



***System Impact Study SPP-2001-241
For Transmission Service
Requested By
OGE Energy Resources, Inc.***

***From Oklahoma Gas and Electric To
Municipal Energy Agency of
Mississippi***

***For a Reserved Amount Of 10MW
From 9/1/01
To 9/1/04***

SPP Coordinated Planning

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1. Executive Summary

OGE Energy Resources, Inc. (OERI) has requested a system impact study for long-term Firm Point-to-Point transmission service from Oklahoma Gas and Electric to Entergy. The period of the transaction is from 9/1/01 to 9/1/04. The request is for OASIS reservation 271873 in the amount of 10MW.

The principal objective of this study is to identify system problems and potential system modifications necessary to facilitate the additional 10MW transfer while maintaining system reliability.

New overloads caused by the 10MW transfer were identified along with determining the impact of the transfer on any previously assigned and identified facilities.

Tables 1 and 2 list the new overloads caused by the 10MW transfer. Table 3 lists the previously assigned and identified facilities impacted by the 10MW transfer.

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. OERI is to compensate SPP for such costs pursuant to the terms of section 27 of the SPP Open Access Transmission Tariff.

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

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

2. Introduction

OGE Energy Resources, Inc. (OERI) has requested an impact study for transmission service from OKGE control area with a sink of MEAM.

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 10MW. This study includes steady-state contingency analyses (PSS/E function ACCC) and Available Transfer Capability (ATC) analyses.

The steady-state analyses consider the impact of the 10MW transfer on transmission line loading and transmission bus voltages for outages of single and selected multiple transmission lines and transformers on the SPP system.

ATC analyses show the amount of First Contingency Incremental Transfer Capabilities (FCITC) between the given study systems and what the limitations are, if any, for transferring up to 10MW.

3. Study Methodology

A. Description

Two analyses were conducted to determine the impact of the 10MW transfer on the system. The first analysis was conducted to identify any new overloads caused by the 10MW transfer. The second analysis was done to ensure that available capacity exists on previously identified circuits.

The first analysis was to study the steady-state analysis impact of the 10MW transfer on the SPP system. The second step was to study Available Transfer Capability (ATC) of the facilities identified in the steady-state analysis impact. The steady-state analysis was done to ensure current SPP Criteria and NERC Planning Standards requirements are fulfilled. The Southwest Power Pool (SPP) conforms to the NERC Planning Standards, which provide the strictest requirements, related to thermal overloads with a contingency. It requires that all facilities be within emergency ratings after a contingency.

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

B. Model Updates

SPP used five seasonal models to study the 10MW request. The SPP 2001 Series Cases: 2001 Summer Peak, 2001/02 Winter Peak, 2002 Summer Peak, 2002/03 Winter Peak and 2004 Summer Peak were used to study the impact of the 10MW transfer on the SPP system during the transaction period of 9/1/01 to 9/1/04.

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

C. Transfer Analysis

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

4. Study Results

A. Study Analysis Results

Tables 1, 2, and 3 contain the analysis results of the System Impact Study. The tables identify the seasonal case in which the event occurred; the emergency rating of the overloaded circuit (Rate B), the contingent loading percentage of circuit with and without the studied transfer, the ATC if calculated, any SPP identification or assignment of the event, and any solutions received from the transmission owners.

Table 1 shows the new facility overloads caused by the 10MW transfer. Upgrades associated with these new overloads can be directly assigned to the OKGE to MEAM 10MW transfer.

Table 2 documents overloads on Non SPP Regional Tariff participants' transmission systems caused by the 10MW transfer.

Table 3 documents the 10MW transfer impact on previously assigned and identified facilities.

Table 1 – SPP Facility Overloads caused by the OKGE to MEAM 10MW Transfer

Study Year	From Area - To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC	Solution or Assigned Study
01SP		NONE						
01WP		NONE						
02SP		NONE						
02WP		NONE						
04SP		NONE						

Table 2 – Non - SPP Facility Overloads caused by the OKGE to MEAM 10MW Transfer

Study Year	From Area - To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload
		MOORHEAD TO INDIANOLA, 115KV				DELTA (MPL) TO RULEVILLE, 115KV
01SP	EES-EES	98776 3MORHED 115 to 98770 3INDIAN 115 CKT 1	120	98.6	100.5	98737 3DELTA 115 to 98794 3RULEVL 115 CKT1
02WP		NONE				
02SP		NONE				
02W[NONE				

Table 3 – Previously Assigned and Identified SPP Facilities Impacted by the OKGE to MEAM 10MW Transfer.

Study Year	From Area - To Area	Branch Over 100% RateB	RATEB	BC %Loading	TC %Loading	Outaged Branch That Caused Overload	ATC (MW)	Assignment
01SP		NONE					10	
01WP		NONE					10	
02SP							10	
02WP		NONE					10	
04SP	KACP-KACP	STILWELL TO LACYGNE, 345KV 57968 STILWEL7 345 to 57981 LACYGNE7 345 CKT 1	1251	103.5	103.6	WEST GARDNER TO LACYGNE, 345KV 57965 W.GRDNR7 345 to 57981 LACYGNE7 345 CKT1	0	SPP Flowgate

5. Conclusion

The results of the study show that the 10MW transfer can be partially accepted. The request will be denied for the summer of 2004 because of the increased loading it would cause on the Lacygne to Stilwell flowgate.

Appendix A

PSS/E CHOICES IN RUNNING LOAD FLOW PROGRAM AND ACCC

BASE CASES:

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

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

ACCC CASES:

Solutions – AC contingency checking (ACCC)

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

Newton Solution:

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