

Impact Study of Limited Operation for Generator Interconnection

GEN-2012-027

**November 2013
Revised December 2013
Generation Interconnection**



Executive Summary

<OMITTED TEXT> (Customer) has requested Southwest Power Pool (SPP) to perform a Limited Operation System Impact Study for SPP Generation Interconnection request number GEN-2012-027. GEN-2012-027 is a 136 MW request of generation to be interconnected as an Energy Resource (ER) into the Transmission System of Public Service Company of Oklahoma (AEPW-PSO) in Osage County, Oklahoma. The Definitive Interconnection System Impact Study performed for GEN-2012-027 (DISIS-2012-002) identified constraints on the Associated Electric Cooperative, Inc. (AECI) transmission system. An Affected System Study performed by AECI in accordance with Section 3.5 of the Generator Interconnection Procedures identified Network Upgrades that need to be placed in service before the entire output of GEN-2012-027 may be interconnected. Customer has subsequently requested this Limited Operation Interconnection Study (LOIS) to determine the impacts of interconnecting to the transmission system before all required SPP Network Upgrades identified in the DISIS-2012-002 (or most recent iteration) Impact Study can be placed into service. Also, this Limited Operation Interconnection Study (LOIS) is to determine the impact of interconnecting to the transmission system before all required AECI Affected System Network Upgrades identified in the GEN-2012-027 Facility Study can be placed into service.

This LOIS addresses the effects of interconnecting the plant to the rest of the transmission system for the system topology and conditions as expected in December 2014. GEN-2012-027 is requesting the interconnection of eighty – four (84) G.E. 1.62 MW wind turbines and associated facilities at the Public Service Company of Oklahoma (AEPW-PSO) Shidler 138kV substation. For this LOIS only power flow analysis was conducted. The LOIS assumes that only the higher queued projects listed within Table 1 of this study might go into service before the completion of all Network Upgrades identified within Table 2 of this report. If additional generation projects, listed within Table 3, with queue priority equal to or higher than the study project request rights to go into commercial operation before all Network Upgrades identified within Table 2 of this report are completed, this LOIS will need to be restudied to ensure that interconnection service remains for the GEN-2012-027 request.

Four (4) possible scenarios for affects of SPP and/or AECI Network Upgrades being in-service or delayed on the Interconnection Customer GEN-2012-027 were considered for this LOIS. The projected in-service for SPP and AECI Network Upgrades listed in Table 2 are estimated to be completed close to same time as the expected in-service date for GEN-2012-027. Table 4 of this report lists the Networks Upgrade projects and their status for each of the four (4) scenarios. Scenario 1 and 2 use the same generation assumptions but with specific SPP and AECI Networks Upgrades in-service. Scenario 3 uses the assumption that ASGI-2010-006 is at nameplate (150 MW) with SPP Network Upgrades in-service and AECI Networks Upgrades not completed. Scenario 4 uses the assumption that ASGI-2010-006 is at nameplate (150 MW) with SPP and AECI Network Upgrades in-service. Additionally to the four (4) possible scenarios a modified generation dispatch of the Pawhuska unit being dispatched at 100% was accounted for in scenario numbers denoted with “B” in the results tables.

Power flow analysis from this LOIS has determined that the GEN-2012-027 request can interconnect 127.7 MW of generation in Scenario 1A, 123.7 MW of generation in Scenario 1B, 136 MW of generation in Scenario 2A, 2B, 3A, and 4A, and 131.7 MW of generation in Scenario 3B and 4B as an Energy Resource (ER prior to the completion of the required Network Upgrades, listed within Table 2 of this report. Should any other projects, other than those listed within Table 1 of this report, come into service an additional study may be required to determine if any limited operation service is available. It should be noted that although this LOIS analyzed many of the most probable contingencies, it is not an all-inclusive list that can account for every operational situation. Additionally, the generator may not be able to inject any power onto the Transmission System due to constraints that fall below the threshold of mitigation for a Generator Interconnection request. Because of this, it is likely that the Customer may be required to reduce their generation output to **0 MW** under certain system conditions to allow system operators to maintain the reliability of the transmission network.

