

# Impact Cluster Study for Generation Interconnection Requests

Southwest Power Pool  
Engineering Department  
Generation Interconnection Studies

(ICS-2008-001-6)  
November 2013



SPP RESTRICTED

## Executive Summary

Southwest Power Pool has conducted this Impact Re-Study for generation interconnection requests in the SPP Generation Interconnection Queue to account for the modification and withdrawal of equally and higher queued projects. This study is a cost re-allocation analysis only.

These interconnection requests have been clustered together for the following Impact Cluster Study. This Impact Cluster Study analyzes the interconnecting of multiple generation interconnection requests associated with new generation totaling 4,552 MW of new generation which would be located within the transmission systems of Mid-Kansas Electric Power LLC (MKEC), Oklahoma Gas and Electric (OKGE), Southwestern Public Service (SPS), Sunflower Electric Power Corporation (SUNC), Westar Energy (WERE) and/or Western Farmers Electric Cooperative (WFEC). The various generation interconnection requests have differing proposed in-service dates<sup>1</sup>. The generation interconnection requests included in this Impact Cluster Study are listed in Appendix A by their queue number, amount, area, requested interconnection point, proposed interconnection point, and the requested in-service date.

The total estimated minimum cost for interconnecting the studied interconnection requests is \$75,849,000. This cost allocation reflects the modification of GEN-2008-018, which reduced its interconnection request to 250MW. Please see the Modification Study for GEN-2008-018 for more details. The study can be found at this link.

[http://spooasis.spp.org/documents/swpp/transmission/studies/files/2008\\_Generation\\_Studies/GEN-2008-018\\_Modification\\_Request\\_Impact\\_Restudy-9-27-2013\\_final.pdf](http://spooasis.spp.org/documents/swpp/transmission/studies/files/2008_Generation_Studies/GEN-2008-018_Modification_Request_Impact_Restudy-9-27-2013_final.pdf)

These costs are shown in Appendix E and Appendix F. This cost does not include additional network constraints in the SPP transmission system that were identified are shown in Appendix H.

Powerflow Analysis was not performed for this study. Powerflow results can be found in the results for ICS-2008-001-5 at this link.

[http://spooasis.spp.org/documents/swpp/transmission/studies/files/2008\\_Generation\\_Studies/ICS-2008-001-5%20Impact%20Study%20Restudy\\_1-24-13.pdf](http://spooasis.spp.org/documents/swpp/transmission/studies/files/2008_Generation_Studies/ICS-2008-001-5%20Impact%20Study%20Restudy_1-24-13.pdf)

The required interconnection costs listed in Appendix E and F do not include all costs associated with the deliverability of the energy to final customers. These costs are determined by separate studies if the Customer submits a Transmission Service Request through SPP's Open Access Same Time Information System (OASIS) as required by Attachment Z1 of the SPP OATT.

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<sup>1</sup> The generation interconnection requests in-service dates will need to be deferred based on the required lead time for the Network Upgrades necessary. The Interconnection Customer's that proceed to the Facility Study will be provided a new in-service date based on the completion of the Facility Study.

**A: Generation Interconnection Requests Considered for Impact Study**

See next page.

