



**Facility Study  
For  
Generator Interconnection  
Request  
GEN-2013-009**

***SPP Generator  
Interconnection Studies***

***(#GEN-2013-009)***

**July 2014**

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## Revision History

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Date	Author	Change Description
7/9/2014	SPP	Facility Study Report Issued

## **Summary**

American Electric Power-Public Service Company of Oklahoma (AEPW-PSO) performed a detailed Facility Study at the request of Southwest Power Pool (SPP) for Generation Interconnection request GEN-2013-009 (100.3 MW/Wind) located in Craig County, Oklahoma. SPP has proposed the in-service date will be after the assigned Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades are completed. Full Interconnection Service will require the Network Upgrades listed in the “Other Network Upgrades” section. The request for interconnection was placed with SPP in accordance with SPP’s Open Access Transmission Tariff, which covers new generation interconnections on SPP’s transmission system.

## **Phases of Interconnection Service**

It is not expected that interconnection service will require phases however, interconnection service will not be available until all interconnection facilities and network upgrades can be placed in service.

## **Interconnection Customer Interconnection Facilities**

The Interconnection Customer will be responsible for all of the transmission facilities connecting the customer owned substation to the Point of Interconnection (POI), at a new AEPW-PSO owned 138 kV substation. The new AEPW-PSO 138 kV three-breaker ring-bus substation will be a tap on the Northeastern Station – Vinita Junction 138 kV circuit, between the Alluwe Shell Tap and Vinita Junction. The Interconnection Customer will also be responsible for any equipment located at the Customer substation necessary to maintain a power factor of 0.95 lagging to 0.95 leading at the POI.

## **Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades**

To accommodate the interconnection of the Generating Facility, the Transmission Owner will construct a three-breaker ring-bus along with associated terminal equipment that is acceptable for the addition of the Interconnection Customer’s Interconnection Facilities. Remote end relaying work at the Northeastern Station and Vinita Junction 138 kV substations will be needed to accommodate the new Interconnection Substation. The Customer will be responsible for communications and monitoring equipment to be located within the Interconnection Customer’s 138/34.5 kV Collector Substation. At this time, AEPW-PSO has proposed a twenty-four (24) month lead time for the completion of the Interconnection Facilities of which GEN-2013-009 is responsible for approximately \$8.65M of Interconnection Facilities.

The Interconnection Customer has requested to drop its election for Network Resource Interconnection Service. SPP has accepted this request as it does not affect any lower queued Interconnection Requests. To mitigate Energy Resource Interconnection Service injection constraints, the following Non-Shared Network Upgrades will be required:

- Replacement of the Vinita Junction 138/69/13.2 kV transformer with a 90 MVA transformer, current estimated cost of \$3,939,904
- Replacement of the limiting terminal equipment on the Vinita Junction – Vinita 69 kV transmission line, current estimated cost of \$1,038,535

AEPW-PSO has proposed a lead time of approximately twenty-four (24) months for the completion of these Non-Shared Network Upgrades and has estimated costs at approximately \$4.98M.

The total estimated costs for Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades is approximately \$13,628,439 with a lead time of approximately twenty-four (24) months.

More information regarding the Interconnection Facilities and Non-Shared Network Upgrades can be found in the attached AEPW-PSO Facility Study.

**Shared Network Upgrades**

The Interconnection Customer was studied within the DISIS-2013-001 Impact Study. At this time, the Interconnection Customer is allocated \$0.00 for Shared Network Upgrades. If higher queued interconnection customers withdraw from the queue, suspend or terminate their 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 being placed in service. At this time, the Interconnection Customer is allocated the following cost for Shared Network Upgrade:

Share Network Upgrade Description	Allocated Cost	Total Cost
None	\$0.00	\$0.00
Total	\$0.00	

**Other Network Upgrades**

At this time there are no Other Network Upgrades that are currently the cost responsibility of the Customer.

