



**Interconnection Facilities Study  
For  
AEP- Public Service Company of  
Oklahoma  
Shared Network Upgrade  
Transmission Facilities**

***SPP Generator  
Interconnection Studies***

***(#IFS-2014-002)***

**September 2015**

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## Revision History

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Date	Author	Change Description
9/18/2015	SPP	Shared Network Facility Study Report Revision 0 Issued

## Summary

American Electric Power (AEPW) has performed a detailed Interconnection Facility Study at the request of Southwest Power Pool (SPP) for Shared Network Upgrade(s) assigned in SPP Generator Interconnection (GI) impact study DISIS-2014-002 and impact restudies DISIS-2014-002-1 and DISIS-2014-002-2. Interconnection Request(s) that have cost allocation responsibilities for assigned network upgrades will require the assigned network upgrades to be in-service for full Interconnection Service. The request for interconnection was placed with SPP in accordance with SPP's Open Access Transmission Tariff, which covers new generator interconnections on SPP's transmission system. The SPP Shared Network Upgrade(s) Facilities Study request consists of the addition of 2 x 150Mvar Static Var Compensator devices to connect at the 345kV bus at the AEP Public Service Company of Oklahoma Oklaunion Substation. The current total estimate current cost for the Shared Network Upgrade(s) is \$40,000,000. Due to the nature of the equipment comprising this upgrade, further analysis with additional dynamic and voltage response studies for the design of the equipment would be performed by AEP at the cost of the Interconnection Customer(s) after the execution of the Generator Interconnection Agreement (GIA).

## Generator Interconnection Customer(s)

The Interconnection Customer(s) assigned the Shared Network Upgrade(s) are listed in **Table 1**.

**Table 1: Generation Interconnection Customer(s)**

GI Request Number	Point of Interconnection (POI)	Capacity (MW)
ASGI-2014-002	Tucumcari 115kV	48
ASGI-2014-005		10
ASGI-2014-008		10
ASGI-2014-009		10
ASGI-2014-010		10
ASGI-2014-012		10
GEN-2013-027/IFS-2014-002-02	Tolk-Yoakum 230kV	150
GEN-2014-033/IFS-2014-002-10	Chaves 115kV	70
GEN-2014-034/IFS-2014-002-11	Chaves 115kV	70
GEN-2014-035/IFS-2014-002-12	Chaves 115kV	30
GEN-2014-047/IFS-2014-002-16	Crossroads 345kV	40
GEN-2014-053/IFS-2014-002-19	Carlisle 230kV	120
GEN-2014-054/IFS-2014-002-20	Carlisle 230kV	80
GEN-2014-066/IFS-2014-002-25	Norton 115kV	30

The Interconnection Request(s) mentioned above in **Table 1** were included in the DISIS-2014-002 Impact Study, DISIS-2014-002-1 Impact Restudy, and DISIS-2014-002-2 Impact Restudy in which the studies identified the required Shared Network Upgrade(s) for each Interconnection Request in order to interconnect to the SPP transmission system.

## Shared Network Upgrade(s) Facilities Costs

Shared Network Upgrade(s) description and total costs are shown in **Table 2**. The fast switching capacitive reactive power support network upgrade would include building a new terminal position at Oklaunion 345kV bus along with associated terminal equipment for

connection of the Static Var Compensator devices. In addition to the terminal position, a step up transformer will be needed to connect the device to the 345kV terminal position.

At this time, the Interconnection Requests are allocated an estimate of \$40,000,000 for Shared Network Upgrade(s) Facilities Costs. If the Interconnection Request(s) proceed to execute a GIA, AEP will perform further analysis with additional dynamic and voltage response studies for the design of the equipment at the of the Interconnection Customer(s).

**Table 2: Shared Network Upgrade(s) Facility Costs**

<b>Upgrade Description</b>	<b>Total Cost</b>
<b>Oklaunion Capacitive Reactive Power</b> – Build and install 2 x 150Mvar Static Var Compensator devices, step down transformer, new 345kV terminal position, breakers, switches, and associated 345kV terminal equipment at Oklaunion.	\$40,000,000
<b>Total</b>	<b>\$40,000,000</b>

If higher queued Interconnection Request(s) withdraw from the SPP GI Queue, suspend or terminate their Generation Interconnection Agreement (GIA), restudies will have to be conducted to determine the Interconnection Customers' allocation of Shared Network Upgrades. All studies have been conducted on the basis of higher queued interconnection requests and the upgrades associated with those higher queued interconnection requests and upgrades being placed in service.

#### **Shared Network Upgrade(s) Cost Allocation by Request(s)**

Shared Network Upgrade(s) Cost Allocation by each Interconnection Request(s) responsibility is shown in Appendix A and Appendix B.

#### **Conclusion**

Full Interconnection Service for Interconnection Customer(s) listed in **Table 1** will be delayed until the Shared Network Upgrades listed in are constructed **Table 2**. Currently, The Interconnection Customer(s) are responsible for \$40,000,000 of Shared Network Upgrades for the 2 x 150Mvar Static Var Compensators at Oklaunion. Due to the nature of the equipment comprising this upgrade, further analysis with additional dynamic and voltage response studies for the design of the equipment would be performed by AEPW at the cost of the Interconnection Customer(s) after the execution of the Generator Interconnection Agreement (GIA).

# Appendix A. Cost Allocation by Upgrade

**(Does Not Include Interconnection Costs or Previously Allocated Network Upgrades)**

<b>Oklaunion 345kV Reactive Power Support</b>		<b>\$40,000,000</b>
Install (2) +/- 150Mvars SVCs at Oklaunion.	<b>Allocated Cost</b>	<b>Allocated %</b>
ASGI-2014-002	\$2,684,525	6.71%
ASGI-2014-005	\$562,023	1.41%
ASGI-2014-008	\$560,631	1.40%
ASGI-2014-009	\$563,458	1.41%
ASGI-2014-010	\$564,045	1.41%
ASGI-2014-012	\$565,372	1.41%
GEN-2013-027	\$8,278,674	20.70%
GEN-2014-033	\$3,874,036	9.69%
GEN-2014-034	\$3,874,036	9.69%
GEN-2014-035	\$1,660,301	4.15%
GEN-2014-047	\$2,205,646	5.51%
GEN-2014-053	\$5,193,419	12.98%
GEN-2014-054	\$7,790,128	19.48%
GEN-2014-066	\$1,623,704	4.06%
<b>Total Allocated Costs</b>	<b>\$40,000,000</b>	

\* Withdrawal of higher queued projects will cause a restudy and may result in higher costs