Nothing in this study should be construed as a guarantee of transmission service. If the customer wishes to sell power from the facility, a separate request for transmission service must be requested on Southwest Power Pool's OASIS by the Customer.

Table of Contents

Executive Summary	i
Table of Contents	iii
Purpose	1
Facilities	5
Generating Facility	5
Interconnection Facilities	5
Base Case Network Upgrades	5
Power Flow Analysis	6
Model Preparation	6
Study Methodology and Criteria	6
Results	6
Curtailment and System Reliability	7
Conclusion	12

Purpose

<OMITTED TEXT> (Customer) has requested a Limited Operation System Impact Study (LOIS) under the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT) for an interconnection request into the Transmission System of American Electric Power Service Corporation (AEPW).

The purpose of this study is to evaluate the impacts of interconnecting GEN-2012-027, a request of 136.0 MW interconnection generation comprised eighty – four (84) G.E. 1.62 MW wind turbines and associated facilities at the Public Service Company of Oklahoma (AEPW-PSO) Shidler 138kV substation in Osage County, Oklahoma. The Customer has requested this amount to be studied as an Energy Resource (ER) with Limited Operation Interconnection Service to commence on or around December of 2014 for four (4) possible scenarios for affects of SPP and/or AECI Network Upgrades being in-service or delayed on the Interconnection Customer GEN-2012-027.

The LOIS assumes that only the higher queued projects listed within Table 1 of this study might go into service before the completion of all Network Upgrades identified within Table 2 of this report. If additional generation projects, listed within Table 3, with queue priority equal to or higher than the study project request rights to go into commercial operation before all Network Upgrades identified within Table 2 of this report are completed, this LOIS will need to be restudied to ensure that interconnection service remains for the GEN-2012-027 request.

Four (4) possible scenarios for affects of SPP and/or AECI Network Upgrades being in-service or delayed on the Interconnection Customer GEN-2012-027 were considered for this LOIS. The projected in-service for SPP and AECI Network Upgrades listed in Table 2 estimated to be completed close to same time as the expected in-service date for GEN-2012-027. Table 4 of this report lists the Networks Upgrade projects and their status for each of the four (4) scenarios. Scenario 1 and 2 use the same generation assumptions but with specific SPP and AECI Networks Upgrades in-service. Scenario 3 uses the assumption that ASGI-2010-006 is at nameplate (150 MW) with SPP Network Upgrades in-service and AECI Networks Upgrades not completed. Scenario 4 uses the assumption that ASGI-2010-006 is at nameplate (150 MW) with SPP and AECI Network Upgrades in-service. Additionally to the four (4) possible scenarios a modified generation dispatch of the Pawhuska unit being dispatched at 100% was accounted for in scenario numbers denoted with “B” in the result tables.

Power flow analysis was conducted for this Limited Operation Interconnection Service. Limited Operation Studies are conducted under GIA Section 5.9.

The LOIS considers the Base Case as well as all Generating Facilities (and with respect to (b) below, any identified Network Upgrades associated with such higher queued interconnection) that, on the date the LOIS is commenced:

- a) are directly interconnected to the Transmission System;
- b) are interconnected to Affected Systems and may have an impact on the Interconnection Request;

- c) have a pending higher queued Interconnection Request to interconnect to the Transmission System listed in Table 1; or
- d) have no Queue Position but have executed an LGIA or requested that an unexecuted LGIA be filed with FERC.

Any changes to these assumptions, for example, one or more of the previously queued requests not included within this study execute an interconnection agreement and commencing commercial operation, may require a re-study of this LOIS at the expense of the Customer.

Nothing within this System Impact Study constitutes a request for transmission service or confers upon the Interconnection Customer any right to receive transmission service rights. Should the Customer require transmission service, those rights should be requested through SPP's Open Access Same-Time Information System (OASIS).

This LOIS study included prior queued generation interconnection requests. Those listed within Table 1 are the generation interconnection requests that are assumed to have rights to either full or partial interconnection service prior to the requested 12/2014 in-service of GEN-2012-027 for this LOIS. Also listed in Table 1 are both the amount of MWs of interconnection service expected at the effective time of this study and the total MWs requested of interconnection service, the fuel type, the point of interconnection (POI), and the current status of each particular prior queued request.

