



**Feasibility Study
For
Generation Interconnection
Request
GEN-2007-054**

SPP Tariff Studies
(#GEN-2007-054)

June 2008

Executive Summary

<OMITTED TEXT> (Customer) has requested a Feasibility Study for the purpose of interconnecting 550 MW of gas fired generation within the control area of Southwestern Public Service Company (SPS) located in Lea County, New Mexico. The proposed method of interconnection is to build a new 230kV substation near the Lea County Cooperative Lovington generation station. The new substation and necessary transmission line facilities will be owned by SPS. The proposed in-service date is January, 2013.

Power flow analysis has indicated that for the powerflow cases studied, it is possible to interconnect the 550 MW of generation with transmission system reinforcements within the local transmission system. The requirement to interconnect the 550 MW of combined cycle gas fired generation consists of building a new 230kV substation near the Lea County Cooperative Lovington generation facility. The new station will be constructed and maintained by SPS. A 345kV transmission line to Hobbs Plant (operated initially at 230kV) and two 230kV transmission lines back to a point on the Yoakum – Lea County 230kV transmission line will be required.

The total minimum cost for building the required facilities for this 550 MW of generation is \$56,500,000. These costs are shown in Tables 1 and 2. This cost does not include building the Customer's generator leads from the generation facility up to the point of interconnection. Network constraints in the Southwestern Public Service Company (SPS) transmission systems that were identified are shown in Table 3.

These Network constraints will have to be verified with a Transmission Service Request (TSR) and associated studies. Network Constraints are in the local area of the new generation when this generation is sunk throughout the SPP footprint for the Energy Resource (ER) Interconnection request. With a defined source and sink in a Transmission Service Request, this list of Network Constraints will be refined and expanded to account for all Network Upgrade requirements.

In Table 4, a value of Available Transfer Capability (ATC) associated with each overloaded facility is included. These values may be used by the Customer for future analyses including the determination of lower generation capacity levels that may be installed. When transmission service associated with this interconnection is evaluated, the loading of the facilities listed in this table may be greater due to higher priority reservations. If the loading of a facility is higher, the level of ATC will be lower.

There are several other proposed generation additions in the general area of the Customer's facility. It was assumed in this preliminary analysis that not all of these other projects within the SPS control areas will be in service. Those previously queued projects that have advanced to nearly complete phases were included in this Feasibility Study. In the event that another request for a generation interconnection with a higher priority withdraws, then this request may have to be re-evaluated to determine the local Network Constraints.

The required interconnection costs listed in Tables 1 and 2 and other upgrades associated with Network Constraints do not include all costs associated with the deliverability of the energy to final customers.

These costs are determined by separate studies if the Customer submits a Transmission Service Request through Southwest Power Pool's OASIS.

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Introduction

<OMITTED TEXT> (Customer) has requested a Feasibility Study for the purpose of interconnecting 550 MW of gas fired generation within the control area of Southwestern Public Service Company (SPS) located in Lea County, New Mexico. The proposed method of interconnection is to build a new 230kV substation near the Lea County Cooperative Lovington generation station. The new substation and necessary transmission line facilities will be owned by SPS. The proposed in-service date is January, 2013.

Interconnection Facilities

The primary objective of this study is to identify the system problems associated with connecting the generation to the area transmission system. The Feasibility and other subsequent Interconnection Studies are designed to identify attachment facilities, Network Upgrades and other Direct Assignment Facilities needed to accept power into the grid at the interconnection receipt point.

The requirement to interconnect the 550 MW of gas fired generation consists of building a new 230kV substation at Lovington Plant. The new station will have at least four 230kV line terminals and will be constructed in a breaker-and-a-half configuration. The new station will be constructed and maintained by SPS.

New transmission line facilities required for interconnection will include a 345kV line from the Customer facility to Hobbs Plant (operated initially at 230kV), and two 230kV lines from the Customer facility to a point on the Yoakum – Lea County 230kV transmission line. The transmission lines will need to be on separate towers.

Other Network Constraints in the Southwestern Public Service Company transmission systems that were identified are shown in Table 3. With a defined source and sink in a Transmission Service Request (TSR), this list of Network Constraints will be refined and expanded to account for all Network Upgrade requirements.

A preliminary one-line drawing of the interconnection and direct assigned facilities are shown in Figure 1.

