APPENDIX D3 – VISUAL RESOURCE INVENTORY TABLES

Table D3-1. VRI – Scenic Quality Rating Units (SQRU)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**Class A**	**Class B**	**Class C**	**Non-BLM Land**
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A1 – North River Crossing**	228.8	Miles Crossed	0	19.8	90.3	118.7
			Project Corridor Acres	0	960.0	4378.2	5755.2
			Percent in SQRUs	0	1.3	99.8	NA
	Subroute 1A2 – BLM Preferred Alternative	230.3	Miles Crossed	0	20.2	87.9	122.2
			Project Corridor Acres	0	979.4	4261.8	5924.8
			Percent in SQRUs	0.0	1.3	1.7	NA
	Subroute 1A – North River Crossing	219.5	Miles	0	19.8	85.1	114.6
			Project Corridor Acres	0.0	960.0	4126.1	5556.4
			Percent in SQRUs	0.0	1.3	1.8	NA
	Subroute 1B – San Antonio Crossing						
	Subroute 1B1	223.3	Miles Crossed	0	8.0	106	109.3
			Project Corridor Acres	0.0	387.9	5139.4	5314.0
			Percent in SQRUs	0.0	0.9	1.7	NA
	Subroute 1B2	209.2	Miles Crossed	0	8.8	111.4	89.0
			Project Corridor Acres	0.0	426.7	5401.2	4320.0
			Percent in SQRUs	0.0	0.9	1.7	NA
	Subroute 1B3	206.3	Miles Crossed	0	18.7	103.7	83.9
			Project Corridor Acres	0.0	906.7	5027.9	4073.0
			Percent in SQRUs	0.0	1.4	1.6	NA
	Local Alternative and Crossover Links for Route Group 1						
	Local Alternative Links for 1A and 1B1 (Gran Quivira)						
	E81	21.7	Miles Crossed	0.0	0.0	0.0	21.7
			Project Corridor Acres	0.0	0.0	0.0	1052.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	E82-E84-E85	29.3	Miles Crossed	0.0	0.0	0.0	29.3
			Project Corridor Acres	0.0	0.0	0.0	1624.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	E83	10.3	Miles Crossed	0.0	0.0	0.0	10.3
			Project Corridor Acres	0.0	0.0	0.0	349.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 1A, 1B1, 1B2, 1B3						
	A161b	18.6	Miles Crossed	0.0	0.0	8.5	10.1
			Project Corridor Acres	0.0	0.0	412.1	490.0
			Percent in SQRUs	0.0	0.0	45.7	NA
	A260	28.4	Miles Crossed	0.0	0.0	23.7	4.7
			Project Corridor Acres	0.0	0.0	1149.1	228.0
			Percent in SQRUs	0.0	0.0	83.5	NA
	A361-A430-A481	48.0	Miles Crossed	0.0	12.6	6.1	29.3
			Project Corridor Acres	0.0	610.9	295.8	1421.0
			Percent in SQRUs	0.0	26.2	12.7	NA
	Crossover Link s 1B2, 1B3						
	A70	7.7	Miles Crossed	0.0	3.2	0.8	3.7
			Project Corridor Acres	0.0	155.2	38.8	179.0
			Percent in SQRUs	0.0	1.6	.4	NA

Table D3-1. VRI – Scenic Quality Rating Units (SQRU)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**Class A**	**Class B**	**Class C**	**Non-BLM Land**
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A2 – BLM Preferred Alternative**	123.9	Miles Crossed	0.0	36.8	24.8	62.3
			Project Corridor Acres	0.0	1748.2	1202.4	3020.6
			Percent in SQRUs	0.0	1.3	1.7	NA
	Subroute 3A – North	123.5	Miles Crossed	0.0	33.3	24.8	65.4
			Project Corridor Acres	0.0	1614.5	1202.4	3166.0
			Percent in SQRUs	0.0	1.3	1.7	NA
	Subroute 3B – South	128.6	Miles Crossed	0.0	44.8	11.2	72.6
			Project Corridor Acres	0.0	2172.1	543.0	3530.0
			Percent in SQRUs	0.0	1.6	0.9	NA
	Local Alternative and Crossover Links for Route Group 3						
	Crossover Links 3A, 3B						
	B111	6.9	Miles Crossed	0.0	0.0	1.7	5.2
			Project Corridor Acres	0.0	0.0	0.0	252.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	B140	8.3	Miles Crossed	0.0	0.0	1.2	7.1
			Project Corridor Acres	0.0	0.0	58.2	344.0
			Percent in SQRUs	0.0	0.0	0.5	NA
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.8	Miles Crossed	0.0	11.0	0.0	121.8
			Project Corridor Acres	0.0	533.3	0.0	5910.0
			Percent in SQRUs	0.0	1.1	0.0	NA
	Subroute 4B – Sulphur Springs Valley	132.8	Miles Crossed	0.0	5.0	0.0	127.8
			Project Corridor Acres	0.0	242.4	0.0	6206.0
			Percent in SQRUs	0.0	1.5	0.0	NA
	Subroute 4C – San Pedro Valley						
	Subroute 4C2c - BLM Preferred Alternative	161.2	Miles Crossed	0.0	9.8	5.0	146.4
			Project Corridor Acres	0.0	475.2	242.4	6642.0
			Percent in SQRUs	0.0	1.6	9.8	NA
	Subroute 4C1	138.9	Miles Crossed	1.4	3.9	0	133.6
			Project Corridor Acres	67.9	189.1	0.0	6482.0
			Percent in SQRUs	0.8	1.1	0.0	NA
	Subroute 4C2	151.3	Miles Crossed	0.0	9.8	5.0	136.5
			Project Corridor Acres	0.0	475.2	242.4	6642.0
			Percent in SQRUs	0.0	1.6	9.8	NA
	Subroute 4C3	172.9	Miles Crossed	0.0	8.1	5.1	159.7
			Project Corridor Acres	0.0	392.7	247.3	7743.0
			Percent in SQRUs	0.0	1.5	9.6	NA
	Local Alternative and Crossover Links for Route Group 4						
	Local Alternative Link for 4A, 4B, 4C1						
	C790	8.8	Miles Crossed	0.0	0.0	0.0	8.8
			Project Corridor Acres	0.0	0.0	0.0	427.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3						
	C860	6.9	Miles Crossed	0.0	0.0	0.0	6.9
			Project Corridor Acres	0.0	0.0	0.0	335.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C870	0.2	Miles Crossed	0.0	0.0	0.0	0.2

Table D3-1. VRI – Scenic Quality Rating Units (SQRU)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**Class A**	**Class B**	**Class C**	**Non-BLM Land**
			Project Corridor Acres	0.0	0.0	0.0	10.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C890	2.8	Miles Crossed	0.0	0.0	0.0	2.8
			Project Corridor Acres	0.0	0.0	0.0	136.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1						
	C692	4.8	Miles Crossed	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	233.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations						
	C260-C261-C201	31.0	Miles Crossed	0.0	0.0	0.0	31.0
			Project Corridor Acres	0.0	0.0	0.0	1503.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C680	26.1	Miles Crossed	0.0	2.0	0.0	24.1
			Project Corridor Acres	0.0	97.0	0.0	1168.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C815	0.9	Miles Crossed	0.0	0.9	0.0	0.0
			Project Corridor Acres	0.0	43.6	0.0	0.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C814	1.0	Miles Crossed	0.0	1.0	0.0	0.0
			Project Corridor Acres	0.0	48.5	0.0	0.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C816	0.2	Miles Crossed	0.0	0.1	0.0	0.1
			Project Corridor Acres	0.0	4.8	0.0	0.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	160.0
			Percent in SQRUs	0.0	0.0	0.0	100.00%
	C813	0.5	Miles Crossed	0.0	0.5	0.0	NA
			Project Corridor Acres	0.0	24.2	0.0	0.0
			Percent in SQRUs	0.0	0.6	0.0	NA
	C810	2.0	Miles Crossed	0.0	0.1	0.0	1.9
			Project Corridor Acres	0.0	4.8	0.0	92.0
			Percent in SQRUs	0.0	0.1	0.0	NA
	C810a	1.7	Miles Crossed	0.0	0.0	0.0	1.7
			Project Corridor Acres	0.0	0.0	0.0	82.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C817	1.8	Miles Crossed	0.0	1.1	0.0	0.7
			Project Corridor Acres	0.0	53.3	0.0	34.0
			Percent in SQRUs	0.0	0.7	0.0	NA
	Local Alternative Links for 4C3						
	F40b-F51-F60a	11.1	Miles Crossed	0.0	0.0	0.0	11.1
			Project Corridor Acres	0.0	0.0	0.0	538.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	F81a-F81b	32.2	Miles Crossed	0.0	0.0	0.0	32.2
			Project Corridor Acres	0.0	0.0	0.0	1561.0

Table D3-1. VRI – Scenic Quality Rating Units (SQRU)							
							***Acres of project corridor based on 400' total ROW**
Route Group	**Alternative Subroute**	**Length (miles)**		**Class A**	**Class B**	**Class C**	**Non-BLM Land**
			Percent in SQRUs	0.0	0.0	0.0	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	160.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1, 4C2, 4C3						
	C72-C90-C121-C211	24.4	Miles Crossed	0.0	0.0	0.0	24.4
			Project Corridor Acres	0.0	0.0	0.0	1,188.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1						
	C500	5.1	Miles Crossed	0.0	0.0	0.0	5.1
			Project Corridor Acres	0.0	0.0	0.0	247.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C501	4.8	Miles Crossed	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	233.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C502	3.9	Miles Crossed	0.0	0.1	0.0	3.8
			Project Corridor Acres	0.0	4.8	0.0	184.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	C174	3.1	Miles Crossed	0.0	0.0	0.0	3.1
			Project Corridor Acres	0.0	0.0	0.0	150.0
			Percent in SQRUs	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1, 4C2						
	C671	7.9	Miles Crossed	0.0	0.0	0.0	7.9
			Project Corridor Acres	0.0	0.0	0.0	383.0
			Percent in SQRUs	0.0	0.0	0.0	NA

*The ground disturbance is based on Option B and C which have the same (maximum) amount of potential temporary and permanent disturbance estimated for the two proposed 500 kV (AC and DC) transmission lines.

Table D3-2. VRI – Sensitivity Level Rating Units (SLRU)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**High**	**Moderate**	**Low**	**Non-BLM Land**
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A1 – North River Crossing**	228.8	Miles Crossed	48.9	33.3	27.9	118.7
			Project Corridor Acres	2370.9	1614.5	1352.7	5755.2
			Percent in SLRUs	1.6	1.9	1.5	NA
	Subroute 1A2 – BLM Preferred Alternative	230.3	Miles Crossed	48.9	32.9	26.3	122.2
			Project Corridor Acres	2370.9	1595.1	1275.1	5924.8
			Percent in SLRUs	1.6	1.9	1.4	NA
	Subroute 1A – North River Crossing	219.5	Miles Crossed	45.1	28	31.8	114.6
			Project Corridor Acres	2186.7	1357.6	1541.8	5556.4
			Percent in SLRUs	1.7	1.6	1.8	NA
	Subroute 1B – San Antonio Crossing						
	Subroute 1B1	223.3	Miles Crossed	46.3	22.7	45	109.3
			Project Corridor Acres	2244.8	1100.6	2181.8	5314.0
			Percent in SLRUs	1.8	1.3	1.7	NA
	Subroute 1B2	209.2	Miles Crossed	46.3	25.1	48.8	89.0
			Project Corridor Acres	2244.8	1217.0	2366.1	4320.0
			Percent in SLRUs	1.8	1.3	1.6	NA
	Subroute 1B3	206.3	Miles Crossed	46.3	30.3	45.8	83.9
			Project Corridor Acres	2244.8	1469.1	2220.6	4073.0
			Percent in SLRUs	1.8	1.4	1.6	NA
	Local Alternative and Crossover Links for Route Group 1						
	Local Alternative Links for 1A and 1B1 (Gran Quivira)						
	E81	21.7	Miles Crossed	0.0	0.0	0.0	21.7
			Project Corridor Acres	0.0	0.0	0.0	1052.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	E82-E84-E85	29.3	Miles Crossed	0.0	0.0	0.0	29.3
			Project Corridor Acres	0.0	0.0	0.0	1624.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	E83	10.3	Miles Crossed	0.0	0.0	0.0	10.3
			Project Corridor Acres	0.0	0.0	0.0	349.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 1A, 1B1, 1B2, 1B3						
	A161b	18.6	Miles Crossed	0.0	5.0	3.5	10.1
			Project Corridor Acres	0.0	242.4	169.7	490.0
			Percent in SLRUs	0.0	1.1	1.7	NA
	A260	28.4	Miles Crossed	15.9	5.6	2.2	4.7
			Project Corridor Acres	770.9	271.5	106.7	228.0
			Percent in SLRUs	1.4	1.8	0.5	NA
	A361-A430-A481	48.0	Miles Crossed	0.0	7.3	11.4	29.3
			Project Corridor Acres	0.0	353.9	552.7	1421.0
			Percent in SLRUs	0.0	2.7	1.3	NA
	Crossover Link s 1B2, 1B3						
	A70	7.7	Miles Crossed	0.0	2.1	1.9	3.7
			Project Corridor Acres	0.0	101.8	92.1	179.0
			Percent in SLRUs	0.0	1.0	1.1	NA

Table D3-2. VRI – Sensitivity Level Rating Units (SLRU)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**High**	**Moderate**	**Low**	**Non-BLM Land**
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A2 – BLM Preferred Alternative**	123.9	Miles Crossed	12.8	6.9	41.9	62.3
			Project Corridor Acres	620.6	334.5	2026.6	3020.6
			Percent in SLRUs	0.9	1.1	2.0	NA
	Subroute 3A – North	123.5	Miles Crossed	11.1	6.4	40.6	65.4
			Project Corridor Acres	538.2	310.3	1968.5	3166.0
			Percent in SLRUs	0.8	1.0	2.0	NA
	Subroute 3B – South	128.6	Miles Crossed	23.7	10.4	21.9	72.6
			Project Corridor Acres	1149.1	504.2	1061.8	3530.0
			Percent in SLRUs	1.1	1.6	1.8	NA
	Local Alternative and Crossover Links for Route Group 3						
	Crossover Links 3A, 3B						
	B111	6.9	Miles Crossed	1.7	0.0	0.0	5.2
			Project Corridor Acres	82.4	0.0	0.0	252.0
			Percent in SLRUs	1.8	0.0	0.0	NA
	B140	8.3	Miles Crossed	1.2	0.0	0.0	7.1
			Project Corridor Acres	58.2	0.0	0.0	344.0
			Percent in SLRUs	0.53	0.0	0.0	NA
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.8	Miles Crossed	3.9	7.1	0	121.8
			Project Corridor Acres	189.1	344.2	0.0	5910.0
			Percent in SLRUs	0.7	1.3	0.0	NA
	Subroute 4B – Sulphur Springs Valley	132.8	Miles Crossed	3.9	1.1	0	127.8
			Project Corridor Acres	189.1	53.3	0.0	6206.0
			Percent in SLRUs	1.1	1.1	0.0	NA
	Subroute 4C – San Pedro Valley						
	Subroute 4C2c – BLM Preferred Alternative	161.2	Miles Crossed	0.6	9.8	4.4	146.4
			Project Corridor Acres	29.1	475.2	213.3	6642.0
			Percent in SLRUs	0.3	2.1	9.4	NA
	Subroute 4C1	138.9	Miles Crossed	4.2	0	1.1	133.6
			Project Corridor Acres	203.6	0.0	53.3	6482.0
			Percent in SLRUs	0.9	0.0	2.9	NA
	Subroute 4C2	151.3	Miles Crossed	0.6	9.8	4.4	136.5
			Project Corridor Acres	29.1	475.2	213.3	6642.0
			Percent in SLRUs	0.3	2.1	9.4	NA
	Subroute 4C3	172.9	Miles Crossed	0.6	8.2	4.4	159.7
			Project Corridor Acres	29.1	397.6	213.3	7743.0
			Percent in SLRUs	0.4	1.9	9.2	NA
	Local Alternative and Crossover Links for Route Group 4						
	Local Alternative Link for 4A, 4B, 4C1						
	C790	8.8	Miles Crossed	0.0	0.0	0.0	8.8
			Project Corridor Acres	0.0	0.0	0.0	427.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3						
	C860	6.9	Miles Crossed	0.0	0.0	0.0	6.9
			Project Corridor Acres	0.0	0.0	0.0	335.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C870	0.2	Miles Crossed	0.0	0.0	0.0	0.2

Table D3-2. VRI – Sensitivity Level Rating Units (SLRU)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**High**	**Moderate**	**Low**	**Non-BLM Land**
			Project Corridor Acres	0.0	0.0	0.0	10.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C890	2.8	Miles Crossed	0.0	0.0	0.0	2.8
			Project Corridor Acres	0.0	0.0	0.0	136.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1						
	C692	4.8	Miles Crossed	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	233.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations						
	C260-C261-C201	31.0	Miles Crossed	0.0	0.0	0.0	31.0
			Project Corridor Acres	0.0	0.0	0.0	1503.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C680	26.1	Miles Crossed	0.0	2.0	0.0	24.1
			Project Corridor Acres	0.0	97.0	0.0	1168.0
			Percent in SLRUs	0.0	0.9	0.0	NA
	C815	0.9	Miles Crossed	0.0	0.9	0.0	0.0
			Project Corridor Acres	0.0	43.6	0.0	0.0
			Percent in SLRUs	0.0	0.7	0.0	NA
	C814	1.0	Miles Crossed	0.0	1.0	0.0	0.0
			Project Corridor Acres in SLRUs	0.0	48.5	0.0	0.0
			Percent in SLRUs	0.0	0.8	0.0	NA
	C816	0.2	Miles of SLRUs Crossed	0.0	0.1	0.0	0.1
			Project Corridor Acres	0.0	4.8	0.0	0.0
			Percent in SLRUs	0.0	0.1	0.0	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	160.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C813	0.5	Miles Crossed	0.0	0.5	0.0	0.0
			Project Corridor Acres	0.0	24.2	0.0	0.0
			Percent in SLRUs	0.0	0.6	0.0	NA
	C810	2.0	Miles Crossed	0.0	0.1	0.0	1.9
			Project Corridor Acres	0.0	4.8	0.0	92.0
			Percent in SLRUs	0.0	**	0.0	NA
	C810a	1.7	Miles Crossed	0.0	0.0	0.0	1.7
			Project Corridor Acres	0.0	0.0	0.0	82.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C817	1.8	Miles Crossed	0.0	1.1	0.0	0.7
			Project Corridor Acres	0.0	53.3	0.0	34.0
			Percent in SLRUs	0.0	0.7	0.0	NA
	Local Alternative Links for 4C3						
	F40b-F51-F60a	11.1	Miles Crossed	0.0	0.0	0.0	11.1
			Project Corridor Acres	0.0	0.0	0.0	538.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	F81a-F81b	32.2	Miles Crossed	0.0	0.0	0.0	32.2

Table D3-2. VRI – Sensitivity Level Rating Units (SLRU)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**High**	**Moderate**	**Low**	**Non-BLM Land**
			Project Corridor Acres	0.0	0.0	0.0	1561.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	160.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1, 4C2, 4C3						
	C72-C90-C121-C211	24.4	Miles Crossed	0.0	0.0	0.0	24.4
			Project Corridor Acres	0.0	0.0	0.0	1,188.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1						
	C500	5.1	Miles Crossed	0.0	0.0	0.0	5.1
			Project Corridor Acres	0.0	0.0	0.0	247.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C501	4.8	Miles Crossed	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	233.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C502	3.9	Miles of SLRUs Crossed	0.1	0.0	0.0	3.8
			Project Corridor Acres	4.8	0.0	0.0	184.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	C174	3.1	Miles Crossed	0.0	0.0	0.0	3.1
			Project Corridor Acres	0.0	0.0	0.0	150.0
			Percent in SLRUs	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1, 4C2						
	C671	7.9	Miles Crossed	0.0	0.0	0.0	7.9
			Project Corridor Acres	0.0	0.0	0.0	383.0
			Percent in SLRUs	0.0	0.0	0.0	NA

*The ground disturbance is based on Option B and C which have the same (maximum) amount of potential temporary and permanent disturbance estimated for the two proposed 500 kV (AC and DC) transmission lines.
**Percentage to be updated

Table D3-3. VRI – Distance Zones (DZ)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**Seldom Seen**	**Background**	**Foreground/ Middleground**	**Non-BLM Land**
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A1 – North River Crossing**	228.8	Miles Crossed	0.0	0.0	110.1	118.7
			Project Corridor Acres	0.0	0.0	5338.2	5755.2
			Percent in DZs	0.0	0.0	1.7	NA
	Subroute 1A2 - BLM Preferred Alternative	230.3	Miles Crossed	0.0	0.0	108.1	122.2
			Project Corridor Acres	0.0	0.0	5241.2	5924.8
			Percent in DZs	0.0	0.0	1.6	NA
	Subroute 1A – North River Crossing	219.5	Miles Crossed	0.0	0.0	104.9	114.6
			Project Corridor Acres	0.0	0.0	5086.1	5556.4
			Percent in DZs	0.0	0.0	1.7	NA
	Subroute 1B – San Antonio Crossing						
	Subroute 1B1	223.3	Miles Crossed	0.0	0.0	114.0	109.3
			Project Corridor Acres	0.0	0.0	5527.3	5314.0
			Percent in DZs	0.0	0.0	1.6	NA
	Subroute 1B2	209.2	Miles Crossed	0.0	0.0	120.0	89.2
			Project Corridor Acres	0.0	0.0	5818.2	4320.0
			Percent in DZs	0.0	0.0	1.6	NA
	Subroute 1B3	206.3	Miles Crossed	0.0	0.0	122.4	83.9
			Project Corridor Acres	0.0	0.0	5934.5	4073.0
			Percent in DZs	0.0	0.0	1.6	NA
	Local Alternative and Crossover Links for Route Group 1						
	Local Alternative Links for 1A and 1B1 (Gran Quivira)						
	E81	21.7	Miles Crossed	0.0	0.0	0.0	21.7
			Project Corridor Acres	0.0	0.0	0.0	1052.0
			Percent in DZs	0.0	0.0	0.0	NA
	E82-E84-E85	29.3	Miles Crossed	0.0	0.0	0.0	29.3
			Project Corridor Acres	0.0	0.0	0.0	1624.0
			Percent in DZs	0.0	0.0	0.0	NA
	E83	10.3	Miles Crossed	0.0	0.0	0.0	10.3
			Project Corridor Acres	0.0	0.0	0.0	349.0
			Percent in DZs	0.0	0.0	0.0	NA
	Local Alternative Links for 1A, 1B1, 1B2, 1B3						
	A161b	18.6	Miles Crossed	0.0	0.0	7.0	10.1
			Project Corridor Acres	0.0	0.0	339.4	490.0
			Percent in DZs	0.0	0.0	1.26	NA
	A260	28.4	Miles Crossed	0.0	0.0	23.7	4.7
			Project Corridor Acres	0.0	0.0	1149.1	228.0
			Percent in DZs	0.0	0.0	1.3	NA
	A361-A430-A481	48.0	Miles Crossed	0.0	0.0	18.7	29.3
			Project Corridor Acres	0.0	0.0	906.7	1421.0
			Percent in DZs	0.0	0.0	1.1	NA
	Crossover Link s 1B2, 1B3						
	A70	7.7	Miles Crossed	0.0	0.0	4.0	3.7
			Project Corridor Acres	0.0	0.0	193.9	179.0
			Percent in DZs	0.0	0.0	1.1	NA

Table D3-3. VRI – Distance Zones (DZ)							
**Acres of project corridor based on 400' total ROW*							
Route Group	**Alternative Subroute**	**Length (miles)**		**Seldom Seen**	**Background**	**Foreground/ Middleground**	**Non-BLM Land**
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A2 - BLM Preferred Alternative**	123.9	Miles Crossed	0.0	0.0	61.6	62.3
			Project Corridor Acres	0.0	0.0	2986.6	3020.6
			Percent in DZs	0.0	0.0	1.5	NA
	Subroute 3A – North	123.5	Miles Crossed	0.0	0.0	58.1	65.4
			Project Corridor Acres	0.0	0.0	2817.0	3166.0
			Percent in DZs	0.0	0.0	1.4	NA
	Subroute 3B – South	128.6	Miles Crossed	0.0	0.0	56.0	72.6
			Project Corridor Acres	0.0	0.0	2715.2	3530.0
			Percent in DZs	0.0	0.0	1.4	NA
	Local Alternative and Crossover Links for Route Group 3						
	Crossover Links 3A, 3B						
	B111	6.9	Miles Crossed	0.0	0.0	1.7	5.2
			Project Corridor Acres	0.0	0.0	82.4	252.0
			Percent in DZs	0.0	0.0	1.0	NA
	B140	8.3	Miles Crossed	0.0	0.0	1.2	7.1
			Project Corridor Acres	0.0	0.0	58.2	344.0
			Percent in DZs	0.0	0.0	0.4	NA
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.8	Miles Crossed	0.1	0.0	10.9	121.8
			Project Corridor Acres	4.8	0.0	528.5	5910.0
			Percent in DZs	1.4	0.0	0.9	NA
	Subroute 4B – Sulphur Springs Valley	132.8	Miles Crossed	0.1	0.0	4.9	127.8
			Project Corridor Acres	4.8	0.0	237.6	6206.0
			Percent in DZs	1.4	0.0	1.1	NA
	Subroute 4C – San Pedro Valley						
	Subroute 4C2c - BLM Preferred Alternative	161.2	Miles Crossed	0.0	0.0	14.8	146.4
			Project Corridor Acres	0.0	0.0	717.6	6642.0
			Percent in DZs	0.0	0.0	2.1	NA
	Subroute 4C1	138.9	Miles Crossed	0.2	0.0	5.1	133.6
			Project Corridor Acres	9.7	0.0	247.3	6482.0
			Percent in DZs	4.7	0.0	1.0	NA
	Subroute 4C2	151.3	Miles Crossed	0.0	0.0	14.8	136.5
			Project Corridor Acres	0.0	0.0	717.6	6642.0
			Percent in DZs	0.0	0.0	2.1	NA
	Subroute 4C3	172.9	Miles Crossed	0.0	0.0	13.2	159.7
			Project Corridor Acres	0.0	0.0	640.0	7743.0
			Percent in DZs	0.0	0.0	2.1	NA
	Local Alternative and Crossover Links for Route Group 4						
	Local Alternative Link for 4A, 4B, 4C1						
	C790	8.8	Miles Crossed	0.0	0.0	0.0	8.8
			Project Corridor Acres	0.0	0.0	0.0	427.0
			Percent in DZs	0.0	0.0	0.0	NA
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3						
	C860	6.9	Miles Crossed	0.0	0.0	0.0	6.9
			Project Corridor Acres	0.0	0.0	0.0	335.0
			Percent in DZs	0.0	0.0	0.0	NA
	C870	0.2	Miles Crossed	0.0	0.0	0.0	0.2

Table D3-3. VRI – Distance Zones (DZ)							
							***Acres of project corridor based on 400' total ROW**
Route Group	**Alternative Subroute**	**Length (miles)**		**Seldom Seen**	**Background**	**Foreground/ Middleground**	**Non-BLM Land**
			Project Corridor Acres	0.0	0.0	0.0	10.0
			Percent in DZs	0.0	0.0	0.0	NA
	C890	2.8	Miles Crossed	0.0	0.0	0.0	2.8
			Project Corridor Acres	0.0	0.0	0.0	136.0
			Percent in DZs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1						
	C692	4.8	Miles Crossed	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	233.0
			Percent in DZs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations						
	C260-C261-C201	31.0	Miles Crossed	0.0	0.0	0.0	31.0
			Project Corridor Acres	0.0	0.0	0.0	1503.0
			Percent in DZs	0.0	0.0	0.0	NA
	C680	26.1	Miles Crossed	0.0	0.0	2.0	24.1
			Project Corridor Acres	0.0	0.0	97.0	1168.0
			Percent in DZs	0.0	0.0	0.9	NA
	C815	0.9	Miles Crossed	0.0	0.0	0.9	0.0
			Project Corridor Acres	0.0	0.0	43.6	0.0
			Percent in DZs	0.0	0.0	0.7	NA
	C814	1.0	Miles Crossed	0.0	0.0	1.0	0.0
			Project Corridor Acres	0.0	0.0	48.5	0.0
			Percent in DZs	0.0	0.0	0.8	NA
	C816	0.2	Miles Crossed	0.0	0.0	0.1	0.1
			Project Corridor Acres	0.0	0.0	4.8	0.0
			Percent in DZs	0.0	0.0	0.1	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	160.0
			Percent in DZs	0.0	0.0	0.0	NA
	C813	0.5	Miles Crossed	0.0	0.0	0.5	0.0
			Project Corridor Acres	0.0	0.0	24.2	0.0
			Percent in DZs	0.0	0.0	0.55	NA
	C810	2.0	Miles Crossed	0.0	0.0	0.1	1.9
			Project Corridor Acres	0.0	0.0	4.8	92.0
			Percent in DZs	0.0	0.0	0.1	NA
	C810a	1.7	Miles Crossed	0.0	0.0	0.0	1.7
			Project Corridor Acres	0.0	0.0	0.0	82.0
			Percent in DZs	0.0	0.0	0.0	NA
	C817	1.8	Miles Crossed	0.0	0.0	1.1	0.7
			Project Corridor Acres	0.0	0.0	53.3	34.0
			Percent in DZs	0.0	0.0	0.7	NA
	Local Alternative Links for 4C3						
	F40b-F51-F60a	11.1	Miles Crossed	0.0	0.0	0.0	11.1
			Project Corridor Acres	0.0	0.0	0.0	538.0
			Percent in DZs	0.0	0.0	0.0	NA
	F81a-F81b	32.2	Miles Crossed	0.0	0.0	0.0	32.2
			Project Corridor Acres	0.0	0.0	0.0	1561.0

Table D3-3. VRI – Distance Zones (DZ)							
							Acres of project corridor based on 400' total ROW
Route Group	**Alternative Subroute**	**Length (miles)**		**Seldom Seen**	**Background**	**Foreground/ Middleground**	**Non-BLM Land**
			Percent in DZs	0.0	0.0	0.0	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	160.0
			Percent in DZs	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1, 4C2, 4C3						
	C72-C90-C121-C211	24.4	Miles Crossed	0.0	0.0	0.0	24.4
			Project Corridor Acres	0.0	0.0	0.0	1,188.0
			Percent in DZs	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1						
	C500	5.1	Miles Crossed	0.0	0.0	0.0	5.1
			Project Corridor Acres	0.0	0.0	0.0	247.0
			Percent in DZs	0.0	0.0	0.0	NA
	C501	4.8	Miles Crossed	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	233.0
			Percent in DZs	0.0	0.0	0.0	NA
	C502	3.9	Miles Crossed	0.0	0.0	0.1	3.8
			Project Corridor Acres	0.0	0.0	4.8	184.0
			Percent in DZs	0.0	0.0	0.1	NA
	C174	3.1	Miles Crossed	0.0	0.0	0.0	3.1
			Project Corridor Acres	0.0	0.0	0.0	150.0
			Percent in DZs	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1, 4C2						
	C671	7.9	Miles Crossed	0.0	0.0	0.0	7.9
			Project Corridor Acres	0.0	0.0	0.0	383.0
			Percent in DZs	0.0	0.0	0.0	NA

*The ground disturbance is based on Option B and C which have the same (maximum) amount of potential temporary and permanent disturbance estimated for the two proposed 500 kV (AC and DC) transmission lines.
**Percentage to be updated

Table D3-4. VRI – VISUAL RESOURCE INVENTORY CLASSES (VRIC)								
								Acres of project corridor based on 400' total ROW
Route Group	**Alternative Subroute**	**Length (miles)**		**Class I**	**Class II**	**Class III**	**Class IV**	**Non-BLM Land**
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A1 – North River Crossing**	228.8	Miles Crossed	0.0	3.3	50.3	56.5	118.7
			Project Corridor Acres	0.0	160.0	2,438.8	2,686.1	5,808.5
			Percent in VRICs	0.0	0.5	1.7	1.9	NA
	Subroute 1A2 - BLM Preferred Alternative	230.3	Miles Crossed	0.0	3.2	50.7	54.2	122.2
			Project Corridor Acres	0.0	155.1	2458.1	2627.8	5924.8
			Percent in VRICs	0.0	0.5	1.7	1.8	NA
	Subroute 1A – North River Crossing	219.5	Miles Crossed	0.0	3.3	46.5	54.8	114.9
			Project Corridor Acres	0.0	160.0	2,254.5	2,657.0	5,551.5
			Percent in VRICs	0.0	0.5	1.7	1.9	NA
	Subroute 1B – San Antonio Crossing							
	Subroute 1B1	223.3	Miles Crossed	0.0	3.3	46.1	64.3	109.6
			Project Corridor Acres	0.0	160.0	2,235.2	3,117.6	5,314.0
			Percent in VRICs	0.0	0.8	4.3	2.8	NA
	Subroute 1B2	209.2	Miles Crossed	0.0	3.3	46.9	69.7	89.3
			Project Corridor Acres	0.0	160.0	2,273.9	3,379.4	4,320.0
			Percent in VRICs	0.0	0.9	4.2	2.7	NA
	Subroute 1B3	206.3	Miles Crossed	0.0	3.3	54.2	64.6	84.2
			Project Corridor Acres	0.0	160.0	2,627.9	3,132.1	4,073.0
			Percent in VRICs	0.0	1.0	1.7	1.5	NA
	Local Alternative and Crossover Links for Route Group 1							
	Local Alternative Links for 1A and 1B1 (Gran Quivira)							
	E81	21.7	Miles Crossed	0.0	0.0	0.0	0.0	21.7
			Project Corridor Acres	0.0	0.0	0.0	0.0	1,052.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	E82-E84-E85	29.3	Miles Crossed	0.0	0.0	0.0	0.0	29.3
			Project Corridor Acres	0.0	0.0	0.0	0.0	1420.6
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	E83	10.3	Miles Crossed	0.0	0.0	0.0	0.0	10.3
			Project Corridor Acres	0.0	0.0	0.0	0.0	489.7
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	Local Alternative Links for 1A, 1B1, 1B2, 1B3							
	A161b	18.6	Miles Crossed	0.0	0.0	1.4	7.0	10.2
			Project Corridor Acres	0.0	0.0	67.9	339.4	490.0
			Percent in VRICs	0.0	0.0	0.6	1.6	NA
	A260	28.4	Miles Crossed	0.0	0.0	15.9	7.8	4.7
			Project Corridor Acres	0.0	0.0	770.9	378.2	228.0
			Percent in VRICs	0.0	0.0	1.4	1.0	NA
	A361-A430-A481	48.0	Miles Crossed	0.0	0.0	6.7	12.3	29.0
			Project Corridor Acres	0.0	0.0	324.8	596.4	1,421.0
			Percent in VRICs	0.0	0.0	1.4	1.2	NA
	Crossover Link s 1B2, 1B3							
	A70	7.7	Miles Crossed	0.0	0.0	2.2	1.9	3.6
			Project Corridor Acres	0.0	0.0	106.7	92.1	179.0
			Percent in VRICs	0.0	0.0	1.2	0.9	NA

