



**Feasibility Study
For
Generation Interconnection
Request
GEN-2007-040**

SPP Tariff Studies
(#GEN-2007-040)

April, 2008

Executive Summary

<OMITTED TEXT> (Customer) has requested a Feasibility Study for the purpose of interconnecting 500 MW of wind generation within the control area of Sunflower Electric Power Corporation (SUNC) located in Gray County, Kansas. The proposed interconnection point is on the existing Holcomb – Spearville 345 kV transmission line, owned by SUNC. The proposed in-service date is December, 2010.

Power flow analysis has indicated that for the powerflow cases studied, it is possible to interconnect the 500 MW of generation with transmission system reinforcements within the local transmission system. The need for reactive compensation for this interconnection request will be evaluated in the Impact Study based on the wind turbine manufacturer and type requested by the Customer. Dynamic Stability studies performed as part of the System Impact Study will provide additional guidance as to whether the required reactive compensation can be static or a portion must be dynamic (such as a SVC).

The requirement to interconnect the 500 MW of wind generation on the existing Holcomb – Spearville 345kV transmission line consists of adding a new 345 kV three-breaker ring-bus switching station. The new station will be constructed and maintained by SUNC. The Customer did not propose a specific route for the 345 kV line extending to serve its 345/34.5 kV collection facilities. It is assumed that obtaining all necessary right-of-way for the new transmission line to serve its facilities will not be a significant expense.

It has been tentatively determined that GEN-2007-040 along with the prior queued projects in the area cannot be interconnected without the addition of both the proposed 345kV line from Spearville – Wichita and the proposed 345kV line from Spearville – Axtell. The Spearville – Wichita line has been assigned to the Customer for GEN-2005-012. The Spearville – Axtell 345kV line is tentatively being assigned to the Customer for GEN-2007-040. Withdrawal or suspension of any prior queued projects in the local area will determine a restudy to evaluate the new assignees of such network upgrades.

The total minimum cost for building the required facilities for this 500 MW of generation is \$6,275,000. These costs are shown in Tables 1 and 2. This cost does not include building the 345 kV line from the Customer 345/34.5 kV collector substation into the point of interconnection. This cost also does not include the Customer's 345/34.5 kV collector substation or possible need for reactive compensation. Network constraints in the Sunflower Electric Power Corporation (SUNC) transmission systems that were identified are shown in Table 3. The cost of the Spearville – Axtell 345kV line has an approximate cost of \$189,000,000.

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.

Contents

Introduction	5
Interconnection Facilities	5
Interconnection Estimated Costs	7
Powerflow Analysis	9
Powerflow Analysis Methodology	10
Powerflow Results.....	11
Conclusion	14
Appendix A: Point of Interconnection Area Map.....	15

Tables

Table 1: Direct Assignment Facilities	8
Table 2: Required Interconnection Network Upgrade Facilities.....	8
Table 3: Network Constraints.....	11
Table 4: Contingency Analysis	12

Figures

Figure 1: Proposed Method of Interconnection	6
Figure 2: Point of Interconnection Area Map	15

Introduction

<OMITTED TEXT> (Customer) has requested a Feasibility Study for the purpose of interconnecting 500 MW of wind generation within the control area of Sunflower Electric Power Corporation (SUNC) located in Gray County, Kansas. The proposed interconnection point is on the existing Holcomb – Spearville 345 kV transmission line, owned by SUNC. The proposed in-service date is December, 2010.

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 500 MW of wind generation on the existing Holcomb – Spearville 345 kV transmission line consists of adding a new 345 kV three-breaker ring-bus switching station. The new station will be constructed and maintained by SUNC. The Customer did not propose a specific route for the 345 kV line extending to serve its 345/34.5 kV collection facilities. It is assumed that obtaining all necessary right-of-way for the new transmission line to serve its facilities will not be a significant expense.