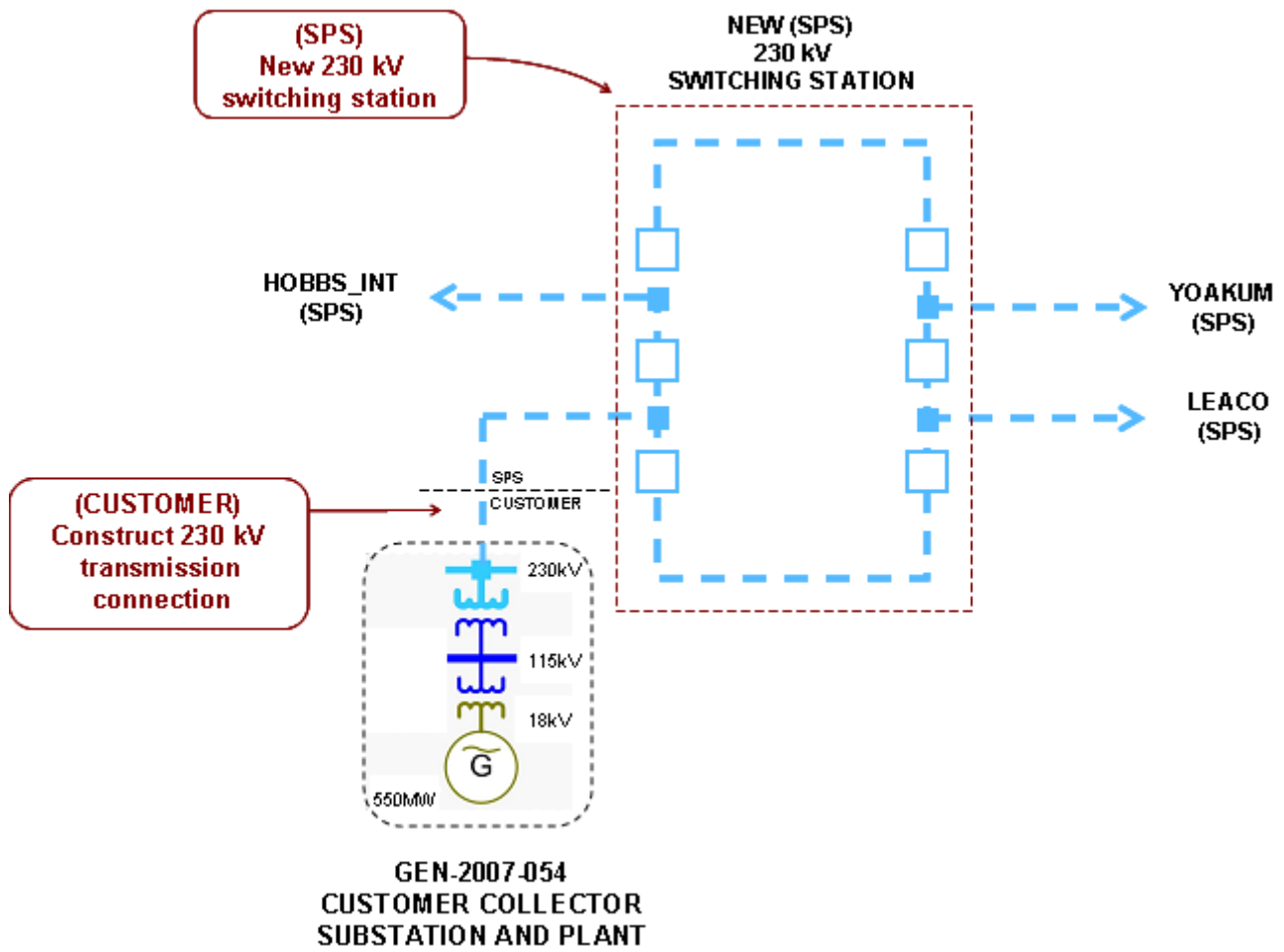


Figure 1: Proposed Method of Interconnection

(Final design to be determined)

Interconnection Estimated Costs

The minimum cost to interconnect GEN-2007-054 is estimated at \$56,500,000. These costs are listed in Tables 1 and 2. These estimates will be refined during the development of the System Impact Study based on the final designs. This cost does not include building the Customer's transmission voltage facilities extending from the point of interconnection to serve the generation facilities. The Customer is responsible for these facilities up to the point of interconnection.

The costs of interconnecting the facility to the SPS transmission system are listed in Table 1 & 2. **These costs do not include any cost that might be associated with short circuit study results or dynamic stability study results.** These costs will be determined when and if a System Impact Study is conducted.