Table D3-4. VRI – VISUAL RESOURCE INVENTORY CLASSES (VRIC)								
**Acres of project corridor based on 400' total ROW*								
Route Group	**Alternative Subroute**	**Length (miles)**		**Class I**	**Class II**	**Class III**	**Class IV**	**Non-BLM Land**
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A2 - BLM Preferred Alternative**	123.9	Miles Crossed	0.0	12.8	3.3	45.5	62.3
			Project Corridor Acres	0.0	620.6	160.0	2206.1	3020.6
			Percent in VRICs	0.0	1.1	0.5	1.9	NA
	Subroute 3A – North	123.5	Miles Crossed	0.0	10.9	2.9	44.3	65.4
			Project Corridor Acres	0.0	528.5	140.6	2,147.9	3,166.0
			Percent in VRICs	0.0	1.0	0.4	1.9	NA
	Subroute 3B – South	128.6	Miles Crossed	0.0	14.5	19.1	22.1	72.9
			Project Corridor Acres	0.0	703.0	926.1	1,071.5	3,530.0
			Percent in VRICs	0.0	1.2	1.5	1.6	NA
	Local Alternative and Crossover Links for Route Group 3							
	Crossover Links 3A, 3B							
	B111	6.9	Miles Crossed	0.0	0.0	1.6	0.0	5.3
			Project Corridor Acres	0.0	0.0	77.6	0.0	252.0
			Percent in VRICs	0.0	0.0	1.7	0.0	NA
	B140	8.3	Miles Crossed	0.0	0.0	1.2	0.0	7.1
			Project Corridor Acres	0.0	0.0	58.2	0.0	344.0
			Percent in VRICs	0.0	0.0	0.7	0.0	NA
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.8	Miles Crossed	0.0	3.7	7.3	0.0	121.8
			Project Corridor Acres	0.0	179.4	353.9	0.0	5,910.0
			Percent in VRICs	0.0	0.6	5.5	0.0	NA
	Subroute 4B – Sulphur Springs Valley	132.8	Miles Crossed	0.0	3.7	1.3	0.0	127.8
			Project Corridor Acres	0.0	179.4	63.0	0.0	6,206.0
			Percent in VRICs	0.0	1.1	1.3	0.0	NA
	Subroute 4C – San Pedro Valley							
	Subroute 4C2c-BLM Preferred Alternative	161.2	Miles Crossed	0.0	0.0	10.5	4.3	146.4
			Project Corridor Acres	0.0	0.0	509.1	208.5	7,098.2
			Percent in VRICs	0.0	0.0	2.2	9.2	NA
	Subroute 4C1	138.9	Miles Crossed	0.0	5.0	0.2	0.0	133.7
			Project Corridor Acres	0.0	242.4	9.7	0.0	6,482.0
			Percent in VRICs	0.0	1.1	8.4	0.0	NA
	Subroute 4C2	151.3	Miles Crossed	0.0	0.0	10.5	4.3	136.5
			Project Corridor Acres	0.0	0.0	509.1	208.5	6,642.0
			Percent in VRICs	0.0	0.0	2.2	9.2	NA
	Subroute 4C3	172.9	Miles Crossed	0.0	0.0	8.7	4.4	159.8
			Project Corridor Acres	0.0	0.0	421.8	213.3	7,743.0
			Percent in VRICs	0.0	0.0	2.1	8.7	NA
	Local Alternative and Crossover Links for Route Group 4							
	Local Alternative Link for 4A, 4B, 4C1							
	C790	8.8	Miles Crossed	0.0	0.0	0.0	0.0	8.8
			Project Corridor Acres	0.0	0.0	0.0	0.0	427.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3							
	C860	6.9	Miles Crossed	0.0	0.0	0.0	0.0	6.9
			Project Corridor Acres	0.0	0.0	0.0	0.0	335.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA

Table D3-4. VRI – VISUAL RESOURCE INVENTORY CLASSES (VRIC)								
								Acres of project corridor based on 400' total ROW
Route Group	**Alternative Subroute**	**Length (miles)**		**Class I**	**Class II**	**Class III**	**Class IV**	**Non-BLM Land**
	C870	0.2	Miles Crossed	0.0	0.0	0.0	0.0	0.2
			Project Corridor Acres	0.0	0.0	0.0	0.0	10.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C890	2.8	Miles Crossed	0.0	0.0	0.0	0.0	2.8
			Project Corridor Acres	0.0	0.0	0.0	0.0	136.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1							
	C692	4.8	Miles Crossed	0.0	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	0.0	233.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations							
	C260-C261-C201	31.0	Miles Crossed	0.0	0.0	0.0	0.0	31.0
			Project Corridor Acres	0.0	0.0	0.0	0.0	1,503.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C680	26.1	Miles Crossed	0.0	0.0	2.0	0.0	24.1
			Project Corridor Acres	0.0	0.0	97.0	0.0	1,168.0
			Percent in VRICs	0.0	0.0	0.9	0.0	NA
	C815	0.9	Miles Crossed	0.0	0.0	0.9	0.0	0.0
			Project Corridor Acres	0.0	0.0	43.6	0.0	0.0
			Percent in VRICs	0.0	0.0	0.7	0.0	NA
	C814	1.0	Miles Crossed	0.0	0.0	1.0	0.0	0.0
			Project Corridor Acres	0.0	0.0	48.5	0.0	0.0
			Percent in VRICs	0.0	0.0	0.8	0.0	NA
	C816	0.2	Miles Crossed	0.0	0.0	0.1	0.0	0.1
			Project Corridor Acres	0.0	0.0	4.8	0.0	0.0
			Percent in VRICs	0.0	0.0	0.1	0.0	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	0.0	160.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C813	0.5	Miles Crossed	0.0	0.0	0.5	0.0	0.0
			Project Corridor Acres	0.0	0.0	24.2	0.0	0.0
			Percent in VRICs	0.0	0.0	0.6	0.0	NA
	C810	2.0	Miles Crossed	0.0	0.0	0.1	0.0	1.9
			Project Corridor Acres	0.0	0.0	4.8	0.0	92.0
			Percent in VRICs	0.0	0.0	0.1	0.0	NA
	C810a	1.7	Miles Crossed	0.0	0.0	0.0	0.0	1.7
			Project Corridor Acres	0.0	0.0	0.0	0.0	82.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C817	1.8	Miles Crossed	0.0	0.0	1.1	0.0	0.7
			Project Corridor Acres	0.0	0.0	53.3	0.0	34.0
			Percent in VRICs	0.0	0.0	0.7	0.0	NA
	Local Alternative Links for 4C3							
	F40b-F51-F60a	11.1	Miles Crossed	0.0	0.0	0.0	0.0	11.1
			Project Corridor Acres	0.0	0.0	0.0	0.0	538.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA

Table D3-4. VRI – VISUAL RESOURCE INVENTORY CLASSES (VRIC)								
								***Acres of project corridor based on 400' total ROW**
Route Group	**Alternative Subroute**	**Length (miles)**		**Class I**	**Class II**	**Class III**	**Class IV**	**Non-BLM Land**
	F81a-F81b	32.2	Miles Crossed	0.0	0.0	0.0	0.0	32.2
			Project Corridor Acres	0.0	0.0	0.0	0.0	1,561.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C812	3.3	Miles Crossed	0.0	0.0	0.0	0.0	3.3
			Project Corridor Acres	0.0	0.0	0.0	0.0	160.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	Local Alternative Links for 4C1, 4C2, 4C3							
	C72-C90-C121-C211	24.4	Miles Crossed	0.0	0.0	0.0	0.0	24.4
			Project Corridor Acres	0.0	0.0	0.0	0.0	1,188.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1							
	C500	5.1	Miles Crossed	0.0	0.0	0.0	0.0	5.1
			Project Corridor Acres	0.0	0.0	0.0	0.0	247.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C501	4.8	Miles Crossed	0.0	0.0	0.0	0.0	4.8
			Project Corridor Acres	0.0	0.0	0.0	0.0	233.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C502	3.9	Miles Crossed	0.0	0.1	0.0	0.0	3.8
			Project Corridor Acres	0.0	4.8	0.0	0.0	184.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	C174	3.1	Miles Crossed	0.0	0.0	0.0	0.0	3.1
			Project Corridor Acres	0.0	0.0	0.0	0.0	150.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA
	Crossover Links for 4A, 4B, 4C1, 4C2							
	C671	7.9	Miles Crossed	0.0	0.0	0.0	0.0	7.9
			Project Corridor Acres	0.0	0.0	0.0	0.0	383.0
			Percent in VRICs	0.0	0.0	0.0	0.0	NA

*The ground disturbance is based on Option B and C which have the same (maximum) amount of potential temporary and permanent disturbance estimated for the two proposed 500 kV (AC and DC) transmission lines.

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
NEW MEXICO																
RECREATION																
NATIONAL MONUMENT	Salinas Pueblo Missions National Monument – Gran Quivira Unit	High	High	High	Scenic, Historic	High			X							E80d, E81, E82, E83, E84a, E84b, E85, E86a
	White Sands National Monument - Eliminated	High	Moderate	High		High			X							D220, D250
NATIONAL SCENIC OR HISTORIC TRAIL	El Camino Real Lands Recreation Trail	High	Moderate	High		High			X							A161a
	El Camino Real Lands Recreation Trailhead	High	Moderate	High		High			X							A161a
	El Camino Real Information Shelter - Eliminated	Moderate	Low	High		High			X							A340, A350
	El Camino Real International Heritage Center	High	Moderate	High	Scenic, Historic	High			X							A161a
	Continental Divide National Scenic Trail	High	Moderate	High	Scenic	High			X							B111, B112, B120b
NATIONAL FOREST	Cibola National Forest	High	Moderate	High		High		X								A21, A161b, E211, A270, Multiple
	Gila National Forest	High	Moderate	High		High		X								B120b
	Lincoln National Forest - Eliminated	High	Moderate	High		High		X								D10b, Multiple
NATIONAL WILDLIFE REFUGE	Bosque del Apache National Wildlife Refuge	High	High	High		High									X	A160, A161, Multiple
	Sevilleta National Wildlife Refuge	High	High	High		High									X	E101a, E101b, E133, E86b
WILDERNESS	Chupadera Wilderness	High	Low	High		High									X	A160
	Little San Pascual Wilderness - Eliminated	High	Low	High		High									X	A103, A181
	Indian Well Wilderness	High	Low	High		High									X	A160,
	White Mountains Wilderness - Eliminated	High	Low	High		High	X									D61, D62
WILDERNESS STUDY AREA	Antelope WSA - Eliminated	Moderate	Low	High		High	X									A103, A181, A250
	Carrizozo Lava Flow WSA - Eliminated	Moderate	Low	High		High	X									D90, D106, Multiple
	Devil's Backbone WSA	Moderate	Low	High		High	X									A161b
	Jornada del Muerto WSA - Eliminated	Moderate	Low	High		High	X									A300
	Little Black Peak WSA - Eliminated	Moderate	Low	High		High	X									D10b
	Stallion WSA	Moderate	Low	High		High	X									E90, A90, E101b
	Sierra de las Canas WSA	Moderate	Low	High		High	X									A90, A111
	Peloncillo Mountains WSA	Moderate	Low	High		High	X									B150a
	Aden Lava Flow WSA - Eliminated	Moderate	Low	High		High	X									D720
	Veranito WSA	Moderate	Low	High		High	X									E133
	Presilla WSA	High	Moderate	High		High	X									E180
BLM	Fort Craig National Historic Site	High	Moderate	High	Historic	High	X									A161
	Johnson (Gordy's) Hill Recreation Area (SRMA)	High	Moderate	High		High	X									E133
	Jornada del Muerto Trailhead - Eliminated	Moderate	Low	High		High	X									A261
	Jornada del Muerto Trailhead (Planned) - Eliminated	Moderate	Low	High		High	X									A261
	Jornada del Muerto Trail (Planned) - Eliminated	Moderate	Low	High		High	X									A261

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
BLM	Raptor Lake/Holloman Lake - Eliminated	High	Moderate	High		High	X									D220
	SNA SRMA - Eliminated	High	Low	Moderate		High	X									E180
	The Box Recreation Area (SRMA)	High	Moderate	High		High	X									E211
	Valley of Fires SRMA - Eliminated	High	High	High		High	X									D10b, D90, Multiple
	Ladron Mountain – Devils Backbone Complex ACEC	Moderate	Low	Moderate	Scenic	High	X									A161b
	Sacramento Escarpment ACEC - Eliminated	Moderate	Low	High		High	X									D190
	Three Rivers Petroglyph Site ACEC - Eliminated	High	High	High		High	X									D104a
	Organ/Franklin Mountains ACEC - Eliminated	Moderate	Moderate	High	Scenic	High	X									D420, D440, D460
	Northern Peloncillo Mountains ACEC	Moderate	Moderate	High		Moderate	X									B150a
STATE PARK	Elephant Butte Lake	High	High	High		High					X					A260
	EBL – Camp Catfish	High	Moderate	High		High					X					A260
	EBL – Camp S. Monticello Point	High	Moderate	High		High					X					A260
	Percha Dam - Eliminated	High	Moderate	High		High	X				X					A351, A352
	Rockhound State Park - Eliminated	High	Moderate	High		High					X					A470
	Franklin Mountains State Park (TX) - Eliminated	High	High	High		High					X					D420, D440, D460
LOCAL AGENCIES/OTHER	Continental Divide Trail Society (CDTS) Route	High	Moderate	High	Scenic	High	X				X					A440
	Trap Club – Truth or Consequences	High	Moderate	Moderate		Moderate								X		A260
	Shakespeare Ghost Town	Moderate	Low	Moderate	Historic	Moderate								X		B112
GOLF COURSE	Anthony Country Club Golf Course - Eliminated	High	Moderate	Moderate		Moderate								X		D480, D700
	Apache Mesa Golf Club (Holloman AFB) - Eliminated	High	Moderate	Moderate		Moderate									X	D220
	Desert Lakes Golf Course - Eliminated	High	Moderate	Moderate		Moderate								X		D160, D180, D190
	Dos Logos Golf Club - Eliminated	High	Moderate	Moderate		Moderate								X		D480
	New Mexico Tech Golf Course	High	Moderate	Moderate		Moderate								X		E180
	Carrizozo Country Club/Golf Course - Eliminated	High	Moderate	Moderate		Moderate								X		D61, D71, Multiple
TRAVEL ROUTES																
INTERSTATE	Interstate 10	Low	High	Moderate		Moderate									X	Multiple
	Interstate 25 (non-scenic portions)	Low	High	Moderate		Moderate									X	Multiple
HIGHWAY	State Route 107	Low	Moderate	Moderate		Moderate					X					A161a
	State Route 55/14 (non-scenic portions)	Low	Moderate	Moderate		Moderate					X					A30, E80c, E81, E82
	State Route 187 - Eliminated	Low	Moderate	Moderate		Moderate					X					A351, A352
	State Route 26	Low	Moderate	Moderate		Moderate					X					A430, A440, A481, A520, A530, B60, Multiple
	State Route 549 - Eliminated	Low	Moderate	Moderate		Moderate					X					A460, A470, A740
	U.S. Route 380	Low	Moderate	Moderate		Moderate									X	A41, A80, A111, A112
	State Route 418	Low	Moderate	Moderate		Moderate					X					B110a
	State Route 464	Low	Moderate	Moderate		Moderate					X					B121

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
HIGHWAY	State Route 90 (passes through Gila NF)	Low	Moderate	Moderate		Moderate					X					B121
	U.S. Route 70 (Portions of I-10)	Low	Moderate	Moderate		Moderate									X	B121
	State Route 338	Low	Moderate	Moderate		Moderate					X					B150a
	U.S. Route 180	Low	Moderate	Moderate		Moderate									X	B80, B90
	U.S. Route 54	Low	Moderate	Moderate		Moderate									X	A10, Multiple
	State Route 404/375 - Eliminated	Low	Moderate	Moderate		Moderate					X					D430, D440, D460, D480
	U.S. Route 60	Low	Moderate	Moderate		Moderate									X	E211
SCENIC ROUTES/ BYWAYS/PARKWAY	Geronimo Trail National Scenic Byway (SR 152, SR 52)	Moderate	Moderate	High	Scenic, Historic	High	X				X					A330b
	Lake Valley Back Country Byway (SR 27, SR 152)	Moderate	Moderate	High	Scenic	High	X				X					A330b, A400
	Quebradas Back Country Byway (SRMA)	Moderate	Low	High	Scenic	High	X				X					A90, A111, E151, E180
	El Camino Real National Byway (portions of I-25, SR 478, SR 185, SR 187, U.S. Highway 85, and SR1)	Moderate	High	High	Scenic	High	X				X					A140, E180
	Salt Missions Trail Scenic Byway (SR55)	Low	Moderate	High	Scenic	High					X					E83, E84b, E86a
LOCAL ACCESS	State Highway 20 (Texas) - Eliminated	Low	Moderate	Moderate		Moderate					X					D480
	State Route 28 - Eliminated	Low	Moderate	Moderate		Moderate					X					D515, D700
	State Route 213/State Highway 3255 (Texas) - Eliminated	Low	Moderate	Low		Moderate					X					D400, D410
	State Route 14	Low	Moderate	Moderate		Moderate					X					E80a
	State Route 349 - Eliminated	Low	Low	Moderate		Moderate					X					D10b
	State Route 142	Low	Low	Moderate		Moderate					X					A270, A260
	State Route 390 - Eliminated	Low	Moderate	Low		Moderate					X					A370
	State Route 408	Low	Moderate	Moderate		Moderate					X					E180
	State Route 55 (east of Gran Quivira)	Low	Moderate	High		Moderate		X								E82, D83, E84a
RECREATION ACCESS/ 4WD ROAD	County Road A019	Moderate	Low	High		Moderate						X				E80c
	Three Rivers Road/County Road B030 - Eliminated	Moderate	Low	High		Moderate						X				D104a
	County Road B080	Moderate	Low	High		Moderate						X				E80c
	WSMR Route 5	High	Low	High		High						X				E101b, E130, E150, E151
	WSMR Route 3607	High	Low	High		High						X				E101a, E101b, E86b
	Forest Road 255	Moderate	Low	Moderate		Moderate		X								A270
	State Route 143 (Rockhound Road) - Eliminated	Moderate	Low	Moderate		Moderate					X					A470
	State Route 178/Cienega Camp Road	Moderate	Low	Moderate		Moderate					X					A161, A161b
	Water Canyon Rd (Access to Cibola National Forest – Campground)	Moderate	Low	High		Moderate						X				E211
	FR167 - Cibola NF access road	Moderate	Low	Moderate		Moderate		X								
REST AREA/HISTORIC MARKER	Rest Area – Anthony - Eliminated	Moderate	High	Moderate		Moderate					X					D480
	Rest Area – Fort Craig	Moderate	High	Moderate		Moderate					X					A161a
	Rest Area – Gage	Moderate	High	Moderate		Moderate					X					B110a

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
REST AREA/HISTORIC MARKER	Rest Area – Highway 54 (north of SunZia East)	Moderate	Low	Moderate		Moderate					X					A10
	Rest Area – Highway 54 (south of Carrizozo) - Eliminated	Moderate	Low	Moderate		Moderate					X					D101
	Jornada del Muerto Historic Marker - Eliminated	Moderate	Low	Moderate	Historic	Moderate					X					A261
	Trinity Site Historic Marker	Moderate	Low	Moderate	Historic	Moderate					X					A80, A90, A111
RESIDENCES/OTHER LAND USE TYPES																
RESIDENCES	Alamogordo - Eliminated	High	High	High		High							X	X		D160, D180, D190
	Ancho - Eliminated	High	Low	High		High							X	X		D10a
	Anthony - Eliminated	High	High	High		High							X	X		D480, D491, D700, D515, D512
	Arrey (Derry, Garfield) - Eliminated	High	Low	High		High							X	X		A351, A350, A370
	Bingham	High	Low	High		High							X	X		A41, A70, A80
	Carrizozo - Eliminated	High	Moderate	High		High							X	X		D50, D61, D70, D71, D10b
	Chaparral - Eliminated	High	High	High		High							X	X		D371, D400
RESIDENCES	Chupadera	High	Low	High		High					X			X		E86b
	Claunch	High	Low	High		High							X	X		E80c
	Cuchillo	High	Low	High		High							X	X		A330a
	Deming	High	Moderate	High		High							X	X		B80
	Gran Quivira dispersed residences	High	High	High		High								X		E83
	Holloman Air Force Base - Eliminated	High	High	High		High									X	D220
	Lordsburg	High	High	High		High							X	X		B112
	Orogrande - Eliminated	High	Low	High		High							X	X		D260b
	San Antonio (Bosquecito, Laborcita, Luis Lopez, San Antonito, San Pedro)	High	Low	High		High							X	X		A112, A140, A143
	Socorro (Escondida, Lemitar)	High	High	High		High							X	X		E133, E180, E200
	Tularosa - Eliminated	High	High	High		High							X	X		D104b
	Willow Springs and Whispering Mountain Ranches	High	Low	High		High								X		A160, E211, A161, A161b
	Windmill Ranches - Eliminated	High	Low	High		High								X		D10b
ARIZONA																
RECREATION																
NATIONAL PARKS	Saguaro National Park West	High	High	High		High			X							F112
	Saguaro National Park East	High	Moderate	High		High			X							F112
	Saguaro National Park East Trailhead – Valley View Overlook Trail	High	Moderate	High		High			X							F81a
NATIONAL SCENIC OR HISTORIC TRAILS	Arizona National Scenic Trail	High	Moderate	High	Scenic	High	X	X			X			X		C620, C670, F51, F600
	Arizona National Scenic Trail – Tiger Mine Trailhead	Low	Moderate	Moderate	Scenic	High					X					C670
	Arizona National Scenic Trail – Cienega Creek Preserve Trailhead	High	Moderate	High		High			X							F600, F51
	Juan Bautista De Anza National Historic Trail	High	Moderate	High	Historic	High			X							F111, F112, F510

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
NATIONAL FOREST	Coronado National Forest	High	High	High	Concern Level 1 Routes	High		X								Multiple
	Coronado National Forest	Moderate	Moderate	High	Concern Level 2 Routes	Moderate		X								Multiple
	Coronado – Sabino Canyon Trail	High	High	High		High		X								F81b
	Coronado – Arcadia Campground	High	Moderate	High		High		X								B153a
	Coronado – Last Chance Wilderness Trailhead	High	Low	High		High		X								C441
	Coronado – Trail 289	High	Moderate	High		High		X								C470
	Coronado – Trail 305 (Grant Creek Trail)	High	Moderate	High		High		X								C130a, C150
	Coronado – Trail 305 Trailhead (Grant Creek Trailhead)	High	Moderate	High		High		X								C130a, C150
	Coronado – Trail 313 (Hurricane Pass)	High	Low	High		High		X								C130b, C170
	Coronado – Trail 66 (Cottonwood Canyon)	High	Low	High		High		X								C170
	Coronado – Trail 66 Trailhead (Cottonwood Canyon Trailhead)	High	Low	High		High		X								C170
	Coronado – Trail 70 (Deadman Creek)	High	Low	Moderate		High		X								B153b
	Coronado – Trail 70 Trailhead (Deadman Creek Trailhead)	High	Low	High		High		X								B153b
	Coronado – Trail 9	High	Moderate	High		High		X								C450
	Coronado – Trail 9 Trailhead	High	Moderate	Moderate		High		X								C450
	Coronado – YMCA Triangle Y Ranch Camp And Retreat Center	High	Moderate	High		Moderate		X								C450
	Coronado – Frye Mesa Reservoir	High	Low	Moderate		Moderate		X								B153b
WILDERNESS	Aravaipa Canyon Wilderness	High	Low	High	Scenic	High	X									C170
	Galiuro Wilderness	High	Low	High		High		X								C470
	Peloncillo Mountains Wilderness	High	Low	High		High	X									B150a
	Redfield Canyon Wilderness	High	Low	High		High	X									C470
	Rincon Mountain Wilderness	High	Low	High		High		X								C201, C441
	Santa Teresa Wilderness	High	Low	High		High		X								C170
	East Saguaro Wilderness	High	Low	High		High			X							F81a
	West Saguaro Wilderness	High	Low	High		High			X							F510
BLM	Bear Springs Badlands (ACEC)	High	Low	High		High	X									B153b
	Hot Well Dunes Recreation Area – SRMA/Campground	High	Moderate	Moderate		High	X									B160b
	Table Mountain Research Natural Area ACEC	High	Moderate	Moderate		Moderate	X									C170, C178
STATE PARK	Oracle State Park – Bellota Trail Loop	High	Low	High		High					X					C450, C670
	Oracle State Park – Granite Overlook Trail Loop	High	Low	High		High					X					C450, C670
	Oracle State Park – Manzanita Trail	High	Low	High		High					X					C450, C670
	Oracle State Park – Mariposa Trail	High	Low	High		High					X					C450, C670
	Oracle State Park – Nature Trail Loop	High	Low	High		High					X					C450, C670

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
STATE PARK	Oracle State Park – Wildlife Corridor Trail	High	Low	High		High					X					C450, C670
	Oracle State Park – Historic Kannally Ranch House	High	Low	High		High					X					C450, C670
	Roper Lake State Park	High	Moderate	High		High					X					B153a
	Dankworth Pond State Park	High	Moderate	High		High	X				X					B153a
COUNTY PARK	Arthur Pack Regional Park	Moderate	High	High		High						X				F510
	Augie Acuña-Los Niños Park	Moderate	High	High		High						X				F111
	Cienega Creek Preserve	High	Moderate	High		High						X				F600, F60a, F51
	Colossal Cave Mountain Park	High	High	High		High						X				F600, F60a, F60b, F51
	Feliz Paseos Park	Moderate	High	High		High						X				F112
	Rillito River Park (includes Mehl, Brandi Fenton, Children's Memorial, Curtis, Dan Felix Memorial, Flowing Wells Parks)	High	Moderate	High		High						X				F510, F81b
	Santa Cruz River Park (includes El Paseo de los Arboles Commemorative Park)	High	Moderate	High		High						X				F112
	Rillito Vista Park	High	Moderate	High		High						X				F510
	Sunset Pointe Park	Moderate	High	High		High						X				F510
	Tucson Mountain Park	High	High	High		High						X				F112, F111
	Tucson Mountain Park Trailhead – 36th Street	High	High	High		High						X				F81a
	Tucson Mountain Park West – Gates Pass Overlook Trailhead	High	High	High		High						X				F81a
	Sentinel Peak Park	Moderate	High	High		High						X				F112, F111
	Lakeside Park	Moderate	High	High		High						X				F81b
	Christopher Columbus Park	Moderate	High	High		High						X				F112
	Greasewood Park	Moderate	High	High		High						X				F112
	John F. Kennedy Park	Moderate	High	High		High						X				F112
	Lincoln Park	Moderate	High	High		High						X				F81b
	Juhan Park	Moderate	High	High		High						X				F112
	Joaquin Murrieta Park	Moderate	High	High		High						X				F112
	Michael Perry Park	Moderate	High	High		High						X				F81b
	Southwest Regional Park (Pima County Fairgrounds)	Moderate	High	High		High						X				F80
	Morris K. Udall Regional Park	Moderate	High	High		High						X				F81b
	Sweetwater Wetlands Park	Moderate	High	High		High						X				F112
	Pantano River Park (Planned)	Moderate	Moderate	High		Moderate						X				F81a, F81b
	Urban Loop Trail System (Planned)	Moderate	Moderate	High		High						X				F510, F112, F111, F81b, F81a
LOCAL AGENCY/OTHER	Biosphere 2	High	Moderate	Moderate		High								X		C680
	CAP National Recreation Trail (Planned)	High	Moderate	High		High									X	F540
	Cluff Ranch Wildlife Area	Moderate	Low	High		Moderate									X	B153b
	Bellota Ranch (A7 Ranch)	Moderate	Low	High		Moderate						X				C441

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
GOLF COURSES	Saddlebrooke Ranch Golf Club	Moderate	High	Moderate		Moderate								X		C680
	San Manuel Golf Club	Moderate	High	Moderate		Moderate								X		C450
	Mount Graham Municipal Golf Course	Moderate	High	Moderate		Moderate							X			B153b
	Silverbell Golf Course	High	Moderate	Moderate		Moderate								X		F112
	Pines Golf Club at Marana	High	Moderate	Moderate		Moderate								X		F510
	Tierra Grande Country Club/Golf Course	High	Moderate	Moderate		Moderate								X		C880a
TRAVEL ROUTES																
INTERSTATE	Interstate 10	Low	High	Moderate		Moderate									X	Multiple
	Interstate 19	Low	High	Moderate		Moderate									X	F111, F112
HIGHWAY	State Route 76 (San Pedro River Road)	Low	Moderate	Moderate		Moderate					X					C450, C661
	State Route 77	Low	Moderate	Moderate		Moderate					X					C592, C661, C680
	State Route 87	Low	High	Moderate		Moderate					X					C880a, C890
	U.S. Route 287	Low	Moderate	Moderate		Moderate									X	C880a, C890
SCENIC ROUTES/ BYWAYS/PARKWAY	Mt. Lemmon Hwy (Control Road/Forest Road 38)	High	Low	High	FS Scenic Drive	High		X				X				C450
	Mt. Lemmon Hwy (Catalina Highway/Sky Island Parkway)	High	High	High	Scenic	High		X								C450, F81b
	U.S. Route 191	Low	Moderate	High	FS Scenic Drive	High									X	C71, B153a
	Stockton Pass Road (State Route 266)	Moderate	Low	High	FS Scenic Drive	High		X				X				C130b, C170, B153a
	Bonita Aravaipa Road	Moderate	Low	Moderate	Scenic	High						X				C130a
	Klondyke Road	High	Moderate	High		High						X				C170
	Swift Trail Parkway (State Route 366)	High	Moderate	High	Scenic	High		X								C130a, C130b, B153a
	Redington Road	Moderate	Low	High	FS Scenic Drive	High		X			X					C450, C170
	Pinal Pioneer Parkway (State Route 79)	Low	Moderate	High	Parkway	High					X					C680, C760, C780, C790
	Interstate 10 (isolated portions in Pima County)	Low	High	High	Scenic	High					X					F112, F111, F80, F82, F60b, F600
	Patagonia-Sonoita Scenic Road (SR 83)	Moderate	Moderate	High	Scenic	High					X					F600
	Redington Road (E. Tanque Verde Road)	High	Moderate	High	Scenic	High					X					F81b
	Oracle Road (north of River Road to Ina Road)	High	Moderate	High	Scenic	High					X					F81b
	Gates Pass Road	Moderate	Moderate	High	Scenic	High					X					F112
	Colossal Cave Road	Moderate	Moderate	High	Scenic	High					X					F60, F81
	Freeman Road (Tucson area)	Moderate	Moderate	High	Scenic	High					X					F81b
	Marsh Station Road	Moderate	Low	High	Scenic	High					X					F600, F51, F40b
	Old Sonoita Highway	Moderate	Low	High	Scenic	High					X					F600
	Old Spanish Trail	Moderate	Low	High	Scenic	High					X					F81a

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Overall Concern Level	BLM	FS	NPS	BIA	State	County	Municipal	Private	Other	Link
SCENIC ROUTES/ BYWAYS/PARKWAY	Houghton Road (I-10 to Sahuarita Road, isolated portions near Escalante Road and Tanque Verde Road)	Moderate	Moderate	High	Scenic	High					X					F80, F81b, F81a
	Ina Road (east of Thornydale Road)	Moderate	Moderate	High	Scenic	High					X					F81b
	Kolb Road/Craycroft Road (loop north of Rillito River)	Moderate	Moderate	High	Scenic	High					X					F81b
	River Road (I-10 to Dodge Blvd)	Moderate	Moderate	High	Scenic	High					X					F81b
	River Road (River Road to Sabino Canyon Road)	Moderate	Moderate	High	Scenic	High					X					F81b
	Sabino Canyon Road	Moderate	Moderate	High	Scenic	High					X					F81b
	Silverbell Road (isolated portions scenic)	Moderate	Moderate	High	Scenic	High					X					F112
	Skyline Drive	Moderate	Moderate	High	Scenic	High					X					F81b
	Snyder Road	Moderate	Moderate	High	Scenic	High					X					F81b, F81a
	Sunrise Drive	Moderate	Moderate	High	Scenic	High					X					F81b, F81a
	Sunset Road	Moderate	Moderate	High	Scenic	High					X					F112
	Swan Road (north of Rillito River)	Moderate	Moderate	High	Scenic	High					X					F81b
	Valencia Road (Alvernon Way to east of Kolb Road)	Moderate	Moderate	High	Scenic	High					X					F111
	Vail Road/Wentworth Road (Colossal Cave Road to Sahuarita Road)	Moderate	Moderate	High	Scenic	High					X					F60b
	West Pictured Rocks Road	Moderate	Moderate	High	Scenic	High					X					F112
LOCAL ACCESS	Cascabel Road	Moderate	Low	Moderate		Moderate						X				C201, C261, C276, C443, Multiple
	Ocotillo Road	Moderate	Low	Moderate		Moderate						X				F40a, C201
	Three Links Road	Moderate	Low	Moderate		Moderate						X				C260
	Fort Grant Road	Moderate	Low	Low		Moderate						X				C121, C130a
	San Pedro River Road/ S. River Road	Moderate	Low	Low		Moderate						X				C660
RECREATION ACCESS/ 4WD ROAD	Rug Road	High	Moderate	High		High	X									C170
	4 Mile Road	Moderate	Low	Moderate		Moderate						X				C170
	Ash Creek Road	Moderate	Low	Moderate		Moderate						X				C121
	Black Hills Mine Road/Catalina Ridge	Moderate	Low	Moderate		Moderate		X								C450,
	Cluff Ranch Road	Moderate	Low	Moderate		Moderate						X				B153b
	Hackel Road	Moderate	Low	Moderate		Moderate						X				B160
	High Creek Road	Moderate	Low	Moderate		Moderate						X				C130b
	Buehman Canyon Trail	Moderate	Moderate	Moderate		Moderate						X				C441
	Copper Creek Road	Moderate	Moderate	Moderate		Moderate	X					X				C174, C501
	Jackson Cabin Trail	Moderate	Moderate	Moderate		Moderate	X					X				C270, C301
	Muleshoe Ranch Road	Moderate	Low	Moderate		Moderate						X				C270
	Tripp Canyon Road/County Road 286	Moderate	Low	Moderate		Moderate		X				X				B153b
	Webb Road	Moderate	Low	Moderate		Moderate						X				C450
	Freeman Road	Moderate	Low	Moderate		Moderate						X				C693