It was determined that a base case powerflow model could not be created to include the Customer's interconnection request without the addition of the Spearville – Axtell 345kV transmission line. The Customer is tentatively being assigned this Network Upgrade

Other Network Constraints in the Sunflower Electric Power Corporation 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.

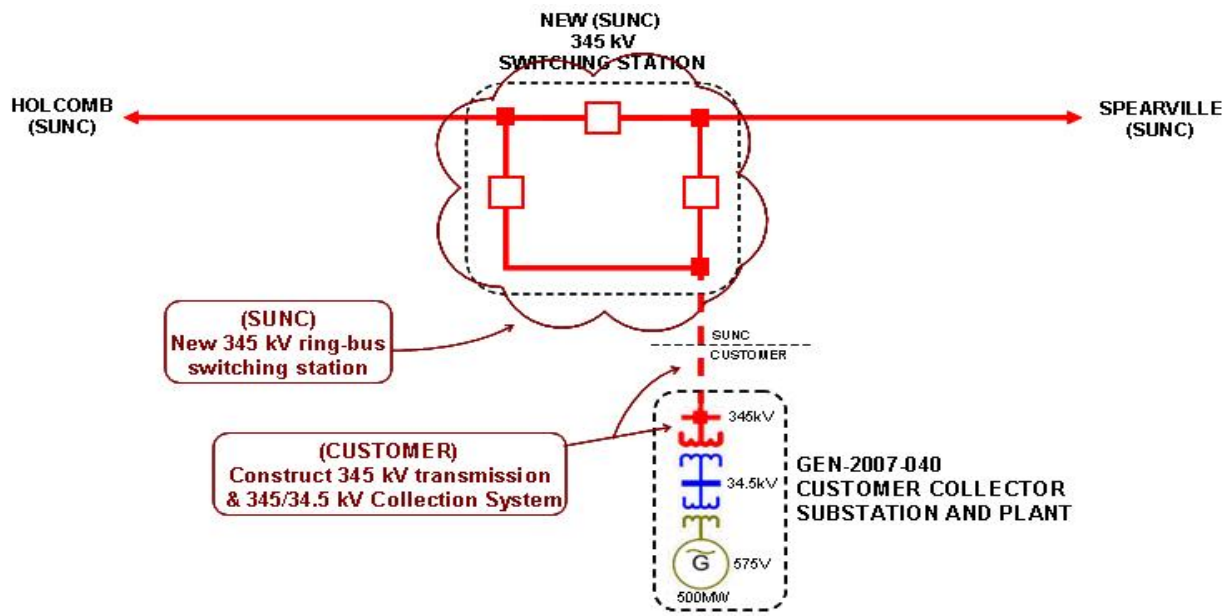


Figure 1: Proposed Method of Interconnection
 (Final design to be determined)

Interconnection Estimated Costs

The minimum cost for adding a new 345 kV three-breaker ring-bus switching station serving GEN-2007-040 facilities is estimated at \$6,275,000. 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 345 kV transmission line extending from the point of interconnection to serve its 345/34.5 kV collection facilities. This cost also does not include the Customer's 345/34.5 kV collector substation or the possible need for reactive compensation, all of which should be determined by the Customer. The Customer is responsible for these 345 kV – 34.5 kV facilities up to the point of interconnection.

It has been tentatively determined that GEN-2007-040 along with the prior queued projects in the area cannot be interconnected without the addition of both the proposed 345kV line from Spearville – Wichita and the proposed 345kV line from Spearville – Axtell. The Spearville – Wichita line has been assigned to the Customer for GEN-2005-012. The Spearville – Axtell 345kV line is tentatively being assigned to the Customer for GEN-2007-040. Withdrawal or suspension of any prior queued projects in the local area will require a restudy to evaluate the new assignees of such network upgrades. The cost of the 345kV line from Spearville – Axtell is \$189,000,000.

