



**SPP** *Southwest  
Power Pool*

***System Impact Study SPP-2002-240  
For Transmission Service  
Requested By  
Western Resources***

***From WR To WR***

***For a Reserved Amount Of  
13MW From 6/1/2003 To 6/1/2004***

***SPP Coordinated Planning***

## **System Impact Study**

Western Resources has requested a system impact study for long-term Firm Point-to-Point transmission service from WR to WR. The period of the transaction is from 6/1/2003 to 6/1/2004. The request is for OASIS reservation 464338 for an amount of 13 MW.

The principal objective of this study is to identify constraints on the SPP Regional Tariff System and potential facility upgrades that may be necessary to facilitate the additional 13 MW of service requested.

The 13 MW WR to WR transfer was studied to determine the facility upgrades required based on the actual queue position of the request with only those higher priority requests in Facility Study mode included in the models. Higher priority requests still in study that have not gone to facility study were not included in the models. These results are documented in Table 1 of the report. The results given in Table 1 include upgrades that may be assigned to higher priority requests. The results of this study give the customer an estimated cost of facility upgrades that may be required in order to accommodate the 13 MW WR to WR transfer.

SPP used nine seasonal models to study the WR to WR 13 MW transfer for the requested service period. The SPP 2003 Series Cases 2003 Summer Peak, 2003 Peak, 2003/04 Winter Peak, 2004 Spring, 2004 Summer Peak, 2004 Fall Peak, 2004/05 Winter Peak, 2009 Summer Peak and 2009/10 Winter Peak were used to study the impact of the 13 MW transfer on the SPP system during the requested service period of 6/1/2003 to 6/1/2004. The Spring Peak models apply to April and May, the Summer Peak models apply to June through September, the Fall Peak models apply to October and November, and the Winter Peak models apply to December through March. 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 2003 base case series models.

With only the higher priority requests that have signed Facility Study Agreements included in the models, the study results of the WR to WR 13 MW show that limiting constraints exist. Due to the number of limiting constraints identified, the Transmission Service Request cannot be granted. The upgrades and cost provided in the System Impact Study are planning estimates only. The final ATC and upgrades required may vary from these results due to the status of higher priority requests, unknown facility upgrades that will be identified during the facility study process, and the final results of the full AC analysis. Execution of a Facility Study Agreement is now required to maintain queue position. The final upgrade solutions and cost assignments will be determined upon the completion of the facility study.