APPENDIX D4 – VIEWING LOCATIONS AND ASSOCIATED CONCERN LEVELS																
		Concern Level					Land Management Agencies and Jurisdictions									
Viewing Location Type	**Viewing Location Name**	**View Duration**	**Use Volume**	**Aesthetic Concern**	**Scenic/ Historic**	**Overall Concern Level**	**BLM**	**FS**	**NPS**	**BIA**	**State**	**County**	**Municipal**	**Private**	**Other**	**Link**
REST AREA/HISTORIC MARKER	Rest Area – San Simon	Moderate	High	Moderate		Moderate					X					B150a
	Tom Mix Memorial/Rest Area	Moderate	Moderate	Moderate	Historic	Moderate					X					C760, C780
RESIDENCES/OTHER LAND USE TYPES																
RESIDENCES	Artesia	High	Low	High		High							X	X		B153a
	Bonita	High	Low	High		High								X		C130a
	Cascabel	High	Low	High		High								X		C470, C441
	Eloy	High	Low	High		High							X	X		C880a
	Klondyke	High	Low	High		High								X		C170
	Lebanon	High	Low	High		High								X	X	B153a, B153b
	La Palma	High	Low	High		High							X	X		C880a, C890
	Mammoth	High	Low	High		High							X	X		C592
	Oracle	High	Low	High		High							X	X		C670, C680
	Randolph	High	Low	High		High							X	X		C890
	Redington	High	Low	High		High								X		C441
	San Manuel	High	Low	High		High							X	X		C450
	San Simon	High	Low	High		High							X	X		B150b
	Swift Trail Junction	High	Low	High		High								X	X	B153a
	Wilcox	High	Low	High		High							X	X		C110
	Tucson (includes Mountain View, Vail, Little Town, Drexel-Alvernon, South Tucson, Flowing Wells, Cortaro, Rillito, Tortolita, Dobson, Catalina Foothills, and Casas Adobes)	High	Low	High		High							X	X		F81b, F81a, F60b, F60a, F51, F40b, F40a, F600, F82, F80, F111, F112, F510, F540
	Willow Springs (Planned)	High	Low	High		High							X	X		C692
OTHER	Greek Orthodox Monastery	High	Moderate	High		High								X		C790
	JW Marriott Tucson Starr Pass Golf Resort	High	Moderate	Moderate		Moderate								X		F112
	Omni Tucson National Golf Resort & Spa	High	Moderate	Moderate		Moderate								X		F81a, F510
	Ritz-Carlton Resort Dove Mountain Golf Course	High	Moderate	Moderate		Moderate								X		F540

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APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
NEW MEXICO - Socorro Field Office															
SO1	Residential	Claunch	High	Low	High		High	E80c				●		2	Residential views of project in flat terrain; possible skyline condition
SO2 (a & b)	Recreation	Gran Quivira unit of Salinas Pueblo Missions National Monument	High	High	High	Scenic, Historic	High	E80c, E81		●		●	Sim 1a, Sim 1b	2 (Link E81), 6 (Link E80c)	National historic site with superior views of project from the national monument
SO3 – Eliminated*	Travel Route	U.S. Route 380	Low	Moderate	Moderate		Moderate	D800a	●					crossing	Travel route views of project crossing route on VRM Class III and IV land
SO4	Residential	Route 7 Residence	High	Low	High		High	E80d, E90, E101a			●		Sim 2	0.5	Residence with views of project crossing VRM Class IV
SO5	Residential	Route 3617 Residence	High	Low	High		High	E90			●			1.75	Residential views of project on VRM Class IV
SO6	Residential	Route 3508 Residence	High	Low	High		High	A60			●			1	Residential views of project on VRM Class IV
SO7	Residential	Bingham	High	Low	High		High	A41, A70, A80	●					1.5	Travel route and residential views of project crossing VRM Class III
SO8	Residential	Route 18 Residence	High	Low	High		High	A90			●			0.5	Residential views of project on VRM Class III
SO9	Travel Route	Quebradas Back Country Byway (South)	High	Low	High	Scenic	High	A90	●				Sim 3	1.2	BLM input; scenic route with views of project crossing VRM Class III
SO10	Recreation	Trinity Historic Marker	Moderate	Low	High	Historic	High	A80, A111, A90	●					1	Travel route views of project crossing VRM Class III from historic marker
SO11	Travel Route	WSMR S Route 3607 (Stallion WSA)	High	Low	High		High	E101b	●				Sim 4	0.9	Recreation views of project crossing VRM Class II from travel route which provides access to Stallion WSA
SO12 – Eliminated*	Residential – Field verified not occupied	Route 5 Residence	High	Low	High		High	E133			●			0.6	Residential views of project on VRM Class III
SO13	Travel Route	WSMR S Route 5 (Veranito WSA)	High	Low	High		High	E133	●					0.3	BLM input; project crossing recreation access road on BLM VRM Class II. This travel route provides access to Veranito WSA

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
SO14	Recreation	Gordy's (Johnson) Hill Recreation Area	High	Moderate	High		High	E133	●				Sim 5	0.4	BLM input; project parallels recreation access road and crosses VRM Class IV
SO15	Travel Route	Quebradas Back Country Byway (North)	High	Low	High	Scenic	High	E180	●				Sim 6	1.1	Scenic route with potential views of project crossing VRM Class IV
SO16	Recreation	Rio Grande	High	Low	High		High	E180				●	Sim 7	0.3	Recreation views of project crossing Rio Grande from boat launch area
SO17	Travel Route	SR 408 (El Camino Real National Scenic Byway)	Moderate	Moderate	High	National Scenic Byway	High	E180		●	●		Sim 8	crossing	National scenic byway crossed by project
SO18	Residential	Socorro	High	Low	High		High	E180				●		0.8	Residential views of river crossing
SO19	Recreation	The Box SRMA	High	Moderate	High		High	E211	●					2.5	BLM input
SO20	Residential	San Antonio (West)	High	Low	High		High	A140				●	Sim 9	0.5	Residential views of river valley crossing
SO21	Residential	San Antonio (East)	High	Low	High		High	A140			●			0.75	Residential views of project crossing VRM Class II
SO22	Travel Route	U.S. Route 380	Moderate	Low	Moderate		Moderate	A111, A112	●				Sim 10	1.6	BLM input; travel route views of project crossing VRM Class II
SO23	Recreation	Bosque NWR	High	High	High	National Scenic Byway	High	A140		●				4.5	Based on BLM input. SR 1 (El Camino Real) provides access to this viewing location.
SO24	Residential	Willow Springs and Whispering Mountain Ranches	High	Low	High		High	A161			●			0.5	Residential views of project on VRM Class III
SO25 – Eliminated*	Recreation	Antelope WSA	Moderate	Low	High		High	A181, A250	●					3	BLM input
SO26 – Eliminated*	Recreation	Jornada del Muerto WSA	Moderate	Low	High		High	A250, A300, A255, A256	●					2.25	BLM input
SO27	Recreation	Fort Craig National Historic Site	High	Moderate	High	Historic	High	A161, A161a	●					5.5	BLM input
SO28	Travel Route	I-25 (El Camino Real National Scenic Byway and NHT Auto Tour Route) and Fort Craig Rest Area	Moderate	High	High	National Scenic Byway and Auto Tour Route	High	A161a		●	●			5	National scenic byway/auto tour route and rest area with backdropped views of project crossing VRM Class IV
SO29 – Eliminated*	Recreation	Camino Lands Recreation Heritage Center	Moderate	Moderate	High		High	A161a, A256	●					5	Potential superior views of project

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
SO30	Travel Route	SR 1 (El Camino Real National Scenic Byway and NHT Auto Tour Route)	Moderate	Moderate	High	National Scenic Byway and Auto Tour Route	High	A270			●		Sim 11	0.9	Scenic route/auto tour route paralleled by route while crossing in rolling to steep terrain designated as VRM Class IV
SO31 (a, b, & c)	Recreation	Gran Quivira unit of Salinas Pueblo Missions National Monument	High	High	High	Scenic, Historic	High	E83, E84b, E86a,		●		●	Sim 47a, Sim 47b, Sim 47c	2 (Link E83), 4.3 (Link E84b), 4.7 (Link E86a)	National historic site with superior views of Project from the national monument
NEW MEXICO - Roswell Field Office															
RO1	Residential	County Road A020 Residence	High	Low	High		High	A21				●		0.9	Potential views of project in rolling terrain
RO2	Travel Route	U.S. Route 54 and Rest Area	Moderate	Moderate	Moderate		Moderate	A10				●		0.4	Travel route views of project crossing near rest area
RO3-Eliminated*	Residential	U.S. Route 54 Residence	High	Low	High		High	D10b				●	Sim 12	0.1	Residential views of project paralleling travel route
RO4-Eliminated*	Residential	Windmill Ranch	High	Low	High		High	D10b				●		1.2	Superior views of project from entrance to existing and future residential development area
RO5-Eliminated*	Travel Route	SR 349	Low	Low	Moderate		Moderate	D10b				●		crossing	Recreation access route crossed by project
RO6-Eliminated*	Recreation	Valley of Fires Recreation Area	High	High	High		High	D10b, D61, D62, D71, D70	●					6	High use recreation area with superior views of project
RO7-Eliminated*	Residential	Carrizozo	High	Low	High		High	D61, D62, D10b				●	Sim 13	1.6	Existing and future residential development with views of project
RO8-Eliminated*	Residential	County Road A003 Residence	High	Low	High		High	D832, D831, D830				●	Sim 14	0.2	Residential views of project paralleling travel route
NEW MEXICO - Las Cruces District Office															
LC1-Eliminated*	Recreation	Three Rivers Petroglyph Site	High	High	High		High	D104a, D220a	●				Sim 15	3.1	Recreation area with cultural significance; potential superior views of project
LC2-Eliminated*	Residential	Tularosa North	High	Low	High		High	D104b				●		0.5	Inferior views of project crossing rolling terrain
LC3-Eliminated*	Travel Route	U.S. Route 70	Low	Moderate	Moderate		Moderate	D104b	●		●		Sim 16	0.4	Travel route views of project crossing BLM land (VRM Class II)

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
LC4-Eliminated*	Residential	Tularosa South	High	Low	High		High	D903, D902, D104b			●		Sim 17	0.2	Residential views of project crossing BLM land (VRM Class IV)
LC5-Eliminated*	Residential	Alamogordo South	High	Low	High		High	D190, D160, D180, D200, D150				●	Sim 18	1	Residential and travel route views of project that may be skylined
LC6-Eliminated*	Recreation	White Sands National Monument	High	High	High		High	D220, D250	●	●			Sim 19	6 .1	National recreation destination with views of the project crossing BLM land (VRM Class IV)
LC7-Eliminated*	Residential	Orogrande	High	Low	High		High	D260b				●		0.6	Residential views of project that may be skylined
LC8-Eliminated*	Residential	Chaparral	High	Low	High		High	D400			●		Sim 20	0.2	Residential views of project (common link) crossing BLM VRM Class IV
LC9-Eliminated*	Recreation	Organ/Franklin Mountains ACEC	Moderate	Moderate	High	Scenic	High	D420, D440, D460	●					0.1	Recreation views of project crossing VRM Class III within an existing utility corridor
LC10-Eliminated*	Residential	Berino	High	Low	High		High	D700				●	Sim 21	0.5	Residential views of project crossing Rio Grande
LC11-Eliminated*	Residential	Vado	High	Low	High		High	D513, D515				●	Sim 22	0.4	Scenic route and residential views of project crossing Rio Grande
LC12-Eliminated*	Residential	Camino Feliz Residence	High	Low	High		High	D700, D515			●			0.5	Residence with superior views of project crossing Rio Grande Valley on VRM Class III
LC13-Eliminated*	Residential	SR 549 Residence	High	Low	High		High	A470			●			0.1	Potential views of project crossing VRM Class II land from residence
LC14	Residential	County Road A030 Residence	High	Low	High		High	A430				●		2.1	Residential views of project that may be skylined
LC15-Eliminated*	Recreation	Jornada del Muerto Trailhead	High	Moderate	High		High	A340	●					0.75	Trailhead with views of project crossing BLM land (VRM Class II)
LC16-Eliminated*	Recreation	Jornada del Muerto Historical Marker	High	Low	High		High	A261			●			3.3	Recreation views of project crossing BLM land (no VRM Class) from historical marker
LC17-Eliminated*	Residential	County Road A030 Residence	High	Low	High		High	A301a, A255, A313			●			2	Residential views of project on BLM lands (VRM Class IV)

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
LC18	Residential	SR 142 Residence	High	Low	High		High	A270			●			0.3	Residential views of project on BLM lands (VRM Class IV)
LC19	Travel Route	Interstate 25(El Camino Real National Scenic Byway and NHT Auto Tour Route)	Low	High	High	National Scenic Byway	High	A260	●	●			Sim 23	crossing	National scenic byway/auto tour route crossed by project on BLM land (VRM Class III)
LC20	Recreation	Elephant Butte State Park	High	High	High		High	A260				●		3.6	Inferior views from park/river
LC21	Travel Route	Geronimo National Scenic Byway	Moderate	Moderate	High	National Scenic Byway	High	A330a	●	●				crossing	National scenic byway crossed by project on BLM land (VRM Class IV)
LC22	Travel Route	Lake Valley Back Country Byway/Geronimo National Scenic Byway	Moderate	Moderate	High	National Scenic Byway	High	A330b	●	●			Sim 24	crossing	National scenic byway crossed by project on BLM land (VRM Class III)
LC23-Eliminated*	Residential	Arrey	High	Low	High		High	A351, A352			●		Sim 25	0.5	Residences with views of project crossing river valley into BLM land (VRM Class II and III)
LC24-Eliminated*	Residential	Derry	High	Low	High		High	A352, A370			●		Sim 26	0.7	Residences with views of project crossing river valley into BLM land (VRM Class II and III)
LC25-Eliminated*	Travel Route	Lake Valley Back Country Byway and SR 26	Moderate	Moderate	High	Scenic	High	A400, A420	●					0.4	Direct views of project crossing VRM Class IV land from scenic route
LC26	Travel Route	SR 26 and Butterfield Historic Trail	Moderate	Moderate	High	Historic	High	A440	●				Sim 27	0.2	Historic trail crossed by project in VRM Class II
LC27	Travel Route	SR 180	Moderate	Moderate	Moderate		Moderate	B80	●				Sim 28	0.5	Travel route with potential views of project
LC28	Recreation	Unnamed County Road at Hidalgo Substation	Moderate	Low	High		Moderate	B121, B111, B120b				●	Sim 29	0.4	Superior views of project adjacent to national scenic trail
LC29	Travel Route	SR 90	Low	Moderate	Moderate		Moderate	B121	●					crossing	Recreation destination route (Gila NF) crossing BLM land (VRM Class III)
LC30	Residential	Lordsburg	High	Low	High		High	B112			●		Sim 30	0.8	Residences with potential views of southern alternative crossing BLM land (VRM Class II, IV)
LC31	Recreation	Continental Divide National Scenic Trail (South)	High	Moderate	High	National Scenic Trail	High	B112	●	●			Sim 31	0.4	National scenic trail with views of project crossing VRM Class II

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
LC32	Recreation	Shakespeare Ghost town	Moderate	Low	Moderate	Historic	Moderate	B112			●			0.25	Historic significance and recreation with views of project crossing BLM land (VRM Class II)
LC33	Recreation	Continental Divide National Scenic Trail (North)	High	Moderate	High	National Scenic Trail	High	B121, B111, B120b		●			Sim 50	0.75	National Scenic Trail with views of project paralleling route
New Mexico – Rio Puerco Field Office															
RP1	Travel Route	SR 55 Salt Missions Trail Scenic Byway	Moderate	Low	High	Scenic Byway	High	E83				●		crossing	Scenic byway crossed by project.
RP2	Residential	SR 55 Residence	High	Low	High		High	E83, E84b				●		0.9	Residential views of project
RP3	Travel Route	SR 55 Salt Missions Trail Scenic Byway	Moderate	Low	High	Scenic Byway	High	E84b, E86a				●	Sim 48	crossing	Scenic byway crossed by project
RP4	Residential	County Road B001 Residence	High	Low	High		High	E86b				●	Sim 49	0.5	Residential views of project
ARIZONA - Safford Field Office															
SA1	Recreation	Peloncillo Mountain Wilderness	High	Low	High		High	B150a	●					0.3	WSA (VRM Class I) with potential views of project crossing VRM Class IV
SA2	Residential	San Simon	High	Low	High		High	B150b			●			0.25	Residences with level views of project crossing VRM Class III
SA3	Travel Route	Hackel Road	Moderate	Low	Moderate		Moderate	B160b	●					crossing	Recreation access route to Hot Well Dunes Recreation Area crossed by project
SA4	Residential	Artesia	High	Low	High		High	B153a				●	Sim 32	0.4	Inferior views of project crossing steep terrain near residence
SA5	Travel Route	Swift Trail Parkway (SR 366)	High	Moderate	High	Scenic	High	B153a				●	Sim 33	crossing	Scenic road crossed by project
SA6	Residential	Lebanon	High	Low	High		High	B153a				●		3	Backdropped residential views of project crossing steep terrain
SA7	Recreation	Cluff Ranch Wildlife Area	Moderate	Low	High		Moderate	B153b				●		0.8	Recreation area with potential views of project crossing steep terrain
SA8	Recreation	Bear Springs ACEC	High	Low	High		High	B153b	●					1	Views from ACEC and recreation access route
SA9	Travel Route	Bonita Aravaipa Road (East)	Moderate	Low	Moderate	FS Scenic Drive	High	C130a				●		3	Views from FS scenic drive within FS boundary

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
SA10	Residential	Sulphur Springs Valley	High	Low	High		High	C110				●		0.1–0.5	Partially skylined views of project from residences; existing transmission lines adjacent to project
SA11	Travel Route	Bonita Aravaipa Road (West)	Moderate	Low	Moderate	FS Scenic Drive	High	C130b				●		crossing	FS scenic drive crossed by project
SA12	Travel Route	Klondyke Road (East)	Moderate	Low	Moderate	FS Scenic Drive	High	B153b, C130b, C170				●		crossing	FS scenic drive crossed by project
SA13	Travel Route	Klondyke Road (North)	High	Moderate	High		High	C170				●		0.5	Recreation access road crossed by project (access to Aravaipa)
SA14	Travel Route	Rug Road	High	Moderate	High		High	C170				●	Sim 34	0.75	Recreation access road crossed by project (access to Aravaipa)
SA15	Travel Route	Muleshoe Ranch Road	Moderate	Low	Moderate		Moderate	C260				●		crossing	Recreation access road crossed by project
ARIZONA - Tucson Field Office															
TU1	Residential	Mammoth	High	Low	High		High	C592				●		1	Residential views of project crossing San Pedro River Valley
TU2	Travel Route	State Route 77 (North)	Low	Moderate	Moderate		Moderate	C592				●	Sim 35	crossing	San Pedro River crossing at Mammoth
TU3	Recreation	Arizona National Scenic Trail – Black Hills	High	Moderate	High	National Scenic Trail	High	C620		●				crossing	Black Hills realignment. BLM input
TU4	Residential	Oracle	High	Low	High		High	C680, C690				●	Sim 36	1	Residential views of project crossing rolling terrain
TU5	Recreation	Arizona National Scenic Trail (Tiger Mine Trailhead)	High	Moderate	High	National Scenic Trail	High	C661, C670, C671		●			Sim 37	0.5	Recreation views of two alternatives near trailhead
TU6	Residential	San Manuel	High	Low	High		High	C660				●	Sim 38	1	San Pedro River Valley crossing at San Manuel
TU7	Residential	San Manuel (West)	High	Low	High		High	C450				●		1.5	Residences with inferior views of project crossing rolling terrain
TU8	Travel Route	Mount Lemmon Road	High	Low	High	FS Scenic Drive	High	C450				●		3.5	Recreation access road to CNF and Peppersauce Campground with superior views of project
TU9	Residential	San Pedro River Valley (North)	High	Low	High		High	C441				●		5	Residence with inferior views of project
TU10	Travel Route	Cascabel Road	Moderate	Low	Moderate		Moderate	C276				●	Sim 39	crossing	San Pedro River Valley crossing

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
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KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
TU11	Travel Route	Cascabel Road (South)	Moderate	Low	Moderate		Moderate	C261, C201, F40a				●		crossing	San Pedro River Valley crossing. BLM input
TU12	Residential	Wrong Mountain Road Residence	High	Low	High		High	F40a				●		0.3	Rural residence with of project in rolling terrain; primary views of wilderness area/national park
TU13	Recreation	Arizona National Scenic Trail (Cienega Creek Preserve Trailhead)	High	Moderate	High	National Scenic Trail	High	F51		●			Sim 40	1	Views of both alternatives from trailhead
TU14	Travel Route	State Route 83	Low	High	Moderate	Scenic	High	F600				●	Sim 41	1.5	Views from scenic route
TU15	Residential	Civano	High	Low	High		High	F81a				●		0.5	Residential views of project within river corridor
TU16	Recreation	Saguaro National Park (East)	High	High	High		High	F81a		●			Sim 42	2	Recreation area of national importance; superior views of project within river corridor
TU17	Residential	Alvernon	High	Low	High		High	F111				●		0.02	Residences immediately adjacent to I-10 alternative
TU18	Travel Route	Gates Pass Road	Moderate	High	High	Scenic	High	F112				●		4.75	Scenic route with superior views of project
TU19	Recreation	Santa Cruz River Park/Anza National Historic Trail	High	Moderate	High	National Historic Trail	High	F112		●			Sim 43	parallel	Recreation views project within park
TU20	Travel Route	Sky Island National Scenic Byway	High	Low	High	National Scenic Byway	High	F81a, F81b				●		3.6	Scenic route and residences with superior views of project
TU21	Residential	Mehl Park Residence	High	Moderate	High		High	F81b				●	Sim 44	0.04	Residences immediately adjacent to project located within Rillito River Park
TU22	Travel Route	River Road	Moderate	Moderate	High	Scenic	High	F81b				●		0.2	Scenic road with superior views of project within Rillito River Corridor
TU23	Travel Route	Oracle Road	Moderate	Moderate	High	Scenic	High	F81b				●		1.4	Scenic road with superior views
TU24	Residential	Silverbell Road Residence	High	Moderate	High	Scenic	High	F81b, F112				●		0.2	Residential views of project paralleling scenic road
TU25	Recreation	Saguaro National Park (West)	High	High	High		High	F510		●			Sim 45	2.75	Recreation area of national importance; superior views of project
TU26	Other Land Use Type	Ritz-Carlton Resort	Moderate	Moderate	High		Moderate	F510				●		3.5	Slightly superior views of rural landscape
TU27	Recreation	Biosphere	High	Moderate	Moderate		High	C680				●		3	Slightly superior views of project

APPENDIX D5 – KEY OBSERVATION POINTS AND SIMULATION LOCATIONS															
			Concern Level Factors												
KOP ID	Viewing Location Type	Viewing Location Name	View Duration	Use Volume	Aesthetic Concern	Scenic/ Historic	Concern Level	Link	KOP (view from BLM land)	KOP (National Significance)	KOP (view of BLM land)	KOP (Other)	Simulation	Distance from Project (miles)	KOP or Simulation Selection Rationale
**KOPs identified within the study area corresponding to Route Group 2 were eliminated, as noted.*															
TU28	Residence	Longhoen Trail Residence (Red Rock)	High	Low	High		High	C810, C814, C680b, C818			●			1	Residential views of project crossing VRM Class III; several existing transmission lines
TU29	Travel Route	Park Link Drive	Moderate	Low	Moderate		Moderate	C817, C818, C820	●					crossing	Local travel route view of project crossing VRM Class III
TU30	Travel Route	Pinal Pioneer Parkway (SR 79)	Moderate	Moderate	High	Parkway	High	C760, C780	●					2.75	Major travel route on BLM land viewing project crossing BLM VRM Class III
TU31	Travel Route	Tom Mix Memorial Rest Area	Moderate	Moderate	Moderate	Historic	Moderate	C760, C780, C790				●		0.15	Rest area with views of project crossing major travel route
TU32	Other Land Use Type	St. Anthony's Greek Orthodox Monastery	High	Low	High		High	C790				●		3.2	Open views of landscape from superior viewing position within monastery
TU33	Residential	Earley Road Residence	High	Low	High		High	C880a				●	Sim 46	0.25	Residence with level views of project
TU34	Travel Route	SR 77 (South)	Low	Moderate	Moderate		Moderate	C661				●		0.4	Major travel route crossed by route. BLM input
TU35	Travel Route	Pinal Pioneer Parkway (SR 79)	Moderate	Moderate	High	Parkway	High	C680				●		crossing	Major travel route crossed by route. BLM input
TU36	Travel Route	Freeman Road	Moderate	Low	Moderate		Moderate	C693	●					crossing	Recreation access road to BLM land. BLM input
TU37	Recreation	Arizona National Scenic Trail – Davidson Canyon	High	Moderate	High	National Scenic Trail	High	F600		●				crossing	Potential views of project crossing Davidson Canyon. BLM input

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APPENDIX D6 – SIMULATIONS

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Simulation 1b (KOP SO2b) Gran Quivira Ruins within the Salinas Pueblo Missions National Monument (Link E81)

Simulation 2a (KOP SO4) WSMR P Route 7 Residence (Standard Mitigation)

Simulation 2b (KOP SO4) WSMR P Route 7 Residence (Selective Mitigation)

Simulation 3 (KOP SO9) Quebradas Back Country Byway (South)

Simulation 4a (KOP SO11) WSMR S Route 3607/Stallion WSA (Standard Mitigation)

Simulation 4b (KOP SO11) WSMR S Route 3607/Stallion WSA (Selective Mitigation)

Simulation 5a (KOP SO14) Gordy's (Johnson) Hill SRMA (Standard Mitigation)

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Simulation 6 (KOP SO15) Quebradas Back Country Byway (North)

Simulation 7 (KOP SO16) Rio Grande

Simulation 8 (KOP SO17) New Mexico SR 408 (El Camino Real National Scenic Byway)

Simulation 9 (KOP SO20) New Mexico SR 1 (West of San Antonio, New Mexico)

Simulation 10 (KOP SO22) US Route 380/San Pedro ACEC

Simulation 11 (KOP SO30) New Mexico SR 1 (El Camino Real National Scenic Byway)

Simulation 23 (KOP LC19) I-25 (El Camino Real National Scenic Byway)

Simulation 24 (KOP LC22) Lake Valley Back Country Byway/Geronimo National Scenic Byway

Simulation 27 (KOP LC26) Butterfield Trail

Simulation 28 (KOP LC27) Deming, New Mexico/US Route 180

Simulation 29 (KOP LC28) Unnamed County Road at Hidalgo Substation

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Simulation 31 (KOP LC31) Continental Divide National Scenic Trail (South)

Simulation 32 (KOP SA4) Artesia, Arizona/Quatro Cerros Road

Simulation 33a (KOP SA5) Swift Trail Parkway (Standard Mitigation)

Simulation 33b (KOP SA5) Swift Trail Parkway (Selective Mitigation)

Simulation 34a (KOP SA14) Rug Road (Standard Mitigation)

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Simulation 35 (KOP TU2) Mammoth, Arizona/Arizona SR 77

Simulation 36 (KOP TU4) Oracle, Arizona

Simulation 37a (KOP TU5) Tiger Mine Trailhead on the Arizona National Scenic Trail (Standard Mitigation)

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Simulation 38 (KOP TU6) San Pedro River Valley Northeast of San Manuel, Arizona

Simulation 39 (KOP TU10) Cascabel Road

Simulation 40a (KOP TU13) Cienega Creek Natural Preserve from the Arizona National Scenic Trail (Standard Mitigation)

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Simulation 41 (KOP TU14) Arizona SR 83 near Vail, Arizona

Simulation 42 (KOP TU16) Saguaro National Park East

Simulation 43 (KOP TU19) Santa Cruz River Park from the Juan Bautista de Anza National Historic Trail

Simulation 44 (KOP TU21) Mehl Park

Simulation 45 (KOP TU25) Saguaro National Park West

Simulation 46a (KOP TU33) Earley Road Residences (Links C850, C880, and C880a)

Simulation 46b (KOP TU33) Earley Road Residences (Links C860, C890, and C880a)

Simulation 47a (KOP SO31) Gran Quivira Ruins within the Salinas Pueblo Missions National Monument (Links E83, E85, and E80d)

Simulation 47b (KOP SO31) Gran Quivira Ruins within the Salinas Pueblo Missions National Monument (Links E84b, E85, and E80d)

Simulation 47c (KOP SO31) Gran Quivira Ruins within the Salinas Pueblo Missions National Monument (Links E86a)

Simulation 48 (KOP RP3) Salt Missions Scenic Byway (Link E84b)

Simulation 49 (KOP RP4) County Road B001 Residence

Simulation 50 (KOP LC33) Continental Divide National Scenic Trail (North)

Note: Simulations 12-22, 25, and 26 were prepared for Route Group 2 alternatives, and are not included in this volume.

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SUNZIA SOUTHWEST TRANSMISSION PROJECT

Simulation Points

Project Features

- Route Group 1
- Route Group 3
- Route Group 4
- Eliminated Routes
- Simulation Points
- Substation Site

General Reference Features

- City
- State Highway
- U.S. Highway
- Interstate
- County Boundary
- Lake/Reservoir

Land Ownership

- Bureau of Land Management
- U.S. Department of Defense
- McGregor Range Withdrawal
- National Park Service
- U.S. Forest Service
- U.S. Fish and Wildlife Service
- U.S. Bureau of Reclamation
- Federal (Other)
- Indian Reservation
- State
- Private/Other

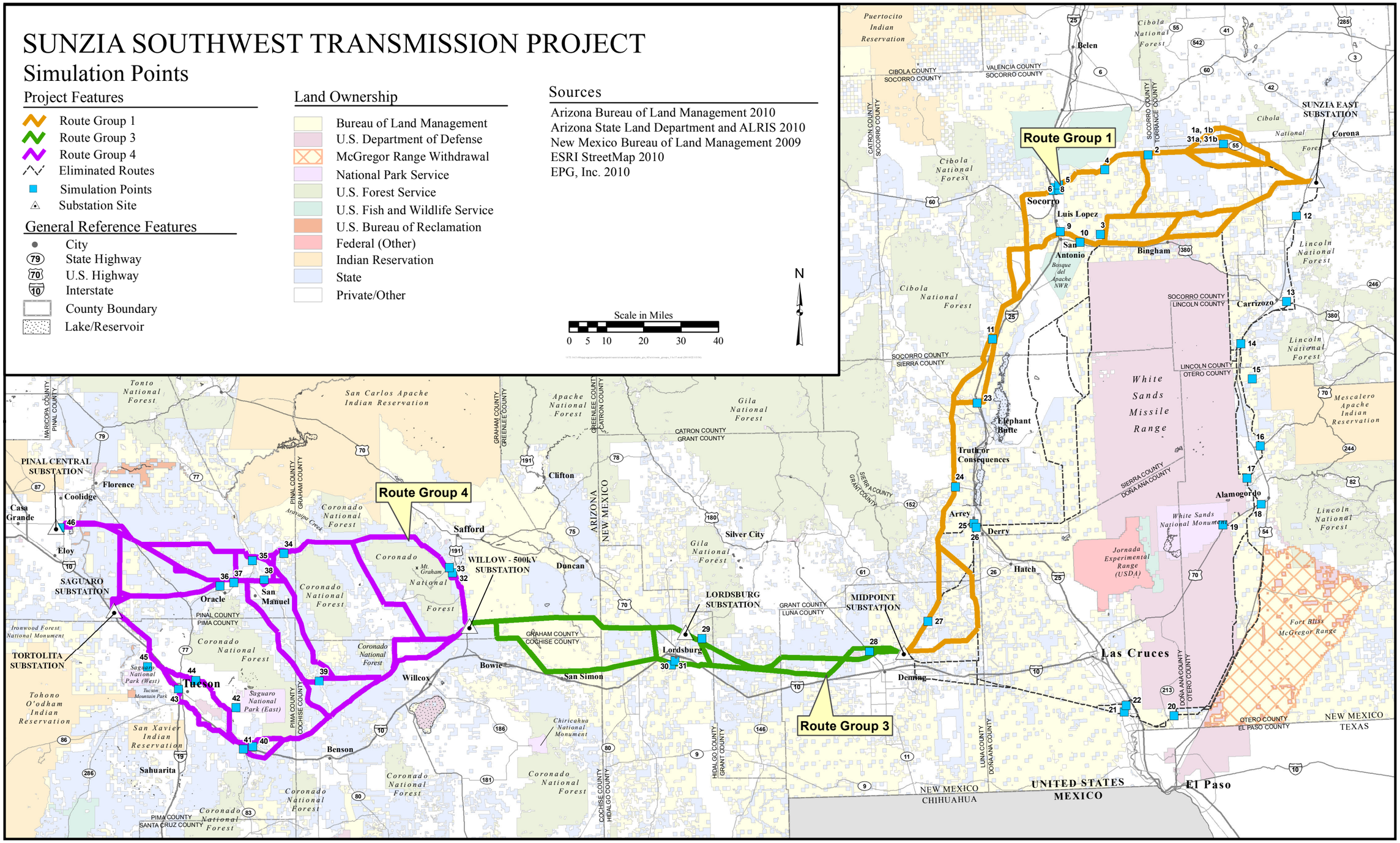
Sources

Arizona Bureau of Land Management 2010
Arizona State Land Department and ALRIS 2010
New Mexico Bureau of Land Management 2009
ESRI StreetMap 2010
EPG, Inc. 2010

Scale in Miles

0 5 10 20 30 40

N



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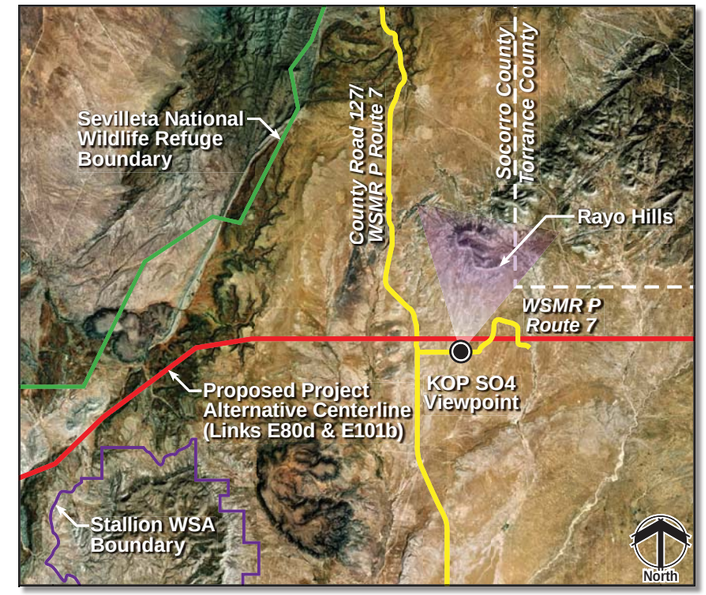
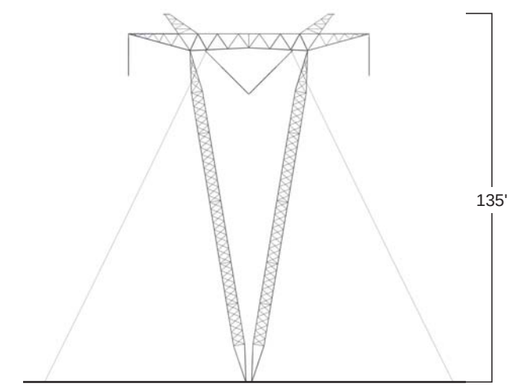


Existing Condition – View north from a residence along WSMR P Route 7 (KOP SO4) located east of the Sevilleta NWR. Adjacent scenery includes Rayo Hills.