## **A: Generation Interconnection Requests Considered for Impact Study**

Request	Amount	Service	Area	Requested Point of Interconnection	Proposed Point of Interconnection	Requested In-Service Date
GEN-2006-006	205.5	ER	SUNCMKEC	Spearville 345kV	Spearville 345kV	12/1/2008
GEN-2007-021	201.0	ER	OKGE	Dewey 138kV	Tatonga 345kV	8/1/2009
GEN-2007-025	300.0	ER	WERE	Viola 345kV	Viola 345kV	12/31/2009
GEN-2007-032	150.0	ER	WFEC	Tap Clinton Junction - Clinton 138kV	Tap Clinton Junction - Clinton 138kV	9/15/2013
GEN-2007-038	200.0	ER	SUNCMKEC	Spearville 345kV	Spearville 345kV	8/25/2015
GEN-2007-043	200.0	ER	OKGE	Minco 345kV	Minco 345kV	12/1/2009
GEN-2007-044	300.0	ER	OKGE	Roman Nose 138kV	Tatonga 345kV	12/1/2009
GEN-2007-046	199.5	ER	SPS	Texas County - Hitchland 115kV	Hitchland 115kV	12/31/2011
GEN-2007-048	400.0	ER	SPS	Tap Amarillo S - Swisher 230kV	Tap Amarillo S - Swisher 230kV	11/1/2009
GEN-2007-050	170.0	ER	OKGE	Woodward EHV 138kV	Woodward EHV 138kV	10/1/2009
GEN-2007-052	150.0	ER	WFEC	Anadarko 138kV	Anadarko 138kV	5/1/2009
GEN-2007-062	765.0	ER	OKGE	Woodward EHV 345kV	Woodward EHV 345kV	12/31/2011
GEN-2008-003	101.0	ER	OKGE	Woodward EHV 138kV	Woodward EHV 138kV	8/31/2009
GEN-2008-008	60.0	ER	SPS	Graham 69kV	Graham 69kV	12/31/2010
GEN-2008-013	300.0	ER	OKGE	Tap Wichita - Woodring (Hunter) 345kV	Tap Wichita - Woodring (Hunter) 345kV	10/1/2010
GEN-2008-017	300.0	ER	SUNCMKEC	Setab 345kV	Setab 345kV	3/1/2012
GEN-2008-018	250.0	ER	SPS	Holcomb - Spearville 345kV	Finney 345kV	12/31/2012
GEN-2008-019	300.0	ER	OKGE	Dewey 345kV	Tatonga 345kV	12/31/2012
<b>TOTAL 4,552.0</b>						

\*request dependent upon Priority Projects or Balanced Portfolio may be delayed until 12/31/2014.  
Other projects in service date to be determined after Facility Study.

**B: Prior Queued Interconnection Requests**

See next page.

## **B: Prior Queued Interconnection Requests**

<b>Request</b>	<b>Amount</b>	<b>Area</b>	<b>Requested/Proposed Point of Interconnection</b>	<b>Status or In-Service Date</b>
ASGI-2010-006	150.00	AECI	Tap Fairfax (AECI) - Shilder (AEPW) 138kV	AECI queue Affected Study
GEN-2001-014	96.00	WFEC	Ft Supply 138kV	On-Line
GEN-2001-026	74.00	WFEC	Washita 138kV	On-Line
GEN-2001-033	180.00	SPS	San Juan Tap 230kV	On-Line at 120MW
GEN-2001-036	80.00	SPS	Norton 115kV	On-Line
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV	On-Line
GEN-2001-039A	105.00	SUNCMKEC	Tap Greensburg - Ft Dodge (Shooting Star Tap) 115kV	On-Line
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV	On-Line
GEN-2002-004	200.00	WERE	Latham 345kV	On-Line at 150MW
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV	On-Line
GEN-2002-008	240.00	SPS	Hitchland 345kV	On-Line at 120MW
GEN-2002-009	80.00	SPS	Hansford 115kV	On-Line
GEN-2002-022	240.00	SPS	Bushland 230kV	On-Line
GEN-2002-023N	0.80	NPPD	Harmony 115kV	On-Line
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV	On-Line
GEN-2003-004	100.00	WFEC	Washita 138kV	On-Line
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV	On-Line
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV	On-Line
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV	On-Line
GEN-2003-020	160.00	SPS	Martin 115kV	On-Line
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV	On-Line
GEN-2003-022	120.00	AEPW	Washita 138kV	On-Line
GEN-2004-005N	30.00	NPPD	St Francis 115kV	On Suspension
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV	On-Line at 100MW
GEN-2004-020	27.00	AEPW	Washita 34.5kV	On-Line
GEN-2004-023	20.60	WFEC	Washita 138kV	On-Line
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV	On-Line
GEN-2005-003	30.60	WFEC	Washita 138kV	On-Line
GEN-2005-008	120.00	OKGE	Woodward 138kV	On-Line
GEN-2005-012	250.00	SUNCMKEC	Spearville 345kV	On-Line at 160MW
GEN-2005-013	201.00	WERE	Tap Latham - Neosho (Caney River) 345kV	On-Line
GEN-2006-002	101.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV	On-Line
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV	On-Line
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV	On-Line
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV	On-Line
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV	On-Line
GEN-2006-026	604.00	SPS	Hobbs 230kV & Hobbs 115kV	On-Line
GEN-2006-031	75.00	MIDW	Knoll 115kV	On-Line
GEN-2006-035	225.00	AEPW	Sweetwater 230kV	On-Line at 132MW
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV	On-Line
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV	On-Line
GEN-2006-040	108.00	SUNCMKEC	Mingo 115kV	On Suspension
GEN-2006-043	99.00	AEPW	Sweetwater 230kV	On-Line
GEN-2006-044	370.00	SPS	Hitchland 345kV	On-Line at 80MW
GEN-2006-046	131.00	OKGE	Dewey 138kV	On-Line
GEN-2006-047	240.00	SPS	Tap Bushland - Deaf Smith (Buffalo) 230kV	On Suspension