The costs of interconnecting the facility to the SUNC 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 – 345/34.5 kV substation facilities.	*
CUSTOMER – 345 kV line between Customer substation and new SUNC 345 kV three-breaker ring-bus switching station.	*
CUSTOMER – Possible reactive compensation to be determined during impact study.	*
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)
SUNC – 345 kV three-breaker ring-bus switching station to be built for generation request #GEN-2007-040 on the Holcomb – Spearville 345 kV transmission line. Work to include associated switches, control relaying, high speed communications, metering and related equipment and all related structures.	\$6,275,000
345kV Transmission line from Spearville (SUNC) to Axtell (NPPD)	\$189,000,000
TOTAL	\$195,275,000

* Estimates of cost to be determined.

Powerflow Analysis

A powerflow analysis was conducted for the facility using modified versions of the 2012 summer and winter peak models 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 August, 2010. 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 500 MW and location, additional criteria violations will occur on the existing SUNC 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.

The need for reactive compensation will be determined during the Impact Study. The need for reactive compensation will be based on the Customer's choice of wind turbine make and manufacturer. Dynamic Stability studies performed as part of the System Impact Study will provide additional guidance as to whether the reactive compensation can be static or a portion must be dynamic (such as a SVC or STATCOM). It is possible that an SVC or STATCOM device will be required at the Customer facility because of FERC Order 661A Low Voltage Ride-Through Provisions (LVRT) which went into effect January 1, 2006. FERC Order 661A orders that wind farms stay on-line for 3-phase faults at the point of interconnection even if that requires the installation of a SVC or STATCOM device.

It was determined that a base case powerflow model could not be created to include the Customer's interconnection request without the addition of the Spearville – Axtell 345kV transmission line. The Customer is tentatively being assigned this Network Upgrade

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
MIDW/WEPL	ST JOHN - ST_JOHN 115KV CKT 1
SPS	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1
SPS	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2
SPS	POTTER COUNTY INTERCHANGE (POTTR CO) 345/230/13.2KV TRANSFORMER CKT 1
SPS	TEXAS COUNTY INTERCHANGE - TEXAS COUNTY INTERCHANGE PHASE SHIFT TFMR115KV CKT 1
SPS/WEPL	TEXAS COUNTY INTERCHANGE PHASE SHIFT TFMR - EAST LIBERAL 115KV CKT 1
SUNC	PIONNER TAP - PLYMELL 115KV CKT 1
SUNC	PLYMELL - HOLCOMB 115KV CKT 1
SUNC/WEPL	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1
WEPL	2001-39A - GREENSBURG 115KV CKT 1
WEPL	CIMARRON RIVER PLANT - NORTH LIBERAL TAP 115KV CKT 1
WEPL	CIMARRON RIVER TAP - CIMARRON RIVER PLANT 115KV CKT 1
WEPL	CIMARRON RIVER TAP - CUDAHY 115KV CKT 1
WEPL	CIMARRON RIVER TAP - EAST LIBERAL 115KV CKT 1
WEPL	CUDAHY - JUDSON LARGE 115KV CKT 1
WEPL	GREENSBURG - SUN CITY 115KV CKT 1
WEPL	HARPER - 2006-21T 138KV CKT 1
WEPL	HARPER - MILAN TAP 138KV CKT 1
WEPL	MEDICINE LODGE - 2006-21T 138KV CKT 1
WEPL	MEDICINE LODGE - PRATT 115KV CKT 1
WEPL	MEDICINE LODGE - SUN CITY 115KV CKT 1
WEPL	MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1
WEPL	MULLERGREN - SPEARVILLE 230KV CKT 1
WEPL	SEWARD - ST_JOHN 115KV CKT 1
WEPL	SPEARVILLE - NORTH JUDSON LARGE SUB 115KV CKT 1
WEPL/MIDW	MULLERGREN - S HAYS6 230KV CKT 1
WERE	CHISHOLM - EVANS ENERGY CENTER NORTH 138KV CKT 1
WERE	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1
WERE	LAWRENCE HILL - LAWRENCE ENERGY CENTER UNIT 5 230KV CKT 1
WERE	LAWRENCE HILL (LAWHL29X) 230/115/13.8KV TRANSFORMER CKT 1
WERE/WEPL	CIRCLE - MULLERGREN 230KV CKT 1
WERE/WEPL	CLEARWATER - MILAN TAP 138KV CKT 1
MIDW	Midwest Energy
SPS	Southwestern Public Service Company
SUNC	Sunflower Electric Power Corporation
WEPL	West Plains
WERE	Westar Energy