Photograph Location: Viewpoint is approximately 0.5 mile from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAM



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Structure height is typical.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagram), including standard mitigation measures and typical spans. Portions of the Project would be seen crossing BLM Class IV land in a partially skylined condition. Recommended selective mitigation measure #7 would reduce visual contrast.

Photo Date and Time: 5-5-11, 11:01 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45' feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 2a

January 2012

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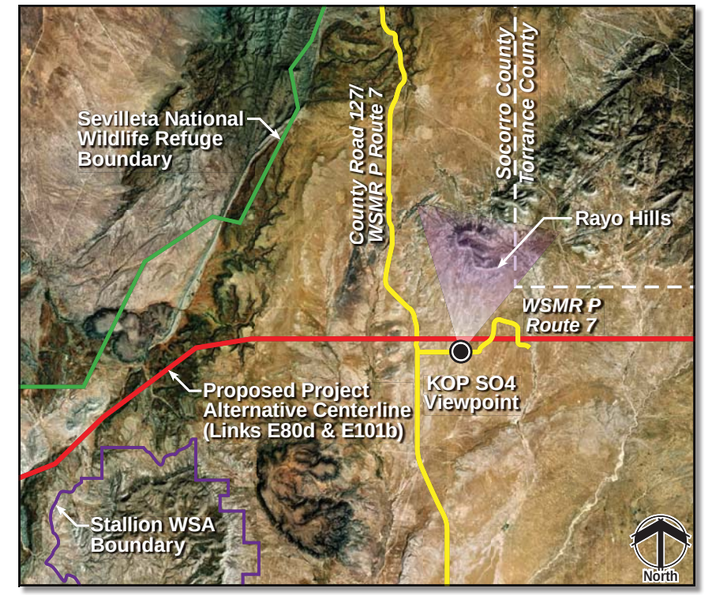
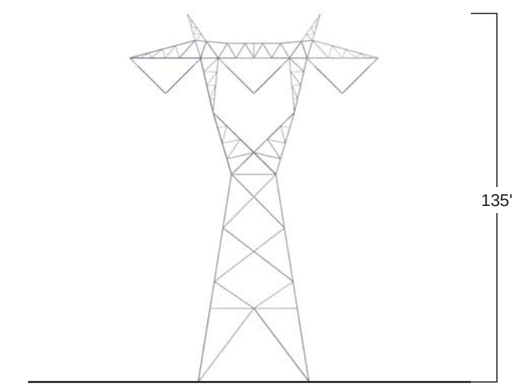


Existing Condition – View north from a residence along WSMR P Route 7 (KOP SO4) located east of the Sevilleta NWR. Adjacent scenery includes Rayo Hills.

Photograph Location: Viewpoint is approximately 0.5 mile from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAM



Typical single-circuit 500 kV galvanized self-supporting lattice tangent transmission tower.

Structure height is typical.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagram), including selective mitigation measures and typical spans. Portions of the Project would be seen crossing BLM Class IV land in a partially skylined condition.

Photo Date and Time: 5-5-11, 11:01 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45' feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 2b

January 2012

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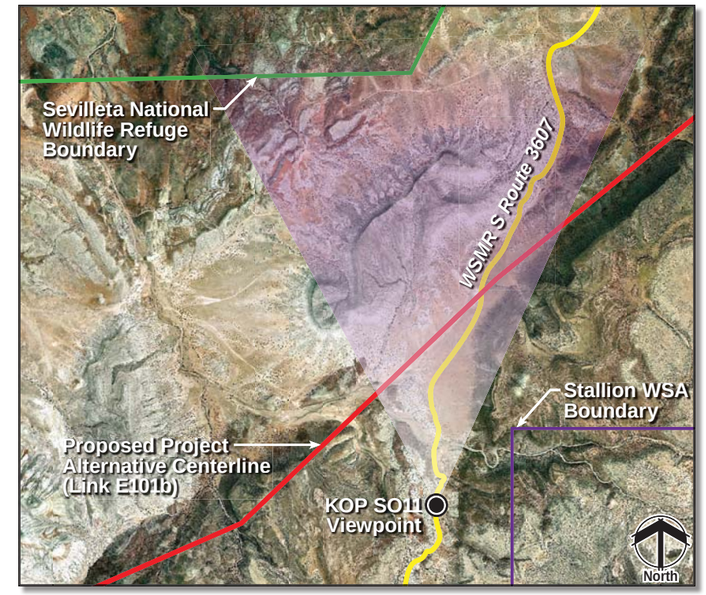
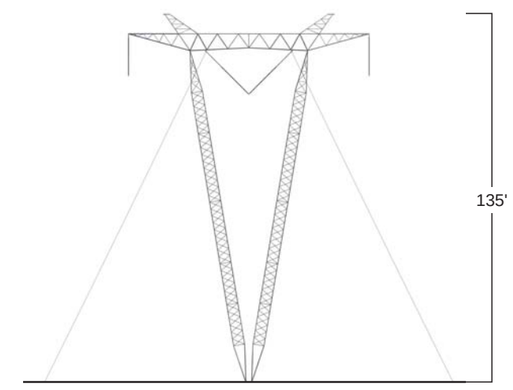


Existing Condition – View north from WSMR S Route 3607 (KOP SO11), of landforms south of the Sevilleta National Wildlife Refuge and west of the Stallion WSA.

Photograph Location: Viewpoint is approximately 0.9 mile from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAM



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Structure height is typical.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagram), including standard mitigation measures and typical spans. Portions of the Project would be skylined with remaining portions backdropped. Structures would be seen as the Project crosses BLM Class III Land. Recommended selective mitigation measure #7 would reduce visual contrast.

Photo Date and Time: 5-5-11, 10:22 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45' feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 4a

January 2012

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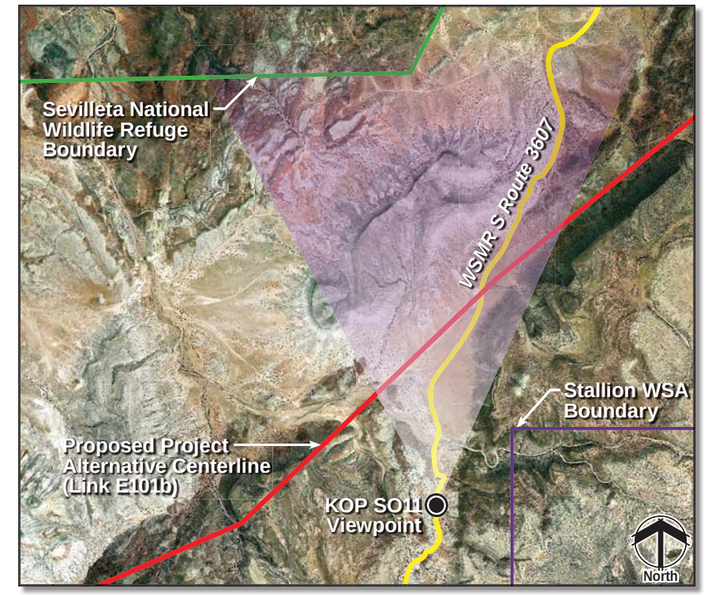
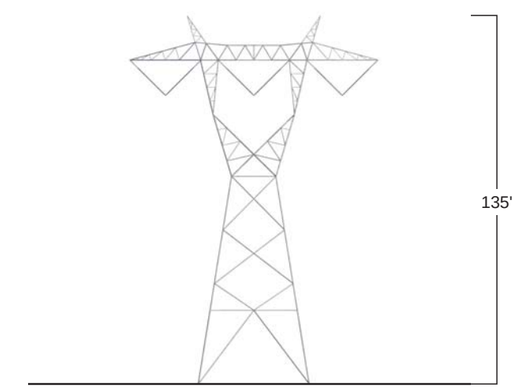


Existing Condition – View north from WSMR S Route 3607 (KOP SO11), of landforms south of the Sevilleta National Wildlife Refuge and west of the Stallion WSA.

Photograph Location: Viewpoint is approximately 0.9 mile from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAM



Typical single-circuit 500 kV galvanized self-supporting lattice tangent transmission tower.

Structure height is typical.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagram), including selective mitigation measures and typical spans. Portions of the Project would be skylined with remaining portions backdropped. Structures would be seen as the Project crosses BLM Class III Land.

Photo Date and Time: 5-5-11, 10:22 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45' feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 4b

January 2012

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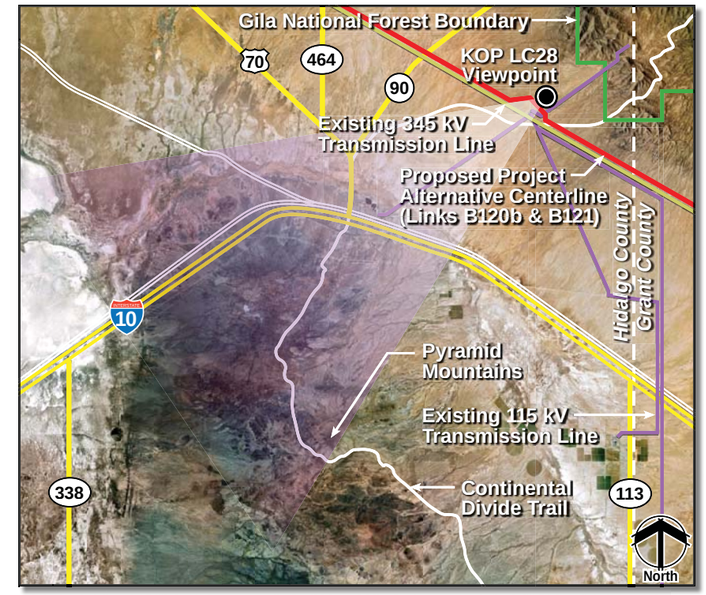
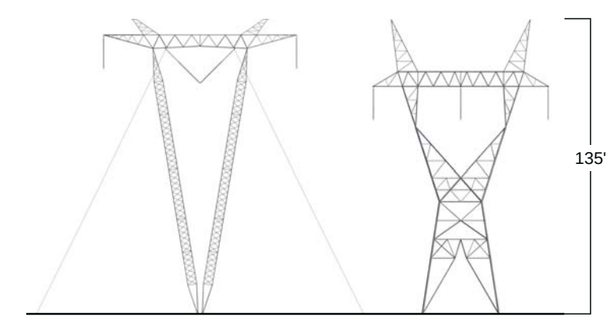


Existing Condition – View southwest from an unnamed county road (KOP LC28) toward the Continental Divide National Scenic Trail and Lordsburg, New Mexico. Adjacent scenery includes the Pyramid Mountains and the Animas Valley.

Photograph Location: Viewpoint is approximately 0.4 mile from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAMS



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Typical single-circuit 500 kV galvanized self-supporting lattice dead-end transmission tower.

Structure heights are typical.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagrams), including standard mitigation measures. The Project would be seen from a level viewing position in the context of the existing Hidalgo Substation and existing transmission lines. Selective mitigation measure #10 would reduce visual contrast (shown).

Photo Date and Time: 5-13-11, 8:52 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45' feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 29

January 2012

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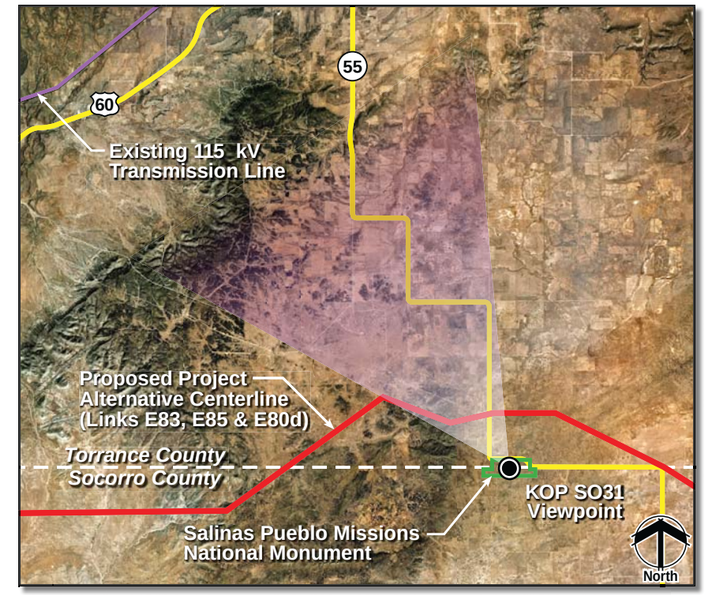
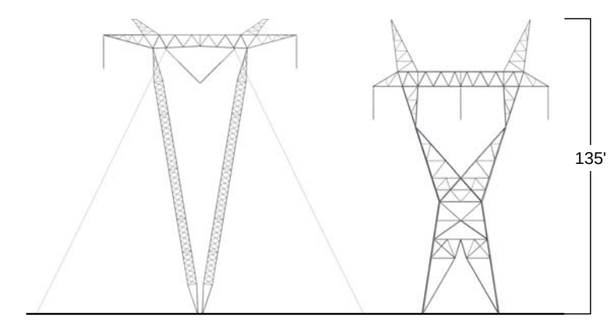


Existing Condition – View northwest from the Gran Quivira Ruins within the Salinas Pueblo Missions National Monument (KOP SO31).

Photograph Location: Viewpoint is approximately 2.0 miles from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAMS



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Typical single-circuit 500 kV galvanized self-supporting lattice dead-end transmission tower.

Structure height is typical.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagrams) based on standard mitigation measures and typical spans. Portions of the Project would be seen from a superior viewing position in a setting where cultural modifications are present but minimal.

Photo Date and Time: 5-25-11, 10:01 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45 feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 47a

January 2012

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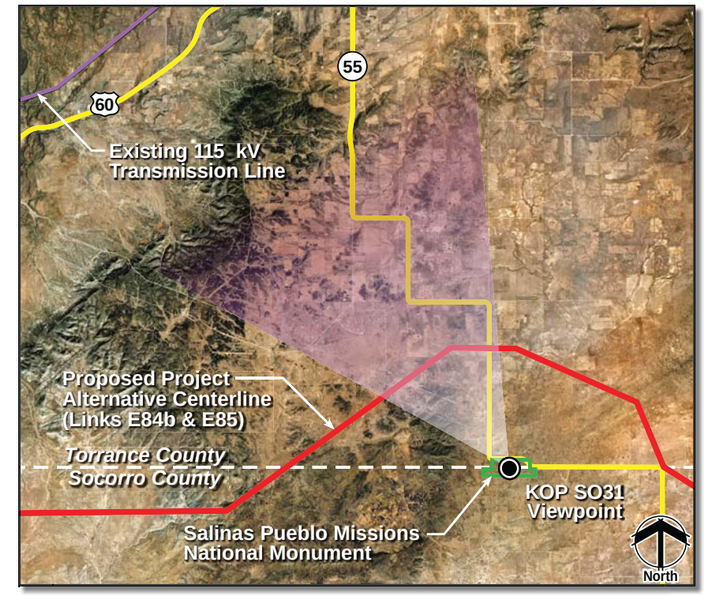
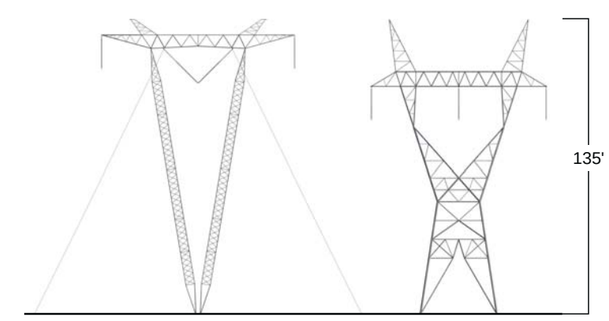
Existing Condition – View northwest from the Gran Quivira Ruins within the Salinas Pueblo Missions National Monument (KOP SO31).



Photograph Location: Viewpoint is approximately 4.3 miles from proposed transmission lines.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagrams) based on standard mitigation measures and typical spans. Portions of the Project would be seen from a superior viewing position in a setting where cultural modifications are present but minimal.

AC 500 kV TOWER STRUCTURE DIAGRAMS



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Typical single-circuit 500 kV galvanized self-supporting lattice dead-end transmission tower.

Structure height is typical.

Photo Date and Time: 5-25-11, 10:01 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45 feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 47b

January 2012

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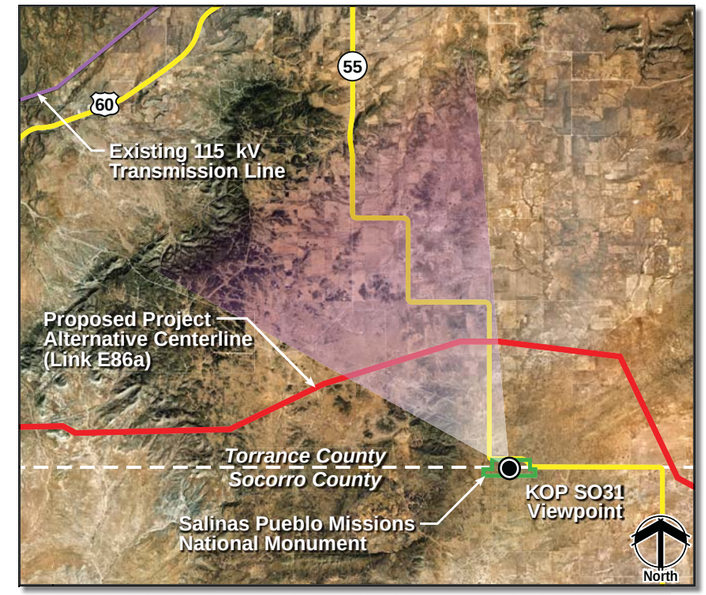
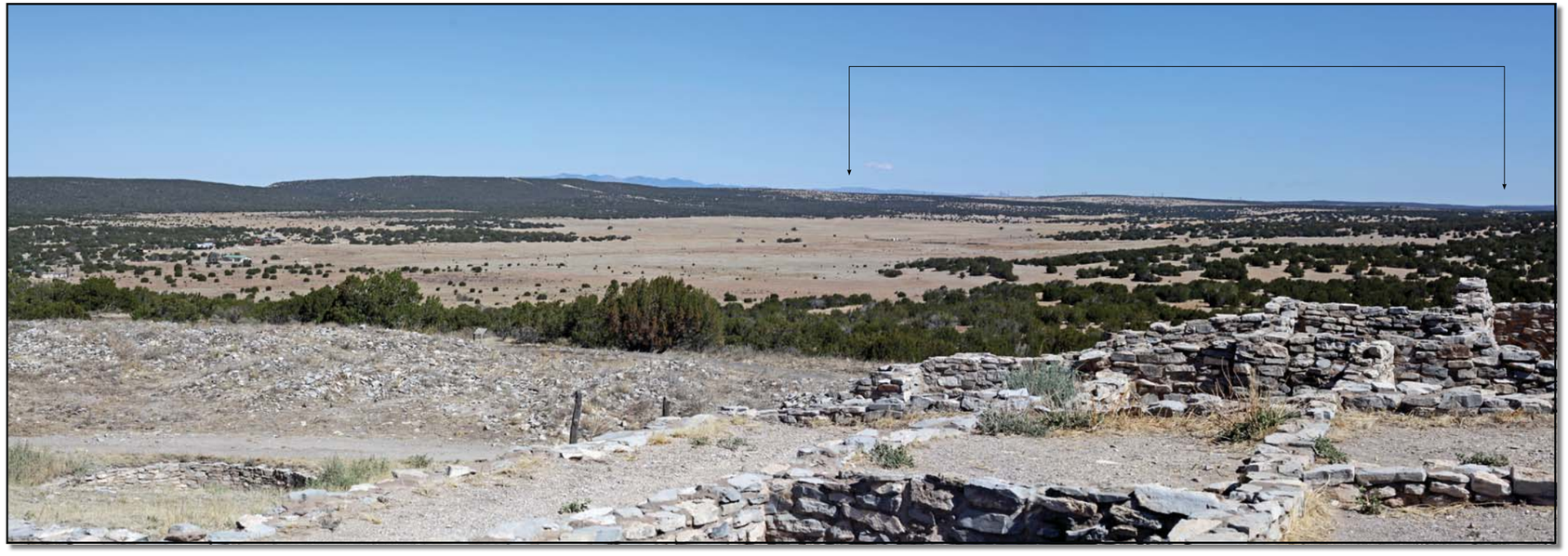
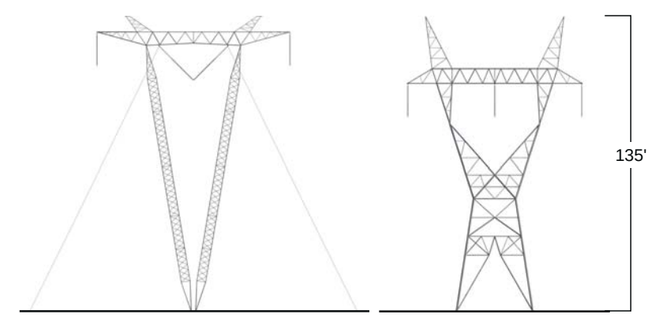


Existing Condition – View northwest from the Gran Quivira Ruins within the Salinas Pueblo Missions National Monument (KOP SO31).

Photograph Location: Viewpoint is approximately 4.7 miles from proposed transmission lines.



AC 500 kV TOWER STRUCTURE DIAGRAMS



Typical single-circuit
500 kV galvanized
guyed-V lattice
transmission tower.

Typical single-circuit
500 kV galvanized
self-supporting lattice
dead-end transmission tower.

Structure height is typical. Structure diagrams represent structure types that could occur within the right-of-way, but do not represent the simulated right-of-way configuration.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagrams) based on standard mitigation measures and typical spans. Portions of the Project would be seen from a superior viewing position in a setting where cultural modifications are present but minimal.

Photo Date and Time: 5-25-11, 10:01 a.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45 feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 47c

November 2012

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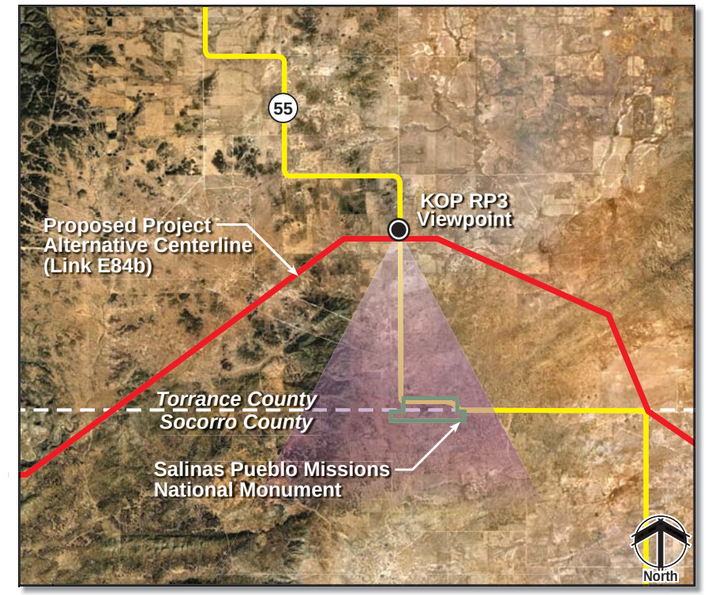
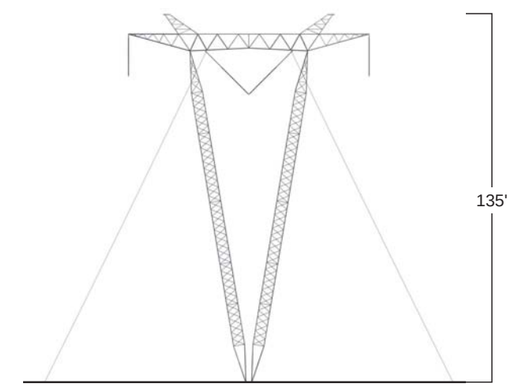


Existing Condition – View south from the Salt Missions Scenic Byway (Hwy 55) toward the Gran Quivira unit of the Salinas Pueblo Missions National Monument (KOP RP3).

Photograph Location: Viewpoint is approximately 0.4 mile from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAM



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Structure height is typical. Structure diagrams represent structure types that could occur within the right-of-way, but do not represent the simulated right-of-way configuration.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagram) based on standard mitigation measures and typical spans. Portions of the Project would be skylined when crossing this scenic travel route. Selective Mitigation measure #10 would reduce visual contrast (shown).

Photo Date and Time: 9-18-12, 12:34 p.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Typical structures would range between 125 to 160 feet above ground with a span of 1,000 to 1,500 feet. Typical conductor sag would be 45' feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 48

October 2012

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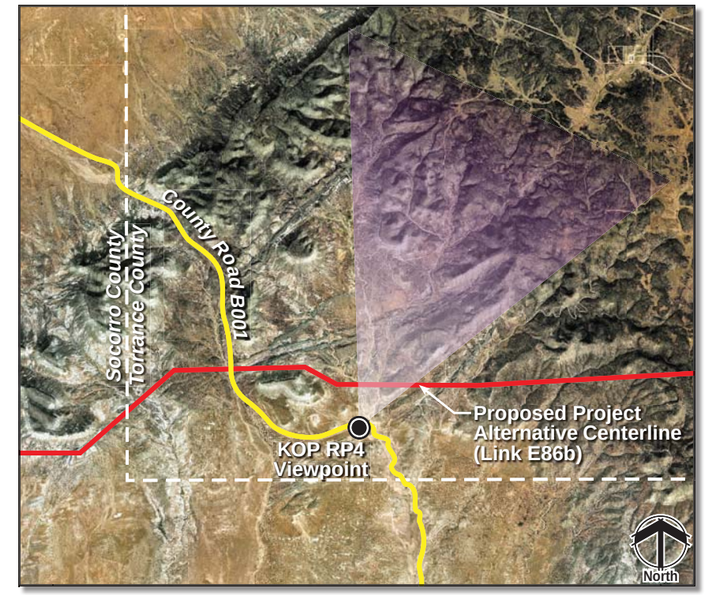
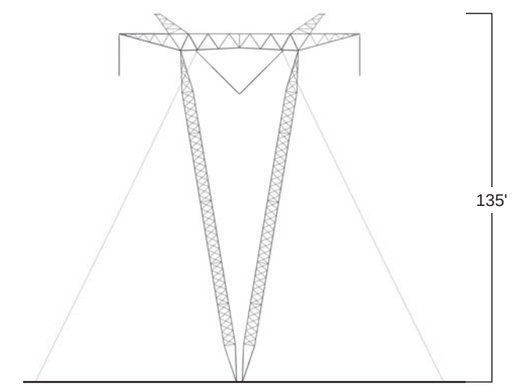
Existing Condition – View north/northeast from a residence along County Road B001 (KOP RP4) in the townsite of Chupadera. Adjacent scenery include the canyon of Chupadera Arroyo within the Chupadera Mesa region.



Photograph Location: Viewpoint is approximately 0.6 mile from proposed transmission lines.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagram), including standard mitigation measures. Portions of the Project would be seen in a partially skylined condition. Recommended selective mitigation measures #7 and #10 would reduce visual contrast.

AC 500 kV TOWER STRUCTURE DIAGRAM



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Structure height is typical.

Photo Date and Time: 9-19-12, 12:40 p.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 49

March 2013

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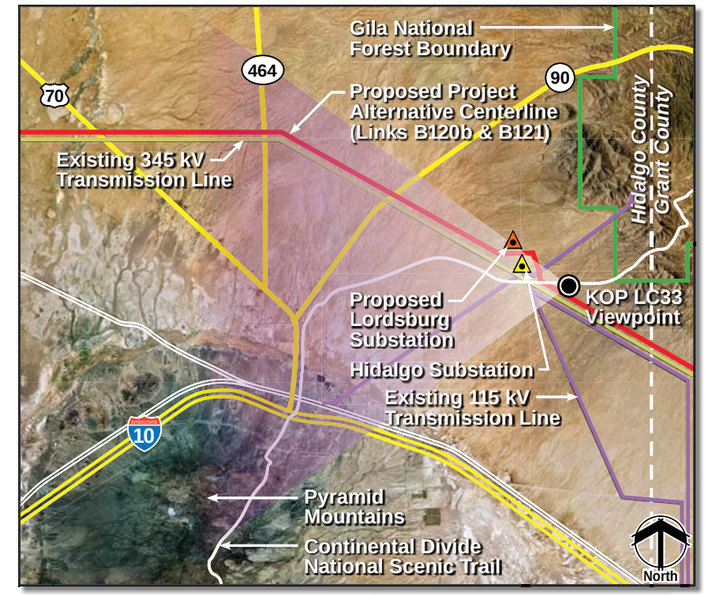
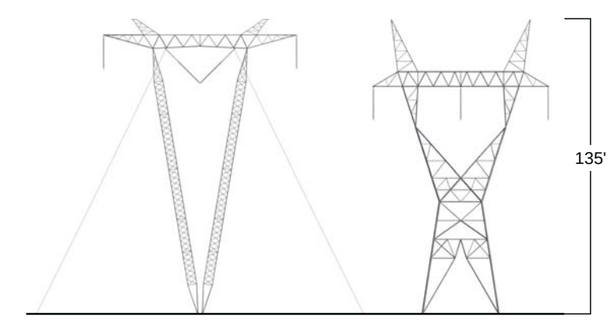


Existing Condition – View west from the Continental Divide National Scenic Trail toward Lordsburg, New Mexico. Adjacent Scenery includes the Pyramid Mountains, the Animas Valley, and the Peloncillo Mountains.

Photograph Location: Viewpoint is approximately 0.3 mile from proposed transmission lines.

AC 500 kV TOWER STRUCTURE DIAGRAMS



Typical single-circuit 500 kV galvanized guyed-V lattice transmission tower.

Typical single-circuit 500 kV galvanized self-supporting lattice dead-end transmission tower.

Structure heights are typical.

Simulation – Proposed Project (see AC 500 kV Tower Structure Diagrams), including standard mitigation measures. The Project would be seen from a level viewing position in the context of the existing Hidalgo Substation and existing transmission lines. Selective mitigation measure #10 would reduce visual contrast (shown).

Photo Date and Time: 3-28-13, 11:33 p.m. Focal Length: 50mm
Simulations were prepared using three-dimensional structure models provided by the owner's engineer.
NOTE: Simulation does not include proposed substation, due to lack of engineering details.
Typical Structures would range between 125 and 160 feet above ground with a span of 1,000 to 1,600 feet. Typical conductor sag would be 45 feet above ground.
Facility locations, colors, and heights will differ based on final engineering and design.