Request	Amount	Area	Requested/Proposed Point of Interconnection	Status or In-Service Date
GEN-2007-011	135.00	SUNCMKEC	Syracuse 115kV	On Suspension
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV	On-Line
GEN-2008-021	42.00	WERE	Wolf Creek 345kV	On-Line
GEN-2008-1190	60.00	OPPD	S1399 161kV	On-Line
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV	On-Line
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV	On-Line
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV	On-Line
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV	On-Line
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV	On-Line
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV	On-Line
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV	On-Line
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV	On-Line
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV	On-Line
SPS Distributed (Etter)	20.00	SPS	Etter 115kV	On-Line
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV	On-Line
SPS Distributed (Jal)	10.00	SPS	S Jal 115kV	On-Line
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV	On-Line
SPS Distributed (Monument)	10.00	SPS	Monument 115kV	On-Line
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV	On-Line
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV	On-Line
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV	On-Line
SPS Distributed (Spearman)	10.00	SPS	Spearman 69kV	On-Line
SPS Distributed (TC-Texas County)	20.00	SPS	Texas County 115kV	On-Line
<b>Total:</b>		<b>7,049.5</b>		

**C: Study Groupings**

See next page



## C. Study Groups

<b>GROUP 1: WOODWARD AREA</b>			
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-014	96.00	WFEC	Ft Supply 138kV
GEN-2001-037	100.00	OKGE	FPL Moreland Tap 138kV
GEN-2005-008	120.00	OKGE	Woodward 138kV
GEN-2006-024S	19.80	WFEC	Buffalo Bear Tap 69kV
GEN-2006-046	131.00	OKGE	Dewey 138kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>466.80</b>		
GEN-2007-021	201.00	OKGE	Tatonga 345kV
GEN-2007-043	200.00	OKGE	Minco 345kV
GEN-2007-044	300.00	OKGE	Tatonga 345kV
GEN-2007-050	170.00	OKGE	Woodward EHV 138kV
GEN-2007-062	765.00	OKGE	Woodward EHV 345kV
GEN-2008-003	101.00	OKGE	Woodward EHV 138kV
GEN-2008-019	300.00	OKGE	Tatonga 345kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>2,037.00</b>		
<b>AREA TOTAL</b>	<b>2,503.80</b>		