Table 1: Direct Assignment Facilities

FACILITY	ESTIMATED COST (2008 DOLLARS)
CUSTOMER – GSU substation facilities.	*
CUSTOMER – 345 kV line between Customer substation and new SPS 345 kV new substation.	*
CUSTOMER – Right-of-Way for all Customer facilities.	*
TOTAL	*

* Estimates of cost to be determined.

Table 2: Required Interconnection Network Upgrade Facilities

FACILITY	ESTIMATED COST (2007 DOLLARS)
SPS – 230kV substation built in a breaker-and-a-half configuration. Station will include a minimum of four 230kV circuit breakers and will be expandable. Work to include associated switches, control relaying, high speed communications, metering and related equipment and all related structures.	\$6,000,000
SPS – 345kV (operated at 230kV) transmission line between Customer Facility and Hobbs Plant (25 miles at \$900,000 per mile)	\$22,500,000
SPS – Two (2) 230kV transmission lines between Customer Facility to a point near the middle of the existing Yoakum – Lea County Interchange 230kV transmission line (40 miles for 2 circuits at \$350,000 per mile per circuit).	\$28,000,000
TOTAL	\$56,500,000

* Estimates of cost to be determined.

Powerflow Analysis

A powerflow analysis was conducted for the facility using modified versions of the 2012 winter peak model, 2013 summer peak model and the 2017 summer peak model. The output of the Customer's facility was offset in each model by a reduction in output of existing online SPP generation. This method allows the request to be studied as an Energy Resource (ER) Interconnection request. The proposed in-service date of the generation is January, 2013. The available seasonal models used were through the 2017 Summer Peak of which is the end of the current SPP planning horizon.

Following current practice, this analysis was conducted assuming that previous queued requests in the immediate area of this interconnect request were in service. The analysis of the Customer's project indicates that, given the requested generation level of 550 MW and location, additional criteria violations will occur on the existing SPS transmission systems under steady state and contingency conditions in the peak seasons. Table 3 lists these overloaded facilities.

In Table 4, a value of Available Transfer Capability (ATC) associated with each overloaded facility is included. These values may be used by the Customer to determine lower generation capacity levels that may be installed. When transmission service associated with this interconnection is evaluated, the loading of the facilities listed in this table may be greater due to higher priority reservations. When a facility is overloaded for more than one contingency, only the highest loading on the facility for each season is included in the table.

This facility is currently being studied for transmission service under the SPP OATT. Additional facilities that may be required for delivery from this facility include a 345kV transmission line from the Customer facility to a point on the Tolk – Eddy County 345kV line in addition to other facilities.

There are several other proposed generation additions in the general area of the Customer's facility. Some of the local projects that were previously queued were assumed to be in service in this Feasibility Study. Not all local projects that were previously queued and have advanced to nearly complete phases were included in this Feasibility Study.

Powerflow Analysis Methodology

The Southwest Power Pool (SPP) criteria states that: “The transmission system of the SPP region shall be planned and constructed so that the contingencies as set forth in the Criteria will meet the applicable NERC Planning Standards for System Adequacy and Security – Transmission System Table I hereafter referred to as NERC Table I) and its applicable standards and measurements”.

Using the created models and the ACCC function of PSS/E, single contingencies in portions or all of the modeled control areas of Sunflower Electric Power Corporation (SUNC), Missouri Public Service (MIPU), Westar Energy (WERE), Kansas City Power & Light (KCPL), West Plains (WEPL), Midwest Energy (MIDW), Oklahoma Gas and Electric (OKGE), American Electric Power West (AEPW), Grand River Dam Authority (GRDA), Southwestern Public Service Company (SPS), Western Farmers Electric Cooperative (WFEC) and other control areas were applied and the resulting scenarios analyzed. This satisfies the ‘more probable’ contingency testing criteria mandated by NERC and the SPP criteria.

