



***Feasibility Study  
For  
Generation Interconnection  
Request  
GEN-2006-001***

***SPP Tariff Studies  
(#GEN-2006-001)***

**August 4, 2006**

## **Executive Summary**

<OMITTED TEXT> (Customer) has requested a Feasibility Study for the purpose of interconnecting 45MW of generation within the service territory of Western Farmers Electric Cooperative (WFEC) in Ellis County Oklahoma. The proposed point of interconnection is in the existing Arnett Substation operated at 69kV. This substation is owned by WFEC. The proposed in-service date is December 31, 2006.

Power flow analysis has indicated that for the powerflow cases studied, it is possible to interconnect the 45MW of generation with transmission system reinforcements within the local transmission systems. In order to maintain acceptable bus voltages in the local area, the customer will need to install a resistor-switched 34.5kV staged 5.4MVAR capacitor bank (4 of 1.35MVAR stages) plus a 34.5kV 5MVAR SVC in the Customer's collector substation for a total of 10.4MVAR. Dynamic Stability studies performed as part of the 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 stages of the switched capacitor bank are limited in amount of reactive compensation due to limits of voltage change during switching.

The requirements for interconnection consist of adding 138kV bus and breaker in the existing Arnett Substation. This 138kV addition shall be constructed and maintained by WFEC. The Customer did not propose a specific 138kV line extending to serve its 138-34.5kV facilities operated 69-34.5kV. It is assumed that obtaining all necessary right-of-way for the substation additions in the Arnett 138kV facility will not be a significant expense.

The total cost for adding new 138kV facilities in the existing Arnett Substation, the required interconnection facility, is estimated at \$919,000. Other Network Constraints in the American Electric Power West (AEPW), OG&E Electric Services (OKGE), Southwestern Public Service Company (SPS) (d/b/a Xcel Energy, Inc.), and WFEC systems that may be verified with a transmission service request and associated studies are listed in Table 3. These Network Constraints are in the local area of the new generation when this generation is sunk throughout the SPP footprint for the Energy Resource Interconnection request. 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. This cost does not include building 138kV line from the Customer substation into the upgraded WFEC Arnett Substation. This cost does not include the Customer's 138-34.5kV substation with the primary operated initially at 69kV.

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. When a facility is overloaded for more than 10 contingencies, then only the results with the 10 highest values of loading may be included in this table. Given the contingency

analyses in this area with the Customer exporting generation, steady-state solutions were not obtained for outages of the 138kV line extending north from AEPW's Elk City Substation using the 11SP and 16SP cases. Therefore, the ATC associated with this interconnection is 0MW. These contingency analyses will have to be re-evaluated as part of a TSR with additional transmission facilities between WFEC and the remainder of SPP.

There are several other proposed generation additions in the general area of the Customer's facility. It was assumed in this preliminary analysis that these other projects within the AEPW, OKGE and WFEC service territories 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.

## Introduction

<OMITTED TEXT> (Customer) has requested a feasibility study for the purpose of interconnecting 45MW of generation within the service territory of Western Farmers Electric Cooperative in Ellis County Oklahoma. The existing Arnett 138kV Substation is owned by WFEC, operated at 69kV, and the proposed generation interconnection is with WFEC in this facility. The proposed in-service date is December 31, 2006.

## Interconnection Facilities

The primary objective of this study is to identify the system problems associated with connecting the plant 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 requirements for interconnection consist of adding 138kV bus and breaker in the existing Arnett 138kV Substation currently operated at 69kV. This 138kV addition shall be constructed and maintained by WFEC. The Customer did not propose a route of its 138kV line to serve its 138-34.5kV facilities to be operated initially with a 69kV primary. It is assumed that obtaining all necessary right-of-way for the substation addition in the Arnett facility will not be a significant expense.

The total cost for adding new 138kV facilities in the existing Arnett Substation, the required interconnection facility, is estimated at \$919,000. Other Network Constraints in the AEPW, OKGE, SPS and WFEC systems that were identified are listed in Table 3. These estimates will be refined during the development of the impact study based on the final designs. This cost does not include building 138kV line from the Customer substation into the upgraded WFEC Arnett Substation. The Customer is responsible for this 138kV line up to the point of interconnection. This cost does not include the Customer's 138-34.5kV substation, initially operated with a 69kV primary, and the cost estimate should be determined by the Customer.

The costs of interconnecting the facility to the AEPW 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 (2006 DOLLARS)
Customer – 138-34.5 kV (operated 69-34.5 kV) Substation facilities.	*
Customer – 138kV facilities (operated 69kV) between Customer facilities and existing WFEC 138kV Substation.	*
Customer - Right-of-Way for Customer facilities.	*
WFEC –Add 138kV bus, breaker, switches, control relaying, relay house, high speed communications, dead end and metering in the existing Arnett Substation for a new terminal, initially operated 69kV.	\$919,000
<b>Total</b>	*

Note: \*Estimates of cost to be determined by Customer.