Table 1: Generation Requests Included within LOIS

Project	MW	Total MW	Fuel Source	POI	Status
ASGI-2010-006	57/66 ¹	150.0	Wind	Tap Fairfax (AECI) - Shilder (AEPW) 138kV	Commercial Operation
GEN-2002-004	150.0	200.0	Wind	Latham 345kV	Commercial Operation
GEN-2005-013	201.0	201.0	Wind	Tap Latham - Neosho (Caney River) 345kV	Commercial Operation
GEN-2007-025	300.0	300.0	Wind	Viola 345kV	Commercial Operation
GEN-2008-013	235.0	300.0	Wind	Hunter 345kV	Commercial Operation
GEN-2009-025	60.0	60.0	Wind	Tap Deer Creek - Sinclair Blackwell 69kV	Commercial Operation
GEN-2010-005	170.0	300.0	Wind	Viola 345kV	Commercial Operation
GEN-2010-055	4.5	4.5	Gas	Wekiwa 138kV	Commercial Operation
GEN-2011-057	150.4	150.4	Wind	Creswell 138kV	On Schedule for 2014
GEN-2012-032	300.0	300.0	Wind	Tap Rose Hill – Sooner 345kV	IA Pending
GEN-2012-040	76.5	76.5	Wind	Middleton Tap 138kV	IA Pending
GEN-2012-041	85/121	85/121	CT	Tap Rose Hill – Sooner 345kV	IA Pending

This LOIS was required because the Customer is requesting interconnection prior to the completion of all of their required upgrades listed within the latest iteration of their Definitive Interconnection System Impact Study (DISIS). Table 2 below lists the required upgrade projects for which this request has cost responsibility. The Customers were included within the DISIS-2012-002 that was

¹ ASGI-2010-006 was studied at 57.0 MW in the spring and summer and 66.0 MW in the winter model for Scenario 1 and 2. ASGI-2010-006 was studied at 150.0 MW for spring, summer, and winter models for Scenario 3 and 4.

studied in early 2013. The cluster has been restudied since the original posting. These reports can be located here at the following GI Study URL:

http://sppoasis.spp.org/documents/swpp/transmission/GenStudies.cfm?YearType=2012_Impact_Studies

Table 2: Network Upgrade Projects not included but required for Full Interconnection Service

Upgrade Project	Type	Description	Status
Remington – Fairfax 138kV circuit #1 (Increase conductor clearance)	Network Upgrade to be designed, constructed, and owned by the Transmission Owner. Required to support full interconnection.	Assigned to GEN-2012-027 in DISIS-2012-002	N/A ²
Fairfax 138/69kV transformer circuit #1 (Replace transformer, 84MVA)	Network Upgrade to be designed, constructed, and owned by the Transmission Owner. Required to support full interconnection.	Assigned to GEN-2012-027 in AECl Facility Study	N/A ³
Fairfax – Pawnee 138kV circuit #1	Previous Network Upgrade not responsibility of Customer but required to support full Interconnection.	Assigned to ASGI-2010-006	On Schedule for 12/2014

Any changes to these assumptions, for example, one or more of the previously queued requests not included within this study execute an interconnection agreement and commencing commercial operation, may require a re-study of this LOIS at the expense of the Customer. The higher or equally queued projects that were not included in this study are listed in Table 3. While this list is not all inclusive it is a list of the most probable and affecting prior queued requests that were not included within this LOIS, either because no request for an LOIS has been made or the request is on suspension, etc.

Table 3: Higher or Equally Queued GI Requests not included within LOIS

Project	Remainder MW	Total MW	Fuel Source	POI	Status
ASGI-2010-006	93.0 ⁴	150.0	Wind	Tap Fairfax (AECl) - Shidler (AEPW) 138kV	Commercial Operation
GEN-2002-004	50.0	200.0	Wind	Latham 345kV	Commercial Operation
GEN-2008-098	100.8	100.8	Wind	Tap Lacygne - Wolf Creek (Anderson County) 345kV	On Schedule for 2015
GEN-2010-003	100.8	100.8	Wind	Tap Lacygne - Wolf Creek (Anderson County) 345kV	On Schedule for 2015
GEN-2010-005	186.0	300.0	Wind	Viola 345kV	Commercial Operation
GEN-2012-023	115.0	115.0	Wind	Viola 345kV	IA Pending

² Status of Network Upgrades will be determined by AECl.