Table 4: Contingency Analysis

SEASON	OVERLOADED ELEMENT	RATING (MVA)	LOADING (%)	ATC (MW)	CONTINGENCY
12SP	HARPER - 2006-21T 138KV CKT 1	72	271	0	SPEARVILLE - WICHITA 345KV CKT 1
12SP	HARPER - MILAN TAP 138KV CKT 1	96	189	0	SPEARVILLE - WICHITA 345KV CKT 1
12SP	MEDICINE LODGE - PRATT 115KV CKT 1	80	179	0	HARPER - MILAN TAP 138KV CKT 1
12SP	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1	336	179	0	MULLERGREN - SPEARVILLE 230KV CKT 1
12SP	CUDAHY - JUDSON LARGE 115KV CKT 1	130	170	0	SPEARVILLE (SPEARVL6) 230/115/13.8KV TRANSFORMER CKT 1
12SP	MULLERGREN - SPEARVILLE 230KV CKT 1	355	166	0	KNOLL - SPEARVILLE 345KV CKT 1
12SP	MULLERGREN - S HAYS6 230KV CKT 1	147	154	0	KNOLL - SPEARVILLE 345KV CKT 1
12SP	2001-39A - GREENSBURG 115KV CKT 1	130	153	0	SPEARVILLE (SPEARVL6) 230/115/13.8KV TRANSFORMER CKT 1
12SP	CLEARWATER - MILAN TAP 138KV CKT 1	110	152	0	SPEARVILLE - WICHITA 345KV CKT 1
12SP	LAWRENCE HILL - LAWRENCE ENERGY CENTER UNIT 5 230KV CKT 1	478	150	0	SPEARVILLE - WICHITA 345KV CKT 1
12SP	ST JOHN - ST_JOHN 115KV CKT 1	88	144	0	SPEARVILLE - WICHITA 345KV CKT 1
12SP	GREENSBURG - SUN CITY 115KV CKT 1	130	144	0	SPEARVILLE (SPEARVL6) 230/115/13.8KV TRANSFORMER CKT 1
12SP	CIMARRON RIVER TAP - CUDAHY 115KV CKT 1	130	139	0	SPEARVILLE (SPEARVL6) 230/115/13.8KV TRANSFORMER CKT 1
12SP	POTTER COUNTY INTERCHANGE (POTTR CO) 345/230/13.2KV TRANSFORMER CKT 1	560	136	0	SPEARVILLE - WICHITA 345KV CKT 1
12SP	CIMARRON RIVER PLANT - NORTH LIBERAL TAP 115KV CKT 1	115	122	0	CIMARRON RIVER TAP - EAST LIBERAL 115KV CKT 1
12SP	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1	635	120	0	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2
12SP	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2	635	120	0	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1
12SP	TEXAS COUNTY INTERCHANGE PHASE SHIFT TFMR - EAST LIBERAL 115KV CKT 1	119	130	13	LAMAR - FINNEY 345KV CKT 1; FINNEY - POTTER 345KV CKT 1
