INTERCONNECTION FACILITIES STUDY REPORT

Southwestern Public Service
Shared Network Upgrade(s)

IFS-2015-001

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By SPP Generator Interconnections Dept.

REVISION HISTORY

DATE OR VERSION NUMBER	AUTHOR	CHANGE DESCRIPTION	COMMENTS
2/10/2017	SPP	Initial draft report issued.	

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SUMMARY

INTRODUCTION

The interconnecting Transmission Owner, Southwestern Public Service Company (SPS), 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-2015-001 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-2015-001 is DISIS-2015-001-2 which posted on March 9th, 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:

- Kress Interchange – Swisher 115kV Circuit #2 Build
- Sundown Interchange 230/115/13kV Transformer Circuit #1 Replacement
- Wolfforth Interchange 230/115/13kV Transformer Circuit #1 Replacement

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 Oklaunion 260Mvars Capacitor Bank(s)

GI Request Number	Point of Interconnection (POI)	Capacity (MW)
GEN-2014-074/IFS-2015-001-17	Tap TUCO Interchange – Oklaunion 345kV	152.00
GEN-2015-022/IFS-2015-001-19	Swisher 115kV	112.00

The GIR(s) mentioned above were included in the DISIS-2015-001 Impact Study and its subsequent restudies, the latest being DISIS-2015-001-2.

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
Kress Interchange – Swisher 115kV Circuit #2 Build: SPS to build approximately three (3) miles of new second circuit 115kV from Kress Interchange to Swisher County. The three (3) miles of second circuit will be built with 477 ACSS Hawk and 795 ACSR conductors. Kress Interchange and Swisher substations will each require the current straight bus configurations to be expanded for the new line terminals. Each substation will require the addition of one (1) 115kV 3000 continuous ampacity breaker along with two (2) switches, structural steel, foundations, relays, protective and metering equipment, and all associated and miscellaneous material.	$2,891,790	24 Months
Sundown Interchange 230/115/13kV Transformer Circuit #1 Replacement: SPS to uninstall the existing Sundown Interchange 230/115/13kV transformer circuit #1 and replace it with a new 250MVA capacity 230/115/13kV transformer. One (1) 115kV breaker will need to be replaced with a 3000 continuous ampacity breaker. The Sundown Substation will require two (2) new control panels, updating protective and metering equipment, and associated and miscellaneous material.	$4,499,695	24 Months
Wolfforth Interchange 230/115/13kV Transformer Circuit #1 Replacement: SPS to uninstall the existing Wolfforth Interchange 230/115/13kV transformer circuit #1 and replace it with a new 250MVA capacity 230/115/13kV transformer. The Wolfforth Substation will require one (1) new control panel, switches, updating protective and metering equipment, and associated and miscellaneous material.	$3,790,207	24 Months
Total	**$11,181,692**	

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 ($)
Kress Interchange – Swisher 115kV Circuit #2 Build: SPS to build approximately three (3) miles of new second circuit 115kV from Kress Interchange to Swisher County. The three (3) miles of second circuit will be built with 477 ACSS Hawk and 795 ACSR conductors. Kress Interchange and Swisher substations will each require the current straight bus configurations to be expanded for the new line terminals. Each substation will require the addition of one (1) 115kV 3000 continuous ampacity breaker along with two (2) switches, structural steel, foundations, relays, protective and metering equipment, and all associated and miscellaneous material.	$2,891,790
Sundown Interchange 230/115/13kV Transformer Circuit #1 Replacement: SPS to uninstall the existing Sundown Interchange 230/115/13kV transformer circuit #1 and replace it with a new 250MVA capacity 230/115/13kV transformer. One (1) 115kV breaker will need to be replaced with a 3000 continuous ampacity breaker. The Sundown Substation will require two (2) new control panels, updating protective and metering equipment, and associated and miscellaneous material.	$4,499,695
Wolfforth Interchange 230/115/13kV Transformer Circuit #1 Replacement: SPS to uninstall the existing Wolfforth Interchange 230/115/13kV transformer circuit #1 and replace it with a new 250MVA capacity 230/115/13kV transformer. The Wolfforth Substation will require one (1) new control panel, switches, updating protective and metering equipment, and associated and miscellaneous material.	$3,790,207
Total	**$11,181,692**

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)

Kress Interchange - Swisher 115kV CKT 2			**$2,891,790**
Build 3 miles of second circuit 115kV		**Allocated Cost**	**Allocated %**
	GEN-2014-074	$21,051	0.73%
	GEN-2015-022	$2,870,739	99.27%
	Total Allocated Costs	**$2,891,790**	

Sundown Interchange 230/115/13.8kV Transformer CKT 1			**$4,499,695**
Replace existing Sundown Interchange Transformer circuit #1 with 250 MVA.		**Allocated Cost**	**Allocated %**
	GEN-2014-074	$2,938,708	65.31%
	GEN-2015-022	$1,560,987	34.69%
	Total Allocated Costs	**$4,499,695**	

Wolfforth Interchange 230/115/13.2kV Transformer CKT 1			**$3,790,207**
Replace existing Wolfforth Interchange Transformer circuit #1 with 250 MVA.		**Allocated Cost**	**Allocated %**
	GEN-2014-074	$2,819,758	74.40%
	GEN-2015-022	$970,449	25.60%
	Total Allocated Costs	**$3,790,207**	

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