**Table 2: Required Interconnection Network Upgrade Facilities**

Facility	ESTIMATED COST (2006 DOLLARS)
None	\$ 0
<b>Total</b>	<b>\$ 0</b>

**Table 3: Network Constraints**

Facility
AEPW - ELK CITY 138 - *2002-05T 138kV, 54121 - 99940
OKGE - FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999
WFEC - FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999
OKGE - GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999
WFEC - GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999
OKGE - KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2:
OKGE - KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1:
Customer - Add Network Reactive Compensation
OKGE - ALVA 69 - KNOBHILL 69 69kV, 54792 - 54794
WFEC - BRANTLEY - MORWOOD 69kV, 55832 - 56002
WFEC - BUFFALO - FT SUPPLY 69kV, 55835 - 55919
WFEC - CANTON - OKEENE 69kV, 55843 - 56015
WFEC - CANTON - TALOGA 69kV, 55843 - 56064
WFEC - CARTER JCT - ERICK 69kV, 55846 - 55903
WFEC - CEDARDALE - MOORELAND 138kV, 55848 - 55999
WFEC - CEDARDALE - OKEENE 138kV, 55848 - 56016
OKGE - CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788
OKGE - DEWEY 138 - IODINE 138 138kV, 54787 - 54796
WFEC - DOVER SW - OKEENE 138kV, 55882 - 56016
OKGE - EL RENO 138 - ROMAN NOSE 138 138kV, 54819 - 54823
AEPW - ELK CITY 138 - *2002-05T 138kV, 54121 - 99940
AEPW - ELK CITY 69 - ELK CITY 69kV, 54122 - 55897
WFEC - ELK CITY 69 - ELK CITY 69kV, 54122 - 55897
OKGE - FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999
WFEC - FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999
OKGE - GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999
WFEC - GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999
WFEC - HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000

**Table 3: Network Constraints**

Facility
OKGE - KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2
OKGE - KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999
WFEC - KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999
OKGE - KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1
OKGE - MAUD 138 - FIXICO TAP 138kV, 55055 - 54002
AEPW - MAUD 138 - FIXICO TAP 138kV, 55055 - 54002
SPS - Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669
WFEC - MOORELAND - MOREWOOD SW 138kV, 55999 - 56001
WFEC - MOORELAND - WOODWARD 69kV, 55995 - 56096
WFEC - MOORELAND 138-69kV, 55995 - 55999
WFEC - MOREWOOD - MOREWOOD SW 138-69kV, 56000 - 56001
WFEC - MOREWOOD SW - 2002-05T 138kV, 56001 - 99940
WFEC - OKEENE - WATONGA SW 69kV, 56015 - 56090
WFEC - OKEENE 138-69kV, 56015 - 56016
OKGE - SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823
WFEC - TALOGA 138-69kV, 56064 - 56065
OKGE - WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785
OKGE - WOODWARD 69 - WOODWARD 69kV, 54782 - 56096
WFEC - WOODWARD 69 - WOODWARD 69kV, 54782 - 56096

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940,	16SP, Base Case	164.7	0	12/31/2006
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	11SP, Base Case	142.9	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	08SP, Base Case	130.2	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	07SP, Base Case	128.9	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	11WP, Base Case	125.2	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	08WP, Base Case	117.5	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	07AP, Base Case	115.9	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	07WP, Base Case	112.6	0	

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.



