



SPP *Southwest Power Pool*

FCS-2011-002 Facility Study For Transmission Facilities in SPS

(ERIS: Jones – Lubbock South 230kV CKT 2 Terminal Equipment)

(ERIS: Power System Stabilizers (PSS) at Tolk 1,2 and Jones 1,2,3)

(NRIS: Jones – TUCO 230kV CKT 1 Terminal Equipment)

(NRIS: Lubbock South Interchange 230/115kV CKT 2)

(NRIS: Lubbock South – Allen 115kV CKT 1 Rebuild)

(NRIS: Lubbock South – Lubbock East 115kV CKT 1 Rebuild)

***SPP Generation
Interconnection***

(#FCS-2011-002)

August 2012

Summary

Xcel Energy Inc (Xcel), a subsidiary of Southwestern Public Service Company (SPS), performed a detailed Facility Study at the request of Southwest Power Pool (SPP) for facility requests in DISIS-2011-002. The requests for interconnection were placed with SPP in accordance with SPP’s Open Access Transmission Tariff, which covers new generation interconnections on SPP’s transmission system. The SPP request consists of Energy Resource Interconnection Service (ERIS) upgrades of replacing wave traps at both terminals to 1600 amps on Jones – Lubbock South 230kV circuit 2, and installation of Power System Stabilizers (PSS) at Tolk (Units: 1,2) and Jones (Units: 1,2,3). The SPP request also consisted of Network Resource Interconnection Service (NRIS) upgrades of replacing wave traps at both terminals to 1600 amps on Jones – TUCO 230kV circuit 1, building Lubbock South Interchange 230/115kV 250MVA autotransformer circuit 2 along with terminal equipment needed for the autotransformer, , rebuild of Lubbock South – Allen 115kV circuit 1 to 1200 amps, rebuild of Lubbock South – Lubbock East 115kV circuit 1 to 1200 amps, The total estimated cost for the ERIS and NRIS Upgrades is \$11,431,053.

Pursuant to the tariff, SPS was requested to provide a Facility Study grade estimate for required network upgrades to satisfy the Facility Study Agreement executed by the requesting customers and SPP.

Network Upgrade Detail

Network Upgrade	Service Type	Cost
Replace Wave Traps from 800 amps to 1600 amps on both terminals of Jones – Lubbock South 230kV circuit 2 along with replacing amp switches at Jones (JK41, JK42, and JK47) and at Lubbock South (6K11,6K12, and 6K13) from 1200 amps to 2000 amps	ERIS	\$356,250
Install Power System Stabilizers (PSS) at Tolk (Units: 1,2) and Jones (Units: 1,2,3)	ERIS	\$102,500
Replace Wave Traps from 800 amps to 1600 amps on both terminals of Jones – TUCO 230kV circuit 2 along with replacing amp switches at Jones (JK41, JK42, and JK47) and at TUCO (6K11,6K12, and 6K13) from 1200 amps to 2000 amps	NRIS	\$331,826
Build Lubbock South Interchange 230/115kV 250MVA Autotransformer circuit 2 with 1-230kV breaker and 1-115kV breaker	NRIS	\$4,058,031
Rebuild Lubbock South – Allen 115kV circuit 1 at 1200 amps (168MVA)	NRIS	\$2,775,292
Upgrade wave traps at Lubbock South and Allen to at least 1200 amps	NRIS	\$103,970
Rebuild Lubbock South – Lubbock East 115kV circuit 1 at 1200 amps (161 MVA)	NRIS	\$3,599,214
Upgrade wave traps at Lubbock South and Lubbock East to at least 1200 amps	NRIS	\$103,970
Total		\$11,431,053

Network Upgrade Cost Allocation by Customer

The interconnection customers listed in the cost allocation below are included in the DISIS-2011-002 Impact Study which identified the required network upgrades for each customer in order to interconnect to the transmission system.

The individual customer facilities costs are shown in the following tables:

ASGI-2011-004

Upgrade Type	Service Type	Allocated Costs
Install Power System Stabilizers (PSS) at Tolk (Units: 1,2) and Jones (Units: 1,2,3)	ERIS	\$4,916.07
Total		\$4,916.07