**Conclusion**

Interconnection Service for GEN-2013-009 will be delayed until the Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades are constructed. The Interconnection Customer is responsible for \$13,628,439 of Transmission Owner Interconnection Facilities and Non-Shared Network Upgrades. At this time, the Interconnection Customer is allocated \$0.00 for Shared Network Upgrades. After all Interconnection Facilities and Network Upgrades have been placed into service, Interconnection Service for 100.3 MW, as requested by GEN-2013-009, can be allowed.

At this time the total allocation of costs assigned to GEN-2013-009 for Interconnection Service are estimated at \$13,628,439.

## AEPW-PSO GEN-2013-009 Interconnection Facility Study

The Transmission Owner Interconnection Facilities (TOIFs) required to interconnect the generator to AEPW-PSO's Northeastern Station 138 kV – Vinita Junction 138 kV transmission line are:

1. New 3-Breaker Ring Bus Switching Station - \$6,386,500
2. Remote end relay related work at Northeastern Station 138 kV - \$885,000
3. Remote end relay related work at Vinita Junction 138 kV - \$915,300
4. Communications and Monitoring Equipment in IPP Collector Station - \$463,200

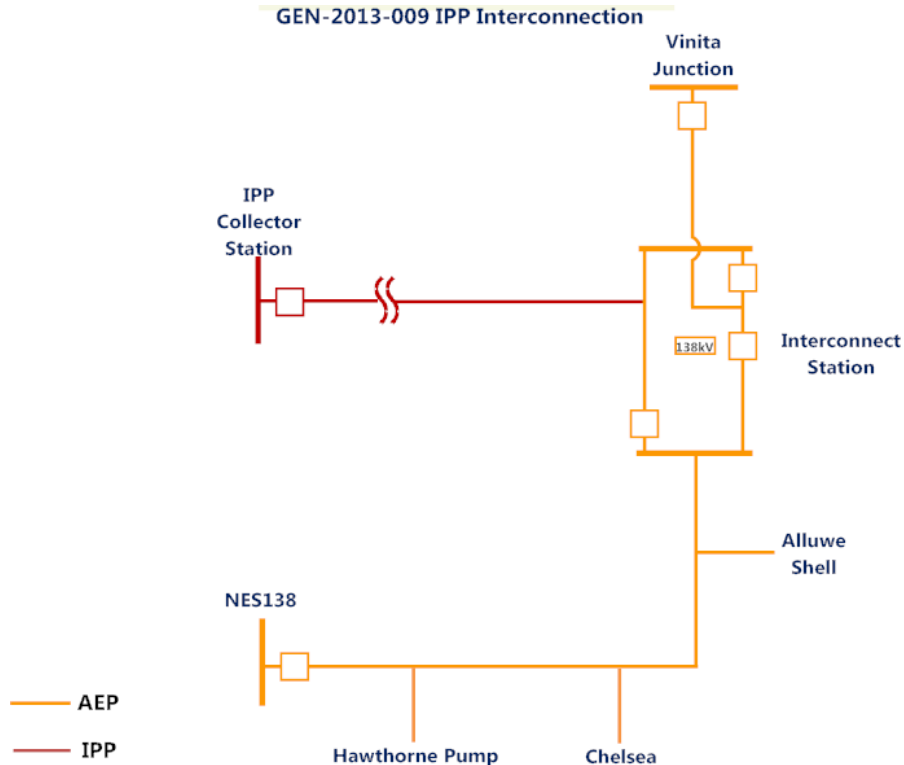
TOIF Subtotal - \$8,650,000

Non-Shared Network Upgrades (NU) required to mitigate the injection constraints for Energy Resource Interconnection Service are:

1. Replace Vinita Junction 138/69 kV transformer with 90 MVA transformer - \$3,939,904
2. Replace terminal equipment at Vinita 69 kV on Vinita Junction – Vinita 69 kV transmission line to increase line rating - \$1,038,535

Non-Shared NU subtotal - \$4,978,439

**Total - \$13,628,439**



*Figure 1 - Oneline of POI*