**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999,	07AP, Base Case	182.3	0	12/31/2006
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999,	07WP, Base Case	167.0	0	12/31/2006
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	08WP, Base Case	165.6	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	11WP, Base Case	163.8	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	08SP, Base Case	153.5	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	07SP, Base Case	153.2	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	16SP, Base Case	151.9	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	11SP, Base Case	149.9	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999,	11SP, Base Case	120.4	0	12/31/2006
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999,	08SP, Base Case	118.1	0	12/31/2006
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	07SP, Base Case	114.8	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	16SP, Base Case	113.7	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	11WP, Base Case	111.0	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	08WP, Base Case	102.2	34	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	07WP, Base Case	100.9	41	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2,	11SP, Base Case	110.5	0	6/1/2007
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	08SP, Base Case	108.3	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	16SP, Base Case	107.5	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	07SP, Base Case	105.9	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1,	11SP, Base Case	112.7	0	6/1/2007
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	08SP, Base Case	110.4	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	16SP, Base Case	109.7	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	07SP, Base Case	108.0	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
Add Network Reactive Compensation, - ,	11SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	No Solution with 10MVAR SVC in Customer 69-34.5kV Substation.	0	6/1/2009
Add Network Reactive Compensation, -	16SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	No Solution with 10MVAR SVC at Customer 69-34.5kV Substation.	0	
ALVA 69 - KNOBHILL 69 69kV, 54792 - 54794,	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	121.7	0	6/1/2009
BRANTLEY - MORWOOD 69kV, 55832 - 56002,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	127.3	0	12/31/2006
BRANTLEY - MORWOOD 69kV, 55832 - 56002	11WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	126.4	0	
BRANTLEY - MORWOOD 69kV, 55832 - 56002	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	125.5	0	
BRANTLEY - MORWOOD 69kV, 55832 - 56002	08WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	111.9	0	
BRANTLEY - MORWOOD 69kV, 55832 - 56002	07WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	108.1	0	
BRANTLEY - MORWOOD 69kV, 55832 - 56002	07AP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	100.3	43	
BRANTLEY - MORWOOD 69kV, 55832 - 56002	11SP, 56001-99940, WFEC AEP-CS - , MOREWOOD SW - 2002-05T 138kV	100.1	44	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
BUFFALO - FT SUPPLY 69kV, 55835 - 55919,	11SP, 54795-55999, OKGE ENID - WFEC AEP-OP , KNOBHILL 138 - MOORELAND 138kV	112.9	0	6/1/2007
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	16SP, 54795-55999, OKGE ENID - WFEC AEP-OP , KNOBHILL 138 - MOORELAND 138kV	112.9	0	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	11SP, 54794-54795-55732, OKGE ENID , KNOBHILL 69 - KNOBHILL 138 138-69kV	112.8	0	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	16SP, 54794-54795-55732, OKGE ENID , KNOBHILL 69 - KNOBHILL 138 138-69kV	112.6	0	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	08SP, 54795-55999, OKGE ENID - WFEC AEP-OP , KNOBHILL 138 - MOORELAND 138kV	110.2	0	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	08SP, 54794-54795-55732, OKGE ENID , KNOBHILL 69 - KNOBHILL 138 138-69kV	110.1	0	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	07SP, 54795-55999, OKGE ENID - WFEC AEP-OP , KNOBHILL 138 - MOORELAND 138kV	108.0	0	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	07SP, 54794-54795-55732, OKGE ENID , KNOBHILL 69 - KNOBHILL 138 138-69kV	107.9	0	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	16SP, 55920-55957, WFEC AEP-OP , FT SUPPLY - IODINE 138kV	102.9	25	
BUFFALO - FT SUPPLY 69kV, 55835 - 55919	11WP, 54795-55999, OKGE ENID - WFEC AEP-OP , KNOBHILL 138 - MOORELAND 138kV	101.7	31	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
CANTON - OKEENE 69kV, 55843 - 56015,	08SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	108.2	0	6/1/2007
CANTON - OKEENE 69kV, 55843 - 56015	08SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	106.9	0	
CANTON - OKEENE 69kV, 55843 - 56015	07SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	105.5	7	
CANTON - OKEENE 69kV, 55843 - 56015	11WP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	104.3	15	
CANTON - OKEENE 69kV, 55843 - 56015	07SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	104.2	16	
CANTON - OKEENE 69kV, 55843 - 56015	11WP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	103.2	24	
CANTON - OKEENE 69kV, 55843 - 56015	16SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	101.9	33	
CANTON - OKEENE 69kV, 55843 - 56015	16SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	100.6	41	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
CANTON - TALOGA 69kV, 55843 - 56064,	08SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	112.7	0	6/1/2007
CANTON - TALOGA 69kV, 55843 - 56064	08SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	111.2	0	
CANTON - TALOGA 69kV, 55843 - 56064	07SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	109.9	0	
CANTON - TALOGA 69kV, 55843 - 56064	07SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	108.6	0	
CANTON - TALOGA 69kV, 55843 - 56064	11WP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	108.5	0	
CANTON - TALOGA 69kV, 55843 - 56064	11WP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	107.3	0	
CANTON - TALOGA 69kV, 55843 - 56064	16SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	106.7	3	
CANTON - TALOGA 69kV, 55843 - 56064	16SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	105.2	13	
CANTON - TALOGA 69kV, 55843 - 56064	08WP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	101.1	38	
CANTON - TALOGA 69kV, 55843 - 56064	07WP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	100.1	44	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
CARTER JCT - ERICK 69kV, 55846 - 55903,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	137.2	0	12/31/2006
CARTER JCT - ERICK 69kV, 55846 - 55903	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	132.8	0	
CARTER JCT - ERICK 69kV, 55846 - 55903	07AP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	122.7	0	
CARTER JCT - ERICK 69kV, 55846 - 55903	11WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	118.4	0	
CARTER JCT - ERICK 69kV, 55846 - 55903	08WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	115.7	0	
CARTER JCT - ERICK 69kV, 55846 - 55903	07WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	111.0	0	
CARTER JCT - ERICK 69kV, 55846 - 55903	16SP, 56001-99940, WFEC AEP-CS - , MOREWOOD SW - 2002-05T 138kV	103.7	23	
CEDARDALE - MOORELAND 138kV, 55848 - 55999,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	103.0	29	6/1/2007
CEDARDALE - MOORELAND 138kV, 55848 - 55999	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	102.7	25	
CEDARDALE - MOORELAND 138kV, 55848 - 55999	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	102.2	28	

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.