<b>GROUP 2: HITCHLAND AREA</b>			
Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-008	240.00	SPS	Hitchland 345kV
GEN-2002-009	80.00	SPS	Hansford 115kV
GEN-2003-020	160.00	SPS	Martin 115kV
GEN-2006-020S	18.90	SPS	DWS Frisco 115kV
GEN-2006-044	370.00	SPS	Hitchland 345kV
SPS Distributed (Dumas 19th St)	20.00	SPS	Dumas 19th Street 115kV
SPS Distributed (Etter)	20.00	SPS	Etter 115kV
SPS Distributed (Moore E)	25.00	SPS	Moore East 115kV
SPS Distributed (Sherman)	20.00	SPS	Sherman 115kV
SPS Distributed (Spearman)	10.00	SPS	Spearman 69kV
SPS Distributed (TC-Texas County)	20.00	SPS	Texas County 115kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>983.90</b>		
GEN-2007-046	199.50	SPS	Hitchland 115kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>199.50</b>		
<b>AREA TOTAL</b>	<b>1,183.40</b>		

**GROUP 3: SPEARVILLE AREA**

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-039A	105.00	SUNCMKEC	Tap Greensburg - Ft Dodge (Shooting Star Tap) 115kV
GEN-2002-025A	150.00	SUNCMKEC	Spearville 230kV
GEN-2004-014	154.50	SUNCMKEC	Spearville 230kV
GEN-2005-012	250.00	SUNCMKEC	Spearville 345kV
GEN-2006-021	101.00	SUNCMKEC	Flat Ridge Tap 138kV
Gray County Wind (Montezuma)	110.00	SUNCMKEC	Gray County Tap 115kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>870.50</b>		
GEN-2006-006	205.50	SUNCMKEC	Spearville 345kV
GEN-2007-038	200.00	SUNCMKEC	Spearville 345kV
GEN-2008-018	250.00	SPS	Finney 345kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>655.50</b>		
<b>AREA TOTAL</b>	<b>1,526.00</b>		

**GROUP 4/11: NW KANSAS AREA**

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-039M	100.00	SUNCMKEC	Central Plains Tap 115kV
GEN-2003-006A	200.00	SUNCMKEC	Elm Creek 230kV
GEN-2003-019	250.00	MIDW	Smoky Hills Tap 230kV
GEN-2006-031	75.00	MIDW	Knoll 115kV
GEN-2006-040	108.00	SUNCMKEC	Mingo 115kV
GEN-2007-011	135.00	SUNCMKEC	Syracuse 115kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>868.00</b>		
GEN-2008-017	300.00	SUNCMKEC	Setab 345kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>300.00</b>		
<b>AREA TOTAL</b>	<b>1,168.00</b>		

**GROUP 5: AMARILLO AREA**

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2002-022	240.00	SPS	Bushland 230kV
GEN-2006-047	240.00	SPS	Tap Bushland - Deaf Smith (Buffalo) 230kV
Llano Estacado (White Deer)	80.00	SPS	Llano Wind 115kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>560.00</b>		
GEN-2007-048	400.00	SPS	Tap Amarillo S - Swisher 230kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>400.00</b>		
<b>AREA TOTAL</b>	<b>960.00</b>		

**GROUP 6: S-TX PANHANDLE/W-TX AREA**

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-033	180.00	SPS	San Juan Tap 230kV
GEN-2001-036	80.00	SPS	Norton 115kV
GEN-2006-018	170.00	SPS	TUCO Interchange 230kV
GEN-2006-026	604.00	SPS	Hobbs 230kV & Hobbs 115kV
SPS Distributed (Hopi)	10.00	SPS	Hopi 115kV
SPS Distributed (Jal)	10.00	SPS	S Jal 115kV
SPS Distributed (Lea Road)	10.00	SPS	Lea Road 115kV
SPS Distributed (Monument)	10.00	SPS	Monument 115kV
SPS Distributed (Ocotillo)	10.00	SPS	S_Jal 115kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>1,084.00</b>		
GEN-2008-008	60.00	SPS	Graham 69kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>60.00</b>		
<b>AREA TOTAL</b>	<b>1,144.00</b>		