SunZia Southwest Transmission Line Project

Simulation 50

April 2013

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APPENDIX E: LAND USE DATA

LIST OF TABLES

Table E-1. Mining Claims Crossed by Subroutes....E-1
Table E-2. Mining Districts within the Study Area....E-5
Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)....E-6
Table E-4. Subroute 4C3 – Tucson....E-13
Table E-5. Local Alternative Links....E-15

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APPENDIX E – LAND USE DATA

Table E-1. Mining Claims Crossed by Subroutes			
Mining Claim Name	**Location Date**	**Township/Range/Section**	**Link**
New Mexico			
Subroute 1B – San Antonio Crossing*			
Oro Espanola #15 and #16	7/30/2008	T5S/R1W/Sec 4	A160
Walnut Creek Mine	11/15/2008	T5S/R1W/Sec 9	A160
Walnut Creek #2 and #3	9/2/2009	T5S/R1W/Sec 9	A160
Subroute 3A – North			
Arrow Head Mine	5/15/2006	T21S/R18W/Sec 27	B121
Larkspur Mine	5/15/2006	T21S/R18W/Sec 34	B121
Bronze Starr Mine	5/15/2006	T21S/R18W/Sec 34	B121
Bonn Mine	5/15/2006	T21S/R18W/Sec 35	B121
Tuip Gurani Mine	5/15/2006	T21S/R18W/Sec 35	B121
Arizona			
Subroute 4A – North of Mt. Graham			
Polo #17, #18, #19,#20	2/28/2007	T7S/R11E/Sec 14	C760
IET #59, #60, #61, #62	4/8/2005	T7S/R11E/Sec 15	C760
IET #63, #64, #69, #70	4/8/2005	T7S/R11E/Sec 23	C760
Polo #21, #22, #23, #24	2/28/2007	T7S/R11E/Sec 24	C760
Quail #7, #8, #9, #10	4/24/2002	T7S/R12E/Sec 25	C620
Quail #11, #12	4/24/2002	T7S/R12E/Sec 26	C620
Burro #1, #2	3/28/2006	T7S/R12E/Sec 26	C620
Quail #15, #16, #17, #18	4/24/2002	T7S/R12E/Sec 27	C620
Coyote #5, #6, #7, #8	7/6/2004	T7S/R12E/Sec 28	C620
Coyote #9, #10, #12	1/13/2000	T7S/R12E/Sec 29	C620
Happy 1	9/9/2010	T7S/R12E/Sec 29	C620
Pancho #21, #22, #23, #24	2/28/2007	T7S/R12E/Sec 30	C620, C760
CCN-1, 2, 3, 4, 5, 6	10/16/2010	T8S/R17E/Sec 11	C173
CCN-7, 8, 26, 27	10/10/2010	T8S/R17E/Sec 11	C713
CCN-9	10/8/2010	T8S/R17E/Sec 11	C713
CCN-1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15	10/16/2010	T8S/R17E/Sec 12	C173
CCN-7, 8, 16, 17, 26, 27	10/10/2010	T8S/R17E/Sec 12	C173
CCN-9, 18	10/8/2010	T8S/R17E/Sec 12	C173
CCN-19, 20, 21, 22, 23, 28, 29, 30, 31, 32	10/18/2010	T8S/R17E/Sec 12	C173
CCN-24, 25, 33, 34, 35, 36	10/30/2010	T8S/R17E/Sec 12	C173
CCN-95, 96, 97, 103, 104, 105, 127, 128	10/17/2010	T8S/R18E/Sec 6	C178, C173
CCN-98, 99, 100, 106, 107, 108, 115, 116, 117, 118, 119, 122, 123, 124, 125, 126	10/9/2010	T8S/R18E/Sec 6	C178, C173
CCN-101, 102, 109, 110	10/30/2010	T8S/R18E/Sec 6	C178, C173
CCN-111, 112, 113, 114, 120, 121	10/19/2010	T8S/R18E/Sec 6	C178, C173
Wren-37, 38, 39, 40, 41,	6/26/2006	T7S/R18E/Sec 33	C170

Table E-1. Mining Claims Crossed by Subroutes			
Mining Claim Name	**Location Date**	**Township/Range/Section**	**Link**
Parrot 1	3/2/1999	T7S/R18E/Sec 35	C170
Parrot 1, 2, 3	3/2/1999	T7S/R18E/ Sec 36	C170
Gal 1, 2	4/30/2008	T7S/R18E/ Sec 36	C170
Gal 375	10/1/2010	T7S/R18E/ Sec 36	C170
Gal 23, 24, 25, 26, 27, 28, 61, 62, 63	2/21/2008	T7S/R19E/Sec 31	C170
Gal 61, 62, 63, 80, 81, 114, 115	2/21/2008	T7S/R19E/Sec 32	C170
Gal 115	2/21/2008	T7S/R19E/Sec 33	C170
Subroute 4B – Sulphur Springs Valley			
Polo #17, #18, #19,#20	2/28/2007	T7S/R11E/Sec 14	C760
IET #59, #60, #61, #62	4/8/2005	T7S/R11E/Sec 15	C760
IET #63, #64, #69, #70	4/8/2005	T7S/R11E/Sec 23	C760
Polo #21, #22, #23, #24	2/28/2007	T7S/R11E/Sec 24	C760
Quail #7, #8, #9, #10	4/24/2002	T7S/R12E/Sec 25	C620
Quail #11, #12	4/24/2002	T7S/R12E/Sec 26	C620
Burro #1, #2	3/28/2006	T7S/R12E/Sec 26	C620
Quail #15, #16, #17, #18	4/24/2002	T7S/R12E/Sec 27	C620
Coyote #5, #6, #7, #8	7/6/2004	T7S/R12E/Sec 28	C620
Coyote #9, #10, #12	1/13/2000	T7S/R12E/Sec 29	C620
Happy 1	9/9/2010	T7S/R12E/Sec 29	C620
Pancho #21, #22, #23, #24	2/28/2007	T7S/R12E/Sec 30	C620, C760
CCN-1, 2, 3, 4, 5, 6	10/16/2010	T8S/R17E/Sec 11	C173
CCN-7, 8, 26, 27	10/10/2010	T8S/R17E/Sec 11	C173
CCN-9	10/8/2010	T8S/R17E/Sec 11	C173
CCN-1, 2, 3, 4, 5, 6, 10, 11, 12, 13, 14, 15	10/16/2010	T8S/R17E/Sec 12	C173
CCN-7, 8, 16, 17, 26, 27	10/10/2010	T8S/R17E/Sec 12	C173
CCN-9, 18	10/8/2010	T8S/R17E/Sec 12	C173
CCN-19, 20, 21, 22, 23, 28, 29, 30, 31, 32	10/18/2010	T8S/R17E/Sec 12	C173
CCN-24, 25, 33, 34, 35, 36	10/30/2010	T8S/R17E/Sec 12	C173
CCN-95, 96, 97, 103, 104, 105, 127, 128	10/17/2010	T8S/R18E/Sec 6	C178, C173
CCN-98, 99, 100, 106, 107, 108, 115, 116, 117, 118, 119, 122, 123, 124, 125, 126	10/9/2010	T8S/R18E/Sec 6	C178, C173
CCN- 101, 102, 109, 110	10/30/2010	T8S/R18E/Sec 6	C178, C173
CCN-111, 112, 113, 114, 120, 121	10/19/2010	T8S/R18E/Sec 6	C178, C173
CCN-37, 38, 45, 46	10/18/2010	T8S/R18E/Sec 7	C173
CCN-39, 47, 59, 60, 61, 68, 69, 70	10/31/2010	T8S/R18E/Sec 7	C173
CCN-40, 41, 48, 49, 57, 58, 66, 67	10/7/2010	T8S/R18E/Sec 7	C173
CCN-42, 43, 44, 50, 51, 52	10/6/2010	T8S/R18E/Sec 7	C173
CCN-53, 62	10/9/2010	T8S/R18E/Sec 7	C173
CCN-54, 55, 56, 63, 64, 65	10/19/2010	T8S/R18E/Sec 7	C173
CCN-71, 72	10/30/2010	T8S/R18E/Sec 7	C173
Wren-37, 38, 39, 40, 41,	6/26/2006	T7S/R18E/Sec 33	C170

Table E-1. Mining Claims Crossed by Subroutes			
Mining Claim Name	**Location Date**	**Township/Range/Section**	**Link**
Parrot 1	3/2/1999	T7S/R18E/Sec 35	C170
Parrot 1, 2, 3	3/2/1999	T7S/R18E/ Sec 36	C170
Gal 1, 2	4/30/2008	T7S/R18E/ Sec 36	C170
Gal 375	10/1/2010	T7S/R18E/ Sec 36	C170
Gal 23, 24, 25, 26, 27, 28, 61, 62, 63	2/21/2008	T7S/R19E/Sec 31	C170
Gal 61, 62, 63, 80, 81, 114, 115	2/21/2008	T7S/R19E/Sec 32	C170
Gal 115	2/21/2008	T7S/R19E/Sec 33	C170
Subroute 4C			
Subroute 4C1 – San Pedro Valley			
Polo #17, #18, #19,#20	2/28/2007	T7S/R11E/Sec 14	C760
IET #59, #60, #61, #62	4/8/2005	T7S/R11E/Sec 15	C760
IET #63, #64, #69, #70	4/8/2005	T7S/R11E/Sec 23	C760
Polo #21, #22, #23, #24	2/28/2007	T7S/R11E/Sec 24	C760
Coyote #9, #10, #12	1/13/2000	T7S/R12E/Sec 29	C693
Happy 1	9/9/2010	T7S/R12E/Sec 29	C693
Pancho #21, #22, #23, #24	2/28/2007	T7S/R12E/Sec 30	C693, C760
Diatom No1, No. 2	2/20/2000	T9S/R17E/Sec 13	C660
Diatom No. 3	2/19/2000	T9S/R17E/Sec 13	C660
Diatom No. 4	2/18/2000	T9S/R17E/Sec 13	C660
Subroute 4C2 – San Pedro Valley			
Pard #13, #14, #15, #16, #17	3/19/1987	T8S/R11E/Sec 6	C820
Pard #18, #19, #20	3/19/1987	T8S/R11E/Sec 7	C820
Jacky #13R, #14R, #15R	1/5/1986	T8S/R11E/Sec 18	C820
Jacky #16R	1/3/1986	T8S/R11E/Sec 18	C820
Jacky #25R, #27R	1/5/1986	T8S/R11E/Sec 19	C820
Jacky #26R,#28R	1/3/1986	T8S/R11E/Sec 19	C820
Jacky #47R	1/5/1986	T8S/R11E/Sec 30	C820
Jacky #48R, #49R, #50R	1/3/1986	T8S/R11E/Sec 30	C820
Jacky #69R, #70R, #71R, #72R	1/3/1986	T8S/R11E/Sec 31	C820
Arkota 89, 90, 91, 92	9/1/2010	T9S/R11E/Sec 33	C818,
Arkota #89, #90,#91, #92	9/1/1965	T9S/R11E/Sec 33	C818,
Arkota #93, #94, #95, #96	9/23/2010	T9S/R11E/Sec 34	C680
Arkota #93, #94, #95, #96	9/1/1965	T9S/R11E/Sec 34	C680
Arkota #97, #98, #99, #100	9/23/2010	T9S/R11E/Sec 35	C680
Arkota #98, #99, #97, #100	9/1/1965	T9S/R11E/Sec 35	C680
Subroute 4C3 – Tucson			
Pard #13, #14, #15, #16, #17	3/19/1987	T8S/R11E/Sec 6	C820
Pard #18, #19, #20	3/19/1987	T8S/R11E/Sec 7	C820
Jacky #13R, #14R, #15R	1/5/1986	T8S/R11E/Sec 18	C820
Jacky #16R	1/3/1986	T8S/R11E/Sec 18	C820
Jacky #25R, #27R	1/5/1986	T8S/R11E/Sec 19	C820

Table E-1. Mining Claims Crossed by Subroutes			
Mining Claim Name	**Location Date**	**Township/Range/Section**	**Link**
Jacky #26R,#28R	1/3/1986	T8S/R11E/Sec 19	C820
Jacky #47R	1/5/1986	T8S/R11E/Sec 30	C820
Jacky #48R, #49R, #50R	1/3/1986	T8S/R11E/Sec 30	C820
Jacky #69R, #70R, #71R, #72R	1/3/1986	T8S/R11E/Sec 31	C820
Local Alternative Links for Subroute 4			
CCN-37, 38, 45, 46	10/18/2010	T8S/R18E/Sec 7	C174
CCN-39, 47, 59, 60, 61, 68, 69, 70	10/31/2010	T8S/R18E/Sec 7	C174
CCN-40, 41, 48, 49, 57, 58, 66, 67	10/7/2010	T8S/R18E/Sec 7	C174
CCN-42, 43, 44, 50, 51, 52	10/6/2010	T8S/R18E/Sec 7	C174
CCN-53, 62	10/9/2010	T8S/R18E/Sec 7	C174
CCN-54, 55, 56, 63, 64, 65	10/19/2010	T8S/R18E/Sec 7	C174
CCN-71, 72	10/30/2010	T8S/R18E/Sec 7	C174
Arkota 89, 90, 91, 92	9/1/2010	T9S/R11E/Sec 33	C680b
Arkota #89, #90,#91, #92	9/1/1965	T9S/R11E/Sec 33	C680b
Source: BLM LR2000 database 2011 * Includes subroutes 1B1, 1B2, and 1B3			

Table E-2. Mining Districts within the Study Area				
Name	**County**	**State**	**Type**	**Links that Cross District**
Lordsburg Mesa	Hidalgo	NM	Uranium	B121, B140, B160a
Gold Hill	Hidalgo	NM	Metals	
Bound Hill	Hidalgo	NM	Metals	
Lordsburg	Hidalgo	NM	Metals	B112
Kimball	Hidalgo	NM	Metals	B150a
Black Mountain	Luna	NM	Industrial Metals	
Cookes Peak Manganese	Luna	NM	Metals	
Fluorite Ridge	Luna	NM	Industrial Metals	A530, A520, B60, B80, B90
Lake Valley	Luna	NM	Metals	
Aden	Luna and Doña Ana	NM	Industrial Metals	
Caballo Mountains	Sierra	NM	Metals	
Rincon	Sierra	NM	Metals	
Engle	Sierra	NM	Coal	
Fra Cristobal Mountains	Sierra	NM	Metals	
Luis Lopez	Socorro	NM	Metals	
Chupadera Mountains	Socorro	NM	Metals	
Carthage Coal Field	Socorro	NM	Coal	A111
Chupadero	Socorro	NM	Metals	E133
Jornada del Muerto	Socorro	NM	Metals	A90
Jones Camp	Socorro	NM	Metals	
Chupadera Mesa	Socorro	NM	Metals	
Rayo	Socorro	NM	Metals	
Socorro	Socorro	NM	Metals	E101
Socorro Peak	Socorro	NM	Industrial Minerals	
Tecolote Hills	Lincoln	NM	Metals	A10, A21, A30
Unknown	Graham	AZ	Zeolites	B150b
Unknown	Graham	AZ	Polymetallic	
Unknown	Pima	AZ	Copper	
Unknown	Pima	AZ	Copper, Gold	
Unknown	Pinal	AZ	Gypsum	C173, C178,C174, C500, C502, C510, C501, C660
Unknown	Pinal	AZ	Polymetallic	C595, C620, C671
Unknown	Pinal	AZ	Copper	C671, C661, C670
Unknown	Pinal	AZ	Copper, Gold	
Unknown	Pinal	AZ	Copper	
Unknown	Pinal	AZ	Iron	C693
Unknown	Pinal	AZ	Tungsten	

Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)				
Link	**Length of Link**	**Transmission Lines**	**Pipelines**	**Designated Utility Corridors**
Subroute 1A1 – BLM Preferred Alternative				
Links that do not parallel linear energy facilities: A10, E84, E85, E80d, E101, E133, E200				
A21	10.2	—	10.0	—
E82	9.9	—	8.3	—
E180	4.4	—	—	1.3[2]
E211	14.1	14.1	—	10.1[1]
A161	15.3	8.8	—	1.0[1]
A161a	9.4	—	—	7.0[1]
A260	28.4	20.4	—	17.0[1]
A330a	14.1	14.1	—	—
A330b	25.5	25.5	—	—
A400	14.6	14.6	—	—
A440	12.4	12.4	—	—
A530	4.0	4.0	—	—
A520	0.5	0.2	—	—
Totals	**162.8**	**114.1**	**18.3**	**36.4[1,2]**
Total distance parallel to existing utilities and designated utility corridors: 140.7 miles				
Subroute 1A – North River Crossing				
Links that do not parallel linear energy facilities: A10, A22, E80c, E80d, E101, E133, E200				
A21	10.2	—	10.0	—
E180	4.4	—	—	1.3[2]
E211	14.1	14.1	—	10.1[1]
A161	15.3	8.8	—	1.0[1]
A161a	9.4	—	—	7.0[1]
A270	24.8	—	—	0.5[1]
A330a	14.1	14.1	—	—
A330b	25.5	25.5	—	—
A400	14.6	14.6	—	—
A440	12.4	12.4	—	—
A530	4.0	4.0	—	—
A520	0.5	0.2	—	—
Totals	**120.6**	**93.7**	**10.0**	**19.9[1,2]**
Total distance parallel to existing utilities and designated utility corridors: 113.5 miles				
Subroute 1B – San Antonio Crossing				
Subroute 1B1				
Links that do not parallel linear energy facilities: A10, A22,E80c, E80d, E90, A90, A111, A112, A140, A143, , E130				
A21	10.2	—	10.0	—
A140	4.9	—	—	0.2[2]
A160	8.0	—	—	0.3[1]
A161	15.3	8.8	—	1.0[1]
A161a	9.4	—	—	7.0[1]

Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)				
Link	**Length of Link**	**Transmission Lines**	**Pipelines**	**Designated Utility Corridors**
A270	24.8	—	—	0.5[1]
A330a	14.1	14.1	—	—
A330b	25.5	25.5	—	—
A400	14.6	14.6	—	—
A440	12.4	12.4	—	—
A530	4.0	4.0	—	—
A520	0.5	0.2	—	—
Totals	**143.7**	**79.6**	**10.0**	**9.0[1,2]**
Total distance parallel to existing utilities and designated utility corridors: 98.6 miles				
Subroute 1B2 Links that do not parallel linear energy facilities: A10, A30, A50, A60, A90, A111, A112, A143				
A140	4.9	—	—	0.2[2]
A160	8.0	—	—	0.3[1]
A161	15.3	8.8	—	1.0[1]
A161a	9.4	—	—	7.0[1]
A270	24.8	—	—	0.5[1]
A330a	14.1	14.1	—	—
A330b	25.5	25.5	—	—
A400	14.6	14.6	—	—
A440	12.4	12.4	—	—
A530	4.0	4.0	—	—
A520	0.5	0.2	—	—
Totals	**133.5**	**79.6**	—	**9.0[1,2]**
Total distance parallel to existing utilities and designated utility corridors: 89.6 miles				
Subroute 1B3 Links that do not parallel linear energy facilites:A10, A30, A40, A41, A80, A111, A112, A143				
A140	4.9	—	—	0.2[2]
A160	8.0	—	—	0.3[1]
A161	15.3	8.8	—	1.0[1]
A161a	9.4	—	—	7.0[1]
A270	24.8	—	—	0.5[1]
A330a	14.1	14.1	—	—
A330b	25.5	25.5	—	—
A400	14.6	14.6	—	—
A440	12.4	12.4	—	—
A530	4.0	4.0	—	—
A520	0.5	0.2	—	—
Totals	**133.5**	**79.6**	—	**9.0[1,2]**
Total distance parallel to existing utilities and designated utility corridors: 88.6 miles				
Local Alternative Links for 1A and 1B1 (Gran Quivira Area) Links that do not parallel linear energy facilities: E81, E84, E85				
E82-E83	20.7	—	10.7	—

Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)				
Link	**Length of Link**	**Transmission Lines**	**Pipelines**	**Designated Utility Corridors**
Totals	**20.7**	—	**10.7**	—
Total distance parallel to existing utilities and designated utility corridors: 10.7 miles				
Local Alternative Links 1A/1B1, 1B2, 1B3 Links that do not parallel linear energy facilities: A361-A430-A481				
A161b	18.6	—	—	0.3[1]
A260	28.4	20.4	—	17.0[1]
Totals	**47.0**	**20.4**	**—**	**17.3[1]**
Total distance parallel to existing utilities and designated utility corridors: 20.7 miles				
Crossover Links Groups 1B2/1B3: 0.0 miles[*] Link A70 of this group does not parallel linear energy facilities				
ROUTE GROUP 3: MIDPOINT SUBSTATION TO WILLOW-500 kV SUBSTATION				
Subroute 3A1 – BLM Preferred Alternative				
Links that do not parallel linear energy facilities: B90, B120a, B151				
B60	1.6	0.5	—	—
B120b	24.1	18.6	18.6	—
B121	14.2	13.8	8.4	—
B140	8.3	—	—	0.3[1]
B150a	22.1	—	22.1	1.7[1]
B150b	25.8	—	8.0	—
B170	7.5	1.5	—	—
Totals	**129.3**	**34.4**	**57.1**	**2.0[1]**
Total distance parallel to existing utilities and designated utility corridors: 64.8 miles				
Subroute 3A – North				
Links that do not parallel linear energy facilities: B90, B120a, B160b				
B60	1.6	0.5	—	—
B120b	24.1	18.6	18.6	—
B121	14.2	13.8	8.4	—
B160a	25.7	8.0	—	—
B170	7.5	1.5	—	—
Totals	**73.1**	**42.4**	**27.0**	—
Total distance parallel to existing utilities and designated utility corridors: 42.4 miles				
Subroute 3B – South				
Links that do not parallel linear energy facilities: B80, B151				
B60	1.6	0.5	—	—
B110a	20.2	14.1	14.1	1.2[1]
B110b	17.4	8.0	17.0	2.0[1]
B112	15.0	—	13.0	2.5[1]
B150a	22.1	—	22.1	1.7[1]
B150b	25.8	—	8.0	—
B170	7.5	1.5	—	—
Totals	**109.6**	**24.1**	**74.2**	**7.4[1]**

Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)				
Link	**Length of Link**	**Transmission Lines**	**Pipelines**	**Designated Utility Corridors**
Total distance parallel to existing utilities and designated utility corridors: 76.2 miles				
Crossover Links Group 3A/3B Links that do not parallel linear energy facilities: B140				
B140	8.3	—	—	0.3[1]
B111	6.9	6.9	—	—
Totals	**6.9**	**6.9**	—	**0.3[1]**
Total distance parallel to existing utilities and designated utility corridors: 7.2 miles				
ROUTE GROUP 4: WILLOW-500 kV SUBSTATION TO PINAL CENTRAL SUBSTATION				
Subroute 4A – North of Mt. Graham				
Subroute 4A Links that do not parallel linear energy facilities: B153b, C170, C178, C173, C592, C595, C620,C850,C880				
B153a	22.0	9.6	12.0	—
C760	3.1	—	3.1	—
C780	3.6	—	3.6	—
C830	4.3	—	4.3	—
C840	2.0	—	2.0	—
C880a	2.6	2.6[3]	—	—
Totals	**37.6**	**12.2**	**25.0**	—
Total distance parallel to existing utilities and designated utility corridors: 27.6 miles				
Subroute 4B – Sulphur Springs Valley				
Subroute 4B Links that do not parallel linear energy facilities: C72, C90, C130a, C130b, C170, C178, C173, C592, C595, C620, C850,C880				
C71	4.7	4.7	—	—
C72	2.1	1.3	—	—
C760	3.1	—	3.1	—
C780	3.6	—	3.6	—
C830	4.3	—	4.3	—
C840	2.0	—	2.0	—
C880a	2.6	2.6[3]	—	—
Totals	**22.4**	**8.6**	**13.0**	**—**
Total distance parallel to existing utilities and designated utility corridors: 21.6 miles				
Subroute 4C				
Subroute 4C2c – BLM Preferred Alternative Links that do not parallel linear energy facilities: C201,C441, C661, C670, C818,C820,C850,C880				
C71	4.7	4.7	—	—
C71a	1.0	1.0	—	—
C110	18.8	18.8	—	—
C212	3.9	3.9	2.0	—
C260	10.9	10.9	—	—
C261	6.4	6.4	—	—
C450	17.0	—	11.9	—
C680	26.1	23.9	—	—
C830	4.3	—	4.3	—

Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)				
Link	**Length of Link**	**Transmission Lines**	**Pipelines**	**Designated Utility Corridors**
C840	2.0	—	2.0	—
C880a	2.6	2.6[3]	—	—
Totals	**97.7**	**72.2[3]**	**20.2**	**—**
Total distance parallel to existing utilities and designated utility corridors: 90.4 miles				
Subroute 4C1 – San Pedro Valley				
Links that do not parallel linear energy facilities: C111, C270, C301, C331, C361, C470, C510, C660, C661, C670, C850,C880				
C71	4.7	4.7	—	—
C71a	1.0	1.0	—	—
C110	18.8	18.8	—	—
C212	3.9	3.9	2.0	—
C690	10.4	—	6.0	—
C691	3.5	—	3.5	—
C693	10.4	—	10.4	—
C760	3.1	—	3.1	—
C780	3.6	—	3.6	—
C830	4.3	—	4.3	—
C840	2.0	—	2.0	—
C880a	2.6	2.6[3]	—	—
Totals	**74.7**	**31.0[3]**	**34.9**	**—**
Total distance parallel to existing utilities and designated utility corridors: 63.9 miles				
Subroute 4C2 – San Pedro Valley				
Links that do not parallel linear energy facilities: C111, C270, C271, C266, C276, C441, C266, C661, C670, C818,C820,C850,C880				
C71	4.7	4.7	—	—
C71a	1.0	1.0	—	—
C110	18.8	18.8	—	—
C212	3.9	3.9	2.0	—
C450	17.0	—	11.9	—
C680	26.1	23.9	—	—
C830	4.3	—	4.3	—
C840	2.0	—	2.0	—
C880a	2.6	2.6[3]	—	—
Totals	**86.8**	**54.9[3]**	**20.2**	**—**
Total distance parallel to existing utilities and designated utility corridors: 73.1 miles				
Subroute 4C3 – Tucson				
Links that do not parallel linear energy facilities: C813, C816,C817,C820,C850,C880				
C71	4.7	4.7	—	—
C71a	1.0	1.0	—	—
C110	18.8	18.8	—	—
C212	3.9	3.9	2.0	—
C260	10.9	10.9	—	—
C261	6.4	6.4	—	—
F40a	15.1	15.1	—	—

Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)				
Link	**Length of Link**	**Transmission Lines**	**Pipelines**	**Designated Utility Corridors**
F600	15.0	5.0	1.2	—
F60b	2.1	2.1	—	—
F82	0.5	0.5	—	—
F80	6.2	6.2	5.4	—
F111	15.7	3.3	9.4	—
F112	10.2	10.2	6.0	—
F510	8.6	1.5	7.6	—
F540	13.7	13.7	4.0	—
C810A	1.7	1.7[3]	0.6	—
C810	2.0	2.0[3]	—	—
C830	4.3	—	4.3	—
C840	2.0	—	2.0	—
C880a	2.6	2.6[3]	—	—
Totals	**145.4**	**109.6[3]**	**34.9**	—
Total distance parallel to existing utilities and designated utility corridors: 118.3 miles				
LOCAL ALTERNATIVE AND CROSSOVER LINKS FOR SUBROUTE 4				
Local Alternative Link for 4A,4B, 4C1 No links do not parallel linear energy facilities				
C790	8.8	4.4	—	—
Totals	**8.8**	**4.4**	**—**	**—**
Total distance parallel to existing utilities and designated utility corridors: 4.4 miles				
Local Alternative Links for 4A,4B,4C1,4C2,4C3 Links that do not parallel linear energy facilities: C870				
C860	6.9	1.0	—	—
C890	2.8	0.7	1.0	—
Totals	**9.7**	**1.7**	**1.0**	**—**
Total distance parallel to existing utilities and designated utility corridors: 1.7 miles				
Local Alternative Link for 4C1 There are no links that parallel linear energy facilities				
Subroute 4C2 – Winchester and Tortolita Substations Links that do not parallel linear energy facilities: C201, C815,C816, C813, C817				
C260-C261-C201	31.0	17.2	—	—
C680	26.1	23.0	—	—
C814	1.0	1.0	—	—
C812	3.3	1.5[3]	—	—
C810	2.0	2.0[3]	—	—
C810a	1.7	1.5[3]	0.6	—
Totals	**65.1**	**46.2[3]**	**0.6**	**—**
Total distance parallel to existing utilities and designated utility corridors: 46.2miles				
Local Alternative Links for 4C3 No links do not parallel linear energy facilities				
F40b-F51-F60a	11.1	10.5	0.9	—
F81a	16.5	9.2	3.2	—

Table E-3. Existing Linear Facilities Parallel to Alternative Transmission Lines (in miles)				
Link	**Length of Link**	**Transmission Lines**	**Pipelines**	**Designated Utility Corridors**
F81b	15.7	15.0	0.3	—
C812	3.3	1.5[3]	—	—
Totals	**46.6**	**36.2[3]**	**4.4**	—
Total distance parallel to existing utilities and designated utility corridors: 39.4 miles				
Local Alternative Links for 4C1,4C2, 4C3 Links that do not parallel linear energy facilities:C72,C90, C121				
C211	2.0	1.6	—	—
Totals	2.0	1.6	—	—
Total distance parallel to existing utilities and designated utility corridors: 1.6 miles				
Crossover Links for 4A, 4B, 4C1 Links that do not parallel linear energy facilities: C500, C501, C502, C174				
Crossover Links for 4A,4B,4C1,4C2 Links that do not parallel linear energy facilities:C671				

[*]May not reflect a total of all utilities in subroute, due to overlap of multiple utilities in some cases.
[**] All amounts given in this table are approximate
[1] West Wide Energy Corridor (Section 368)
[2]BLM Socorro Field Office Utility Corridor
[3] Permitted and proposed Pinal Central Substation to Tortolita Substation 500 kV Transmission Line included in total miles
[4] Proposed San Manuel 230 kV Inter-connect Transmission Line included in total miles

Table E-4. Subroute 4C3 – Tucson		
Link	**Land use within 200 feet of centerline**	**Location**
F111	Three residences	On the Southwest side of East Benson Highway
F111	103 residences and lots of Trailerancho Estates trailer park	Southwest side of East Benson Highway
F111	Sunhaven in Tucson complex's leasing office, pool, playground, and basketball courts	Southwest side of East Benson Highway
F111	Quickmart Gas Station	Southwest side of East Benson Highway
F111	Circle K Gas Station	Northeast corner of East Benson Highway and South Alvernon Way
F111	One residence	On South Rex Street, east of Alvernon Way
F111	Commercial auto shop	On southeast corner of South Alvernon Way and East Drexel Road
F111	Quik Mart Gas Station	On northeast corner of East Drexel Road and South Alvernon Way
F111	One residence	North of East Drexel Road
F111	42 residences in Mortimore Subdivision	West of South Alvernon Way, along South Olympia Street, East Nebraska Street, and East Concord Street
F111	One commercial building with an additional five buildings in the Coronado Pointe Commerce Center	East of South Palo Verde Road
F111	Three commercial/light industrial buildings in the Palo Verde Commerce Center	West of South Palo Verde Road
F111	One light industrial building on the south side and a hotel on the northeast side within the Sunbelt Commerce Center	On South Outlet Center Drive, south of East Irvington Road
F111	Gas station	On northwest corner of East Irvington Road and South Country Club Road
F111	Seven residences	On East Bernard Drive south of East Ajo Way, southwest of I-10
F111	Storage facility	On north side of East Ajo Way, southwest of I-10
F111	Motel and commercial building	East of I-10, on the north and south sides of South 4th Avenue
F111	Crosses a motel and hotel	North side of I-10, on the west and east sides of South 6th Avenue
F111	Light industrial building and 11 residences in Mission View Subdivision	North of I-10, on the south side of South 8th Avenue and west side of South 8th Avenue
F111	Light industrial building, 20 residences, a playground, and 2 commercial buildings	West of I-10, north and south of West 40th Street, east of I-19
F112	12 residences	On eastside of South Cottonwood Lane, south of West 29th Street
F112	Hotel	West of I-10, south of West Congress Street
F112	Commercial building	West of I-10, north of West Congress Street
F112	Five light industrial buildings and two buildings that are part of an apartment complex	West of I-10, on south side of West St. Mary's Road
F112	Two residences and a park area with a trail	West of I-10, east of West Riverview Blvd.
F112	Gas station	West of I-10, on West Grant Road

Table E-4. Subroute 4C3 – Tucson		
Link	**Land use within 200 feet of centerline**	**Location**
F112	Two hotels and two light industrial buildings	West of I-10, north of West Grant Road
F112	10 residences	West of I-10, east of North Silverbell Road
F112	Commercial building	North of West Sweetwater Drive and east of North Silverbell Drive
F112	One residence	On southwest corner of North Silverbell Road and West El Camino Del Cerro
F112	Three residences	On east side of North Silverbell Drive
Total	**Residences**	**216**
	Commercial	**24**
	Light Industrial	**13**
	Other	**6**

Table E-5. Local Alternative Links		
Link	**Land use within 200feet of centerline**	**Location**
F81b	Three residences in Jusnic Estates subdivision	South of West River Road
F81b	Seven residences in Rillito at La Cholla subdivision	South of West River Road, west of North La Cholla Boulevard
F81b	Two light industrial buildings	East of North La Cholla Boulevard and south of West River Road
F81b	One residence	On West Fairview Street, east of North Flowing Wells Road
F81b	One light industrial building	West of North Oracle Road, on North Old Oracle Road
F81b	One light industrial building	East of North Oracle Road
F81b	Three commercial buildings	On west and east sides of North 1st Avenue, north of East Westmore Road
F81b	22 residences and 4 commercial buildings	On west side of North Campbell Avenue
F81b	Two residences and a community center	On the south side of East River Road, east of North of Cactus Boulevard
F81b	60 townhome residences	On the eastside of Country Club Road, west of East Allen Road
F81b	10 residences and 1 light industrial buildings	North of east Greenlee Road, east of North Country Club Road
F81b	Two recreation buildings	East of North Alvernon Way, north of East Paradise Falls Drive
F81b	A residence and two outstructures	West of North Craycroft Road
F81b	A residence	East of North Craycroft Road, between East River Road and East Grant Road
F81b	Six commercial buildings, portions within Milestone Commercial	On East Grant Road, east of North Wilmot Road, and North of East Tanque Verde Road
F81b	Seven residences and 11 commercial buildings	On eastside of North Kolb Road, south of East Tanque Verde Road
F81b	Four commercial buildings	On north side of East Speedway Boulevard, east of North Kolb Road
F81b	Two large office buildings	On south side of East Speedway Boulevard, on the eastside of North Finance Center Drive and East Rosewood Street.
F81a	Hotel	On the southwest corner of South Prudence Road and East Broadway Boulevard
F81a	Six office buildings	East of South Pantano Road and south of East 22nd Street
F81a	Community center	North of Research Loop, east of South Pantano Road
F81a	Six storage buildings	North of East Golf Links Road, west of South Pantano Parkway
F81a	Two residences	North of East Drexel Road and east of Melpomence Way
Total	**Residences**	**119**
	Commercial	**42**
	Light Industrial	**6**
	Other	**4**

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APPENDIX F – CLIMATE AND AIR QUALITY

TRANSMISSION LINE CONSTRUCTION EMISSIONS

Table F-1 summarizes the total transmission-line construction related criteria emissions by source category and year for each of the options under consideration. GHG emissions are summarized in Table F-2. Note that the CO_2e emissions shown are a summation of the emissions of individual GHGs, including carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), expressed as an equivalent mass of CO_2.