Powerflow Results

Table 3: Network Constraints

AREA	OVERLOADED ELEMENT
AEPW	CLINTON JUNCTION - ELK CITY 138KV CKT 1
AEPW	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1
AEPW	JERICHO (JERIC2WT) 115/69/14.4KV TRANSFORMER CKT 1
AEPW	SHAMROCK (SHAMRCK1) 115/69/14.4KV TRANSFORMER CKT 1
AEPW	SHAMROCK (SHAMRCK2) 138/69/14.4KV TRANSFORMER CKT 1
AEPW/SPS	ELK CITY - GRAPEVINE INTERCHANGE 230KV CKT 1
AEPW/SPS	SHAMROCK - MCLEAN RURAL SUB 115KV CKT 1
AEPW/WFEC	LAKE PAULINE - RUSSELL 138KV CKT 1
OKGE	SUNNYSIDE (SUNNYS3) 345/138/13.8KV TRANSFORMER CKT 1
SPS	AMOCO SWITCHING STATION - 2007-04 230KV CKT 1
SPS	BAILEY COUNTY REC-EARTH INTERCHANGE - CASTRO COUNTY INTERCHANGE 115KV CKT 1
SPS	BAILEY COUNTY REC-EARTH INTERCHANGE - PLANT X STATION 115KV CKT 1
SPS	BUSHLAND INTERCHANGE 230/115KV TRANSFORMER CKT 1
SPS	CANYON WEST SUB - CANYON EAST SUB 115KV CKT 1
SPS	CANYON WEST SUB - DAWN SUB 115KV CKT 1
SPS	CARGILL SUB - FRIONA SUB 115KV CKT 1
SPS	CARGILL SUB - PARMER COUNTY SUB 115KV CKT 1
SPS	CARLISLE INTERCHANGE - DOUD SUB 115KV CKT 1
SPS	CASTRO COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1
SPS	DAWN SUB - PNDAHFD3 115KV CKT 1
SPS	DEAF SMITH COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1
SPS	DEAF SMITH REC-#20 - CURRY COUNTY INTERCHANGE 115KV CKT 1
SPS	DENVER CITY INTERCHANGE N. - SHELL #7 SUB 115KV CKT 1
SPS	DOUD SUB - SOUTH PLAINS REC-YUMA 115KV CKT 1
SPS	EL PASO SUB - SHELL #7 SUB 115KV CKT 1
SPS	EL PASO SUB - SHELL CO2 GAS SUB 115KV CKT 1
SPS	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1
SPS	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1
SPS	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2
SPS	HEREFORD INTERCHANGE - FRIONA SUB 115KV CKT 1
SPS	LAMB COUNTY REC-SOUTH OLTON - LAMTON INTERCHANGE 115KV CKT 1
SPS	LAMB COUNTY REC-SOUTH OLTON - PLANT X STATION 115KV CKT 1
SPS	LUBBOCK POWER & LIGHT-WADSWORTH 230/69KV TRANSFORMER CKT 1
SPS	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
SPS	MCCLELLAN SUB - KIRBY SWITCHING STATION 115KV CKT 1
SPS	MCCLELLAN SUB - MCLEAN RURAL SUB 115KV CKT 1
SPS	OSAGE SWITCHING STATION - CANYON EAST SUB 115KV CKT 1
SPS	PARMER COUNTY SUB - DEAF SMITH REC-#20 115KV CKT 1
SPS	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
SPS	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
SPS	PLANT X STATION 230/115KV TRANSFORMER CKT 1
SPS	PNDAHFD3 - HEREFORD INTERCHANGE 115KV CKT 1
SPS	POTTER (POTTR CO) 345/230/13.2KV TRANSFORMER CKT 1
SPS	SOUTH PLAINS REC-YUMA - WOLFFORTH INTERCHANGE 115KV CKT 1
SPS	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
SPS	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
SPS	TUCO (TUCOX4) 345/230/13.2KV TRANSFORMER CKT 1
SPS	TULIA TAP - KRESS INTERCHANGE 115KV CKT 1
SPS	WOLFFORTH INTERCHANGE - TERRY COUNTY INTERCHANGE 115KV CKT 1
SPS	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
SUNC/WEPL	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1
AEPW	American Electric Power West
OKGE	Oklahoma Gas and Electric
SPS	Southwestern Public Service Company
SUNC	Sunflower Electric Power Corporation