**GROUP 7: SW-OKLAHOMA AREA**

Request	Capacity	Area	Proposed Point of Interconnection
GEN-2001-026	74.00	WFEC	Washita 138kV
GEN-2002-005	120.00	WFEC	Red Hills Tap 138kV
GEN-2003-004	100.00	WFEC	Washita 138kV
GEN-2003-005	100.00	WFEC	Anadarko - Paradise (Blue Canyon) 138kV
GEN-2003-022	120.00	AEPW	Washita 138kV
GEN-2004-020	27.00	AEPW	Washita 34.5kV
GEN-2004-023	20.60	WFEC	Washita 138kV
GEN-2005-003	30.60	WFEC	Washita 138kV
GEN-2006-002	101.00	AEPW	Sweetwater 230kV
GEN-2006-035	225.00	AEPW	Sweetwater 230kV
GEN-2006-043	99.00	AEPW	Sweetwater 230kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>1,017.20</b>		
GEN-2007-032	150.00	WFEC	Tap Clinton Junction - Clinton 138kV
GEN-2007-052	150.00	WFEC	Anadarko 138kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>300.00</b>		
<b>AREA TOTAL</b>	<b>1,317.20</b>		

**GROUP 8: N-OK/S-KS AREA**

Request	Capacity	Area	Proposed Point of Interconnection
ASGI-2010-006	150.00	AECI	Tap Fairfax (AECI) - Shilder (AEPW) 138kV
GEN-2002-004	200.00	WERE	Latham 345kV
GEN-2005-013	201.00	WERE	Tap Latham - Neosho (Caney River) 345kV
GEN-2008-021	42.00	WERE	Wolf Creek 345kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>593.00</b>		
GEN-2007-025	300.00	WERE	Viola 345kV
GEN-2008-013	300.00	OKGE	Tap Wichita - Woodring (Hunter) 345kV
<b>CURRENT CLUSTER SUBTOTAL</b>	<b>600.00</b>		
<b>AREA TOTAL</b>	<b>1,193.00</b>		

<b>GROUP 9/10: NEBRASKA AREA</b>			
<b>Request</b>	<b>Capacity</b>	<b>Area</b>	<b>Proposed Point of Interconnection</b>
GEN-2002-023N	0.80	NPPD	Harmony 115kV
GEN-2003-021N	75.00	NPPD	Ainsworth Wind Tap 115kV
GEN-2004-005N	30.00	NPPD	St Francis 115kV
GEN-2004-023N	75.00	NPPD	Columbus Co 115kV
GEN-2006-020N	42.00	NPPD	Bloomfield 115kV
GEN-2006-038N005	80.00	NPPD	Broken Bow 115kV
GEN-2006-038N019	80.00	NPPD	Petersburg North 115kV
GEN-2007-011N08	81.00	NPPD	Bloomfield 115kV
GEN-2008-119O	60.00	OPPD	S1399 161kV
NPPD Distributed (Broken Bow)	8.30	NPPD	Broken Bow 115kV
NPPD Distributed (Burt County Wind)	12.00	NPPD	Tekamah & Oakland 115kV
NPPD Distributed (Burwell)	3.00	NPPD	Ord 115kV
NPPD Distributed (Columbus Hydro)	45.00	NPPD	Columbus 115kV
NPPD Distributed (Ord)	11.90	NPPD	Ord 115kV
NPPD Distributed (Stuart)	2.10	NPPD	Ainsworth 115kV
<b>PRIOR QUEUED SUBTOTAL</b>	<b>606.10</b>		
<b>AREA TOTAL</b>	<b>606.10</b>		

**GROUP 12: NW-AR AREA**

Request	Capacity	Area	Proposed Point of Interconnection
AREA TOTAL	0.00		

**GROUP 13: NW MISSOURI AREA**

Request	Capacity	Area	Proposed Point of Interconnection
AREA TOTAL	0.00		

**GROUP 14: S-OKLAHOMA AREA**

Request	Capacity	Area	Proposed Point of Interconnection
AREA TOTAL	0.00		

CLUSTER TOTAL (CURRENT STUDY)	4,552.0	MW
PQ TOTAL (PRIOR QUEUED)	7,049.5	MW
CLUSTER TOTAL (INCLUDING PRIOR QUEUED)	11,601.5	MW

**D: Proposed Point of Interconnection One line Diagrams**

**SEE FACILITY STUDIES POSTED SEPARATELY FOR EACH INDIVIDUAL REQUEST POSTED**

## **E: Cost Allocation per Interconnection Request**

If interconnection request is dependent upon a Priority Project or Balanced Portfolio upgrade, those upgrades/projects are listed in the interconnection requirements as Priority Project or Balanced Portfolio.