³ See footnote 2.

⁴ ASGI-2010-006 was studied at 57.0 MW in the spring and summer cases and 66.0 MW in the winter model for Scenario 1 and 2. ASGI-2010-006 was studied at 150.0 MW for spring, summer, and winter models for Scenario 3 and 4.

Project	Remainder MW	Total MW	Fuel Source	POI	Status
GEN-2012-033	98.8	98.8	Wind	Tap and Tie South 4th - Bunch Creek & Enid Tap - Fairmont (GEN-2012-033T) 138kV	IA Pending

Nothing in this System Impact Study constitutes a request for transmission service or grants the Interconnection Customer any rights to transmission service.

Table 4: Network Upgrade Projects consider for each scenario

Upgrade Project	Scenario 1	Scenario 2	Scenario 3	Scenario 4
Remington – Fairfax 138kV circuit #1 (Increase conductor clearance)	Not Complete	In-Service	Not Complete	In-Service
Fairfax 138/69kV transformer circuit #1 (Replace transformer, 84MVA)	Not Complete	In-Service	Not Complete	In-Service
Fairfax – Pawnee 138kV circuit #1 (Build approximately 19.5 miles of 138kV transmission line and Pawnee Substation)	Not In-Service	Not In-Service	In-Service	In-Service

Facilities

Generating Facility

GEN-2012-027 Interconnection Customer’s request to interconnect a total of 136 MW is comprised of eighty – four (84) G.E. 1.62 MW wind turbines and associated facilities.

Interconnection Facilities

The POI for GEN-2012-027 Interconnection Customer is through the existing Shidler 138kV substation in Osage County, Oklahoma. Figure 1 depicts the one-line diagram of the local transmission system including the POI as well as the power flow model representing the request.

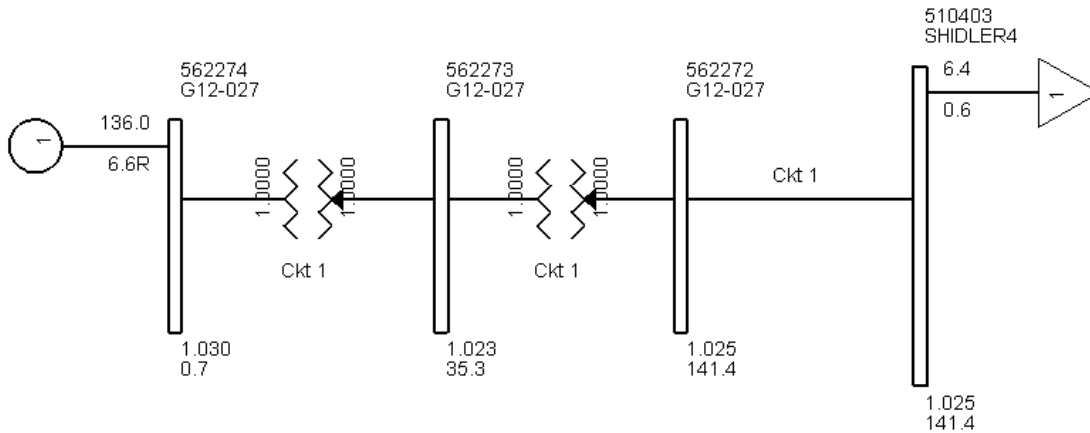


Figure 1: Proposed POI Configuration and Request Power Flow Model

Base Case Network Upgrades

The Network Upgrades included within the cases used for this LOIS study are those facilities that are a part of the SPP Transmission Expansion Plan or the Balanced Portfolio projects that have in-service dates prior to the GEN-2012-027 LOIS requested in-service date of December 2014. These facilities have an approved Notice to Construct (NTC), or are in construction stages and expected to be in-service at the effective time of this study. No other upgrades were included for this LOIS. If for some reason, construction on these projects is delayed or discontinued, a restudy may be needed to determine the interconnection service availability of the Customer.