**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
CEDARDALE - OKEENE 138kV, 55848 - 56016,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	101.3	38	6/1/2007
CEDARDALE - OKEENE 138kV, 55848 - 56016	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	101.0	37	
CEDARDALE - OKEENE 138kV, 55848 - 56016	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	100.5	41	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	128.9	0	12/31/2006
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	128.2	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	11SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	117.3	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	08SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	116.9	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	08SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	115.3	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	16SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	115.2	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	08SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	114.9	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	11SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	114.4	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	11SP, 56001-99940, WFEC AEP-CS - , MOREWOOD SW - 2002-05T 138kV	114.3	0	
CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV, 54778 - 54788	08SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	113.9	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
DEWEY 138 - IODINE 138 138kV, 54787 - 54796,	16SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	107.4	26	6/1/2012
DOVER SW - OKEENE 138kV, 55882 - 56016,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	129.1	0	12/31/2006
DOVER SW - OKEENE 138kV, 55882 - 56016	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	128.2	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	11SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	125.2	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	08SP, 54778-54789, OKGE ENID , CLEO CORNER 138 - MEN TAP 138 138kV	124.2	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	08SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	122.8	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	122.4	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	11WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	122.1	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	07SP, 54778-54789, OKGE ENID , CLEO CORNER 138 - MEN TAP 138 138kV	120.5	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	08SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	119.9	0	
DOVER SW - OKEENE 138kV, 55882 - 56016	07SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	119.3	0	
EL RENO 138 - ROMAN NOSE 138 138kV, 54819 - 54823,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	112.3	0	6/1/2007
EL RENO 138 - ROMAN NOSE 138 138kV, 54819 - 54823	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	110.6	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940,	16SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	193.1	0	12/31/2006
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	188.2	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 54778-54789, OKGE ENID , CLEO CORNER 138 - MEN TAP 138 138kV	188.0	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	188.0	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	187.4	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	186.8	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	185.2	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	181.8	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	181.4	0	
ELK CITY 138 - *2002-05T 138kV, 54121 - 99940	16SP, 55882-56016, WFEC AEP-IM , DOVER SW - OKEENE 138kV	178.5	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897,	11WP, 54937-54941-55731, OKGE METRO , HORSESHOE LAKE 69 - HORSESHOE LAKE 138 138-69kV	110.8	0	12/31/2006
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897,	11WP, 53823-53832-53888, AEPW TULSA , TULSA SOUTHEAST 138KV - Tulsa Southeast 69 kV 138-69kV	110.7	0	12/31/2006
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11WP, 55307-55308-55766, OKGE FT SMITH, 3RDST 69 - 3RDST 161 161-69kV	110.7	0	
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11WP, 54287-54288, AEPW WTU , AMOCO TAP - AMOCO 69kV	110.5	0	
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11WP, 54286-54287, AEPW WTU , AIRPORT - AMOCO TAP 69kV	110.2	0	
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11SP, 50643-50644, SPS SPS-OKLA, Rita Blanca REC-Dallam County 69 kV - Dallam County Interchange 115 kV 115-69kV	109.9	0	
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11SP, 54135-56245, AEPW WESTERN - OMPA DOE , Tipton Tap - OMPA-ALTUS PARK 69kV	109.9	0	
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11SP, 55227-55228-55723, OKGE MUSKOGEE, 5 TRIBES 69 - 5 TRIBES 161 161-69kV	109.8	0	
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11SP, 50596-50600, SPS SPS-OKLA, Texas County Interchange 115 kV - Texas County Interchange Phase Shift Tfmr 115 kV 115kV	109.7	0	
ELK CITY 69 - ELK CITY 69kV, 54122 - 55897	11SP, 53823-53832-53888, AEPW TULSA , TULSA SOUTHEAST 138KV - Tulsa Southeast 69 kV 138-69kV	109.7	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999,	07AP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	233.6	0	12/31/2006
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999,	07AP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	232.1	0	12/31/2006
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	07WP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	222.0	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	11WP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	221.9	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	08WP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	221.4	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	07WP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	219.6	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	11WP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	219.4	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	08WP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	218.9	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	08SP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	211.7	0	
FPL SWITCH 138 - MOORELAND 138kV, 55785 - 55999	07SP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	210.7	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	162.0	0	12/31/2006
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999,	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	161.1	0	12/31/2006
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	11WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	151.7	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	11SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	147.6	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	08SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	147.1	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	08SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	145.1	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	16SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	145.0	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	08SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	144.5	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	11SP, 56001-99940, WFEC AEP-CS - , MOREWOOD SW - 2002-05T 138kV	144.0	0	
GLASS MOUNTAIN 138 - MOORELAND 138kV, 54788 - 55999	11SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	144.0	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000,	16SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	213.5	0	12/31/2006
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	11SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	170.5	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	08SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	141.3	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	07SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	139.6	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	11WP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	132.6	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	16SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	125.7	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	16SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	117.7	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	08WP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	114.2	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	16SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	113.1	0	
HAMON BUTLER - MOREWOOD 69kV, 55942 - 56000	07AP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	107.9	22	

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.