WEPL	West Plains
WFEC	Western Farmers Electric Cooperative

Table 4: Contingency Analysis

SEASON	OVERLOADED ELEMENT	RATING (MVA)	LOADING (%)	ATC (MW)	CONTINGENCY
12SP	DOUD SUB - SOUTH PLAINS REC-YUMA 115KV CKT 1	161	179	0	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12SP	SOUTH PLAINS REC-YUMA - WOLFFORTH INTERCHANGE 115KV CKT 1	197	157	0	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12SP	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1	150	148	0	2007-04 - AMOCO SWITCHING STATION 230KV CKT 1
12SP	BAILEY COUNTY REC-EARTH INTERCHANGE - PLANT X STATION 115KV CKT 1	161	136	0	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12SP	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1	635	110	0	HARRNG_MID6 - NICHOLS STATION 230KV CKT 2
12SP	HARRNG_MID6 - NICHOLS STATION 230KV CKT 2	635	110	0	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1
12SP	CARLISLE INTERCHANGE - DOUD SUB 115KV CKT 1	161	161	11	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12SP	PLANT X STATION 230/115KV TRANSFORMER CKT 1	252	125	114	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12SP	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	497	136	139	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
12SP	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	497	135	147	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
12SP	DEAF SMITH REC-#20 - CURRY COUNTY INTERCHANGE 115KV CKT 1	99	132	181	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12SP	EL PASO SUB - SHELL #7 SUB 115KV CKT 1	161	110	190	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
12SP	DENVER CITY INTERCHANGE N. - SHELL #7 SUB 115KV CKT 1	161	110	190	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
12SP	TERRY COUNTY INTERCHANGE - WOLFFORTH INTERCHANGE 115KV CKT 1	197	129	232	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12SP	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1	497	120	242	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12SP	SUNNYSIDE (SUNNYS3) 345/138/13.8KV TRANSFORMER CKT 1	330	104	264	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12SP	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	139	277	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12SP	LAMB COUNTY REC-SOUTH OLTON - PLANT X STATION 115KV CKT 1	161	113	287	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12SP	SHAMROCK (SHAMRCK1) 115/69/14.4KV TRANSFORMER CKT 1	69	126	309	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12SP	PNDAHFD3 - HEREFORD INTERCHANGE 115KV CKT 1	99	126	322	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12SP	BAILEY COUNTY REC-EARTH INTERCHANGE - CASTRO COUNTY INTERCHANGE 115KV CKT 1	161	114	323	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12SP	PARMER COUNTY SUB - DEAF SMITH REC-#20 115KV CKT 1	99	115	376	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12SP	EL PASO SUB - SHELL CO2 GAS SUB 115KV CKT 1	161	105	394	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
12SP	ELK CITY - GRAPEVINE INTERCHANGE 230KV CKT 1	351	114	428	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12SP	CARGILL SUB - PARMER COUNTY SUB 115KV CKT 1	99	110	431	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12SP	DAWN SUB - PNDAHFD3 115.00 115KV CKT 1	99	113	433	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12SP	LAMB COUNTY REC-SOUTH OLTON - LAMTON INTERCHANGE 115KV CKT 1	161	106	434	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12SP	MCCLELLAN SUB - KIRBY SWITCHING STATION 115KV CKT 1	90	110	438	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1

TABLE 4: Contingency Analysis (continued)

SEASON	OVERLOADED ELEMENT	RATING (MVA)	LOADING (%)	ATC (MW)	CONTINGENCY
12SP	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1	497	106	449	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12SP	CANYON WEST SUB - DAWN SUB 115KV CKT 1	99	110	461	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12SP	TUCO (TUCOXX4) 345/230/13.2KV TRANSFORMER CKT 1	560	113	463	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12SP	MCCLELLAN SUB - MCLEAN RURAL SUB 115KV CKT 1	90	107	464	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12SP	AMOCO SWITCHING STATION - 2007-04 230KV CKT 1	452	105	470	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12SP	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1	336	101	538	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12SP	JERICHO (JERIC2WT) 115/69/14.4KV TRANSFORMER CKT 1	46	101	539	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12SP	MCCLELLAN SUB - KIRBY SWITCHING STATION 115KV CKT 1	90	100	547	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12SP	CARGILL SUB - FRIONA SUB 115KV CKT 1	99	100	547	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12WP	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	186	0	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	ELK CITY - GRAPEVINE INTERCHANGE 230KV CKT 1	351	185	0	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	DOUD SUB - SOUTH PLAINS REC-YUMA 115KV CKT 1	195	181	0	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12WP	CARLISLE INTERCHANGE - DOUD SUB 115KV CKT 1	195	170	0	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12WP	SOUTH PLAINS REC-YUMA - WOLFFORTH INTERCHANGE 115KV CKT 1	235	155	0	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12WP	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1	150	136	0	2007-04 - AMOCO SWITCHING STATION 230KV CKT 1
12WP	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	606	151	11	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
12WP	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	606	150	19	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
12WP	WOLFFORTH INTERCHANGE - TERRY COUNTY INTERCHANGE 115KV CKT 1	235	137	125	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
12WP	PNDAHFD3 - HEREFORD INTERCHANGE 115KV CKT 1	118	157	145	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12WP	CLINTON JUNCTION - ELK CITY 138KV CKT 1	143	137	159	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	SHAMROCK (SHAMRCK2) 138/69/14.4KV TRANSFORMER CKT 1	69	135	170	ELK CITY - GRAPEVINE INTERCHANGE 230KV CKT 1
12WP	SHAMROCK (SHAMRCK1) 115/69/14.4KV TRANSFORMER CKT 1	69	130	179	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12WP	TUCO (TUCOXX4) 345/230/13.2KV TRANSFORMER CKT 1	560	145	207	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12WP	JERICHO (JERIC2WT) 115/69/14.4KV TRANSFORMER CKT 1	46	127	213	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	DAWN SUB - PNDAHFD3 115KV CKT 1	118	146	221	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12WP	CANYON WEST SUB - DAWN SUB 115KV CKT 1	118	144	235	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12WP	PLANT X STATION 230/115KV TRANSFORMER CKT 1	252	112	262	LAMB COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
12WP	POTTER (POTTR CO) 345/230/13.2KV TRANSFORMER CKT 1	560	132	270	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
SEASON	OVERLOADED ELEMENT	RATING	LOADING	ATC	CONTINGENCY

