



INTERCONNECTION FACILITIES STUDY REPORT

Basin Electric Power Cooperative
Shared Network Upgrade(s)

IFS-2015-002

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By SPP Generator Interconnections Dept.

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION	COMMENTS
4/10/2017	SPP	Initial draft report issued.	

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SUMMARY

INTRODUCTION

The interconnecting Transmission Owner, Basin Electric Power Cooperative (BEPC), performed a detailed Interconnection Facilities Study (IFS) at the request of SPP for Shared Network Upgrade(s) assigned in the SPP Generator Interconnection Impact Study DISIS-2015-002 and its subsequent restudies. The scope of the IFS is defined in the Generator Interconnection Procedures (GIP) under Attachment V of the Southwest Power Pool (SPP) Open Access Transmission Tariff (OATT). The latest restudy iteration of DISIS-2015-002 is DISIS-2015-002-2 which posted on November 29th, 2016. Generator Interconnection Request(s) (GIRs) that have cost allocation responsibilities for assigned Network Upgrade(s) will require the assigned Network Upgrade(s) to be in-service for full Interconnection Service. The request for interconnection was placed with SPP in accordance with SPP's OATT, which covers new generator interconnections on SPP's transmission system. Based on DISIS-2015-001-2 Impact Restudy results, the following Shared Network Upgrade(s) are needed:

- Daglum – Dickinson 230kV Circuit #1
- Dickinson 230/115/13kV Transformer Circuit #2

The primary objective of the IFS is to identify necessary Transmission Owner Interconnection Facilities, Network Upgrade(s), other direct assigned upgrade(s), and associated upgrade lead times needed to grant the requested Interconnection Service at the specified Point of Interconnection (POI).

GENERATOR INTERCONNECTION REQUEST(S)

The GIR(s) assigned the Shared Network Upgrade(s) are listed in the corresponding **Tables 1**.

Table 1: Generator Interconnection Requests for Shared Network Upgrade(s)

GI Request Number	Point of Interconnection (POI)	Capacity (MW)
GEN-2015-046/IFS-2015-002-46	Tande 345kV	300.00
GEN-2015-091/IFS-2015-002-47	Daglun 230kV	101.20
GEN-2015-096/IFS-2015-002-43	Daglun 345kV	150.00
GEN-2015-098/IFS-2015-002-45	Mingusville 230kV	100.00

The GIR(s) mentioned above were included in the DISIS-2015-002 Impact Study and its subsequent restudies, the latest being DISIS-2015-002-2.

CREDITS/COMPENSATION FOR AMOUNTS ADVANCED FOR NETWORK UPGRADE(S)

Interconnection Customer shall be entitled to compensation in accordance with Attachment Z2 of the SPP OATT for the cost of SPP Network Upgrades, including any tax gross-up or any other tax-related payments associated with the Network Upgrades, that are not otherwise refunded to the Interconnection Customer. Compensation shall be in the form of either revenue credits or incremental Long Term Congestion Rights (iLTCR).

SHARED NETWORK UPGRADE(S) FACILITIES DESCRIPTIONS AND COSTS

Table 2 lists Shared Network Upgrade(s) description, costs, and provides an estimated lead time for completion of construction. The estimated lead time begins when the Generator Interconnection Agreement has been fully executed.

Shared Network Upgrade(s) Cost Allocation by each GIR(s) responsibility is shown in the **Appendix A**.

Table 2: Shared Network Upgrade(s)

TOIF and Non-Shared Network Upgrades Description	Allocated Cost Estimate (\$)	Estimated Lead Time
<p>Daglum – Dickinson 230kV Circuit #1: Build twenty-eight (28) miles of 1272 ACSR 230kV circuit from Daglum – Dickinson, one (1) new 230kV 2000 continuous ampacity breaker at Daglum, and one (1) new 230kV 2000 continuous ampacity breaker at Dickinson. Daglum and Dickson substations will also require work for new control panels, line relaying, disconnect switches, structures, foundations, conductors, insulators, and all other associated work and materials.</p>	<p>\$23,109,504</p>	<p>37 Months</p>
<p>Dickinson 230/115/13kV Transformer Circuit #2: Expand Dickinson Substation, build new 230kV line terminal, build new three (3) breaker ring “East” bus for 115kV configuration, one (1) 230kV 2000 continuous ampacity breaker, three (3) 115kV 1200 continuous ampacity breakers, new 230/115/13kV 166MVA transformer, control panels, line relaying, disconnect switches, structures, foundations, conductors, insulators, and all other associated work and materials.</p>	<p>\$11,764,180</p>	<p>23 Months</p>
<p>Total</p>	<p>\$34,873,684</p>	

All studies have been conducted assuming that higher-queued Interconnection Request(s) and the associated Network Upgrade(s) will be placed into service. If higher-queued Interconnection Request(s) withdraw from the queue, suspend or terminate service, the Interconnection Customer’s share of costs may be revised. Restudies, conducted at the customer’s expense, will determine the Interconnection Customer’s revised allocation of Shared Network Upgrades.

CONCLUSION

The Network Upgrade(s) listed in this Shared Interconnection Facilities Study are required for full Interconnection Service for the GIRs listed in **Table 1**. Interconnection Service will be delayed until the Shared Network Upgrade(s) listed in **Table 2** are constructed. The Shared Network Upgrades is summarized in the table below.

Description	Allocated Cost Estimate (\$)
Daglum - Dickinson 230kV Circuit #1:	\$23,109,504
Dickinson 230/115/13kV Transformer Circuit #2:	\$11,764,180
Total	\$34,873,684

A draft Generator Interconnection Agreement will be provided to the Interconnection Customer consistent with the final results of this IFS report. The Transmission Owner and Interconnection Customer will have 60 days to negotiate the terms of the GIA consistent with the SPP OATT.

APPENDICES

A: TRANSMISSION OWNER'S SHARED NETWORK UPGRADE(S) COST ALLOCATION PER GENERATOR INTERCONNECTION REQUEST

See next page for the Transmission Owner's Shared Network Upgrade(s) Cost Allocation per Generator Interconnection Request.

Appendix A. Cost Allocation by Upgrade

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

Daglum - Dickinson 230kV CKT 1		\$23,109,504	
	Allocated Cost	Allocated %	
Build new 230kV line from Daglum - Dickinson.			
GEN-2015-046	\$1,678,159	7.26%	
GEN-2015-091	\$7,817,147	33.83%	
GEN-2015-096	\$11,586,681	50.14%	
GEN-2015-098	\$2,027,517	8.77%	
Total Allocated Costs	\$23,109,504		
Dickinson 230/115/13.8kV CKT 2		\$11,764,180	
	Allocated Cost	Allocated %	
Build new 230/115/13.8kV Transformer circuit #2 at Dickinson and expand Dickinson 115kV switchyard			
GEN-2015-046	\$3,189,002	27.11%	
GEN-2015-091	\$2,669,854	22.69%	
GEN-2015-096	\$3,957,294	33.64%	
GEN-2015-098	\$1,948,030	16.56%	
Total Allocated Costs	\$11,764,180		

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