Power Flow Analysis

Power flow analysis is used to determine if the transmission system can accommodate the injection from the request without violating thermal or voltage transmission planning criteria.

Model Preparation

Power flow analysis was performed using modified versions of the 2012 series of transmission service request study models including the 2013 (spring, summer, and winter) seasonal models. To incorporate the Interconnection Customer's request, a re-dispatch of existing generation within SPP was performed with respect to the amount of the Customer's injection and the interconnecting Balancing Authority. This method allows the request to be studied as an Energy Resource (ERIS) Interconnection Request. For this LOIS, only the previous queued requests listed in Table 1 were assumed to be in-service.

Study Methodology and Criteria

The ACCC function of PSS/E is used to simulate contingencies, including single and multiple facility (i.e. breaker-to-breaker, etc.) outages, within all of the control areas of SPP and other control areas external to SPP and the resulting data analyzed. This satisfies the "more probable" contingency testing criteria mandated by NERC and the SPP criteria.

The contingency set includes all SPP control area branches and ties 69kV and above, first tier Non-SPP control area branches and ties 115 kV and above, any defined contingencies for these control areas, and generation unit outages for the SPP control areas with SPP reserve share program redispatch.

The monitor elements include all SPP control area branches, ties, and buses 69 kV and above, and all first tier Non-SPP control area branches and ties 69 kV and above. NERC Power Transfer Distribution Flowgates for SPP and first tier Non-SPP control area are monitored. Additional NERC Flowgates are monitored in second tier or greater Non-SPP control areas. Voltage monitoring was performed for SPP control area buses 69 kV and above.

Results

The LOIS ACCC analysis indicates that the Customer can request interconnect 127.7 MW of generation in Scenario 1A, 123.7 MW of generation in Scenario 1B, 136 MW of generation in Scenario 2A, 2B, 3A, and 4A, and 131.7 MW of generation in Scenario 3B and 4B as an Energy Resource (ER) into the AEPW transmission system before all required upgrades listed within the DISIS-2012-002 study can be placed into service. Should any other GI projects, other than those listed within Table 1 of this report, come into service an additional study may be required to determine if any limited operation service is available.

ACCC results for the LOIS can be found in Table 5 through 12 below. Generator Interconnection Energy Resource analysis doesn't mitigate for those issues in which the affecting GI request has less than a 20% OTDF, Table 13A through 20B are provided for informational purposes only so that the

Customer understands there may be operational conditions when they may be required to reduce their output to maintain system reliability.

Curtailment and System Reliability

In no way does this study guarantee limited operation for all periods of time. It should be noted that although this LOIS analyzed many of the most probable contingencies, it is not an all-inclusive list and cannot account for every operational situation. Because of this, it is likely that the Customer may be required to reduce their generation output to **0 MW** under certain system conditions to allow system operators to maintain the reliability of the transmission network.

Table 5A: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 1

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
13WP	00G12_027	FROM->TO	FAIRFAX 138/69KV TRANSFORMER CKT 1	64.4	64.4	0.255	103.27	127.7	FAIRFAX TAP - WEBB CITY TAP 138KV CKT 1
13WP	00G12_027	FROM->TO	FAIRFAX 138/69KV TRANSFORMER CKT 1	64.4	64.4	0.255	103.26	127.8	FAIRFAX TAP - SHIDLER 138KV CKT 1

Table 6B: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 1 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
13WP	00G12_027	FROM->TO	FAIRFAX 138/69KV TRANSFORMER CKT 1	64.4	64.4	0.255	104.86	123.7	FAIRFAX TAP - WEBB CITY TAP 138KV CKT 1
13WP	00G12_027	FROM->TO	FAIRFAX 138/69KV TRANSFORMER CKT 1	64.4	64.4	0.255	104.86	123.7	FAIRFAX TAP - SHIDLER 138KV CKT 1
13SP	00G12_027	FROM->TO	FAIRFAX 138/69KV TRANSFORMER CKT 1	56	56	0.243	105.1	124.1	FAIRFAX TAP - WEBB CITY TAP 138KV CKT 1
13SP	00G12_027	FROM->TO	FAIRFAX 138/69KV TRANSFORMER CKT 1	56	56	0.243	105.1	124.1	FAIRFAX TAP - SHIDLER 138KV CKT 1