**Table 1** – SPP facility upgrades identified for the WR to WR transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
03SP	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	95.7	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
03SP	WERE-WERE	GILL ENERGY CTR EAST - MACARTHUR 69KV	67.5	GILL ENERGY CTR EAST - OATVILLE 69KV	0	Replace subSTA bus and jumpers at MacArthur 69 kV	\$ 22,000
03SP	WERE-WERE	GILL ENERGY CTR EAST - OATVILLE 69KV	71.2	GILL ENERGY CTR EAST - MACARTHUR 69KV	0	Replace disconnect switches at Gill 69 kV (use 800 A.), Replace line switch at Oatville 69 kV (use 800 A.)	\$ 45,000
03FA	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	94.9	IATAN - ST JOE 345KV	0	Solution Undetermined	Not Available
03FA	WERE-WERE	CIRCLEVILLE - KING HILL N.M. COOP 115KV	89.8	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
03FA	WERE-WERE	KELLY - KING HILL N.M. COOP 115KV	88.5	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
03FA	WERE-WERE	TECUMSEH HILL - STULL SWI STA 115KV	92.0	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
03WP	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	95.1	IATAN - ST JOE 345KV	0	See Previous	See Previous
03WP	WERE-WERE	CIRCLEVILLE - KING HILL N.M. COOP 115KV	90.0	IATAN - ST JOE 345KV	0	Solution Undetermined	Not Available
03WP	WERE-WERE	KELLY - KING HILL N.M. COOP 115KV	88.5	IATAN - ST JOE 345KV	0	Solution Undetermined	Not Available
04FA	WERE-WERE	ATHENS SWI STA - COFFEY COUNTY NO. 4 VERNON 69KV	43.3	WOLF CREEK - LACYGNE 345KV	0	See Previous	See Previous
04FA	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	95.1	IATAN - ST JOE 345KV	0	See Previous	See Previous
04FA	WERE-WERE	CIRCLEVILLE - KING HILL N.M. COOP 115KV	90.0	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
04FA	WERE-WERE	COFFEY COUNTY NO. 4 VERNON - GREEN 69KV	43.5	WOLF CREEK - LACYGNE 345KV	0	See Previous	See Previous
04FA	WERE-WERE	GOLDEN PLAINS JCT - HESSTON 69KV	32.0	HALSTEAD - MUD CREEK JCT 69KV	7	Local area problem within Newton division	\$ -
04FA	WERE-WERE	KELLY - KING HILL N.M. COOP 115KV	88.6	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
04G	WERE-WERE	ATHENS SWI STA - COFFEY COUNTY NO. 4 VERNON 69KV	42.8	WOLF CREEK - LACYGNE 345KV	0	May be relieved due to Westar Transmission Operating Directive 1304 Overload of the Athens to Wolf Creek 69 kV line	Not Available
04G	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	94.8	IATAN - ST JOE 345KV	0	See Previous	See Previous
04G	WERE-WERE	CIRCLEVILLE - KING HILL N.M. COOP 115KV	89.7	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
04G	WERE-WERE	COFFEY COUNTY NO. 4 VERNON - GREEN 69KV	43.2	WOLF CREEK - LACYGNE 345KV	0	May be relieved due to Westar Transmission Operating Directive 1304	Not Available
04G	WERE-WERE	KELLY - KING HILL N.M. COOP 115KV	88.4	HOYT - STRANGER CREEK 345KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
04SP	WERE-WERE	166TH STREET - JARBALO JCT SWI STA 115KV	97.0	MIDLAND JCT - PENTAGON 115KV	0	May be relieved due to Westar Transmission Operating Directive 1202 Overload of the Jarbalo to Jaggard 115 kV Line	Not Available
04SP	WERE-WERE	CIRCLE - HUTCHINSON GAS TURBINE STA 115KV	151.8	HUTCHINSON ENERGY CTR - HUTCHINSON GAS TURBINE 69KV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the HEC to HEC GT 69 kV line	Not Available
04SP	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	95.7	HOYT - STRANGER CREEK 345KV	0	See Previous	See Previous