12SP	CIMARRON RIVER TAP - EAST LIBERAL 115KV CKT 1	120	118	46	CIMARRON RIVER PLANT - NORTH LIBERAL TAP 115KV CKT 1
12SP	CIRCLE - MULLERGREN 230KV CKT 1	319	128	115	SPEARVILLE - WICHITA 345KV CKT 1
12SP	CHISHOLM - EVANS ENERGY CENTER NORTH 138KV CKT 1	382	104	137	BENTON - WICHITA 345KV CKT 1
12SP	MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1	65	128	163	SPEARVILLE - WICHITA 345KV CKT 1
12SP	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1	110	127	168	SPEARVILLE - WICHITA 345KV CKT 1
12SP	PLYMELL - HOLCOMB 115KV CKT 1	143	110	191	FLETCHER - HOLCOMB 115KV CKT 1
12SP	SEWARD - ST_JOHN 115KV CKT 1	80	113	280	SPEARVILLE - WICHITA 345KV CKT 1
12SP	MEDICINE LODGE - 2006-21T 138KV CKT 1	72	116	289	SPEARVILLE - WICHITA 345KV CKT 1
12SP	PIONNER TAP - PLYMELL 115KV CKT 1	143	106	306	FLETCHER - HOLCOMB 115KV CKT 1
12SP	TEXAS COUNTY INTERCHANGE - TEXAS COUNTY INTERCHANGE PHASE SHIFT TFMR115KV CKT 1	146	106	382	LAMAR - FINNEY 345KV CKT 1; FINNEY - POTTER 345KV CKT 1
12SP	SPEARVILLE - NORTH JUDSON LARGE SUB 115KV CKT 1	178	102	421	CIMARRON RIVER TAP - CUDAHY 115KV CKT 1
12SP	CIMARRON RIVER TAP - CIMARRON RIVER PLANT 115KV CKT 1	90	102	469	2007-40T - HOLCOMB 345KV CKT 1
12WP	NO SOLUTION OBTAINED				FINNEY SWITCHING STATION - HOLCOMB 345KV CKT 1
12WP	NO SOLUTION OBTAINED				SPEARVILLE - WICHITA 345KV CKT 1
12WP	NO SOLUTION OBTAINED				LAMAR - FINNEY 345KV CKT 1; FINNEY - POTTER 345KV CKT 1
12WP	HARPER - 2006-21T 138KV CKT 1	72	263	0	MEDICINE LODGE - PRATT 115KV CKT 1
12WP	MEDICINE LODGE - SUN CITY 115KV CKT 1	80	213	0	NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 1
12WP	MEDICINE LODGE - PRATT 115KV CKT 1	80	196	0	HARPER 138/0.0KV TRANSFORMER CKT 1
12WP	HARPER - MILAN TAP 138KV CKT 1	96	183	0	MEDICINE LODGE - PRATT 115KV CKT 1
12WP	CLEARWATER - MILAN TAP 138KV CKT 1	110	148	0	MEDICINE LODGE - PRATT 115KV CKT 1
12WP	ST JOHN - ST_JOHN 115KV CKT 1	88	137	0	HARPER 138/0.0KV TRANSFORMER CKT 1