**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2,	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	149.7	0	12/31/2006
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	08SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	146.9	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	08SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	146.0	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	16SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	145.0	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	16SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	144.1	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	07SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	143.8	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	07SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	142.9	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	11WP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	133.1	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	11WP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	132.5	0	
KNOBHILL 138 - KNOBHIL4 138-( )kV, 54795 - WND 2	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	130.4	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999,	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	109.2	0	6/1/2007
KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999,	08SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	106.3	0	6/1/2007
KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999	16SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	105.9	0	
KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999	08SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	105.6	0	
KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999	16SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	105.1	0	
KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999	07SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	103.8	8	
KNOBHILL 138 - MOORELAND 138kV, 54795 - 55999	07SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	103.0	16	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1,	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	154.6	0	12/31/2006
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	08SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	151.6	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	08SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	150.7	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	16SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	149.7	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	16SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	148.8	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	07SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	148.4	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	07SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	147.5	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	11WP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	137.1	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	11WP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	136.3	0	
KNOBHILL 69 - KNOBHIL4 69-( )kV, 54794 - WND 1	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	133.0	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
MAUD 138 - FIXICO TAP 138kV, 55055 - 54002,	16SP, 54802-54805, OKGE ENID , SOONER 138 - SOONER UNIT 1 138-22kV	101.8	0	6/1/2016
MAUD 138 - FIXICO TAP 138kV, 55055 - 54002,	16SP, 54803-54806, OKGE ENID , SOONER 345 - SOONER UNIT 2 345-20kV	101.1	0	6/1/2016
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669,	16SP, 50686-50694, SPS SPS-OKLA, Herring Tap 115 kV - Riverview Interchange 115 kV 115kV	113.7	0	6/1/2012
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669	16SP, 50678-50914, SPS SPS-OKLA - SPS SPS-AMA , Fain Sub 115 kV - Nichols Station 115 kV 115kV	109.4	0	
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669	16SP, 50686-50690, SPS SPS-OKLA, Herring Tap 115 kV - Rita Blanca REC-Sneed 115 kV 115kV	108.7	0	
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669	16SP, 50676-50678, SPS SPS-OKLA, Exell Tap 115 kV - Fain Sub 115 kV 115kV	108.2	0	
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669	16SP, 50664-50690, SPS SPS-OKLA, Moore County Interchange W. 115 kV - Rita Blanca REC-Sneed 115 kV 115kV	105.3	0	
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669	16SP, 50672-50676, SPS SPS-OKLA, Dumas Sub 115 kV - Exell Tap 115 kV 115kV	105.2	0	
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669	16SP, 50652-50653, SPS SPS-OKLA, Pringle Interchange 115 kV - Pringle Interchange 230 kV 230-115kV	100.1	43	
Moore County Interchange E. 115 kV - Moore County Interchange 230 kV 230-115kV, 50668 - 50669	16SP, 50653-50907, SPS SPS-OKLA - SPS SPS-AMA , Pringle Interchange 230 kV - Harrington Station 230 kV 230kV	100.1	42	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001,	16SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	112.9	0	6/1/2012
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	112.5	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 54778-54789, OKGE ENID , CLEO CORNER 138 - MEN TAP 138 138kV	112.3	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	112.0	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	111.3	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	109.4	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	109.2	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	108.8	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	107.3	0	
MOORELAND - MOREWOOD SW 138kV, 55999 - 56001	16SP, 55882-56016, WFEC AEP-IM , DOVER SW - OKEENE 138kV	103.1	21	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
MOORELAND - WOODWARD 69kV, 55995 - 56096,	07AP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	168.2	0	12/31/2006
MOORELAND - WOODWARD 69kV, 55995 - 56096	07WP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	150.7	0	
MOORELAND - WOODWARD 69kV, 55995 - 56096	08WP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	149.2	0	
MOORELAND - WOODWARD 69kV, 55995 - 56096	16SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	144.9	3	
MOORELAND - WOODWARD 69kV, 55995 - 56096	11WP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	141.5	0	
MOORELAND - WOODWARD 69kV, 55995 - 56096	08SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	132.5	0	
MOORELAND - WOODWARD 69kV, 55995 - 56096	07SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	131.3	0	
MOORELAND - WOODWARD 69kV, 55995 - 56096	11SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	128.2	7	
MOORELAND - WOODWARD 69kV, 55995 - 56096	07AP, 54785-55785, OKGE ENID , WOODWARD 138 - FPL SWITCH 138 138kV	114.9	22	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
MOORELAND 138-69kV, 55995 - 55999,	07AP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	162.4	0	12/31/2006
MOORELAND 138-69kV, 55995 - 55999	07WP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	148.7	0	
MOORELAND 138-69kV, 55995 - 55999	08WP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	146.9	0	
MOORELAND 138-69kV, 55995 - 55999	11WP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	137.4	0	
MOORELAND 138-69kV, 55995 - 55999	16SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	131.3	11	
MOORELAND 138-69kV, 55995 - 55999	08SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	129.6	5	
MOORELAND 138-69kV, 55995 - 55999	07SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	128.0	8	
MOORELAND 138-69kV, 55995 - 55999	07AP, 54785-55785, OKGE ENID , WOODWARD 138 - FPL SWITCH 138 138kV	111.2	29	
MOORELAND 69-( )kV, 55995 - 55999	11SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	124.7	15	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
MOREWOOD - MOREWOOD SW 138-69kV, 56000 - 56001,	08WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	119.7	0	12/31/2006
MOREWOOD - MOREWOOD SW 138-69kV, 56000 - 56001	07WP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	117.2	0	
MOREWOOD - MOREWOOD SW 138-69kV, 56000 - 56001	07AP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	108.2	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940,	16SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	120.1	0	6/1/2012
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	115.3	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 54778-54789, OKGE ENID , CLEO CORNER 138 - MEN TAP 138 138kV	115.0	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	115.0	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	114.4	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	113.9	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	112.5	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 55848-55999, WFEC AEP-OP , CEDARDALE - MOORELAND 138kV	109.1	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 55848-56016, WFEC AEP-OP - WFEC AEP-IM , CEDARDALE - OKEENE 138kV	108.8	0	
MOREWOOD SW - 2002-05T 138kV, 56001 - 99940	16SP, 55882-56016, WFEC AEP-IM , DOVER SW - OKEENE 138kV	105.9	8	

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.