**Table 1 - continued** – SPP facility upgrades identified for the WR to WR transfer

Study Year	From Area - To Area	Branch Over 100% Rate B	Rate B	Outaged Branch Causing Overload	ATC	Solution	Estimated Cost
04SP	WERE-WERE	GILL ENERGY CTR EAST - MACARTHUR 69KV	67.6	GILL ENERGY CTR EAST - OATVILLE 69KV	0	See Previous	See Previous
04SP	WERE-WERE	GILL ENERGY CTR EAST - OATVILLE 69KV	71.3	GILL ENERGY CTR EAST - MACARTHUR 69KV	0	See Previous	See Previous
04SP	WERE-WERE	HUTCHINSON ENERGY CTR - HUTCHINSON GAS TURBINE STA 69KV	133.7	CIRCLE - HUTCHINSON GAS TURBINE STA 115kV	0	May be relieved due to Westar Transmission Operating Directive 1204 Outage of the Circle to HEC GT 115kV Line	Not Available
04SP	WERE-WERE	MOCKINGBIRD HILL SWI STA - STULL SWI STA 115KV	91.9	HOYT - STRANGER CREEK 345kV	0	May be relieved due to Westar Transmission Operating Directive 803 Outage of the Hoyt to Stranger 345 kV line	Not Available
04SP	WERE-WERE	TECUMSEH HILL - STULL SWI STA 115KV	92.0	HOYT - STRANGER CREEK 345kV	0	See Previous	See Previous
04WP	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	95.0	IATAN - ST JOE 345kV	0	See Previous	See Previous
04WP	WERE-WERE	CIRCLEVILLE - KING HILL N.M. COOP 115KV	89.9	IATAN - ST JOE 345kV	0	Solution Undetermined	Not Available
04WP	WERE-WERE	KELLY - KING HILL N.M. COOP 115KV	87.9	IATAN - ST JOE 345kV	0	Solution Undetermined	Not Available
09SP	WERE-WERE	CIRCLE - HUTCHINSON GAS TURBINE STA 115KV	222.9	HUTCHINSON ENERGY CTR - HUTCHINSON GAS TURBINE 69KV	0	See Previous	See Previous
09SP	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	95.7	HOYT - STRANGER CREEK 345kV	0	See Previous	See Previous
09SP	AEPW-OKGE	CLARKSVILLE - MUSKOGEE 345KV	892.4	RIVERSIDE STA - ONETA 345kV	0	Solution Undetermined	Not Available
09SP	KACP-KACP	CRAIG - COLLEGE 161KV	329.5	STILWELL - ANTIOCH 161kV	0	Solution Undetermined	Not Available
09SP	WERE-WERE	FARMER'S CONSUMER CO-OP - WAKARUSA JCT SWI STA 115KV	92.0	SOUTHWEST LAWRENCE - WAKARUSA JCT SWI STA 115kV	0	Solution Undetermined	Not Available
09SP	WERE-WERE	GILL ENERGY CTR EAST - MACARTHUR 69KV	67.4	GILL ENERGY CTR EAST - OATVILLE 69KV	0	See Previous	See Previous
09SP	WERE-WERE	GILL ENERGY CTR EAST - OATVILLE 69KV	71.1	GILL ENERGY CTR EAST - MACARTHUR 69KV	0	See Previous	See Previous
09SP	WERE-WERE	HUTCHINSON ENERGY CTR - HUTCHINSON GAS TURBINE STA 69KV	133.5	CIRCLE - HUTCHINSON GAS TURBINE STA 115kV	0	See Previous	See Previous
09SP	WERE-WERE	LAWRENCE HILL - WREN 115KV	138.8	BISMARCK JCT SWI STA - FARMER'S CONSUMER CO-OP 115kV	0	May be relieved due to Westar Transmission Operating Directive 1210 Outage of the Bismark to COOP 115kV Line Section	Not Available
09SP	WERE-WERE	SOUTHWEST LAWRENCE - WAKARUSA JCT SWI STA 115KV	91.9	FARMER'S CONSUMER CO-OP - WAKARUSA JCT SWI STA 115kV	0	Solution Undetermined	Not Available
09WP	WERE-WERE	ATHENS SWI STA - COFFEY COUNTY NO. 4 VERNON 69KV	43.0	WOLF CREEK - LACYGNE 345kV	0	See Previous	See Previous
09WP	WERE-WERE	CIRCLEVILLE - HOYT HTI SWI JCT 115KV	94.7	IATAN - ST JOE 345kV	0	See Previous	See Previous
09WP	WERE-WERE	CIRCLEVILLE - KING HILL N.M. COOP 115KV	89.5	IATAN - ST JOE 345kV	0	Solution Undetermined	Not Available
09WP	WERE-WERE	COFFEY COUNTY NO. 4 VERNON - GREEN 69KV	43.3	WOLF CREEK - LACYGNE 345kV	0	See Previous	See Previous
09WP	WERE-WERE	KELLY - KING HILL N.M. COOP 115KV	87.6	IATAN - ST JOE 345kV	0	Solution Undetermined	Not Available
						Total (Excludes Costs Not Available)	\$ 67,000