TABLE 4: Contingency Analysis (continued)

SEASON	OVERLOADED ELEMENT	RATING (MVA)	LOADING (%)	ATC (MW)	CONTINGENCY
12WP	CLEARWATER - GILL ENERGY CENTER WEST 138KV CKT 1	110	136	0	MEDICINE LODGE - PRATT 115KV CKT 1
12WP	MULLERGREN - S HAYS6 230KV CKT 1	147	132	0	KNOLL - SPEARVILLE 345KV CKT 1
12WP	POTTER COUNTY INTERCHANGE (POTTR CO) 345/230/13.2KV TRANSFORMER CKT 1	560	112	168	GEN525562 1
12WP	MULLERGREN - SPEARVILLE 230KV CKT 1	471	115	173	KNOLL - SPEARVILLE 345KV CKT 1
12WP	SEWARD - ST JOHN 115KV CKT 1	80	113	197	2001-39A 115115.00 - GREENSBURG 115KV CKT 1
12WP	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1	706	103	209	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2
12WP	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2	706	103	231	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1
12WP	2001-39A - GREENSBURG 115KV CKT 1	130	106	267	NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 1
12WP	CUDAHY - JUDSON LARGE 115KV CKT 1	159	109	307	2007-40T - HOLCOMB 345KV CKT 1
12WP	MEDICINE LODGE - 2006-21T 138KV CKT 1	72	105	398	NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 1
12WP	GREENSBURG - SUN CITY 115KV CKT 1	130	102	426	NORTH JUDSON LARGE SUB - SPEARVILLE 115KV CKT 1
17SP	HARPER - 2006-21T 138KV CKT 1	72	238	0	MEDICINE LODGE - PRATT 115KV CKT 1
17SP	MEDICINE LODGE - SUN CITY 115KV CKT 1	80	186	0	SPEARVILLE - WICHITA 345KV CKT 1
17SP	MULLERGREN - S HAYS6 230KV CKT 1	147	175	0	KNOLL - SPEARVILLE 345KV CKT 1
17SP	SPEARVILLE (SPEARVL) 345/230/13.8KV TRANSFORMER CKT 1	336	166	0	MULLERGREN - SPEARVILLE 230KV CKT 1
17SP	HARPER - MILAN TAP 138KV CKT 1	96	161	0	SPEARVILLE - WICHITA 345KV CKT 1
17SP	MULLERGREN - SPEARVILLE 230KV CKT 1	355	159	0	KNOLL - SPEARVILLE 345KV CKT 1
12SP	CUDAHY - JUDSON LARGE 115KV CKT 1	130	144	0	2007-40T - HOLCOMB 345KV CKT 1
12SP	CIMARRON RIVER TAP - CUDAHY 115KV CKT 1	130	137	0	2007-40T - HOLCOMB 345KV CKT 1
17SP	2001-39A - GREENSBURG 115KV CKT 1	130	128	0	SPEARVILLE - WICHITA 345KV CKT 1
17SP	CIMARRON RIVER PLANT - NORTH LIBERAL TAP 115KV CKT 1	115	123	0	CIMARRON RIVER TAP - EAST LIBERAL 115KV CKT 1
17SP	CIMARRON RIVER TAP - EAST LIBERAL 115KV CKT 1	120	119	0	CIMARRON RIVER PLANT - NORTH LIBERAL TAP 115KV CKT 1
17SP	PLYMELL - HOLCOMB 115KV CKT 1	143	117	0	FLETCHER - HOLCOMB 115KV CKT 1
17SP	CHISHOLM - EVANS ENERGY CENTER NORTH 138KV CKT 1	382	115	0	BENTON - WICHITA 345KV CKT 1
17SP	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1	635	107	0	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2
17SP	HARRNG_MID6 230.00 - NICHOLS STATION 230KV CKT 2	635	107	2	HARRINGTON STATION - NICHOLS STATION 230KV CKT 1
17SP	ST JOHN - ST_JOHN 115KV CKT 1	88	120	10	HARPER - 2006-21T 138KV CKT 1
17SP	POTTER COUNTY INTERCHANGE (POTTR CO) 345/230/13.2KV TRANSFORMER CKT 1	560	123	67	SPEARVILLE - WICHITA 345KV CKT 1
17SP	CLEARWATER - MILAN TAP 138KV CKT 1	110	127	77	SPEARVILLE - WICHITA 345KV CKT 1
17SP	PIONEER TAP - PLYMELL 115KV CKT 1	143	113	105	FLETCHER - HOLCOMB 115KV CKT 1
17SP	TEXAS COUNTY INTERCHANGE PHASE SHIFT TFMR 115KV CKT 1 - EAST LIBERAL 115KV CKT 1	119	123	112	LAMAR - FINNEY 345KV CKT 1; FINNEY - POTTER 345KV CKT 1
17SP	GREENSBURG - SUN CITY 115KV CKT 1	130	119	123	SPEARVILLE - WICHITA 345KV CKT 1
17SP	LAWRENCE HILL - LAWRENCE ENERGY CENTER UNIT 5 230KV CKT 1	478	149	143	SPEARVILLE - WICHITA 345KV CKT 1
17SP	LAWRENCE HILL (LAWHL29X) 230/115/13.8KV TRANSFORMER CKT 1	308	113	252	SPEARVILLE - WICHITA 345KV CKT 1
12SP	CIMARRON RIVER TAP - CIMARRON RIVER PLANT 115KV CKT 1	90	111	318	2007-40T - HOLCOMB 345KV CKT 1
17SP	MEDICINE LODGE (MED-LDG4) 138/115/2.72KV TRANSFORMER CKT 1	65	109	381	SPEARVILLE - WICHITA 345KV 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 \$195,275,000 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. In addition to the Customer's proposed interconnection facilities, the Customer may be responsible for installing reactive compensation in the Customer's substation for reactive support. 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