TABLE 4: Contingency Analysis (continued)

		(MVA)	(%)	(MW)	
12WP	MCCLELLAN SUB - KIRBY SWITCHING STATION 115KV CKT 1	107	117	309	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	CANYON WEST SUB - CANYON EAST SUB 115KV CKT 1	118	133	313	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12WP	DEAF SMITH REC-#20 - CURRY COUNTY INTERCHANGE 115KV CKT 1	118	124	320	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12WP	PARMER COUNTY SUB - DEAF SMITH REC-#20 115KV CKT 1	118	124	324	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12WP	MCCLELLAN SUB - MCLEAN RURAL SUB 115KV CKT 1	107	116	333	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	CARGILL SUB - PARMER COUNTY SUB 115KV CKT 1	118	121	353	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12WP	OSAGE SWITCHING STATION - CANYON EAST SUB 115KV CKT 1	118	126	359	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
12WP	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1	606	116	370	HOLCOMB - SPEARVILLE 345KV CKT 1
12WP	AMOCO SWITCHING STATION - 2007-04 230KV CKT 1	452	110	381	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12WP	BUSHLAND INTERCHANGE 230/115KV TRANSFORMER CKT 1	188	112	390	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
12WP	CARGILL SUB - FRIONA SUB 115KV CKT 1	118	116	401	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12WP	GRAPEVINE INTERCHANGE - NICHOLS STATION 230KV CKT 1	606	112	407	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1	606	109	407	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12WP	SHAMROCK - MCLEAN RURAL SUB 115KV CKT 1	107	109	419	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
12WP	LAKE PAULINE - RUSSELL 138KV CKT 1	72	110	430	ELK CITY - GRAPEVINE INTERCHANGE 230KV CKT 1
12WP	HEREFORD INTERCHANGE - FRIONA SUB 115KV CKT 1	118	112	437	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
12WP	HEREFORD INTERCHANGE - PNDAHFD3 115.00 115KV CKT 1	118	110	441	BUSHLAND INTERCHANGE - POTTER COUNTY INTERCHANGE 230KV CKT 1
12WP	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1	606	103	504	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
12WP	TULIA TAP - KRESS INTERCHANGE 115KV CKT 1	118	101	545	TUCO INTERCHANGE (TUCO XX4) 345/230/13.2KV TRANSFORMER CKT 1
17SP	DOUD SUB - SOUTH PLAINS REC-YUMA 115KV CKT 1	161	177	0	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
17SP	SOUTH PLAINS REC-YUMA - WOLFFORTH INTERCHANGE 115KV CKT 1	197	156	0	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
17SP	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1	150	152	0	2007-04 - AMOCO SWITCHING STATION 230KV CKT 1
17SP	BAILEY COUNTY REC-EARTH INTERCHANGE - PLANT X STATION 115KV CKT 1	161	138	0	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
17SP	DEAF SMITH COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	161	126	0	BAILEY COUNTY REC-EARTH INTERCHANGE - PLANT X STATION 115KV CKT 1
17SP	EL PASO SUB - SHELL #7 SUB 115KV CKT 1	161	114	63	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
SEASON	OVERLOADED ELEMENT	RATING (MVA)	LOADING (%)	ATC (MW)	CONTINGENCY

TABLE 4: Contingency Analysis (continued)