# Appendix E. - Cost Allocation Per Request

## (Including Previously Allocated Network Upgrades\*)

Interconnection Request	Upgrade Type	Allocated Costs	E + C Costs
<b>GEN-2006-006</b>			
GEN-2006-006 Interconnection Cost		\$5,516,397.00	\$5,516,397.00
See Online Diagram			
Spearville - Comanche - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Spearville - Knoll - Axtell 345kV	Balanced Portfolio		
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$5,516,397.00</b>	
<b>GEN-2007-021</b>			
GEN-2007-021 Interconnection Cost		\$3,073,000.00	\$3,073,000.00
See Online Diagram			
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$3,073,000.00</b>	
<b>GEN-2007-025</b>			
GEN-2007-025 Interconnection Cost		\$10,732,000.00	\$10,732,000.00
	<b>Current Study Total</b>	<b>\$10,732,000.00</b>	
<b>GEN-2007-032</b>			
GEN-2007-032 Interconnection Cost		\$2,350,000.00	\$2,350,000.00
See Online Diagram			
	<b>Current Study Total</b>	<b>\$2,350,000.00</b>	
<b>GEN-2007-038</b>			
GEN-2007-038 Interconnection Cost		\$3,663,731.00	\$3,663,731.00
See Online Diagram			
Spearville - Comanche - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Spearville - Knoll - Axtell 345kV	Balanced Portfolio		
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		

\* Current Study Requests' Costs of Previously Allocated Network Upgrades will be determined by a restudy, if necessary.



**Interconnection Request****Upgrade Type****Allocated Costs****E + C Costs**

Medicine Lodge - Wichita Dbl Ckt 345kV

Priority Project

<b>Current Study Total</b>	<b>\$3,663,731.00</b>
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**GEN-2007-043**

GEN-2007-043 Interconnection Cost

\$8,732,000.00

\$8,732,000.00

See Online Diagram

<b>Current Study Total</b>	<b>\$8,732,000.00</b>
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**GEN-2007-044**

GEN-2007-044 Interconnection Cost

\$3,073,000.00

\$3,073,000.00

See Online Diagram

Woodward - Medicine Lodge Dbl Ckt 345kV

Priority Project

Medicine Lodge - Wichita Dbl Ckt 345kV

Priority Project

<b>Current Study Total</b>	<b>\$3,073,000.00</b>
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**GEN-2007-046**

GEN-2007-046 Interconnection Cost

\$545,411.00

\$545,411.00

See Online Diagram

Hitchland-Woodward Dbl Ckt 345kV

Priority Project

Woodward - Medicine Lodge Dbl Ckt 345kV

Priority Project

Medicine Lodge - Wichita Dbl Ckt 345kV

Priority Project

Tucó - Woodward 345kV

Balanced Portfolio

<b>Current Study Total</b>	<b>\$545,411.00</b>
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**GEN-2007-048**

GEN-2007-048 Interconnection Cost

\$3,558,890.00

\$3,558,890.00

See Online Diagram

Amarillo - Swisher Line Traps

\$77,464.00

\$77,464.00

Hitchland-Woodward Dbl Ckt 345kV

Priority Project

Tucó - Woodward 345kV

Balanced Portfolio

Woodward - Medicine Lodge Dbl Ckt 345kV

Priority Project

<b>Current Study Total</b>	<b>\$3,636,354.00</b>
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**GEN-2007-050**

GEN-2007-050 Interconnection Cost

\$1,214,000.00

\$1,214,000.00

See Online Diagram

\* Current Study Requests' Costs of Previously Allocated Network Upgrades will be determined by a restudy, if necessary.