Table F-1. Transmission Line Construction Criteria Pollutant Emissions

Pollutant	Year 1 (tons)	Year 2 (tons)	Year 3 (tons)	Year 4 (tons)	Entire Project (tons/mile of transmission line)
One 500 kV Single-Circuit, AC Facility (First Line)					
Fugitive Dust from Earthmoving and Grading Activities					
$PM_{2.5}$	11.9	12.7	6.7	0.0	0.06
PM_{10}	119.0	126.9	66.6	0.0	0.6
Paved and Unpaved Road Dust					
$PM_{2.5}$	91.3	90.8	58.4	0.0	0.49
PM_{10}	911.6	905.8	582.9	0.0	4.89
Nonroad Engine Emissions					
$PM_{2.5}$	1.3	1.7	1.3	0.0	0.008
PM_{10}	1.3	1.7	1.3	0.0	0.008
NO_x	48.7	82.8	77.7	0.0	0.41
SO_2	0.10	0.13	0.13	0.0	0.001
CO	56.7	92.9	88.1	0.0	0.46
VOC	1.4	2.0	1.6	0.0	0.01
Helicopter Emissions					
$PM_{2.5}$	0.01	0.01	0.01	0.0	0.0001
PM_{10}	0.01	0.01	0.01	0.0	0.0001
NO_x	0.30	0.30	0.19	0.0	0.002
SO_2	0.06	0.06	0.04	0.0	0.0003
CO	0.90	0.89	0.57	0.0	0.005
VOC	0.71	0.71	0.45	0.0	0.004
Traffic Emissions					
PM2.5	0.69	0.69	0.44	0.0	0.004
PM10	0.98	0.98	0.63	0.0	0.01
NOx	30.9	30.7	19.8	0.0	0.17
SO2	0.13	0.13	0.08	0.0	0.001
CO	51.4	51.1	32.9	0.0	0.28
VOC	5.5	5.5	3.5	0.0	0.03
Option A: Two 500 kV Single-Circuit, AC Facilities					
Fugitive Dust from Earthmoving and Grading Activities					
$PM_{2.5}$	11.9	20.6	15.1	4.6	0.05

Table F-1. Transmission Line Construction Criteria Pollutant Emissions					
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**	**Entire Project (tons/mile of transmission line)**
PM_{10}	119.0	205.7	150.7	45.5	0.53
Paved and Unpaved Road Dust					
$PM_{2.5}$	91.3	180.3	150.7	58.6	0.49
PM_{10}	911.6	1,800	1,504	584.9	4.89
Nonroad Engine Emissions					
$PM_{2.5}$	1.3	2.9	3.0	1.3	0.009
PM_{10}	1.3	2.9	3.0	1.3	0.009
NO_x	48.7	130.4	161.1	78.3	0.43
SO_2	0.10	0.22	0.26	0.13	0.001
CO	56.7	148.2	181.7	88.8	0.48
VOC	1.4	3.3	3.6	1.6	0.01
Helicopter Emissions					
$PM_{2.5}$	0.01	0.02	0.02	0.01	0.0001
PM_{10}	0.01	0.02	0.02	0.01	0.0001
NO_x	0.30	0.60	0.50	0.19	0.002
SO_2	0.06	0.13	0.10	0.04	0.0003
CO	0.90	1.77	1.48	0.58	0.005
VOC	0.71	1.40	1.17	0.46	0.004
Traffic Emissions					
$PM_{2.5}$	0.69	1.4	1.1	0.44	0.004
PM_{10}	0.98	1.9	1.6	0.63	0.01
NO_x	30.9	61.1	51.0	19.8	0.17
SO_2	0.13	0.25	0.21	0.08	0.001
CO	51.4	101.5	84.8	33.0	0.28
VOC	5.5	10.9	9.1	3.5	0.03
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility					
Fugitive Dust from Earthmoving and Grading Activities					
$PM_{2.5}$	11.9	21.1	15.7	3.4	0.05
PM_{10}	119.0	211.4	156.8	33.8	0.53
Paved and Unpaved Road Dust					
$PM_{2.5}$	91.3	187.3	157.4	44.9	0.49
PM_{10}	911.6	1,870	1,571	448.3	4.89
Nonroad Engine Emissions					
$PM_{2.5}$	1.3	3.0	3.2	1.0	0.009
PM_{10}	1.3	3.0	3.2	1.0	0.009
NO_x	48.7	136.3	173.9	59.6	0.43
SO_2	0.10	0.23	0.28	0.10	0.001
CO	56.7	155.2	196.1	67.4	0.48
VOC	1.4	3.4	3.8	1.2	0.01

Table F-1. Transmission Line Construction Criteria Pollutant Emissions					
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**	**Entire Project (tons/mile of transmission line)**
Helicopter Emissions					
$PM_{2.5}$	0.01	0.02	0.02	0.0	0.0001
PM_{10}	0.01	0.02	0.02	0.0	0.0001
NO_x	0.30	0.62	0.52	0.15	0.002
SO_2	0.06	0.13	0.11	0.03	0.0003
CO	0.90	1.84	1.55	0.44	0.005
VOC	0.71	1.46	1.23	0.35	0.004
Traffic Emissions					
$PM_{2.5}$	0.69	1.4	1.2	0.34	0.004
PM_{10}	0.98	2.0	1.7	0.48	0.01
NO_x	30.9	63.4	53.3	15.2	0.17
SO_2	0.13	0.26	0.22	0.06	0.001
CO	51.4	105.4	88.6	25.3	0.28
VOC	5.5	11.3	9.5	2.7	0.03

Table F-2. Transmission Line Construction Greenhouse Gas Emissions					
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**	**Entire Project (tons/mile of transmission line)**
One 500 kV Single-Circuit, AC Facility (First Line)					
Nonroad Engine Emissions					
CO_2e	10,029	16,680	15,912	0.0	86.8
Helicopter Emissions					
CO_2e	199.6	198.4	127.6	0.0	1.1
Traffic Emissions					
CO_2e	12,063	11,986	7,713	0.0	64.7
Option A: Two 500 kV Single-Circuit, AC Facilities					
Nonroad Engine Emissions					
CO_2e	10,029	26,472	32,718	16,025	86.8
Helicopter Emissions					
CO_2e	199.6	394.1	329.4	128.1	1.1
Traffic Emissions					
CO_2e	12,063	23,816	19,907	7,739	64.7
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility					
Nonroad Engine Emissions					
CO_2e	10,029	27,726	35,317	12,171	86.8
Helicopter Emissions					
CO_2e	199.6	409.4	344.0	98.2	1.1
Traffic Emissions					
CO_2e	12,063	24,741	20,789	5,933	64.7

CONCRETE BATCH PLANT EMISSIONS

Table F-3 summarizes the emissions for construction and operation of the concrete batch plants. GHGs expressed as CO_2e include CO_2, CH_4, and N_2O.

Table F-3. Concrete Batch Plant Emissions

Pollutant	All Batch Plants (tons)	Entire Project (tons/mile of transmission line)
One 500 kV Single-Circuit, AC Facility (First Line)		
Batch Plant Construction Emissions		
$PM_{2.5}$	60.3	0.12
PM_{10}	570.0	1.16
NO_x	68.0	0.14
SO_2	0.36	0.001
CO	78.7	0.16
VOC	6.6	0.01
CO_2e	17,218	35.1
Batch Plant Operation Emissions		
$PM_{2.5}$	3.8	0.008
PM_{10}	33.5	0.07
NO_x	1.2	0.002
SO_2	0.004	0.00001
CO	0.27	0.001
VOC	0.09	0.0002
CO_2e	404.0	0.82
Option A: Two 500 kV Single-Circuit, AC Facilities		
Batch Plant Construction Emissions		
$PM_{2.5}$	120.57	0.12
PM_{10}	1,139.94	1.16
NO_x	136.0	0.14
SO_2	0.72	0.001
CO	157.3	0.16
VOC	13.3	0.01
CO_2e	34,435	35.1
Batch Plant Operation Emissions		
$PM_{2.5}$	7.5	0.008
PM_{10}	67.0	0.07
NO_x	2.3	0.002
SO_2	0.01	0.00001
CO	0.55	0.001
VOC	0.18	0.0002
CO_2e	808	0.82
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit DC, Facility		
Batch Plant Construction Emissions		
$PM_{2.5}$	120.6	0.12

Table F-3. Concrete Batch Plant Emissions		
Pollutant	**All Batch Plants (tons)**	**Entire Project (tons/mile of transmission line)**
PM_{10}	1,140	1.16
NO_x	136.0	0.14
SO_2	0.72	0.001
CO	157.3	0.16
VOC	13.3	0.01
CO_2e	34,435	35.1
Batch Plant Operation Emissions		
$PM_{2.5}$	6.7	0.007
PM_{10}	60.7	0.06
NO_x	2.1	0.002
SO_2	0.01	0.00001
CO	0.49	0.001
VOC	0.16	0.0002
CO_2e	726.9	0.74

ROUTE GROUP 1: SUNZIA EAST SUBSTATION TO MIDPOINT SUBSTATION – WEST OF WHITE SANDS EMISSIONS

Criteria pollutant emissions associated with construction and expansion of the SunZia East Substation are summarized in Table F-4. GHG emissions associated with construction of the substation are shown in Table F-5, while operation phase GHG emissions are shown in Table F-6. GHGs expressed as CO_2e from substation construction include CO_2, CH_4, and N_2O, while GHGs emitted during substation operation include only sulfur hexafluoride (SF_6).

Table F-4. SunZia East Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.07	0.08	0.03	0.0
PM_{10}	0.65	0.82	0.26	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	15.2	16.8	11.2	0.0
PM_{10}	152.0	167.4	111.3	0.0
Nonroad Engine Emissions				
$PM_{2.5}$	0.29	1.21	0.83	0.0
PM_{10}	0.29	1.21	0.83	0.0
NO_x	4.2	19.2	13.4	0.0
SO_2	0.01	0.13	0.08	0.0
CO	4.7	21.6	14.8	0.0
VOC	0.30	1.5	1.0	0.0

Table F-4. SunZia East Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
Traffic Emissions				
$PM_{2.5}$	0.12	0.13	0.09	0.0
PM_{10}	0.17	0.19	0.12	0.0
NO_x	5.3	5.9	3.9	0.0
SO_2	0.02	0.02	0.02	0.0
CO	6.7	7.4	4.9	0.0
VOC	0.81	0.89	0.59	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.07	0.08	0.03	0.0
PM_{10}	0.65	0.82	0.26	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	15.2	31.6	27.9	11.6
PM_{10}	152.0	314.7	278.7	116.1
Nonroad Engine Emissions				
$PM_{2.5}$	0.29	1.5	2.0	0.85
PM_{10}	0.29	1.5	2.0	0.85
NO_x	4.2	23.4	32.3	13.7
SO_2	0.01	0.13	0.20	0.08
CO	4.7	26.3	36.2	15.2
VOC	0.30	1.8	2.5	1.0
Traffic Emissions				
$PM_{2.5}$	0.12	0.25	0.22	0.09
PM_{10}	0.17	0.35	0.31	0.13
NO_x	5.4	11.1	9.8	4.1
SO_2	0.02	0.04	0.04	0.02
CO	6.7	13.8	12.3	5.1
VOC	0.81	1.7	1.5	0.62
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.07	0.15	0.10	0.0
PM_{10}	0.65	1.5	1.0	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	15.2	33.4	29.6	8.2
PM_{10}	152.0	333.3	294.9	81.3
Nonroad Engine Emissions				
$PM_{2.5}$	0.29	1.5	2.3	0.57
PM_{10}	0.29	1.5	2.3	0.57
NO_x	4.2	24.0	36.1	9.3
SO_2	0.01	0.14	0.23	0.06
CO	4.7	26.9	40.4	10.3

Table F-4. SunZia East Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
VOC	0.30	1.8	2.7	0.70
Traffic Emissions				
$PM_{2.5}$	0.12	0.26	0.23	0.06
PM_{10}	0.17	0.37	0.33	0.09
NO_x	5.4	11.7	10.4	2.9
SO_2	0.02	0.05	0.04	0.01
CO	6.7	14.6	13.0	3.6
VOC	0.81	1.8	1.6	0.43

Table F-5. SunZia East Substation Construction Greenhouse Gas Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Nonroad Engine Emissions				
CO_2e	794.7	3,894	2,686	0.0
Traffic Emissions				
CO_2e	2,038	2,245	1,492	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
Nonroad Engine Emissions				
CO_2e	794.7	4,676	6,529	2,748
Traffic Emissions				
CO_2e	2,038	4,220	3,736	1,557
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility				
Nonroad Engine Emissions				
CO_2e	794.7	4,795	7,294	1,864
Traffic Emissions				
CO_2e	2,038	4,470	3,954	1,090

Table F-6. SunZia East Substation Operation Greenhouse Gas Emissions	
Pollutant	**Emissions (tons per year)**
One 500 kV Single-Circuit, AC Facility (First Line)	
CO_2e	12.9
Option A: Two 500 kV Single-Circuit, AC Facilities	
CO_2e	34.4
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility	
CO_2e	64.5

ROUTE GROUP 2: SUNZIA EAST SUBSTATION TO MIDPOINT SUBSTATION – EAST OF WHITE SANDS EMISSIONS

There are no emissions or impacts specific to this route group.

ROUTE GROUP 3: MIDPOINT SUBSTATION TO WILLOW-500 KV SUBSTATION EMISSIONS

Criteria pollutant emissions associated with construction and expansion of the Midpoint Substation are summarized in Table F-7. GHG emissions associated with construction of the substation are shown in Table F-8, while operation phase GHG emissions are shown in Table F-9. For the Midpoint Substation, Option B total construction and operation emissions would be the same as those for the initial transmission line, because no additional equipment would be installed at this location for the proposed Option B DC line.

Criteria pollutant emissions associated with construction and expansion of the Lordsburg Substation are summarized in Table F-10. GHG emissions associated with construction of the substation are shown in Table F-11, while operation phase GHG emissions are shown in Table F-12. For the Lordsburg Substation, Option B total construction and operation emissions would be the same as those for the initial transmission line, because no additional equipment would be installed at this location for the proposed Option B DC line.

Table F-7. Midpoint Substation Construction Criteria Pollutant Emissions

Pollutant	Year 1 (tons)	Year 2 (tons)	Year 3 (tons)	Year 4 (tons)
One 500 kV Single-Circuit, AC Facility (First Line)				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.07	0.11	0.03	0.0
PM_{10}	0.66	1.0	0.33	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	10.4	14.2	9.9	0.0
PM_{10}	104.0	141.6	99.0	0.0
Nonroad Engine Emissions				
$PM_{2.5}$	0.19	0.94	0.73	0.0
PM_{10}	0.19	0.94	0.73	0.0
NO_x	2.7	14.9	11.8	0.0
SO_2	0.01	0.10	0.07	0.0
CO	3.0	16.9	13.0	0.0
VOC	0.19	1.1	0.89	0.0
Traffic Emissions				
$PM_{2.5}$	0.08	0.11	0.08	0.0
PM_{10}	0.12	0.16	0.11	0.0
NO_x	3.7	5.0	3.5	0.0
SO_2	0.01	0.02	0.01	0.0
CO	4.6	6.2	4.4	0.0
VOC	0.55	0.76	0.53	0.0

Table F-7. Midpoint Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
Option A: Two 500 kV Single-Circuit, AC Facilities				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.07	0.11	0.03	0.0
PM_{10}	0.66	1.0	0.33	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	10.4	27.6	23.5	7.7
PM_{10}	104.0	274.8	234.1	76.4
Nonroad Engine Emissions				
$PM_{2.5}$	0.19	1.2	1.8	0.54
PM_{10}	0.19	1.2	1.8	0.54
NO_x	2.7	18.7	28.7	8.8
SO_2	0.01	0.11	0.18	0.05
CO	3.0	21.1	32.0	9.7
VOC	0.19	1.4	2.2	0.66
Traffic Emissions				
$PM_{2.5}$	0.08	0.22	0.18	0.06
PM_{10}	0.12	0.31	0.26	0.09
NO_x	3.7	9.7	8.2	2.7
SO_2	0.01	0.04	0.03	0.01
CO	4.6	12.1	10.3	3.4
VOC	0.55	1.5	1.3	0.41

Table F-8. Midpoint Substation Construction Greenhouse Gas Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Nonroad Engine Emissions				
CO_2e	505.8	3,028	2,365	0.0
Traffic Emissions				
CO_2e	1,395	1,899	1,327	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Nonroad Engine Emissions				
CO_2e	505.8	3,745	5,795	1,752
Traffic Emissions				
CO_2e	1,395	3,684	3,139	1,024

Table F-9. Midpoint Substation Operation Greenhouse Gas Emissions	
Pollutant	**Emissions (tons per year)**
One 500 kV Single-Circuit, AC Facility (First Line)	
CO_2e	25.8
Option A: Two 500 kV Single-Circuit, AC Facilities	
CO_2e	51.6

Table F-10. Lordsburg Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.04	0.07	0.02	0.0
PM_{10}	0.38	0.65	0.22	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	9.9	14.2	10.4	0.0
PM_{10}	98.5	141.9	104.2	0.0
Nonroad Engine Emissions				
$PM_{2.5}$	0.17	0.92	0.77	0.0
PM_{10}	0.17	0.92	0.77	0.0
NO_x	2.4	14.6	12.5	0.0
SO_2	0.004	0.10	0.07	0.0
CO	2.7	16.4	13.8	0.0
VOC	0.17	1.1	0.94	0.0
Traffic Emissions				
$PM_{2.5}$	0.08	0.11	0.08	0.0
PM_{10}	0.11	0.16	0.12	0.0
NO_x	3.5	5.0	3.7	0.0
SO_2	0.01	0.02	0.01	0.0
CO	4.3	6.2	4.6	0.0
VOC	0.53	0.76	0.56	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.04	0.07	0.02	0.0
PM_{10}	0.38	0.65	0.22	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	9.9	23.8	24.7	10.8
PM_{10}	98.5	237.2	246.1	107.4
Nonroad Engine Emissions				
$PM_{2.5}$	0.17	1.1	1.7	0.80
PM_{10}	0.17	1.1	1.7	0.80
NO_x	2.4	16.9	26.8	12.8
SO_2	0.004	0.10	0.16	0.07
CO	2.7	19.0	29.9	14.2

Table F-10. Lordsburg Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
VOC	0.17	1.3	2.0	0.97
Traffic Emissions				
$PM_{2.5}$	0.08	0.19	0.19	0.08
PM_{10}	0.11	0.26	0.27	0.12
NO_x	3.5	8.3	8.7	3.8
SO_2	0.01	0.03	0.03	0.01
CO	4.3	10.4	10.8	4.7
VOC	0.53	1.3	1.3	0.57

Table F-11. Lordsburg Substation Construction Greenhouse Gas Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Nonroad Engine Emissions				
CO_2e	452.7	2,947	2,499	0.0
Traffic Emissions				
CO_2e	1,321	1,903	1,397	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Nonroad Engine Emissions				
CO_2e	452.7	3,382	5,389	2,574
Traffic Emissions				
CO_2e	1,321	3,180	3,300	1,441

Table F-12. Lordsburg Substation Operation Greenhouse Gas Emissions	
Pollutant	**Emissions (tons per year)**
One 500 kV Single-Circuit, AC Facility (First Line)	
CO_2e	12.9
Option A: Two 500 kV Single-Circuit, AC Facilities	
CO_2e	34.4

ROUTE GROUP 4: WILLOW-500 KV SUBSTATION TO PINAL CENTRAL SUBSTATION EMISSIONS

Criteria pollutant emissions associate with construction and expansion of the Willow-500 kV Substation are summarized in Table F-13. GHG emissions associated with construction of the substation are shown in Table F-14, while operation phase GHG emissions are shown in Table F-15. For the Willow-500 kV Substation, Option B total construction and operation emissions would be the same as those associated with the initial transmission line, because no additional equipment would be installed at this location for the proposed Option B DC line.

Criteria pollutant emissions associate with construction and expansion of the Pinal Central Substation are summarized in Table F-16. GHG emissions associated with construction of the substation are shown in Table F-17, while operation phase GHG emissions are shown in Table F-18.

Table F-13. Willow-500 kV Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.05	0.06	0.02	0.0
PM_{10}	0.47	0.60	0.19	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	15.0	16.7	11.5	0.0
PM_{10}	149.2	166.8	114.8	0.0
Nonroad Engine Emissions				
$PM_{2.5}$	0.29	1.2	0.84	0.0
PM_{10}	0.29	1.2	0.84	0.0
NO_x	4.2	19.0	13.5	0.0
SO_2	0.01	0.13	0.08	0.0
CO	4.7	21.4	15.0	0.0
VOC	0.30	1.4	1.0	0.0
Traffic Emissions				
$PM_{2.5}$	0.12	0.13	0.09	0.0
PM_{10}	0.17	0.19	0.13	0.0
NO_x	5.3	5.9	4.0	0.0
SO_2	0.02	0.02	0.02	0.0
CO	6.6	7.3	5.0	0.0
VOC	0.80	0.89	0.61	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.05	0.06	0.02	0.0
PM_{10}	0.47	0.60	0.19	0.0
Paved and Unpaved Road Dust				
$PM_{2.5}$	15.0	31.5	28.2	11.7
PM_{10}	149.2	314.4	280.9	117.1
Nonroad Engine Emissions				
$PM_{2.5}$	0.29	1.5	2.0	0.87
PM_{10}	0.29	1.5	2.0	0.87
NO_x	4.2	23.1	32.3	13.9
SO_2	0.01	0.13	0.20	0.09
CO	4.7	26.0	36.1	15.4
VOC	0.30	1.7	2.4	1.0
Traffic Emissions				

Table F-13. Willow-500 kV Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
$PM_{2.5}$	0.12	0.25	0.22	0.09
PM_{10}	0.17	0.35	0.31	0.13
NO_x	5.3	11.1	9.9	4.1
SO_2	0.02	0.04	0.04	0.02
CO	6.6	13.8	12.4	5.1
VOC	0.80	1.7	1.5	0.62

Table F-14. Willow-500 kV Substation Construction Greenhouse Gas Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Nonroad Engine Emissions				
CO_2e	799.7	3,857	2,717	0.0
Traffic Emissions				
CO_2e	2,000	2,236	1,539	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Nonroad Engine Emissions				
CO_2e	799.7	4,632	6,515	2,801
Traffic Emissions				
CO_2e	2,000	4,215	3,767	1,570

Table F-15. Willow-500 kV Substation Operation Greenhouse Gas Emissions	
Pollutant	**Emissions (tons per year)**
One 500 kV Single-Circuit, AC Facility (First Line)	
CO_2e	34.4
Option A: Two 500 kV Single-Circuit, AC Facilities	
CO_2e	55.9

Table F-16. Pinal Central Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.0	0.001	0.02	0.0
PM_{10}	0.0	0.005	0.15	0.0
Paved Road Dust				
$PM_{2.5}$	0.0	0.1	0.7	0.0
PM_{10}	0.0	0.6	5.8	0.0

Table F-16. Pinal Central Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
Nonroad Engine Emissions				
$PM_{2.5}$	0.0	0.01	0.92	0.0
PM_{10}	0.0	0.01	0.92	0.0
NO_x	0.0	0.15	14.6	0.0
SO_2	0.0	0.0003	0.09	0.0
CO	0.0	0.18	16.3	0.0
VOC	0.0	0.01	1.1	0.0
Traffic Emissions				
$PM_{2.5}$	0.0	0.01	0.11	0.0
PM_{10}	0.0	0.02	0.15	0.0
NO_x	0.0	0.52	4.8	0.0
SO_2	0.0	0.002	0.02	0.0
CO	0.0	0.64	6.0	0.0
VOC	0.0	0.08	0.73	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.0	0.001	0.02	0.0
PM_{10}	0.0	0.005	0.15	0.0
Paved Road Dust				
$PM_{2.5}$	0.0	0.1	0.7	0.3
PM_{10}	0.0	0.6	6.0	2.3
Nonroad Engine Emissions				
$PM_{2.5}$	0.0	0.01	0.93	0.92
PM_{10}	0.0	0.01	0.93	0.92
NO_x	0.0	0.15	14.7	14.6
SO_2	0.0	0.0003	0.09	0.09
CO	0.0	0.18	16.4	16.4
VOC	0.0	0.01	1.1	1.1
Traffic Emissions				
$PM_{2.5}$	0.0	0.01	0.12	0.11
PM_{10}	0.0	0.02	0.17	0.15
NO_x	0.0	0.52	5.2	4.9
SO_2	0.0	0.002	0.02	0.02
CO	0.0	0.64	6.5	6.1
VOC	0.0	0.08	0.79	0.74
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility				
Fugitive Dust from Earthmoving and Grading Activities				
$PM_{2.5}$	0.0	0.07	0.09	0.0
PM_{10}	0.0	0.66	0.92	0.0

Table F-16. Pinal Central Substation Construction Criteria Pollutant Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
Paved Road Dust				
$PM_{2.5}$	0.0	0.2	0.8	0.1
PM_{10}	0.0	1.6	6.9	0.5
Nonroad Engine Emissions				
$PM_{2.5}$	0.0	0.34	2.4	0.56
PM_{10}	0.0	0.34	2.4	0.56
NO_x	0.0	4.9	37.5	9.1
SO_2	0.0	0.01	0.24	0.05
CO	0.0	5.4	42.1	10.1
VOC	0.0	0.34	2.8	0.69
Traffic Emissions				
$PM_{2.5}$	0.0	0.06	0.16	0.02
PM_{10}	0.0	0.08	0.22	0.03
NO_x	0.0	2.6	7.0	1.0
SO_2	0.0	0.01	0.03	0.004
CO	0.0	3.2	8.8	1.3
VOC	0.0	0.39	1.1	0.15

Table F-17. Pinal Central Substation Construction Greenhouse Gas Emissions				
Pollutant	**Year 1 (tons)**	**Year 2 (tons)**	**Year 3 (tons)**	**Year 4 (tons)**
One 500 kV Single-Circuit, AC Facility (First Line)				
Nonroad Engine Emissions				
CO_2e	0.0	28.1	2,921	0.0
Traffic Emissions				
CO_2e	0.0	196.7	1,825	0.0
Option A: Two 500 kV Single-Circuit, AC Facilities				
Nonroad Engine Emissions				
CO_2e	0.0	28.1	2,937	2,934
Traffic Emissions				
CO_2e	0.0	196.7	1,989	1,858
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility				
Nonroad Engine Emissions				
CO_2e	0.0	916.2	7,569	1,838
Traffic Emissions				
CO_2e	0.0	988.9	2,673	381.2

Table F-18. Pinal Central Substation Operation Greenhouse Gas Emissions	
Pollutant	**Emissions (tons per year)**
One 500 kV Single-Circuit, AC Facility (First Line)	
CO_2e	8.6
Option A: Two 500 kV Single-Circuit, AC Facilities	
CO_2e	17.2
Option B: One 500 kV Single-Circuit, AC Facility and One 500 kV Single-Circuit, DC Facility	
CO_2e	60.2

RESULTS OF AIR POLLUTANT DISPERSION MODELING

The results of the air pollutant dispersion modeling are shown in Tables F-19 and F-20 for transmission line construction and substation construction, respectively.

Table F-19. Modeling Results: Transmission Line Construction

Route Group	Pollutant	Averaging Period	Maximum 1-hour AERSCREEN Concentration (μg/m^3)	Significant Impact Levels (SILs) (μg/m^3)	Background Concentration (μg/m3)	Project Impact + Background (μg/m3)	NAAQS (μg/m3)	AAAQS (μg/m3)	NMAAQS (μg/m3)	Surface Characteristics and Temperatures	Comments
1	NO_2	1-hour	23.36	7.5	47.2	70.5	188.7	—	—	Grassland	Below all AAQS
		24-hour	23.36	—	47.2	70.5	—	—	188.7	Grassland	Use 1-hour background concentration Below all AAQS
	PM_{10}	24-hour	80.32	5	33	113.3	150	150	—	Grassland	Below all AAQS
	$PM_{2.5}$	24-hour	10.98	1.2	11.2	22.2	35	65	—	Grassland	Below all AAQS
	CO	1-hour	35.04	2,000	2,299	2,334	40,000	40,000	15,057	Grassland	Below SIL/NMAAQS
		8-hour	35.04	500	1,034	1,070	10,000	10,000	10,000	Grassland	Below SIL/NMAAQS
	SO_2	1-hour	0.073	7.9	5.26	NA	196.4	—	—	Grassland	Below SIL
		3-hour	0.073	25	2.63	2.7	1,300	1,300	—	Grassland	Below SIL/AAAQS
		24-hour	0.073	5	2.63	2.7	365	365	263.2	Grassland	Below SIL/AAAQS/NMAAQS
3	NO_2	1-hour	22.50	7.5	47.2	69.7	188.7	—	—	Desert	Below all AAQS
		24-hour	22.50	—	47.2	69.7	—	—	188.7	Desert	Use 1-hour background concentration Below all AAQS
	PM_{10}	24-hour	77.36	5	33	110.4	150	150	—	Desert	Below all AAQS
	$PM_{2.5}$	24-hour	10.57	1.2	11.2	21.8	35	65	—	Desert	Below all AAQS
	CO	1-hour	33.75	2,000	2,299	2,333	40,000	40,000	15,057	Desert	Below SIL/NMAAQS
		8-hour	33.75	500	1,034	1,068	10,000	10,000	10,000	Desert	Below SIL/NMAAQS
	SO_2	1-hour	0.070	7.9	5.26	NA	196.4	—	—	Desert	Below SIL
		3-hour	0.070	25	2.63	2.7	1,300	1,300	—	Desert	Below SIL/AAAQS

Table F-19. Modeling Results: Transmission Line Construction											
Route Group	**Pollutant**	**Averaging Period**	**Maximum 1-hour AERSCREEN Concentration ($\mu g/m^3$)**	**Significant Impact Levels (SILs) ($\mu g/m^3$)**	**Background Concentration (µg/m3)**	**Project Impact + Background (µg/m3)**	**NAAQS (µg/m3)**	**AAAQS (µg/m3)**	**NMAAQS (µg/m3)**	**Surface Characteristics and Temperatures**	**Comments**
		24-hour	0.070	5	2.63	2.7	365	365	263.2	Desert	Below SIL/AAAQS/NMAAQS
4 (except Subroute 4C3 and portion within West Pinal County PM_{10} Nonattainment Area)	NO_2	1-hour	22.50	7.5	47.2	69.7	188.7	—	—	Desert	Below all AAQS
		24-hour	22.50	—	47.2	69.7	—	—	188.7	Desert	Use 1-hour background concentration Below all AAQS
	PM_{10}	24-hour	77.36 [a]	5	33.5	110.9	150	150	—	Desert	Below all AAQS
	$PM_{2.5}$	24-hour	10.57	1.2	9.6	20.2	35	65	—	Desert	Below all AAQS
	CO	1-hour	33.75	2,000	2,299	2,333	40,000	40,000	15,057	Desert	Below SIL/NMAAQS
		8-hour	33.75	500	1,034	1,068	10,000	10,000	10,000	Desert	Below SIL/NMAAQS
	SO_2	1-hour	0.070	7.9	28.95	NA	196.4	—	—	Desert	Below SIL
		3-hour	0.070	25	12.11	12.2	1,300	1,300	—	Desert	Below SIL/AAAQS
		24-hour	0.070	5	3.68	3.8	365	365	263.2	Desert	Below SIL/AAAQS/NMAAQS
4C3	NO_2	1-hour	22.50	7.5	110	132.5	188.7	—	—	Desert	Below all AAQS
4 (within West Pinal County PM_{10} Nonattainment Area)	PM_{10}	24-hour	77.36[a]	5	131.7[a]	209.1	150	150	—	Desert	May exceed NAAQS numerical value[b]

Notes:
[a] Average of second maximums at three co-located monitors.
[b] Form of standard is "not to be exceeded more than once per year, on average over three years." Project impact listed is maximum modeled impact.