**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
OKEENE - WATONGA SW 69kV, 56015 - 56090,	11SP, 55882-56016, WFEC AEP-IM , DOVER SW - OKEENE 138kV	102.6	26	6/1/2009
OKEENE 138-69kV, 56015 - 56016,	11SP, 55882-56016, WFEC AEP-IM , DOVER SW - OKEENE 138kV	100.1	43	6/1/2011
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823,	07SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	119.0	0	6/1/2007
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	08SP, 54121-99940, AEPW WESTERN - , ELK CITY 138 - 2002-05T 138kV	117.6	0	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	11SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	105.1	14	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	11SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	104.8	17	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	11SP, 56001-99940, WFEC AEP-CS - , MOREWOOD SW - 2002-05T 138kV	103.8	23	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	11SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	102.9	27	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	08SP, 54778-54789, OKGE ENID , CLEO CORNER 138 - MEN TAP 138 138kV	102.4	30	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	08SP, 54788-55999, OKGE ENID - WFEC AEP-OP , GLASS MOUNTAIN 138 - MOORELAND 138kV	101.7	34	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	08SP, 54789-54790, OKGE ENID , MEN TAP 138 - IMO TAP 138 138kV	101.6	35	
SOUTHARD 138 - ROMAN NOSE 138 138kV, 54822 - 54823	08SP, 54778-54788, OKGE ENID , CLEO CORNER 138 - GLASS MOUNTAIN 138 138kV	101.2	37	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
TALOGA 138-69kV, 56064 - 56065,	16SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	124.7	0	6/1/2007
TALOGA 138-69kV, 56064 - 56065	08SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	115.2	0	
TALOGA 138-69kV, 56064 - 56065	16SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	114.3	0	
TALOGA 138-69kV, 56064 - 56065	07SP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	112.6	0	
TALOGA 138-69kV, 56064 - 56065	11WP, 54787-54822, OKGE ENID - OKGE METRO , DEWEY 138 - SOUTHARD 138 138kV	110.7	0	
TALOGA 138-69kV, 56064 - 56065	16SP, 55999-56001, WFEC AEP-OP - WFEC AEP-CS , MOORELAND - MOREWOOD SW 138kV	110.1	0	
TALOGA 138-69kV, 56064 - 56065	16SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	108.2	0	
TALOGA 138-69kV, 56064 - 56065	11SP, 54819-54823, OKGE METRO , EL RENO 138 - ROMAN NOSE 138 138kV	107.9	0	
TALOGA 138-69kV, 56064 - 56065	08SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	107.1	0	
TALOGA 138-69kV, 56064 - 56065	07SP, 54822-54823, OKGE METRO , SOUTHARD 138 - ROMAN NOSE 138 138kV	104.7	0	

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.

**Table 4: Contingency Analysis Results**

Facility	Model & Contingency	Facility Loading (% Rate B) Or Voltage (PU)	ATC (MW)	Date Required (M/D/Y)
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785,	07SP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	120.7	0	12/31/200 6
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	07AP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	120.2	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	08SP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	120.0	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	07AP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	119.2	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	11SP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	119.0	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	16SP, 54785-54796, OKGE ENID , WOODWARD 138 - IODINE 138 138kV	118.3	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	07SP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	117.9	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	08SP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	117.1	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	11SP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	116.2	0	
WOODWARD 138 - FPL SWITCH 138 138kV, 54785 - 55785	16SP, 54787-54796, OKGE ENID , DEWEY 138 - IODINE 138 138kV	115.5	0	
WOODWARD 69 - WOODWARD 69kV, 54782 - 56096,	16SP, 55785-55999, OKGE ENID - WFEC AEP-OP , FPL SWITCH 138 - MOORELAND 138kV	173.2	0	6/1/2012

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.

## **Powerflow Analysis**

A powerflow analysis was conducted for the facility using modified versions of the 2007 April, 2007, 2008 & 2011 Summer and Winter Peak, and 2016 Summer Peak models. The output of the Customer's facility was offset in each model by a reduction in output of existing online SPP generation. The proposed in-service date of the generation is December 31, 2006. The available seasonal models used were through the 2016 Summer Peak of which is the end of the current SPP planning horizon.

The analysis of the Customer's project indicates that, given the requested generation level of 45MW and location, additional criteria violations will occur on the existing AEPW, OKGE, SPS, and WFEC facilities under steady state conditions in the peak seasons. Given the contingency analyses in this area with the Customer exporting generation, steady-state solutions were not obtained for an outage of the 138kV line extending north of AEPW's Elk City 138kV Substation using the 11SP and 16SP cases. Therefore, the ATC associated with this interconnection is 0MW. These contingency analyses will have to be re-evaluated as part of a TSR with additional transmission facilities between WFEC and the remainder of SPP.

There are several other proposed generation additions in the general area of the Customer's facility. Local projects that were previously queued were assumed to be in service in this Feasibility Study. Those local projects that were previously queued and have advanced to nearly complete phases were included in this Feasibility Study.