17SP	DENVER CITY INTERCHANGE N. - SHELL #7 SUB 115KV CKT 1	161	114	63	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
17SP	CASTRO COUNTY INTERCHANGE - DEAF SMITH REC-#21 115KV CKT 1	161	114	84	BAILEY COUNTY REC-EARTH INTERCHANGE - PLANT X STATION 115KV CKT 1
17SP	CARLISLE INTERCHANGE - DOUD SUB 115KV CKT 1	161	157	99	LUBBOCK SOUTH INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
17SP	PLANT X STATION - TOLK STATION WEST 230KV CKT 1	497	129	184	PLANT X STATION - TOLK STATION EAST 230KV CKT 2
17SP	PLANT X STATION - TOLK STATION EAST 230KV CKT 2	497	128	193	PLANT X STATION - TOLK STATION WEST 230KV CKT 1
17SP	DEAF SMITH REC-#20 - CURRY COUNTY INTERCHANGE 115KV CKT 1	99	127	195	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
17SP	PLANT X STATION 230/115KV TRANSFORMER CKT 1	252	117	200	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
17SP	LAMB COUNTY REC-SOUTH OLTON - PLANT X STATION 115KV CKT 1	161	116	202	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
17SP	BAILEY COUNTY REC-EARTH INTERCHANGE - CASTRO COUNTY INTERCHANGE 115KV CKT 1	161	115	266	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
17SP	TERRY COUNTY INTERCHANGE - WOLFFORTH INTERCHANGE 115KV CKT 1	197	127	272	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
17SP	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1	497	119	284	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1
17SP	ELK CITY 230KV (ELKCTY-6) 230/138/13.8KV TRANSFORMER CKT 1	287	134	291	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
17SP	EL PASO SUB - SHELL CO2 GAS SUB 115KV CKT 1	161	107	299	YOAKUM COUNTY INTERCHANGE 230/115KV TRANSFORMER CKT 1
17SP	SHAMROCK (SHAMRCK1) 115/69/14.4KV TRANSFORMER CKT 1	69	125	313	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
17SP	LUBBOCK POWER & LIGHT-WADSWORTH 230/69KV TRANSFORMER CKT 1	100	109	365	LUBBOCK POWER & LIGHT-SOUTHEAST - LUBBOCK SOUTH INTERCHANGE 230KV CKT 1
17SP	LAMB COUNTY REC-SOUTH OLTON - LAMTON INTERCHANGE 115KV CKT 1	161	108	380	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
17SP	MCCLELLAN SUB - KIRBY SWITCHING STATION 115KV CKT 1	90	111	425	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
17SP	PNDHF3 - HEREFORD INTERCHANGE 115KV CKT 1	99	112	429	BUSHLAND INTERCHANGE - DEAF SMITH COUNTY INTERCHANGE 230KV CKT 1
17SP	ELK CITY - GRAPEVINE INTERCHANGE 230KV CKT 1	351	113	436	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
17SP	AMOCO SWITCHING STATION - 2007-04 230KV CKT 1	452	105	451	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
17SP	MCCLELLAN SUB - MCLEAN RURAL SUB 115KV CKT 1	90	108	452	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
17SP	PARMER COUNTY SUB - DEAF SMITH REC-#20 115KV CKT 1	99	107	455	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1
17SP	SUNDOWN INTERCHANGE - WOLFFORTH INTERCHANGE 230KV CKT 1	497	106	468	TOLK STATION EAST - TUCO INTERCHANGE 230KV CKT 1
17SP	TUCO (TUCOXX4) 345/230/13.2KV TRANSFORMER CKT 1	560	107	497	FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
17SP	CARGILL SUB - PARMER COUNTY SUB 115KV CKT 1	99	102	522	DEAF SMITH COUNTY INTERCHANGE - PLANT X STATION 230KV CKT 1

Note: When transmission service associated with this interconnection is evaluated, the loading of the facilities listed in this Table may be greater due to higher priority reservations. If the loading of a facility is higher, the level of ATC will be lower.

Conclusion

The minimum cost of interconnecting the Customer's interconnection request is estimated at \$56,500,000 for Direct Assignment Facilities and Network Upgrades. At this time, the cost estimates for other Direct Assignment facilities including those in Tables 1 and 2 have not been defined by the Customer. As stated earlier, some but not all of the local projects that were previously queued are assumed to be in service in this Feasibility Study. These costs exclude upgrades of other transmission facilities that were listed in Table 3 of which are Network Constraints.