<b>Interconnection Request</b>	<b>Upgrade Type</b>	<b>Allocated Costs</b>	<b>E + C Costs</b>
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$1,214,000.00</b>	
<b>GEN-2007-052</b>			
GEN-2007-052 Interconnection Cost		\$900,000.00	\$900,000.00
	<b>Current Study Total</b>	<b>\$900,000.00</b>	
<b>GEN-2007-062</b>			
GEN-2007-062 Interconnection Cost		\$3,807,000.00	\$3,807,000.00
See Oonline Diagram			
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$3,807,000.00</b>	
<b>GEN-2008-003</b>			
GEN-2008-003 Interconnection Cost		\$1,070,000.00	\$1,070,000.00
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$1,070,000.00</b>	
<b>GEN-2008-008</b>			
GEN-2008-008 Interconnection Cost		\$622,212.00	\$622,212.00
See Oonline Diagram			
Tuco - Woodward 345kV	Balanced Portfolio		
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
Hitchland-Woodward Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$622,212.00</b>	
<b>GEN-2008-013</b>			
GEN-2008-013 Interconnection Cost		\$9,277,000.00	\$9,277,000.00
See Oonline Diagram			
	<b>Current Study Total</b>	<b>\$9,277,000.00</b>	

\* Current Study Requests' Costs of Previously Allocated Network Upgrades will be determined by a restudy, if necessary.

<b>Interconnection Request</b>	<b>Upgrade Type</b>	<b>Allocated Costs</b>	<b>E + C Costs</b>
<b>GEN-2008-017</b>			
GEN-2008-017 Interconnection Cost		\$12,000,000.00	\$12,000,000.00
See Online Diagram			
Spearville - Comanche - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
Hitchland-Woodward Dbl Ckt 345kV	Priority Project		
Spearville - Knoll - Axtell 345kV	Balanced Portfolio		
	<b>Current Study Total</b>	<b>\$12,000,000.00</b>	
<b>GEN-2008-018</b>			
GEN-2008-018 Interconnection Cost		\$2,564,167.00	\$2,564,167.00
See Online Diagram			
Spearville - Comanche - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
Spearville - Knoll - Axtell 345kV	Balanced Portfolio		
Hitchland-Woodward Dbl Ckt 345kV	Priority Project		
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$2,564,167.00</b>	
<b>GEN-2008-019</b>			
GEN-2008-019 Interconnection Cost		\$3,073,000.00	\$3,073,000.00
See Online Diagram			
Woodward - Medicine Lodge Dbl Ckt 345kV	Priority Project		
Medicine Lodge - Wichita Dbl Ckt 345kV	Priority Project		
	<b>Current Study Total</b>	<b>\$3,073,000.00</b>	

\* Current Study Requests' Costs of Previously Allocated Network Upgrades will be determined by a restudy, if necessary.