Table F-20. Modeling Results: Substation Construction											
Substation	**Pollutant**	**Averaging Period**	**Maximum 1-hour AERSCREEN Concentration (µg/m3)**	**Significant Impact Levels (SILs) (µg/m3)**	**Background Concentration (µg/m3)**	**Project Impact + Background (µg/m3)**	**NAAQS (µg/m3)**	**AAAQS (µg/m3)**	**NMAAQS (µg/m3)**	**Surface Characteristics and Temperatures**	**Comments**
SunZia East	NO_2	1-hour	59.91	7.5	47.2	107.1	188.7	—	—	Grassland	Below all AAQS
		24-hour	59.91	—	47.2	107.1	—	—	188.7	Grassland	Use 1-hour background concentration Below all AAQS
	PM_{10}	24-hour	21.9	5	33	54.9	150	150	—	Grassland	Below all AAQS
	$PM_{2.5}$	24-hour	3.26	1.2	11.2	14.5	35	65	—	Grassland	Below all AAQS
	CO	1-hour	90.21	2,000	2,299	2,389	40,000	40,000	15,057	Grassland	Below SIL/NMAAQS
		8-hour	90.21	500	1,034	1,125	10,000	10,000	10,000	Grassland	Below SIL/NMAAQS
	SO_2	1-hour	0.96	7.9	5.26	NA	196.4	—	—	Grassland	Below SIL
		3-hour	0.96	25	2.63	3.6	1,300	1,300	—	Grassland	Below SIL/AAAQS
		24-hour	0.96	5	2.63	3.6	365	365	263.2	Grassland	Below SIL/AAAQS/NMAAQS
SunZia South (Midpoint)	NO_2	1-hour	59.91	7.5	47.2	107.1	188.7	—	—	Grassland	Below all AAQS
		24-hour	59.91	—	47.2	107.1	—	—	188.7	Grassland	Use 1-hour background concentration Below all AAQS
	PM_{10}	24-hour	21.9	5	33	54.9	150	150	—	Grassland	Below all AAQS
	$PM_{2.5}$	24-hour	3.26	1.2	11.2	14.5	35	65	—	Grassland	Below all AAQS
	CO	1-hour	90.21	2,000	2,299	2,389	40,000	40,000	15,057	Grassland	Below SIL/NMAAQS
		8-hour	90.21	500	1,034	1,125	10,000	10,000	10,000	Grassland	Below SIL/NMAAQS
	SO_2	1-hour	0.96	7.9	5.26	NA	196.4	—	—	Grassland	Below SIL
		3-hour	0.96	25	2.63	3.6	1,300	1,300	—	Grassland	Below SIL/AAAQS
		24-hour	0.96	5	2.63	3.6	365	365	263.2	Grassland	Below SIL/AAAQS/NMAAQS
Lordsburg (Hidalgo)	NO_2	1-hour	49.07	7.5	47.2	96.2	188.7	—	—	Desert	Below all AAQS
		24-hour	49.07	—	47.2	96.2	—	—	188.7	Desert	Use 1-hour background concentration

Table F-20. Modeling Results: Substation Construction											
Substation	**Pollutant**	**Averaging Period**	**Maximum 1-hour AERSCREEN Concentration (µg/m3)**	**Significant Impact Levels (SILs) (µg/m3)**	**Background Concentration (µg/m3)**	**Project Impact + Background (µg/m3)**	**NAAQS (µg/m3)**	**AAAQS (µg/m3)**	**NMAAQS (µg/m3)**	**Surface Characteristics and Temperatures**	**Comments**
											Below all AAQS
	PM_{10}	24-hour	21.1	5	33	54.1	150	150	—	Desert	Below all AAQS
	$PM_{2.5}$	24-hour	3.14	1.2	11.2	14.3	35	65	—	Desert	Below all AAQS
	CO	1-hour	73.89	2,000	2,299	2,373	40,000	40,000	15,057	Desert	Below SIL/NMAAQS
		8-hour	73.89	500	1,034	1,108	10,000	10,000	10,000	Desert	Below SIL/NMAAQS
	SO_2	1-hour	0.79	7.9	5.26	NA	196.4	—	—	Desert	Below SIL
		3-hour	0.79	25	2.63	3.4	1,300	1,300	—	Desert	Below SIL/AAAQS
		24-hour	0.79	5	2.63	3.4	365	365	263.2	Desert	Below SIL/AAAQS/NMAAQS
Willow-500 kV	NO_2	1-hour	49.07	7.5	47.2	96.2	188.7	—	—	Desert	Below all AAQS
		24-hour	49.07	—	47.2	96.2	—	—	188.7	Desert	Use 1-hour background concentration Below all AAQS
	PM_{10}	24-hour	21.1	5	29	50.1	150	150	—	Desert	Below all AAQS
	$PM_{2.5}$	24-hour	3.14	1.2	9.6	12.7	35	65	—	Desert	Below all AAQS
	CO	1-hour	73.89	2,000	2,299	2,373	40,000	40,000	15,057	Desert	Below SIL/NMAAQS
		8-hour	73.89	500	1,034	1,108	10,000	10,000	10,000	Desert	Below SIL/NMAAQS
	SO_2	1-hour	0.79	7.9	28.95	NA	196.4	—	—	Desert	Below SIL
		3-hour	0.79	25	12.11	12.9	1,300	1,300	—	Desert	Below SIL/AAAQS
		24-hour	0.79	5	3.68	4.5	365	365	263.2	Desert	Below SIL/AAAQS/NMAAQS
Pinal Central	NO_2	1-hour	49.07	7.5	110.0	159.1	188.7	—	—	Desert	Below all AAQS
		24-hour	49.07	—	110.0	159.1	—	—	188.7	Desert	Use 1-hour background concentration Below all AAQS
	PM_{10}	24-hour	21.1	5	131.7[a]	152.8	150	150	—	Desert	May exceed NAAQS numerical value[b]

Table F-20. Modeling Results: Substation Construction											
Substation	**Pollutant**	**Averaging Period**	**Maximum 1-hour AERSCREEN Concentration (μg/m3)**	**Significant Impact Levels (SILs) (μg/m3)**	**Background Concentration (μg/m3)**	**Project Impact + Background (μg/m3)**	**NAAQS (μg/m3)**	**AAAQS (μg/m3)**	**NMAAQS (μg/m3)**	**Surface Characteristics and Temperatures**	**Comments**
	$PM_{2.5}$	24-hour	3.14	1.2	9.6	12.7	35	65	—	Desert	Below AAQS
	CO	1-hour	73.89	2,000	2,299	2,373	40,000	40,000	15,057	Desert	Below SIL/NMAAQS
		8-hour	73.89	500	1,034	1,108	10,000	10,000	10,000	Desert	Below SIL/NMAAQS
	SO_2	1-hour	0.79	7.9	28.95	NA	196.4	—	—	Desert	Below SIL
		3-hour	0.79	25	12.11	12.9	1,300	1,300	—	Desert	Below SIL/AAAQS
		24-hour	0.79	5	3.68	4.5	365	365	263.2	Desert	Below SIL/AAAQS/ NMAAQS

[a] Average of second maximums at three co-located monitors.
[b] Form of standard is "not to be exceeded more than once per year, on average over three years." Project impact listed is maximum modeled impact.

APPENDIX G – SOCIAL AND ECONOMIC RESOURCES

APPENDIX G1 – SUNZIA ECONOMIC IMPACT ASSESSMENT AND EIA SUPPLEMENT: IMPACTS OF POTENTIAL RENEWABLE GENERATION FACILITIES

SUNZIA SOUTHWEST TRANSMISSION PROJECT ECONOMIC IMPACT ASSESSMENT

Prepared for

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SUNZIA SOUTHWEST TRANSMISSION PROJECT

ECONOMIC IMPACT ASSESSMENT

Executive Summary

Introduction

The SunZia Southwest Transmission Project ("SunZia" or "the Project") is a development-stage project that comprises up to two 500 kV electric transmission lines and associated substations from central Pinal County, AZ across southern Arizona and southern and central New Mexico to a point located in northern Lincoln County, NM. The Project will potentially interconnect with five new substations, two in Arizona and three in New Mexico. The purpose of the Project is to provide new transmission capacity primarily to renewable energy generation facilities constructed in southern Arizona and New Mexico. The development of the Project is managed by SunZia Southwest, a wholly-owned subsidiary of SouthWestern Power Group. The owners of the Project comprise MMR Group, Salt River Project, Shell WindEnergy, SouthWestern Power Group, Tri-State Generation and Transmission and Tucson Electric Power. This study considers three scenarios for the Project.

Scenario	Description	Expected Capacity
1	Single AC Line	1,500 MW
2	Two AC Lines	3,000 MW
3	One AC Line and One DC Line	4,500 MW

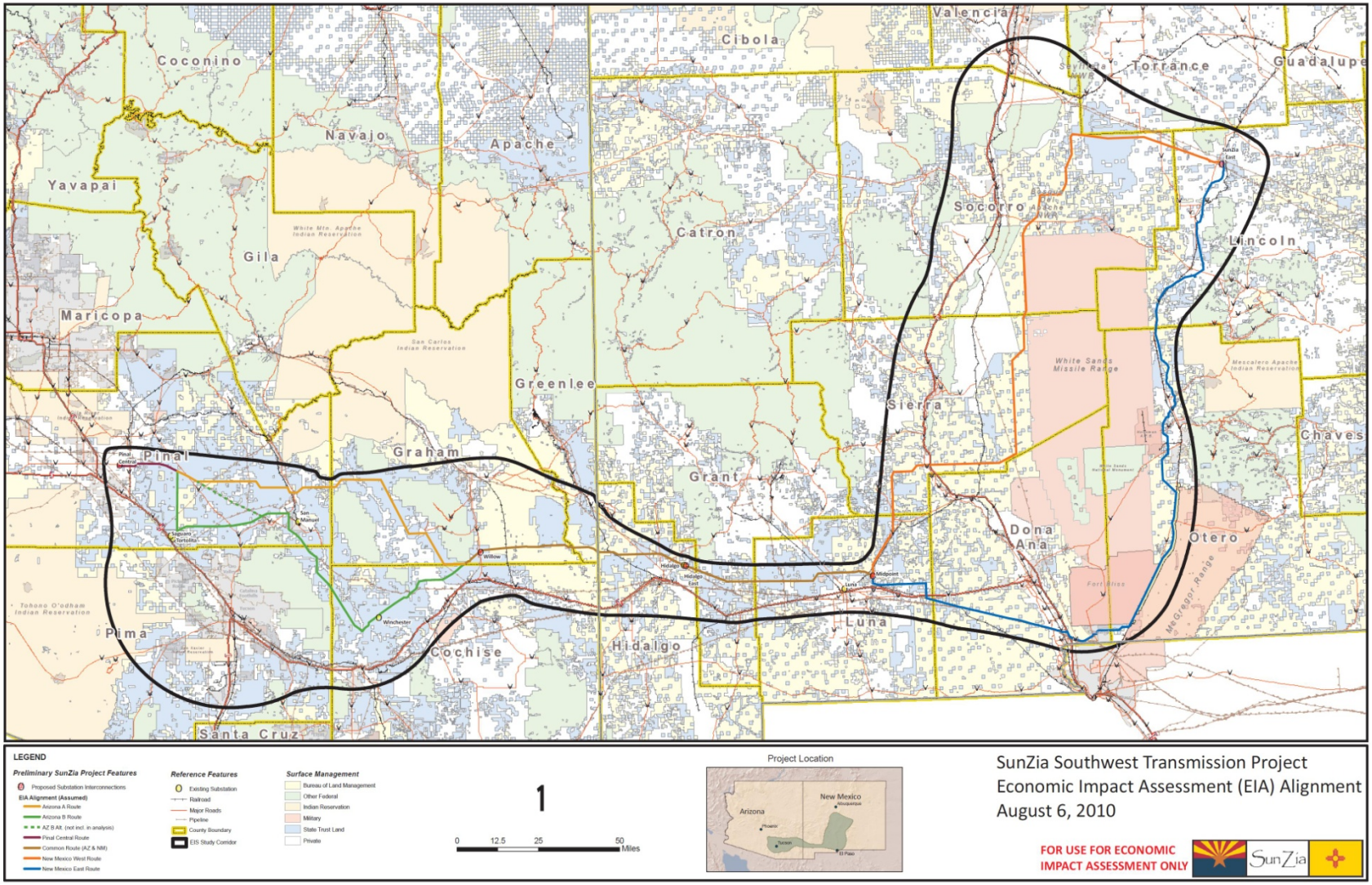
This Economic Impact Assessment ("EIA") supports the Environmental Impact Statement ("EIS") being prepared by Environmental Planning Group ("EPG") on behalf of the Bureau of Land Management ("BLM"), the lead agency for SunZia's EIS.

The purpose of this study is to provide estimates of the economic impact of the construction and operational phases of the Project on the States of Arizona and New Mexico and the counties in which the Project will be located. Economic impact estimates include changes in employment, income and value added. Estimates of tax revenues generated by the Project are also provided.

Study Area

As shown in Figure 1.2.1 on the next page, the study area encompasses southeast Arizona and southwest New Mexico. Depending on the final route, the transmission line may cross Cochise, Graham, Greenlee, Pima and Pinal counties in Arizona and Doña Ana, Grant, Hidalgo, Lincoln, Luna, Otero, Sierra and Socorro counties in New Mexico.

Figure 1.2.1 SunZia Alignment Map



Because the exact route for the Project has not yet been determined through the EIS process, this EIA considers two reference routes in Arizona and two in New Mexico. In Arizona, the routes are referred to as Routes A and B. In New Mexico, the routes are labeled East and West, referring to which side of the White Sands Missile Range ("WSMR") the lines are located.

Most of the counties in both Arizona and New Mexico that will be impacted by the construction of the lines and substations tend to be very rural (with low population densities) and tend to have lower per capita incomes and lower wages than other counties in these states. Unemployment rates in approximately half of these counties are substantially higher, and in some instances much higher, than either of their respective states as a whole.

Impact Analysis

Economic impact analysis is an attempt to measure the net overall change in economic activity in a given geographic area that results from a change in economic activity in that area. The main idea behind economic impact analysis is that a new dollar spent in a local area results in more than one dollar in economic activity in the area. The model used to produce the estimates in this report is IMPLAN PRO Version 3 with 2009 data and structural matrices.

The exact makeup of the Project has yet to be determined. The possibilities are as follows. The first possibility is that there will be one alternating current (AC) transmission line. The second possibility is that there will be two AC transmission lines running parallel to each other. And the last possibility is that there will be two transmission lines running parallel to each other, the first being an AC line and the second being a direct current (DC) line.

The impacts of the following three scenarios are presented:

Scenario 1: The construction of a single AC transmission line and five associated substations.
Scenario 2: The construction of two parallel AC transmission lines.
Scenario 3: The construction of two parallel transmission lines, one AC and one DC.

These three scenarios are assessed for the construction of the transmission lines, for the construction of the proposed substations and for the operations and maintenance of the lines and substations.

Refer to Table ES.1 on the following page for a summary of the estimated construction cost of the Project for the 3 scenarios and 4 reference routes.

Table ES.1

Estimated Construction Cost of Lines & Substations

4 Reference Routes in Arizona and New Mexico

(2013 through 2016)

All $'s in 2010 Millions

	Line Portion	Substation Portion	Total	Line Portion	Substation Portion	Total	Line Portion	Substation Portion	Total	Line Portion	Substation Portion	Total
Arizona	AZ Route A (171 miles)			AZ Route A (171 miles)			AZ Route B (201 miles)			AZ Route B (201 miles)		
Scenario 1	$198.3	$53.8	$252.1	$198.3	$53.8	$252.1	$238.8	$53.8	$292.6	$238.8	$53.8	$292.6
Scenario 2	$385.4	$81.9	$467.3	$385.4	$81.9	$467.3	$464.7	$81.9	$546.6	$464.7	$81.9	$546.6
Scenario 3	$365.7	$649.7	$1,015.4	$365.7	$649.7	$1,015.4	$434.9	$649.7	$1,084.6	$434.9	$649.7	$1,084.6
New Mexico	NM East (345 miles)			NM West (342 miles)			NM East (345 miles)			NM West (342 miles)		
Scenario 1	$408.8	$167.8	$576.6	$406.1	$167.8	$573.9	$408.8	$167.8	$576.6	$406.1	$167.8	$573.9
Scenario 2	$795.8	$217.3	$1,013.1	$790.6	$217.3	$1,007.9	$795.8	$217.3	$1,013.1	$790.6	$217.3	$1,007.9
Scenario 3	$758.2	$764.1	$1,522.3	$757.0	$764.1	$1,521.1	$758.2	$764.1	$1,522.3	$757.0	$764.1	$1,521.1
Total Project	AZ Route A + NM East (516 miles)			AZ Route A + NM West (513 miles)			AZ Route B + NM East (546 miles)			AZ Route B + NM West (543 miles)		
Scenario 1	$607.1	$221.6	$828.7	$604.4	$221.6	$826.0	$647.6	$221.6	$869.2	$644.9	$221.6	$866.5
Scenario 2	$1,181.2	$299.2	$1,480.4	$1,176.0	$299.2	$1,475.2	$1,260.5	$299.2	$1,559.7	$1,255.3	$299.2	$1,554.5
Scenario 3	$1,123.9	$1,413.8	$2,537.7	$1,122.7	$1,413.8	$2,536.5	$1,193.1	$1,413.8	$2,606.9	$1,191.9	$1,413.8	$2,605.7

Estimated Economic Impacts

The estimated impacts presented below are for the entire construction projects, which last between 30 and 42 months, depending on the scenario. All of the cost data used in this analysis and all estimated dollar impacts in this study are expressed in (2010) millions of dollars. Year-by-year impacts are presented in the full report on a projected time-line.

Transmission Line(s): Table ES.2 provides the estimated economic impacts at the state level of the construction of the transmission line(s) for all three scenarios for the two reference routes in both Arizona and New Mexico. Only the total effects for each route in the two states are reported in ES.2.

Table ES.2 State Impacts of Transmission Line Construction, by State, Scenarios 1, 2, and 3

State/ Route	Line miles	Impact Category	Total Impact		
			Scenario 1	Scenario 2	Scenario 3
Arizona Route					
Route A	**171**	Employment (# of jobs)	1,032	1,997	2,146
		Labor Income (2010 $Mil)	$ 67.4	$ 130.4	$ 141.6
		State Product (2010 $Mil)	$ 88.3	$ 171.0	$ 184.5
		Total Sales (2010 $Mil)	$ 124.8	$ 241.8	$ 258.1
Route B	**201**	Employment (# of jobs)	1,255	2,437	2,554
		Labor Income (2010 $Mil)	$ 82.0	$ 159.0	$ 168.5
		State Product (2010 $Mil)	$ 107.1	$ 207.9	$ 219.0
		Total Sales (2010 $Mil)	$ 150.5	$ 292.3	$ 304.8
New Mexico Route					
East	**345**	Employment (# of jobs)	1,778	3,455	3,701
		Labor Income (2010 $Mil)	$ 116.1	$ 225.3	$ 242.6
		State Product (2010 $Mil)	$ 143.7	$ 279.0	$ 299.7
		Total Sales (2010 $Mil)	$ 199.9	$ 388.7	$ 415.1
West	**342**	Employment (# of jobs)	1,696	3,294	3,454
		Labor Income (2010 $Mil)	$ 116.1	$ 225.2	$ 238.4
		State Product (2010 $Mil)	$ 143.7	$ 279.0	$ 293.9
		Total Sales (2010 $Mil)	$ 199.8	$ 388.5	$ 404.9

Depending on the route selected and the scenario chosen, the numbers of jobs generated by the construction of the transmission line will range from 2,728 and 6,255. Jobs are measured as job-years throughout this study. The labor income generated because of the project will range

between $183.5 and $411.1 million dollars. State product will range between $232 and $518.7 million and total sales will range from $324.6 to $719.9 million.

Substations: Table ES.3 presents the substation construction impacts, by scenario and by state that will be constructed along the route. Two substations are proposed to be constructed in Arizona, one in Graham County and one in Pinal County. Three substations are proposed to be constructed in New Mexico, one each in Hidalgo County, Lincoln County and Luna County**.** County impacts vary substantially across substations for several reasons. Some substation construction projects are modifications of existing substations, while other substations are new. In addition, the engineering requirements for substations differ, depending on their location.

Table ES.3. State Impacts of Substation Construction, by State, Scenarios 1, 2, and 3

State/Impact Category	Total Impact		
	Scenario 1	Scenario 2	Scenario 3
Arizona			
Employment (# of jobs)	160	219	273
Labor Income (2010 $Mil)	$ 11.8	$ 16.1	$ 20.8
State Product (2010 $Mil)	$ 15.0	$ 20.5	$ 26.1
Total Sales (2010 $Mil)	$ 20.7	$ 28.1	$ 34.8
New Mexico			
Employment (# of jobs)	570	687	685
Labor Income (2010 $Mil)	$ 44.1	$ 53.2	$ 53.2
State Product (2010 $Mil)	$ 51.5	$ 62.0	$ 62.0
Total Sales (2010 $Mil)	$ 68.1	$ 81.6	$ 80.9

Depending on the scenario chosen, the number of jobs (job-years) generated by the construction of the substations will range from 730 to 958. The income generated will range between $55.9 and $74.0 million dollars. State product will range between $66.5 and $88.1 million and total sales will range from $88.8 to $115.7 million.

Operations and Maintenance: Table ES.4 presents the ongoing impacts associated with operations and maintenance. The estimated economic impacts in these tables will occur each year after the facilities begin operation. The operations center for the Project is expected to be located in Maricopa County in the Metro-Phoenix area. The maintenance base in Arizona is expected to be located in Pima County (in or near Tucson). In New Mexico, the maintenance base is expected to be located in Doña Ana County (in or near Las Cruces).

Table ES.4. Ongoing Economic Impacts of Operations and Maintenance, by State, Scenario 1, 2, and 3

State/Impact Category	Total Impact		
	Scenario 1	Scenario 2	Scenario 3
Arizona			
Employment (# of jobs)	57	86	99
Labor Income (2010 $Mil)	$ 3.7	$ 5.6	$ 6.6
State Product (2010 $Mil)	$ 5.3	$ 8.0	$ 9.2
Total Sales (2010 $Mil)	$ 7.1	$ 10.7	$ 12.2
New Mexico			
Employment (# of jobs)	26	40	50
Labor Income (2010 $Mil)	$ 1.6	$ 2.4	$ 3.0
State Product (2010 $Mil)	$ 2.1	$ 3.2	$ 3.9
Total Sales (2010 $Mil)	$ 2.8	$ 4.3	$ 5.4

Depending on the scenario chosen, the number of jobs (job-years) generated by operations and maintenance will range from 83 to 149 per year. The income generated will range from $5.3 to $9.6 million per year. State product will range from $7.4 to $13.1 million and total sales will range from $9.9 to $17.6 million per year.

Revenue Impact

State and local tax revenue will result from the construction and operations of the proposed transmission lines and substations. These revenues will also occur because employees whose jobs depend on the new activity earn and spend income locally.

The taxes to be estimated for New Mexico include the Gross Receipts Taxes (GRT), Personal Income Taxes, Corporate Income Taxes and property taxes. Combined, the GRT (sales tax) and the two income taxes accounted for 77 percent of all New Mexico Tax revenue between 2001 and 2009.

In Arizona, the three largest state revenue sources are the Transaction Privilege Tax (sales), the Individual Income Taxes (referred to as personal income taxes herein), and the Corporate Income Tax. These three taxes comprise 92 percent of all Arizona General Fund tax revenues. There are no state property taxes. Local governments (counties and cities/towns) collect most of their tax dollars from either property taxes (especially counties) or sales taxes (especially cities/towns). Another major source of city and county revenues are state-shared revenues. Arizona state government shares a portion of its sales tax collections with both counties and incorporated cities and towns. In addition, state income tax revenues (both personal and corporate) are shared (with

a 2-year lag) with incorporated cities and towns according to population. The figures reported for State Sales Tax, Personal Income Tax and Corporate Income Tax represent money retained by the state. Shared State Sales Tax and Shared Income Tax are amounts distributed to cities and/or counties.

All tax revenue estimates are expressed in (2010) millions of dollars and have been estimated based on current tax rates. Two sets of revenues are estimated. The first set of revenues is the direct taxes attributed to the Project itself. The second set of revenues is associated with the income that is generated and spending that occurs because of the Project. This second set of revenues will be referred to as induced taxes.

Direct and Induced Taxes Due to Construction: Table ES.5 presents the direct and induced taxes that would be received by the states and local government units due to the construction of the transmission lines and substations. The revenues collected depend on the scenario chosen.

Table ES.5. Total Revenues Received by State and Local Governments due to Construction, by State, Scenario 1, 2, and 3

		Scenario 1			Scenario 2			Scenario 3		
		Transmission Line		Sub-stations	Transmission Lines		Sub-stations	Transmission Lines		Sub-stations
Arizona (2010 $Mil)										
		Route A	Route B		Route A	Route B		Route A	Route B	
State Sales Tax	State	$ 5.42	$ 6.60	$ 1.03	$ 10.53	$ 12.81	$ 1.48	$ 10.93	$ 13.03	$ 4.01
Shared State Sales Tax	Local	$ 1.26	$ 1.53	$ 0.24	$ 2.45	$ 2.98	$ 0.34	$ 2.54	$ 3.03	$ 1.17
Local Sales Tax	Local	$ 3.33	$ 4.26	$ 0.60	$ 6.47	$ 8.27	$ 0.86	$ 6.61	$ 8.27	$ 2.75
Personal Income Tax	State	$ 1.46	$ 1.78	$ 0.26	$ 2.83	$ 3.45	$ 0.35	$ 3.07	$ 3.66	$ 0.45
Corporate Income Tax	State	$ 0.27	$ 0.33	$ 0.04	$ 0.52	$ 0.64	$ 0.06	$ 0.57	$ 0.67	$ 0.07
Shared Income Tax	Cities	$ 0.22	$ 0.27	$ 0.04	$ 0.43	$ 0.52	$ 0.05	$ 0.46	$ 0.55	$ 0.07
Total		**$ 11.97**	**$ 14.77**	**$ 2.20**	**$ 23.23**	**$ 28.67**	**$ 3.15**	**$ 24.19**	**$ 29.20**	**$ 8.52**
New Mexico (2010 $Mil)										
		East	West		East	West		East	West	
State Sales Tax	State	$ 13.70	$ 14.24	$ 5.45	$ 26.64	$ 27.71	$ 6.95	$ 26.12	$ 26.83	$ 25.59
Local Sales Tax	Local	$ 10.36	$ 9.24	$ 4.31	$ 20.16	$ 17.97	$ 5.52	$ 19.71	$ 17.45	$ 21.43
Personal Income Tax	State	$ 2.56	$ 2.56	$ 0.98	$ 4.98	$ 4.98	$ 1.18	$ 5.36	$ 5.27	$ 1.18
Corporate Income Tax	State	$ 0.54	$ 0.54	$ 0.17	$ 1.05	$ 1.05	$ 0.21	$ 1.13	$ 1.11	$ 0.21
Total		**$ 27.16**	**$ 26.58**	**$ 10.91**	**$ 52.83**	**$ 51.70**	**$ 13.85**	**$ 52.32**	**$ 50.66**	**$ 48.41**

Depending on the scenario chosen, revenues to states and local government units due to the direct and induced taxes from construction of lines and substations will range from $51.66 to $138.45 million.

Direct and Induced Taxes Due to Operations and Maintenance: SunZia expects that a major portion of its operations will be located in Maricopa County (Phoenix area). These include company administration, as well as centralized line and substation operations. Transmission line and substation maintenance works are assumed to be centered in Doña Ana County (Las Cruces) for the New Mexico facilities and in Pima County (Tucson) for Arizona's facilities. Unlike the construction impacts above which occur only during the construction phase, the operations and maintenance impacts will accrue each and every year once construction is completed.

Table ES.6 presents the direct and induced tax revenues to be received by the states and local governmental units.

Table ES.6. Total Tax Revenues Due to Operations and Maintenance, by State, Scenarios 1, 2, and 3

		Scenario 1	Scenario 2	Scenario 3
		Arizona (2010 $Mil)		
State Sales Tax	**State**	$ 0.13	$ 0.19	$ 0.25
Shared State Sales Tax	**Local**	$ 0.03	$ 0.05	$ 0.06
Local Sales Tax	**Local**	$ 0.08	$ 0.12	$ 0.16
Personal Income Tax	**State**	$ 0.08	$ 0.12	$ 0.17
Corporate Income Tax	**State**	$ 0.02	$ 0.02	$ 0.03
Shared Income Tax	**Cities**	$ 0.01	$ 0.02	$ 0.03
Total		**$ 0.35**	**$ 0.52**	**$ 0.69**
		New Mexico (2010 $Mil)		
State Sales Tax	**State**	$ 0.10	$ 0.16	$ 0.19
Local Sales Tax	**Local**	$ 0.08	$ 0.12	$ 0.15
Personal Income Tax	**State**	$ 0.03	$ 0.05	$ 0.07
Corporate Income Tax	**State**	$ 0.00	$ 0.01	$ 0.01
Total		**$ 0.22**	**$ 0.34**	**$ 0.42**

The revenues received will range from $570,000 to $1.11 million annually, depending on the scenario chosen.

Property Taxes: Property taxes in New Mexico are levied at the local governmental level. For the SunZia Project, the evaluation of taxable improvements is done at the state level since SunZia is a multi-county project. In Arizona, taxable improvements are also centrally assessed by the state. Arizona counties have numerous property taxing jurisdictions and most do not share boundaries with counties, e.g., school districts, library districts and specialized districts, such as flood, fire and lighting districts. The property tax rates to be applied to the Project are the sum of all the tax rates imposed by all the different jurisdictions, depending on the route of the Project.

Table ES.7 summarizes statewide property tax estimates, by state, by scenario, by route and by year. The results are shown only through 2020. After 2020, the estimates decrease 4% (of starting assesses value) per year due to depreciation.

The largest amount of property tax revenues generated will typically occur in 2016, the year the construction of lines and substations are completed. Depending on the scenario selected, Arizona counties are expected to receive between $1.00 million and $5.33 million in property taxes in 2016. New Mexico counties are expected to receive between $5.04 million and $9.42 million in 2016. After 2016, property tax revenues would decrease by four percent per year.

Table ES.7. Summary of Local Property Tax Revenues, by State, by Route, by Scenario

	2013	2014	2015	2016	2017	2018	2019	2020
				(2010 $Mil)				
				Arizona				
Scenario 1								
Route A	$ 0.21	$ 0.63	$ 1.05	$ 1.00	$ 0.96	$ 0.92	$ 0.88	$ 0.84
Route B	$ 0.29	$ 0.86	$ 1.44	$ 1.38	$ 1.33	$ 1.27	$ 1.21	$ 1.15
Scenario 2								
Route A	$ 0.21	$ 0.81	$ 1.59	$ 1.91	$ 1.83	$ 1.75	$ 1.68	$ 1.60
Route B	$ 0.29	$ 1.12	$ 2.21	$ 2.66	$ 2.56	$ 2.45	$ 2.34	$ 2.23
Scenario 3								
Route A	$ 0.21	$ 1.36	$ 3.24	$ 4.65	$ 4.47	$ 4.28	$ 4.09	$ 3.90
Route B	$ 0.29	$ 1.65	$ 3.81	$ 5.33	$ 5.12	$ 4.90	$ 4.69	$ 4.47
				New Mexico				
Scenario 1								
East Route	$ 0.52	$ 1.57	$ 2.62	$ 5.04	$ 4.83	$ 4.62	$ 4.41	$ 4.20
West Route	$ 0.53	$ 1.58	$ 2.64	$ 5.07	$ 4.86	$ 4.64	$ 4.43	$ 4.22
Scenario 2								
East Route	$ 0.52	$ 1.98	$ 3.83	$ 7.05	$ 8.68	$ 8.31	$ 7.94	$ 7.57
West Route	$ 0.53	$ 1.99	$ 3.85	$ 7.09	$ 8.74	$ 8.37	$ 8.00	$ 7.62
Scenario 3								
East Route	$ 0.52	$ 2.45	$ 5.25	$ 9.41	$ 13.23	$ 12.67	$ 12.11	$ 11.55
West Route	$ 0.53	$ 2.45	$ 5.25	$ 9.42	$ 13.21	$ 12.65	$ 12.09	$ 11.53

Conclusion

Tables ES.8 through ES.12 on the following pages provide an overall summary of the economic impacts of the Project during construction (from 2013 to 2016) by reference route and for the operations period from 2017 to 2020.

The main report provides economic and revenue impacts by county and over time. Most of the impacted counties are heavily reliant on land-based economic activities, such as agriculture, forestry, fishing, tourism and for a few counties, mining. Construction and operation of the proposed SunZia project offers substantial job opportunities and, more importantly, provides the necessary new transmission capacity to further the development of renewable energy generation facilities in southern Arizona and New Mexico.