In order to complete valid load flow solutions for one contingency in the 11SP and 16SP periods, additional reactive compensation is required in the WFEC area. With a contingency where valid solutions were obtained while modeling the proposed turbines at the Customer site, 10.4MVAR is required on a steady state basis to achieve adequate voltage levels. This customer must install 4 resistor-switched 34.5kV 1.35MVAR banks in the Customer's 69-34.5kV Substation. A 5.0MVAR SVC is also required at 34.5kV. Dynamic Stability studies performed as part of the 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).

Valid load flow solutions could not be achieved for all contingencies without additional transmission facilities between WFEC and the remainder of SPP. When additional transmission facilities are evaluated as part of a future transmission service request, then the need for additional reactive compensation may have to be re-evaluated at that time.

## **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 American Electric Power West, OG&E Electric Services, Southwestern Public Service Company (d/b/a Xcel Energy, Inc.) and Western Farmers Electric Cooperative were applied and the resulting scenarios analyzed. This satisfies the 'more probable' contingency testing criteria mandated by NERC and the SPP criteria.

## **Conclusion**

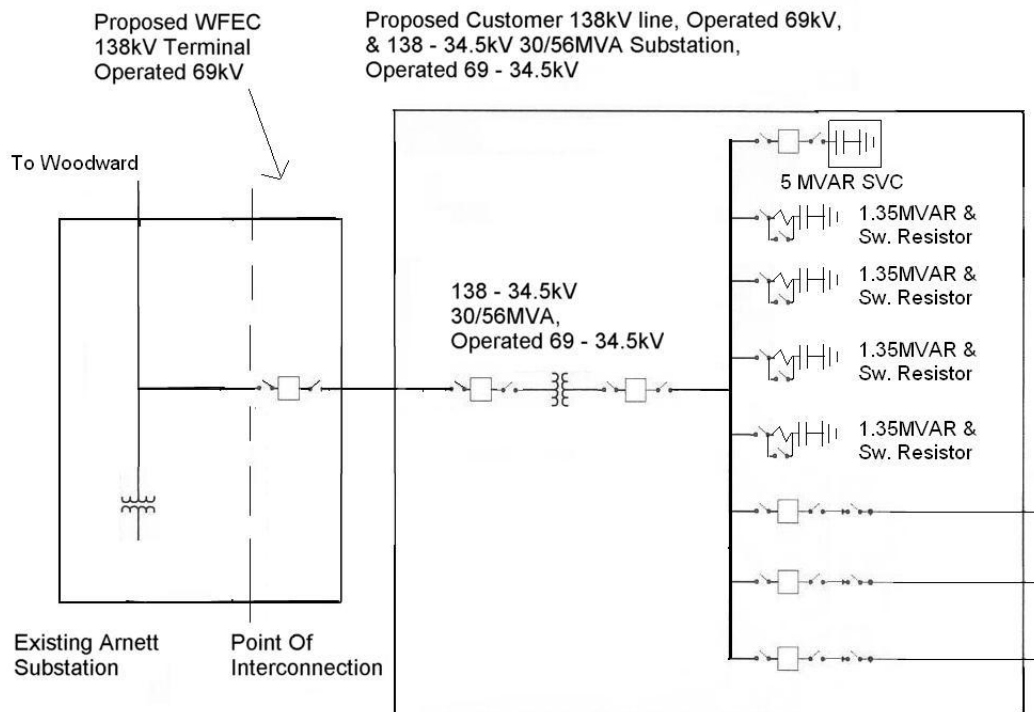
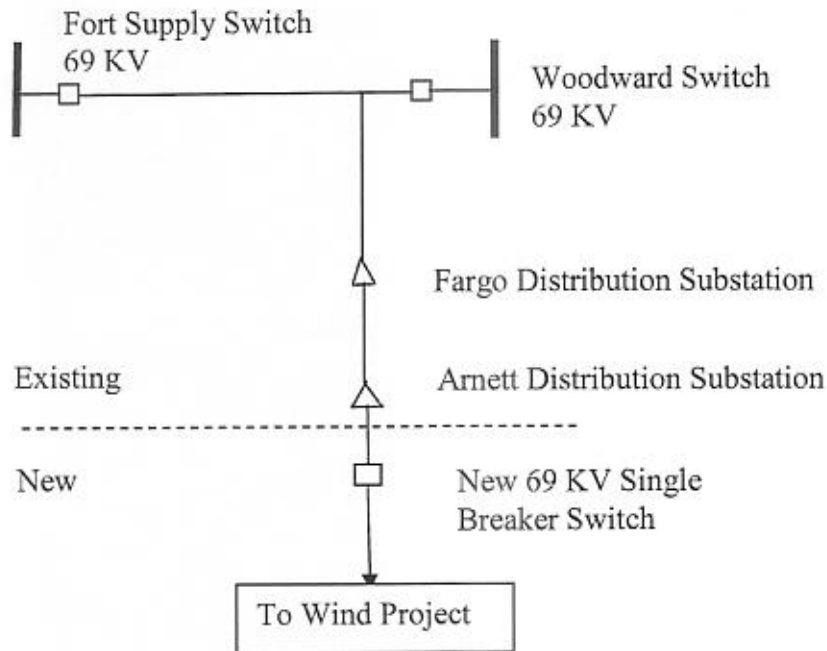
The minimum cost of interconnecting the Customer project is estimated at \$919,000 for WFEC's interconnection Direct Assignment facilities listed in Table 1 excluding upgrades of other transmission facilities by AEPW, OKGE, SPS and WFEC listed in Table 3 of which are Network Constraints. At this time, the cost estimates for other Direct Assignment facilities including those in Table 1 have not all been defined by the Customer. As stated earlier, local projects that were previously queued are assumed to be in service in this Feasibility Study.

