

Table 3 – SPP facility overloads identified for the SECI to AEPW/OKGE/WFEC 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 |
|------------|---------------------|---|-------------|--------------|--------------|--------|---------------------------------------|----------|---|----------------|
| 10SP | AEPW-AEPW | 54126 HOB-JCT4 138 54158 TAMARTP4 138 1 | 105 | 91.1 | 96.2 | 5.2590 | 54125 HEADRIK26 9 54138 SNYDER-2 69 1 | 100 | See Previous Upgrade Specified For Facility in Scenario 2 | |
| 10WP | WERE-WERE | 56851 AUBURN 6 230 56852 JEC 6 230 1 | 565 | 92.1 | 93.0 | 4.7250 | 56765 HOYT 7 345 56766 JEC N 7 345 1 | 100 | May be relieved due to Westar Operating Procedure 400 - Outage of the Jeffrey Energy Center to Hoyt 345kV Line | TBD |
| 10WP | WEPL-WEPL | 58764 GRNBURG3 115 58771 JUD-LRG3 115 1 | 78 | 96.9 | 107.3 | 8.1160 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10WP | WEPL-WEPL | 58768 HARPER 4 138 58774 MED-LDG4 138 1 | 71 | 81.6 | 95.4 | 9.8420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58774 MED-LDG4 138 1 | 64 | 92.0 | 107.5 | 9.8420 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| 10WP | WEPL-WEPL | 58773 MED-LDG3 115 58797 SUNCITY3 115 1 | 79 | 82.8 | 93.0 | 8.1160 | 50858 FINNEY7 345 50888 POTTRC7 345 1 | 100 | Invalid Contingency, Outage requires curtailment of LAMAR to SPS 210 MW and SECI to SPS 150 MW Transactions | |
| | | | | | | | | | 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