GEN-2011-045

Upgrade Type	Service Type	Allocated Costs
Replace Wave Traps from 800 amps to 1600 amps on both terminals of Jones – Lubbock South 230kV circuit 2 along with replacing amp switches at Jones (JK41, JK42, and JK47) and at Lubbock South (6K11,6K12, and 6K13) from 1200 amps to 2000 amps	ERIS	\$356,250.00
Install Power System Stabilizers (PSS) at Tolk (Units: 1,2) and Jones (Units: 1,2,3)	ERIS	\$50,389.69
Replace Wave Traps from 800 amps to 1600 amps on both terminals of Jones – TUCO 230kV circuit 2 along with replacing amp switches at Jones (JK41, JK42, and JK47) and at TUCO (6K11,6K12, and 6K13) from 1200 amps to 2000 amps	NRIS	\$331,826.00
Build Lubbock South Interchange 230/115kV 250MVA Autotransformer circuit 2 with 1-230kV breaker and 1-115kV breaker	NRIS	\$3,432,241.84
Rebuild Lubbock South – Allen 115kV circuit 1 at 1200 amps (168MVA)	NRIS	\$2,775,292
Upgrade wave traps at Lubbock South and Allen to at least 1200 amps	NRIS	\$103,970
Rebuild Lubbock South – Lubbock East 115kV circuit 1 at 1200 amps (161 MVA) along with upgrading Upgrade wave traps at Lubbock South and Lubbock East	NRIS	\$2,285,165.55
Upgrade wave traps at Lubbock South and Lubbock East to at least 1200 amps	NRIS	\$66,011.26
Total		\$9,401,146.34

GEN-2011-046

Upgrade Type	Service Type	Allocated Costs
Install Power System Stabilizers (PSS) at Tolk (Units: 1,2) and Jones (Units: 1,2,3)	ERIS	\$6,636.69
Rebuild Lubbock South – Lubbock East 115kV circuit 1 at 1200 amps (161 MVA) along with upgrading Upgrade wave traps at Lubbock South and Lubbock East	NRIS	\$70,260.68
Upgrade wave traps at Lubbock South and Lubbock East to at least 1200 amps	NRIS	\$2,029.61
Total		\$78,926.98

GEN-2011-048

Upgrade Type	Service Type	Allocated Costs
Install Power System Stabilizers (PSS) at Tolk (Units: 1,2) and Jones (Units: 1,2,3)	ERIS	\$40,557.55
Build Lubbock South Interchange 230/115kV 250MVA Autotransformer circuit 2 with 1-230kV breaker and 1-115kV breaker	NRIS	\$625,789.16
Rebuild Lubbock South – Lubbock East 115kV circuit 1 at 1200 amps (161 MVA) along with upgrading Upgrade wave traps at Lubbock South and Lubbock East	NRIS	\$1,243,787.77
Upgrade wave traps at Lubbock South and Lubbock East to at least 1200 amps	NRIS	\$35,929.13
Total		\$1,946,063.61

Network Upgrade Cost Allocation by Upgrade

The network upgrade with its assigned interconnection customers list in the cost allocation below are included in the DISIS-2011-002 Impact Study which identified the required network upgrades and the upgrade’s assigned customer in order to interconnect to the transmission system.

The network upgrade with its assigned interconnection customer facilities costs are shown in the following table:

Network Upgrade	Service Type	Allocated Cost by Customer				Total Upgrade Cost
		ASGI-2011-004	GEN-2011-045	GEN-2011-046	GEN-2011-048	
Replace Wave Traps from 800 amps to 1600 amps on both terminals of Jones – Lubbock South 230kV circuit 2 along with replacing amp switches at Jones (JK41, JK42, and JK47) and at Lubbock South (6K11,6K12, and 6K13) from 1200 amps to 2000 amps	ERIS		\$356,250.00			\$356,250
Install Power System Stabilizers (PSS) at Tolk (Units: 1,2) and Jones (Units: 1,2,3)	ERIS	\$4,916.07	\$50,389.69	\$6,636.69	\$40,557.55	\$102,500
Replace Wave Traps from 800 amps to 1600 amps on both terminals of Jones – TUCO 230kV circuit 2 along with replacing amp switches at Jones (JK41, JK42, and JK47) and at TUCO (6K11,6K12, and 6K13) from 1200 amps to 2000 amps	NRIS		\$331,826.00			\$331,826
Build Lubbock South Interchange 230/115kV 250MVA Autotransformer circuit 2 with 1-230kV breaker and 1-115kV breaker	NRIS		\$3,432,241.84		\$625,789.16	\$4,058,031
Rebuild Lubbock South – Allen 115kV circuit 1 at 1200 amps (168MVA)	NRIS		\$2,775,292			\$2,775,292
Upgrade wave traps at Lubbock South and Allen to at least 1200 amps	NRIS		\$103,970			\$103,970
Rebuild Lubbock South – Lubbock East 115kV circuit 1 at 1200 amps (161 MVA)	NRIS		\$2,285,165.55	\$70,260.68	\$1,243,787.77	\$3,599,214
Upgrade wave traps at Lubbock South and Lubbock East to at least 1200 amps	NRIS		\$66,011.26	\$2,029.61	\$35,929.13	\$103,970
Customer Total		\$4,916.07	\$9,401,146.34	\$78,926.98	\$1,946,063.61	\$11,431,053

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 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.