Table 7A: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 2

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
ALL			None						

Table 8B: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 2 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
ALL			None						

Table 9A: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 3

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
ALL			None						

Table 10B: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 3 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
13WP	00G12_027	FROM->TO	FAIRFAX TAP - WEBB CITY TAP 138KV CKT 1	180	180	0.59	101.4	131.7	4REMNGTON 138.00 - FAIRFAX 138KV CKT 1
13WP	00G12_027	TO->FROM	FAIRFAX TAP - SHIDLER 138KV CKT 1	180	180	0.59	101.4	131.7	4REMNGTON 138.00 - FAIRFAX 138KV CKT 1

Table 11A: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 4

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
ALL			None						

Table 12B: Interconnection Constraints for Mitigation of GEN-2012-027 in Scenario 4 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Max MW Available	Contingency
13WP	00G12_027	FROM->TO	FAIRFAX TAP - WEBB CITY TAP 138KV CKT 1	180	180	0.59	101.4	131.7	4REMNGTON 138.00 - FAIRFAX 138KV CKT 1
13WP	00G12_027	TO->FROM	FAIRFAX TAP - SHIDLER 138KV CKT 1	180	180	0.59	101.4	131.7	4REMNGTON 138.00 - FAIRFAX 138KV CKT 1

Table 13A: Additional Constraints of GEN-2012-027 in Scenario 1

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
--------	----------------	------	-------------------	-------------	-------------	-----	-------------	-------------

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Table 14B: Additional Constraints of GEN-2012-027 in Scenario 1 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Table 15A: Additional Constraints of GEN-2012-027 in Scenario 2

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Table 16B: Additional Constraints of GEN-2012-027 in Scenario 2 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Table 17A: Additional Constraints of GEN-2012-027 in Scenario 3

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Table 18B: Additional Constraints of GEN-2012-027 in Scenario 3 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Table 19A: Additional Constraints of GEN-2012-027 in Scenario 4

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Table 20B: Additional Constraints of GEN-2012-027 in Scenario 4 with Pawhuska Unit @ 6.7MW

Season	Dispatch Group	Flow	Monitored Element	RATEA (MVA)	RATEB (MVA)	TDF	TC% LOADING	Contingency
All			None					None

Conclusion

<OMITTED TEXT> (Customer; AECl) Associated Electric Cooperative, Inc. (AECl) has requested under the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT) for Southwest Power Pool (SPP) to perform a Limited Operation System Impact Study for SPP Generation Interconnection request number GEN-2012-027. GEN-2012-027 is a 136 MW request of generation to be interconnected as an Energy Resource (ER) into the Transmission System of American Electric Power Service Corporation (AEPW) in Osage County, Oklahoma. Associated Electric Cooperative, Inc. (AECl) has requested this Limited Operation Interconnection Study (LOIS) to determine the impacts of interconnecting to the transmission system before all required SPP Network Upgrades identified in the DISIS-2012-002 (or most recent iteration) Impact Study can be placed into service.

Power flow analysis from this LOIS has determined that the GEN-2012-027 request can interconnect 127.7 MW of generation in Scenario 1A, 123.7 MW of generation in Scenario 1B, 136 MW of generation in Scenario 2A, 2B, 3A, and 4A, and 131.7 MW of generation in Scenario 3B and 4B as an Energy Resource (ER) prior to the completion of the required Network Upgrades, listed within Table 2 of this report.

Any changes to these assumptions, for example, one or more of the previously queued requests not included within this study execute an interconnection agreement and commencing commercial operation, will require a re-study of this LOIS at the expense of the Customer.

Nothing in this System Impact Study constitutes a request for transmission service or confers upon the Interconnection Customer any right to receive transmission service.