In Table 4, a value of Available Transfer Capability (ATC) associated with each overloaded facility is included. These values may be used by the Customer to determine lower generation capacity levels that may be installed. When transmission service associated with this interconnection is evaluated, the loading of the facilities listed in this table may be greater due to higher priority reservations. When a facility is overloaded for more than one contingency, only the highest loading on the facility for each season is included in the table.

These interconnection costs do not include any cost that may be associated with short circuit or transient stability analysis. These studies will be performed if the Customer signs a System Impact Study Agreement. At the time of the System Impact Study, a better determination of the interconnection facilities may be available.

The required interconnection costs listed in Tables 1 and 2 and other upgrades associated with Network Constraints do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request through Southwest Power Pool's OASIS.

Appendix A: Point of Interconnection Area Map

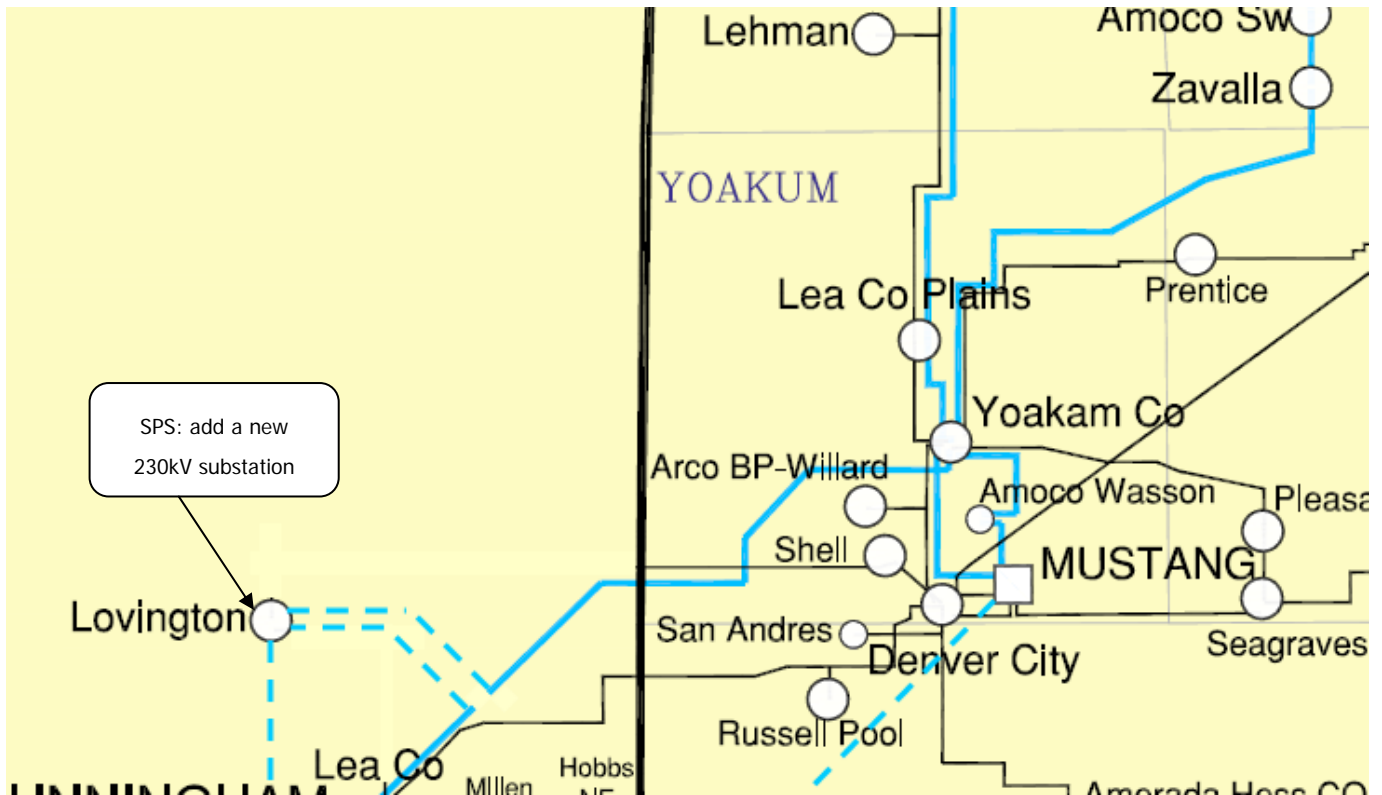


Figure 2: Point of Interconnection Area Map