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 10 contingencies, then only the results with the 10 highest values of loading may be included in this table. Given the contingency analyses in this area with the Customer exporting generation, steady-state solutions were not obtained for outages of a 138kV line north of the AEPW Elk City 138kV Substation. Therefore, the ATC associated with this interconnection is 0MW. These contingency analyses will have to be re-evaluated as part of a TSR with additional transmission facilities between WFEC and the remainder of SPP.

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.

The required interconnection costs listed in Table 2 and other upgrades associated with Network Constraints listed in Table 3 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 requests transmission service through Southwest Power Pool's OASIS.

**Figure 1: Proposed Interconnection  
(Final substation design to be determined)**



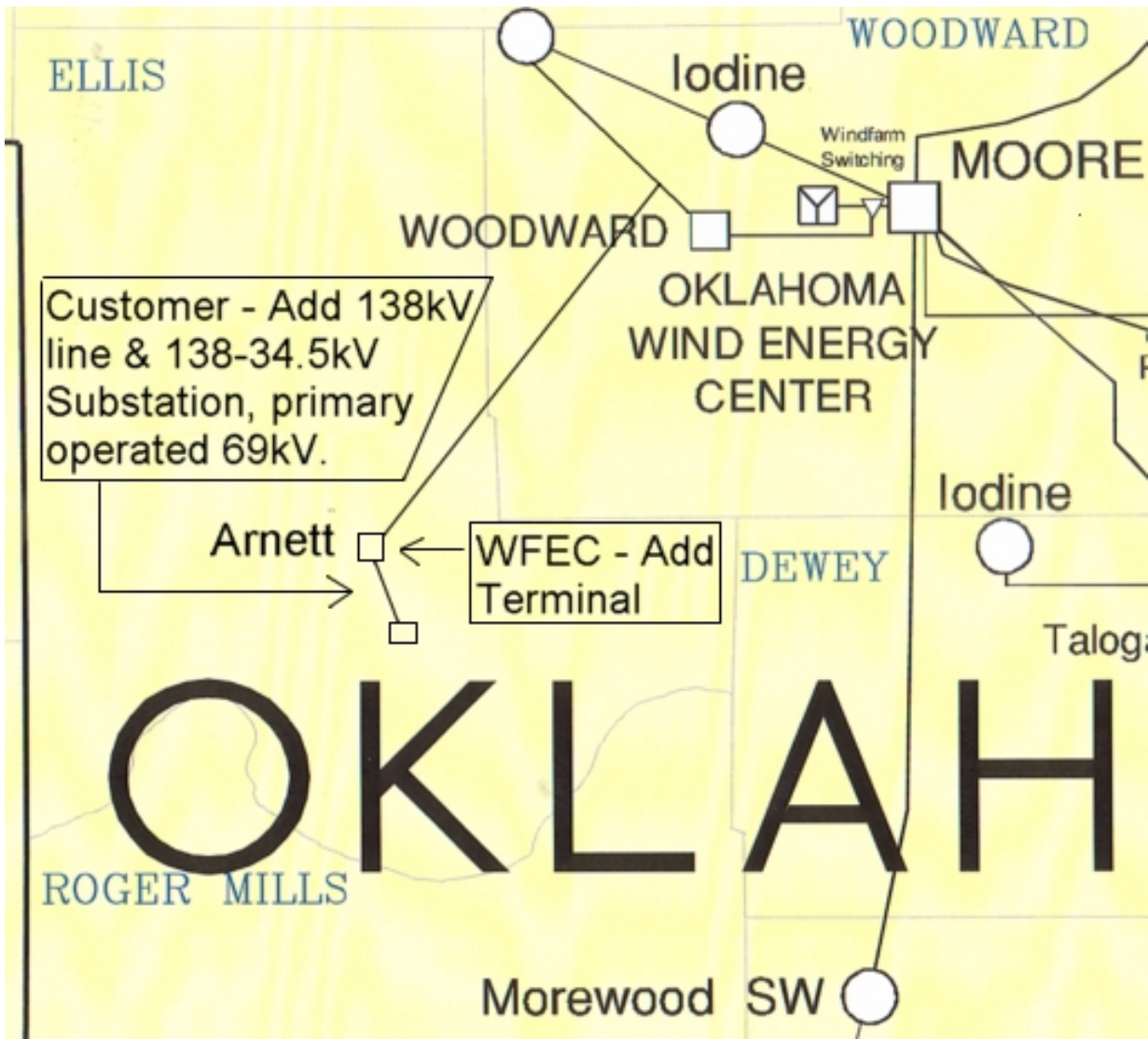


Figure 2: Map Of The Surrounding Area