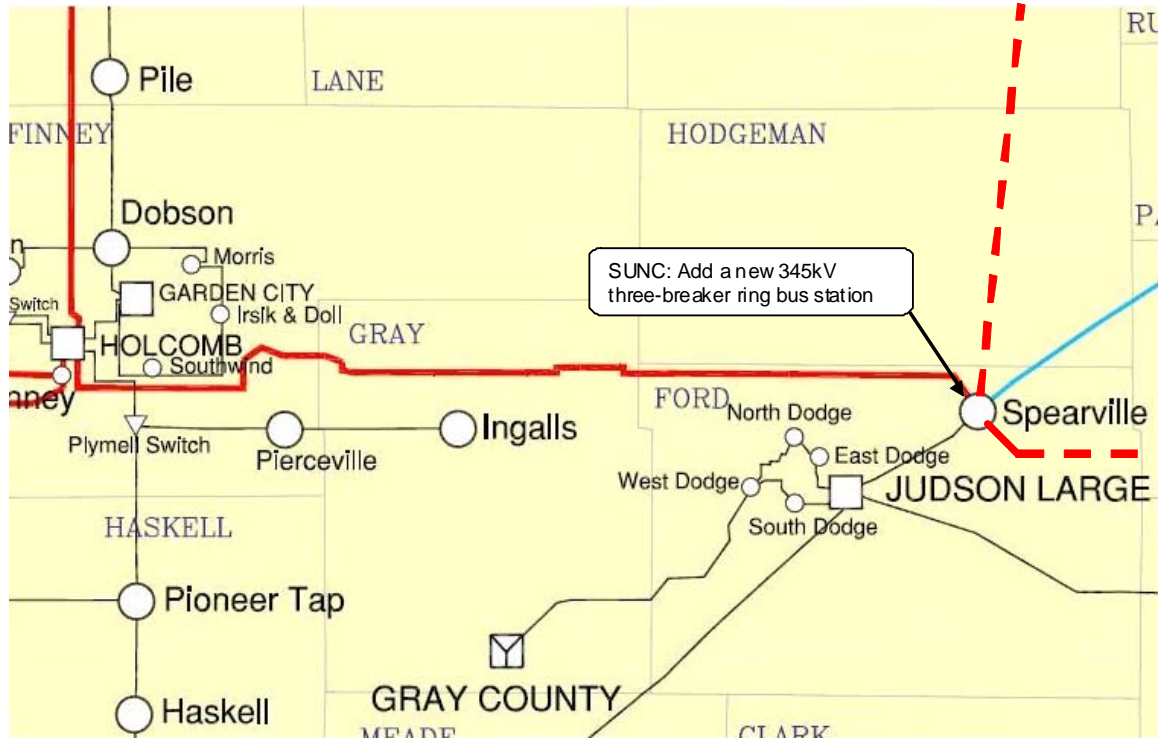


Figure 2: Point of Interconnection Area Map