**F: Cost Allocation per Proposed Network Upgrade**

# Appendix F. - Cost Allocation Per Upgrade Facility

Upgrade Facility	Allocated Costs	E + C Costs
<b>Amarillo - Swisher Line Traps</b>		<b>\$77,464.00</b>
GEN-2007-048	\$77,464.00	
<b>Total</b>	<b>\$77,464.00</b>	
<b>GEN-2006-006 Interconnection Cost</b>		<b>\$5,516,397.00</b>
See Online Diagram		
GEN-2006-006	\$5,516,397.00	
<b>Total</b>	<b>\$5,516,397.00</b>	
<b>GEN-2007-021 Interconnection Cost</b>		<b>\$3,073,000.00</b>
See Online Diagram		
GEN-2007-021	\$3,073,000.00	
<b>Total</b>	<b>\$3,073,000.00</b>	
<b>GEN-2007-025 Interconnection Cost</b>		<b>\$10,732,000.00</b>
GEN-2007-025	\$10,732,000.00	
<b>Total</b>	<b>\$10,732,000.00</b>	
<b>GEN-2007-032 Interconnection Cost</b>		<b>\$2,350,000.00</b>
See Online Diagram		
GEN-2007-032	\$2,350,000.00	
<b>Total</b>	<b>\$2,350,000.00</b>	
<b>GEN-2007-038 Interconnection Cost</b>		<b>\$3,663,731.00</b>
See Online Diagram		
GEN-2007-038	\$3,663,731.00	
<b>Total</b>	<b>\$3,663,731.00</b>	
<b>GEN-2007-043 Interconnection Cost</b>		<b>\$8,732,000.00</b>
See Online Diagram		
GEN-2007-043	\$8,732,000.00	
<b>Total</b>	<b>\$8,732,000.00</b>	
<b>GEN-2007-044 Interconnection Cost</b>		<b>\$3,073,000.00</b>
See Online Diagram		
GEN-2007-044	\$3,073,000.00	
<b>Total</b>	<b>\$3,073,000.00</b>	
<b>GEN-2007-046 Interconnection Cost</b>		<b>\$545,411.00</b>
See Online Diagram		
GEN-2007-046	\$545,411.00	

Upgrade Facility	Allocated Costs	E + C Costs
	<b>Total</b>	<b>\$545,411.00</b>
<b>GEN-2007-048 Interconnection Cost</b>		<b>\$3,558,890.00</b>
See Online Diagram		
GEN-2007-048	\$3,558,890.00	
	<b>Total</b>	<b>\$3,558,890.00</b>
<b>GEN-2007-050 Interconnection Cost</b>		<b>\$1,214,000.00</b>
See Online Diagram		
GEN-2007-050	\$1,214,000.00	
	<b>Total</b>	<b>\$1,214,000.00</b>
<b>GEN-2007-052 Interconnection Cost</b>		<b>\$900,000.00</b>
GEN-2007-052	\$900,000.00	
	<b>Total</b>	<b>\$900,000.00</b>
<b>GEN-2007-062 Interconnection Cost</b>		<b>\$3,807,000.00</b>
See Online Diagram		
GEN-2007-062	\$3,807,000.00	
	<b>Total</b>	<b>\$3,807,000.00</b>
<b>GEN-2008-003 Interconnection Cost</b>		<b>\$1,070,000.00</b>
GEN-2008-003	\$1,070,000.00	
	<b>Total</b>	<b>\$1,070,000.00</b>
<b>GEN-2008-008 Interconnection Cost</b>		<b>\$622,212.00</b>
See Online Diagram		
GEN-2008-008	\$622,212.00	
	<b>Total</b>	<b>\$622,212.00</b>
<b>GEN-2008-013 Interconnection Cost</b>		<b>\$9,277,000.00</b>
See Online Diagram		
GEN-2008-013	\$9,277,000.00	
	<b>Total</b>	<b>\$9,277,000.00</b>
<b>GEN-2008-017 Interconnection Cost</b>		<b>\$12,000,000.00</b>
See Online Diagram		
GEN-2008-017	\$12,000,000.00	
	<b>Total</b>	<b>\$12,000,000.00</b>
<b>GEN-2008-018 Interconnection Cost</b>		<b>\$2,564,167.00</b>
See Online Diagram		
GEN-2008-018	\$2,564,167.00	
	<b>Total</b>	<b>\$2,564,167.00</b>

<b>Upgrade Facility</b>	<b>Allocated Costs</b>	<b>E + C Costs</b>
<b>GEN-2008-019 Interconnection Cost</b>		<b>\$3,073,000.00</b>
See Online Diagram		
GEN-2008-019	\$3,073,000.00	
	<b>Total</b>	
	<b>\$3,073,000.00</b>	
<b>Current Study Upgrades Total</b>		<b>\$75,849,272.00</b>