Table ES.8

Summary of Estimated Economic Impacts During Construction

AZ Route A + NM East

(2013 through 2016)

All $'s in 2010 Millions

	Line Portion					Substation Portion					Total Project					
	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Property Taxes
Arizona Route A (171 miles)																
Scenario 1	1,032	$67.4	$88.3	$124.8	$12.0	160	$11.8	$15.0	$20.7	$2.2	1,192	$79.2	$103.3	$145.5	$14.2	$2.9
Scenario 2	1,997	$130.4	$171.0	$241.8	$23.2	219	$16.1	$20.5	$28.1	$3.1	2,216	$146.5	$191.5	$269.9	$26.3	$4.5
Scenario 3	2,146	$141.6	$184.5	$258.1	$24.2	273	$20.8	$26.1	$34.8	$8.5	2,419	$162.4	$210.6	$292.9	$32.7	$9.5
New Mexico East (345 miles)																
Scenario 1	1,778	$116.1	$143.7	$199.9	$27.2	570	$44.1	$51.5	$68.1	$10.9	2,348	$160.2	$195.2	$268.0	$38.1	$9.8
Scenario 2	3,455	$225.3	$279.0	$388.7	$52.8	687	$53.2	$62.0	$81.6	$13.9	4,142	$278.5	$341.0	$470.3	$66.7	$13.4
Scenario 3	3,701	$242.6	$299.7	$415.1	$52.3	685	$53.2	$62.0	$80.9	$48.4	4,386	$295.8	$361.7	$496.0	$100.7	$17.6
Total Project (516 miles)																
Scenario 1	2,810	$183.5	$232.0	$324.7	$39.2	730	$55.9	$66.5	$88.8	$13.1	3,540	$239.4	$298.5	$413.5	$52.3	$12.6
Scenario 2	5,452	$355.7	$450.0	$630.5	$76.0	906	$69.3	$82.5	$109.7	$17.0	6,358	$425.0	$532.5	$740.2	$93.0	$17.9
Scenario 3	5,847	$384.2	$484.2	$673.2	$76.5	958	$74.0	$88.1	$115.7	$56.9	6,805	$458.2	$572.3	$788.9	$133.4	$27.1

Table ES.9

Summary of Estimated Economic Impacts During Construction

AZ Route A + NM West

(2013 through 2016)

All $'s in 2010 Millions

	Line Portion					Substation Portion					Total Project					
	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Property Taxes
Arizona Route A (171 miles)																
Scenario 1	1,032	$67.4	$88.3	$124.8	$12.0	160	$11.8	$15.0	$20.7	$2.2	1,192	$79.2	$103.3	$145.5	$14.2	$2.9
Scenario 2	1,997	$130.4	$171.0	$241.8	$23.2	219	$16.1	$20.5	$28.1	$3.1	2,216	$146.5	$191.5	$269.9	$26.3	$4.5
Scenario 3	2,146	$141.6	$184.5	$258.1	$24.2	273	$20.8	$26.1	$34.8	$8.5	2,419	$162.4	$210.6	$292.9	$32.7	$9.5
New Mexico West (342 miles)																
Scenario 1	1,696	$116.1	$143.7	$199.8	$26.6	570	$44.1	$51.5	$68.1	$10.9	2,266	$160.2	$195.2	$267.9	$37.5	$9.8
Scenario 2	3,294	$225.2	$279.0	$388.5	$51.7	687	$53.2	$62.0	$81.6	$13.9	3,981	$278.4	$341.0	$470.1	$65.6	$13.5
Scenario 3	3,454	$238.4	$293.9	$404.9	$50.7	685	$53.2	$62.0	$80.9	$48.4	4,139	$291.6	$355.9	$485.8	$99.1	$17.7
Total Project (513 miles)																
Scenario 1	2,728	$183.5	$232.0	$324.6	$38.6	730	$55.9	$66.5	$88.8	$13.1	3,458	$239.4	$298.5	$413.4	$51.7	$12.7
Scenario 2	5,291	$355.6	$450.0	$630.3	$74.9	906	$69.3	$82.5	$109.7	$17.0	6,197	$424.9	$532.5	$740.0	$91.9	$18.0
Scenario 3	5,600	$380.0	$478.4	$663.0	$74.9	958	$74.0	$88.1	$115.7	$56.9	6,558	$454.0	$566.5	$778.7	$131.8	$27.1

Table ES.10

Summary of Estimated Economic Impacts During Construction

AZ Route B + NM East

(2013 through 2016)

All $'s in 2010 Millions

	Line Portion					Substation Portion					Total Project					
	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Property Taxes
Arizona Route B (201 miles)																
Scenario 1	1,255	$82.0	$107.1	$150.5	$14.8	160	$11.8	$15.0	$20.7	$2.2	1,415	$93.8	$122.1	$171.2	$17.0	$4.0
Scenario 2	2,437	$159.0	$207.9	$292.3	$28.7	219	$16.1	$20.5	$28.1	$3.1	2,656	$175.1	$228.4	$320.4	$31.8	$6.3
Scenario 3	2,554	$168.5	$219.0	$304.8	$29.2	273	$20.8	$26.1	$34.8	$8.5	2,827	$189.3	$245.1	$339.6	$37.7	$11.1
New Mexico East (345 miles)																
Scenario 1	1,778	$116.1	$143.7	$199.9	$27.2	570	$44.1	$51.5	$68.1	$10.9	2,348	$160.2	$195.2	$268.0	$38.1	$9.8
Scenario 2	3,455	$225.3	$279.0	$388.7	$52.8	687	$53.2	$62.0	$81.6	$13.9	4,142	$278.5	$341.0	$470.3	$66.7	$13.4
Scenario 3	3,701	$242.6	$299.7	$415.1	$52.3	685	$53.2	$62.0	$80.9	$48.4	4,386	$295.8	$361.7	$496.0	$100.7	$17.6
Total Project (546 miles)																
Scenario 1	3,033	$198.1	$250.8	$350.4	$42.0	730	$55.9	$66.5	$88.8	$13.1	3,763	$254.0	$317.3	$439.2	$55.1	$13.7
Scenario 2	5,892	$384.3	$486.9	$681.0	$81.5	906	$69.3	$82.5	$109.7	$17.0	6,798	$453.6	$569.4	$790.7	$98.5	$19.7
Scenario 3	6,255	$411.1	$518.7	$719.9	$81.5	958	$74.0	$88.1	$115.7	$56.9	7,213	$485.1	$606.8	$835.6	$138.4	$28.7

Table ES.11
Summary of Estimated Economic Impacts During Construction
AZ Route B + NM West
(2013 through 2016)
All $'s in 2010 Millions

	Line Portion					Substation Portion					Total Project					
	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Jobs	Labor Income	State Product	Total Sales	State + Local Taxes	Property Taxes
Arizona Route B (201 miles)																
Scenario 1	1,255	$82.0	$107.1	$150.5	$14.8	160	$11.8	$15.0	$20.7	$2.2	1,415	$93.8	$122.1	$171.2	$17.0	$4.0
Scenario 2	2,437	$159.0	$207.9	$292.3	$28.7	219	$16.1	$20.5	$28.1	$3.1	2,656	$175.1	$228.4	$320.4	$31.8	$6.3
Scenario 3	2,554	$168.5	$219.0	$304.8	$29.2	273	$20.8	$26.1	$34.8	$8.5	2,827	$189.3	$245.1	$339.6	$37.7	$11.1
New Mexico West (342 miles)																
Scenario 1	1,696	$116.1	$143.7	$199.8	$27.2	570	$44.1	$51.5	$68.1	$10.9	2,266	$160.2	$195.2	$267.9	$38.1	$9.8
Scenario 2	3,294	$225.3	$279.0	$388.5	$52.8	687	$53.2	$62.0	$81.6	$13.9	3,981	$278.5	$341.0	$470.1	$66.7	$13.5
Scenario 3	3,454	$238.4	$293.9	$404.9	$52.3	685	$53.2	$62.0	$80.9	$48.4	4,139	$291.6	$355.9	$485.8	$100.7	$17.7
Total Project (543 miles)																
Scenario 1	2,951	$198.1	$250.8	$350.3	$42.0	730	$55.9	$66.5	$88.8	$13.1	3,681	$254.0	$317.3	$439.1	$55.1	$13.7
Scenario 2	5,731	$384.3	$486.9	$680.8	$81.5	906	$69.3	$82.5	$109.7	$17.0	6,637	$453.6	$569.4	$790.5	$98.5	$19.8
Scenario 3	6,008	$406.9	$512.9	$709.7	$81.5	958	$74.0	$88.1	$115.7	$56.9	6,966	$480.9	$601.0	$825.4	$138.4	$28.8

Table ES.12

Summary of Estimated Economic Impacts During Operations & Maintenance

(Annual Amounts, 2017 through 2020)

All $'s in 2010 Millions

	Total Project					Total Project			
	Jobs	**Labor Income**	**State Product**	**Total Sales**	**State + Local Taxes**	**Average Annual Property Taxes**			
Arizona						AZ Route A		AZ Route B	
Scenario 1	57	$3.7	$5.3	$7.1	$0.3	$0.90	$0.90	$1.24	$1.24
Scenario 2	86	$5.6	$8.0	$10.7	$0.5	$1.72	$1.72	$2.40	$2.40
Scenario 3	99	$6.6	$9.2	$12.2	$0.7	$4.19	$4.19	$4.80	$4.80
New Mexico						NM East	NM West	NM East	NM West
Scenario 1	26	$1.6	$2.1	$2.8	$0.2	$4.52	$4.54	$4.52	$4.54
Scenario 2	40	$2.4	$3.2	$4.3	$0.3	$8.13	$8.18	$8.13	$8.18
Scenario 3	50	$3.0	$3.9	$5.4	$0.4	$12.39	$12.37	$12.39	$12.37
Total Project						AZ A + NM East	AZ A + NM West	AZ B + NM East	AZ B + NM West
Scenario 1	83	$5.3	$7.4	$9.9	$0.6	$5.42	$5.44	$5.76	$5.78
Scenario 2	126	$8.0	$11.2	$15.0	$0.9	$9.84	$9.90	$10.52	$10.58
Scenario 3	149	$9.6	$13.1	$17.6	$1.1	$16.58	$16.56	$17.19	$17.17

SUNZIA SOUTHWEST TRANSMISSION PROJECT

ECONOMIC IMPACT ASSESSMENT

1. Introduction

The SunZia Southwest Transmission Project ("SunZia" or "the Project") is a development-stage project that comprises up to two 500 kV electric transmission lines and associated substations from central Pinal County, AZ across southern Arizona and southern and central New Mexico to a point located in northern Lincoln County, NM. The Project will potentially interconnect with five new substations, two in Arizona and three in New Mexico. The purpose of the Project is to provide new transmission capacity primarily to renewable energy generation facilities constructed in southern Arizona and New Mexico. The development of the Project is managed by SunZia Southwest, a wholly-owned subsidiary of SouthWestern Power Group. The owners of the Project comprise MMR Group, Salt River Project, Shell WindEnergy, SouthWestern Power Group, Tri-State Generation and Transmission and Tucson Electric Power.

This study considers three scenarios for the Project.

Scenario	Description	Expected Capacity
1	Single AC Line	1,500 MW
2	Two AC Lines	3,000 MW
3	One AC Line and One DC Line	4,500 MW

The estimated start date for construction of the first AC line is mid-2013 and is expected to take thirty months to complete (end of 2015). If a second line (AC or DC) is constructed, the start date is assumed to be one year after the start of construction of the first line (mid-2014). The second line is also expected to take thirty months to construct with estimated completion by the end of 2016.

This Economic Impact Assessment ("EIA") supports the Environmental Impact Statement ("EIS") being prepared by Environmental Planning Group ("EPG") on behalf of the Bureau of Land Management ("BLM"), the lead agency for SunZia's EIS. This EIA report was prepared by representatives of the Economic and Business Research Center of the Eller College of Management at the University of Arizona and the Office of Policy Analysis of Arrowhead Center, Inc. at New Mexico State University.

1.1 Purpose and Scope of the Study

The purpose of this study is to provide estimates of the economic impact of the construction and operational phases of the Project. The economic impact will consist of estimates of changes in employment, labor income, state product and total sales. Estimates of tax revenues generated by the Project are also provided. All economic impacts are calculated at state and county levels.

Not included in this report are the possible effects of the Project on activities already taking place in the area of study. The main reason for this is that the final alignment of the Project has not been determined. In particular, concerns have been expressed concerning project impacts on the mission of White Sands Missile Range. The Project's Draft Environmental Impact Statement ("DEIS") is expected to be issued by the Bureau of Land Management in the spring of 2011 and will provide several alternative alignments in the area north and west of White Sand Missile Range ("WSMR") for further consideration and evaluation. Each alignment alternative presents different opportunities for successful mitigation to preserve existing military missions being conducted by WSMR in this particular area of land managed by the BLM and the State of New Mexico. All opportunities for mitigation will be evaluated as part of making a final determination of which alignment will be selected in the Final EIS that is planned to be issued by the BLM in 2012. At that time it will be possible to accurately assess any positive, negative or neutral economic impacts created by the Project's location on the operations of DOD installations in the area, including WSMR.

1.2 Study Area Definition

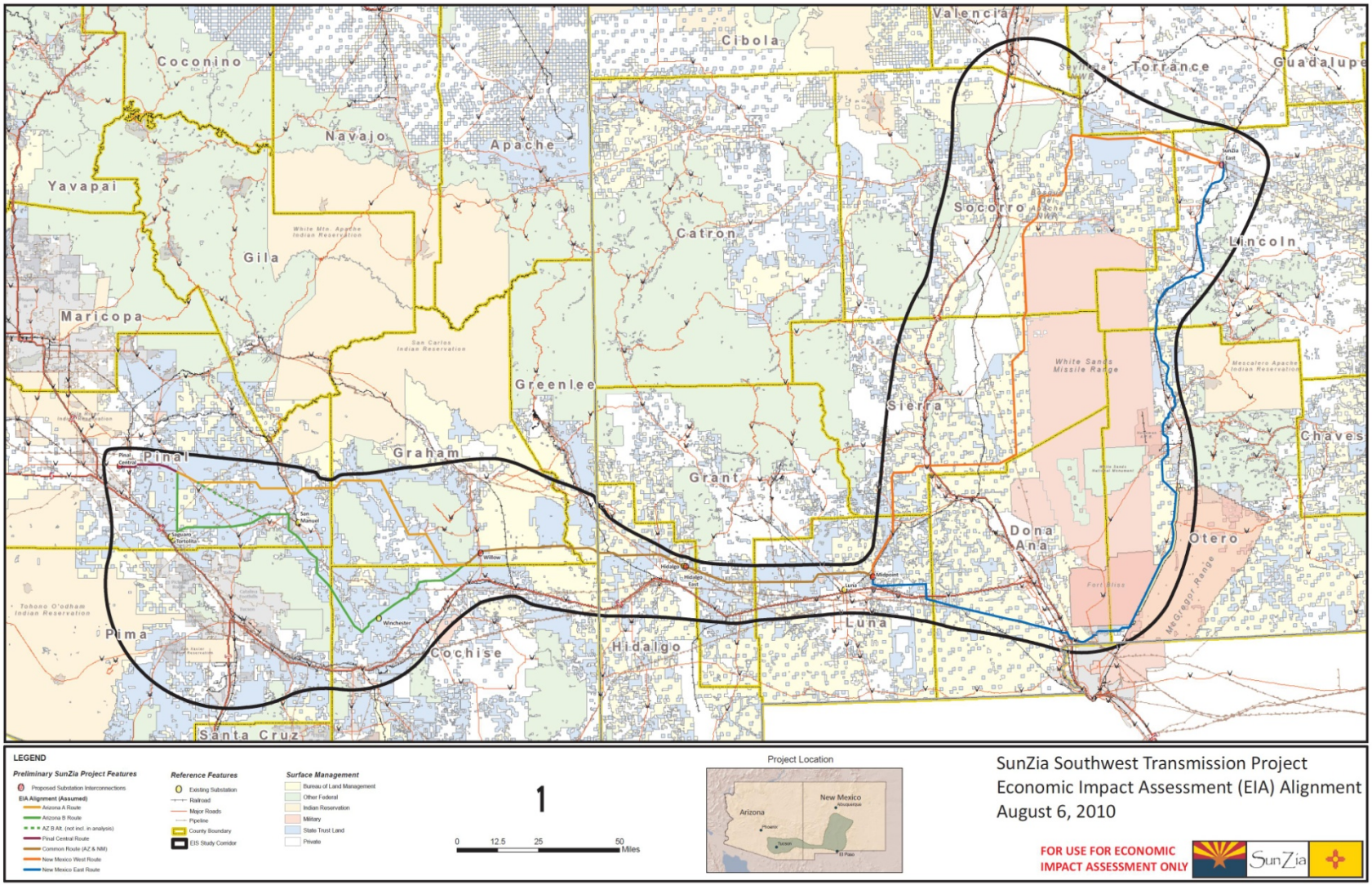
The study area under consideration in the EIS process is shown in the following map (Figure 1.2.1) and encompasses southeast Arizona and southwest New Mexico. It consists of Cochise, Graham, Greenlee, Pima and Pinal counties in Arizona and Doña Ana, Grant, Hidalgo, Lincoln, Luna, Otero, Sierra and Socorro counties in New Mexico.

Because the exact route for the Project has not yet been determined through the EIS process, this EIA considers two reference routes in Arizona and two in New Mexico. In Arizona, the routes are referred to as Routes A and B. In New Mexico, the routes are labeled East and West, referring to which side of the WSMR the lines are located.

1.3 Report Outline

Section 2 of the report describes the socio-economic characteristics of the Project counties. Section 3 discusses the method of analysis used in the report. Section 4 provides the economic impacts of the Project and Section 5 provides the revenue impacts of the Project. Section 6 provides economic and revenue impacts over time. Section 7 provides a short summary of the study.

Figure 1.2.1 SunZia Alignment Map



2. Description and Socio-economic Characteristics of Impacted Counties

Almost all of the counties through which the Project is expected to pass are rural counties. The exceptions are Pima County (Tucson MSA), Pinal County (part of the Phoenix MSA) in Arizona and Doña Ana County (Las Cruces MSA) in New Mexico.

2.1 Land Area and Population

Table 2.1.1 provides basic population data for the SunZia project area. Arizona and New Mexico are similar in total land area (114 and 121 thousand square miles, respectively). Average county size in New Mexico is somewhat smaller than in Arizona, mainly because Arizona has less than half as many counties as New Mexico (15 and 33, respectively). The two counties that are shaded in Table 2.1.1 are *not* part of the SunZia project area. The shaded counties are the most populated county in each state and are included in order to provide a contrast to the impacted counties. The two shaded counties are Maricopa County, the most populated portion of the Phoenix MSA, and Bernalillo County, the most populated portion of the three-county Albuquerque MSA.

Population per county in the SunZia project area ranges from less than 5,000 persons in Hidalgo County, NM, to over one million persons in Pima County, AZ. Most of the affected counties have less than 65,000 persons in them, with the exception of Doña Ana County, NM (Las Cruces MSA); Pinal County, AZ (part of the Phoenix MSA); Pima County, AZ (Tucson MSA) and Cochise County, AZ.

The rural nature of most of the affected counties is apparent in the population density figures (persons per square mile of land area). New Mexico's population density is 16.4 persons per square mile, while Arizona's population density is 57.2. Both are substantially less than the U.S. average of 86.0 persons per square mile. The two counties representing the largest metropolitan areas in the two states, Phoenix and Albuquerque, have well over 400 persons per square mile. The MSA counties of Doña Ana, NM; Pinal, AZ; and Pima, AZ have densities ranging from 53 to 110 persons per square mile. In contrast, the non-MSA counties through which the transmission line will pass have population densities as low as 1.4 persons per square mile (Hidalgo County, NM) to 20.9 persons per square mile (Cochise County, AZ). These are sparsely populated, very rural counties.

Although both Arizona and New Mexico have large expanses of sparsely populated land, the population tends to organize itself in incorporated cities and towns. In the U.S. as a whole, 62.5 percent of the population lives in incorporated cities in towns. In Arizona 80.3 percent, and in New Mexico 91.5 percent, of the population live in incorporated cities and towns. Even in very sparsely populated areas, there is a tendency to create cities and towns to govern themselves. For example, the county with the lowest population density (Hidalgo) has a relatively high percentage (59.6 percent) of its population living in incorporated cities and towns. Reasons for comparatively low population densities and relatively high portions of the population being incorporated include: the fact that a substantial portion of both states are not available for development because the land is owned by either the federal government, the state government, or by Native American tribes; and the geography, known as range and basin, tends to cluster the population in the lower elevations, rather than in the mountain ranges.

Table 2.1.1. Land Area, Population, Density and Percent Incorporated, by County

	Land Area Sq Miles	Population 2008	Percent Change Population 2000-2008	Population Density 2008	Percent Incorporated 2008
U.S.	3,537,438	304,059,724	8%	86	62%
ARIZONA	113,635	6,500,180	27%	57	80%
Maricopa (part of Phoenix MSA)	9,203	3,954,598	27%	430	92%
Cochise	6,169	129,006	10%	21	61%
Graham	4,629	36,452	9%	8	44%
Greenlee	1,847	8,002	-6%	4	38%
Pima	9,186	1,012,018	20%	110	63%
Pinal (part of Phoenix MSA)	5,370	327,301	82%	61	48%
NEW MEXICO	121,356	1,984,356	9%	16	92%
Bernalillo (part of Albuquerque MSA)	1,166	635,139	14%	545	82%
Dona Ana (Las Cruces MSA)	3,807	201,603	15%	53	54%
Grant	3,966	29,844	-4%	8	53%
Hidalgo	3,446	4,910	-17%	1	60%
Lincoln	4,831	20,793	7%	4	69%
Luna	2,965	27,227	9%	9	63%
Otero	6,627	62,776	1%	9	63%
Sierra	4,180	12,437	-6%	3	68%
Soccoro	6,646	18,180	1%	3	54%

Land Area: U.S. Census Bureau, 2000 Census (as found in state and county quickfacts)
Population: U.S. Census Bureau, Cumulative Estimates of Population Change for United States, States and Counties

2.2 Income Levels and Wages

Table 2.2.1 provides information on the levels of per capita personal income and wages per job in the counties through which the transmission line may be constructed.

Per capita personal income (PCPI) levels for the states of Arizona and New Mexico were below that of the nation both in 2000 and 2008. During that time span, New Mexico's PCPI grew nominally faster (47%) than both the nation's (32%) and Arizona's (31%) PCPI. In 2008 Arizona's PCPI was 85.5%, and New Mexico's PCPI was 83.1%, of the national level.

Table 2.2.1. Per Capita Personal Income and Wages Per Job

	Per Capita Personal Income 2000	Per Capita Personal Income 2008	PCPI Percent Change 2000-2008	Wages per Job 2000	Wages per Job 2008	Wage/Job % Change 2000-2008
U.S.	$ 30,318	$ 40,166	32%	$ 35,054	$ 45,807	31%
ARIZONA	$ 26,262	$ 34,339	31%	$ 32,841	$ 43,192	32%
Maricopa (part of Phoenix MSA)	$ 29,571	$ 37,168	26%	$ 35,505	$ 45,538	28%
Cochise	$ 20,123	$ 33,259	65%	$ 27,356	$ 41,787	53%
Graham	$ 14,502	$ 25,029	73%	$ 22,169	$ 34,479	56%
Greenlee	$ 21,476	$ 38,779	81%	$ 36,624	$ 58,130	59%
Pima	$ 24,845	$ 34,058	37%	$ 29,402	$ 40,544	38%
Pinal (part of Phoenix MSA)	$ 17,598	$ 23,985	36%	$ 26,891	$ 38,616	44%
NEW MEXICO	$ 22,751	$ 33,389	47%	$ 28,091	$ 38,680	38%
Bernalillo (part of Albuquerque MSA)	$ 27,753	$ 37,140	34%	$ 30,194	$ 40,931	36%
Dona Ana (Las Cruces MSA)	$ 18,102	$ 27,855	54%	$ 23,685	$ 33,242	40%
Grant	$ 19,553	$ 29,974	53%	$ 23,496	$ 33,276	42%
Hidalgo	$ 16,307	$ 27,182	67%	$ 21,093	$ 34,240	62%
Lincoln	$ 20,204	$ 28,675	42%	$ 20,419	$ 28,022	37%
Luna	$ 14,784	$ 23,682	60%	$ 20,433	$ 31,138	52%
Otero	$ 17,550	$ 25,167	43%	$ 24,567	$ 33,589	37%
Sierra	$ 18,280	$ 26,594	45%	$ 20,231	$ 27,371	35%
Soccoro	$ 15,956	$ 27,157	70%	$ 23,300	$ 31,440	35%

In Arizona, all of the Project counties except Maricopa County (part of the Phoenix MSA) had lower PCPI levels than the state in 2000. By 2008 Greenlee County's PCPI grew fast enough to join Maricopa County in having a higher level of PCPI than the state. Although Greenlee County is a small rural county, it is dominated by the copper mining industry, which explains both the higher PCPI levels and the rapid wage growth rate. From 2000-2008 the PCPI levels in all the counties except Maricopa grew faster than the overall state levels.

In New Mexico, all project counties had lower PCPI levels than the state, and some considerably lower. Note that Bernalillo County is used as a reference and includes Albuquerque. Four of the

counties in New Mexico had growth rates from 2000-2008 in PCPI levels greater than the state and four counties had lower growth rates.

Wages per job are generally similar to the levels of per capita personal income in the two states and counties. Wages per job in Arizona both in 2000 and 2008 were about 94% of the wages per job at the national level. The growth in the levels of wages per job from 2000-2008 was also very similar with Arizona having a growth rate of 32% and the nation having a growth rate of 31%. The level of wages per job for New Mexico was considerably lower than the national level. In 2000 New Mexico's wages per job were only 80% of the national level. The growth rate for New Mexico was higher than the national average (38%) resulting in a wages per job of 84% of the national level in 2008.

In 2000, only two of the Project counties in Arizona had a higher level of wages per job than the state. Those two counties were Maricopa and Greenlee. That same pattern remained in effect for 2008. All counties except Maricopa had a higher growth rate in wages per job than the state.

In New Mexico, no county in the study area had a wages per job level greater than the state in 2000 and 2008. Growth rates in wages per job from 2000-2008 for the counties ranged from 35% to 62%.

2.3 Labor Force, Employment and Unemployment Rates

Table 2.3.1 provides data on the size of the labor force and employment in the U.S., Arizona, New Mexico and the counties affected by the Project. Both Arizona and New Mexico have had increases in labor force and employment larger than the nation as a whole. These differences may be even larger given that the 2009 numbers reflect the downturn in the economy which started in 2008. The effect of the downturn is also reflected in the fact that the change in employment is smaller than the change in the labor force.

The two counties in Arizona that have had a larger increase in employment and labor force than the state are Maricopa and Pinal (both part of the Phoenix MSA). Greenlee County stands out as the one county in Arizona that has had an increase in labor force but a decrease in employment.

In New Mexico, the counties with smaller populations and no large incorporated areas have had the smallest increase in labor force and employment. One county (Grant) has seen a decrease in labor force over the period 2000 to 2009.

Table 2.3.2 provides data on the unemployment rates for the states and counties affected by the Project for years 2000 through 2009. In 2000 both Arizona and New Mexico had the same unemployment rate as the nation. In 2009, even though all the rates are higher, Arizona and New Mexico had lower rates than the nation.

It is the case that the rural, more sparsely populated counties of Arizona and New Mexico have higher unemployment rates. Graham and Greenlee counties stand out in Arizona and Grant and Luna counties stand out in New Mexico.

Table 2.3.1. Labor Force and Employment

	2000		2009		2000-2009	
	Labor Force	Employment	Labor Force	Employment	% Change Labor Force	% Change Employment
U.S.	142,583,000	136,891,000	154,142,000	139,877,000	8.1%	2.2%
ARIZONA	2,505,306	2,404,916	3,142,641	2,858,197	25.4%	18.8%
Maricopa (part of Phoenix MSA)	1,595,269	1,542,765	1,978,900	1,815,002	24.0%	17.6%
Cochise	48,549	46,353	63,229	58,580	30.2%	26.4%
Graham	12,253	11,577	15,207	13,083	24.1%	13.0%
Greenlee	3,914	3,747	4,408	3,641	12.6%	-2.8%
Pima	408,961	393,716	489,221	448,685	19.6%	14.0%
Pinal (part of Phoenix MSA)	69,508	66,294	124,426	110,264	79.0%	66.3%
NEW MEXICO	852,293	810,024	955,904	887,358	12.2%	9.5%
Bernalillo (part of Albuquerque MSA)	289,826	278,177	315,392	292,867	8.8%	5.3%
Dona Ana (Las Cruces MSA)	76,425	71,730	90,937	84,566	19.0%	17.9%
Grant	12,870	12,121	11,997	10,537	-6.8%	-13.1%
Hidalgo	2,649	2,468	2,914	2,694	10.0%	9.2%
Lincoln	9,668	9,258	11,255	10,639	16.4%	14.9%
Luna	10,820	9,141	12,904	10,778	19.3%	17.9%
Otero	24,383	23,083	26,369	24,681	8.1%	6.9%
Sierra	5,275	5,041	6,137	5,807	16.3%	15.2%
Socorro	7,976	7,573	9,635	9,149	20.8%	20.8%

Table 2.3.2 Unemployment Rates, by County

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
U.S.	4.0%	4.7%	5.8%	6.0%	5.5%	5.1%	4.6%	4.6%	5.8%	9.3%
ARIZONA	4.0%	4.7%	6.0%	5.7%	5.0%	4.7%	4.2%	3.9%	5.9%	9.1%
Maricopa (part of Phoenix MSA)	3.3%	4.2%	5.6%	5.2%	4.4%	4.0%	3.5%	3.3%	5.1%	8.3%
Cochise	4.5%	4.9%	5.8%	5.6%	4.9%	4.8%	4.5%	4.1%	5.6%	7.4%
Graham	5.5%	6.4%	7.6%	6.9%	6.6%	6.0%	5.0%	4.4%	6.8%	14.0%
Greenlee	4.3%	7.2%	7.5%	6.9%	5.1%	4.8%	3.7%	3.3%	5.1%	17.4%
Pima	3.7%	4.3%	5.7%	5.3%	4.6%	4.5%	4.0%	3.8%	5.6%	8.3%
Pinal (part of Phoenix MSA)	4.6%	5.4%	7.3%	7.0%	6.0%	5.6%	5.0%	4.6%	7.1%	11.4%
NEW MEXICO	5.0%	4.9%	5.5%	5.9%	5.8%	5.2%	4.1%	3.5%	4.5%	7.2%
Bernalillo (part of Albuquerque MSA)	4.0%	4.2%	4.9%	5.3%	5.2%	4.7%	3.8%	3.3%	4.4%	7.1%
Dona Ana (Las Cruces MSA)	6.1%	6.1%	6.3%	6.6%	6.4%	5.7%	4.6%	3.9%	4.8%	7.0%
Grant	5.8%	6.3%	9.9%	10.3%	8.7%	6.0%	4.2%	3.6%	5.0%	12.2%
Hidalgo	6.8%	6.0%	4.4%	5.1%	6.0%	4.8%	3.4%	2.7%	4.2%	7.5%
Lincoln	4.2%	4.2%	4.0%	4.3%	4.4%	4.5%	3.9%	2.9%	3.6%	5.5%
Luna	15.5%	16.5%	14.7%	15.9%	15.8%	12.8%	10.6%	9.4%	11.9%	16.5%
Otero	5.3%	5.4%	5.7%	6.1%	5.3%	5.0%	4.2%	3.5%	4.4%	6.4%
Sierra	4.4%	4.8%	5.4%	5.7%	5.9%	5.4%	4.4%	3.3%	4.1%	5.4%
Soccoro	5.1%	5.3%	5.1%	5.1%	5.0%	4.5%	3.7%	3.0%	3.6%	5.0%

2.4 Economic Drivers of the Study Area Counties

Except for the diversified MSA counties of Pima in Arizona and Doña Ana in New Mexico, most of the economies of the affected counties are driven by land-related economic activities, such as agriculture and related industries, tourism, mining, utilities or by the presence of state or federal government activities.

Agriculture and related industries are important sectors in all of the study area counties except for Pima County in Arizona. Transportation and warehousing is often connected to the agricultural sector because of the need for cold storage and timely transport. Also connected to the land are the forestry, fishing and related industries (which include agricultural support).

Both Arizona and New Mexico rely on the tourism industry, but it is more important in some counties than others. Counties that contain National Forests, National and State Parks, or specific areas of interest have strong tourism activity. Counties that have interstate highways running through them get substantial numbers of visitors. Frequently, when tourism is an important economic driver, the industries most affected are arts and entertainment, retail trade, and accommodation and food services.

Mining is a key driving industry in Graham and Greenlee County in Arizona, but is also present in other counties. Utilities are export-base industries for a few counties.

The military is also an important industry in some counties and is usually accompanied by strong federal civilian employment. Federal civilian employment is also related to land management in counties with substantial federal forests. Relatively high levels of federal civilian employees also occur in larger urban areas, where federal facilities, such as the justice department and federal courts, are concentrated. (There is a detailed analysis of the industries that drive the economies of each of the impacted counties in Appendix A.)

2.5 Conclusion

Most of the counties in both Arizona and New Mexico that will be impacted by the construction of the transmission lines and substations tend to be very rural (with low population densities) and tend to have lower per capita incomes and lower wages than other counties in these states. Unemployment rates in approximately half of these counties are substantially higher, and in some instances much higher, than either of their respective states as a whole.

Most of the counties through which the SunZia transmission lines may pass rely on industries that are related either to land endowments or are related to federal military/defense installations. Both the construction of the transmission lines and substations and their operations and maintenance requirements may provide important new employment opportunities in the impacted counties.

3. Methods of Impact Analysis

Economic impact analysis is an attempt to measure the net overall change in economic activity in a given geographic area that results from a change in economic activity in that area. Often, the change in economic activity refers to new spending or employment associated with a new business or a business expansion. The same general techniques can be used to assess a contraction of economic activity such as the closure of a military base or an industrial plant. The main idea behind economic impact analysis is that a new dollar spent in a local area results in more than one dollar in economic activity in the area.

3.1 Types of Models

Commonly used modeling systems to perform economic impact analysis are: RIMS II, REMI, and IMPLAN. All three modeling systems are based on the national input-output model produced by the Bureau of Economic Analysis (BEA). The national model is scaled to state and county areas by the providers of the models. The three main regional models differ in their approach to scaling the national model, the number and type of variables included, and in the software provided.

The RIMS II (regional input-output modeling system) system is produced by the U.S. Department of Commerce, Bureau of Economic Analysis (http://www.bea.gov/regional/rims/index.cfm). The REMI models are privately produced and customized to user specified geography by REMI (Regional Economic Models), Inc. http://www.remi.com/). The IMPLAN model was originally developed for the U.S. Forest Service but for many years it has been maintained and sold by the Minnesota Implan Group, Inc. (http://www.implan.com/).

The model used to produce the estimates in this report is IMPLAN PRO Version 3 with 2009 data and structural matrices.

3.2 Measurement of Economic Impacts

Economic impacts are generally measured in terms of changes in total sales (or output), state product (or value added), labor income, and employment (or jobs).

Total sales (or output) is measured in dollars and corresponds to gross sales (includes both final and intermediate goods and services). Intermediate goods and services are used to produce other goods and services.

State Product (or value added) excludes intermediate goods and services. Total sales (or output) counts some production more than once while value added does not. Value added can be thought of as the local or regional counterpart to Gross Domestic Product (GDP).

Labor income, also measured in dollars, consists of wages and salaries including benefits and proprietors income.

Note that labor income, state product and total sales are *not* additive. Rather, labor income is the major component of the state product figure, and, in turn, state product is contained in total sales.

Employment is measured in terms of numbers of job-years. Thus, three jobs could refer to three people working one year or one person working for three years. Jobs refer to both full and part-time employment, not full-time equivalent positions.

In many impact studies, including this one, estimates of changes in federal, state and local taxes as a result of the new economic activity are also presented.

3.3 Types of Impacts

In most economic impact studies, three types of impacts are estimated: direct, indirect and induced.

Direct effects are the initial changes determined to be a result of the activity under study. In the present context, direct effects of construction spending on the Project are the jobs, income and sales directly associated with that construction spending. In the impact tables, direct effects are divided into those associated with labor expenditures (estimated numbers of construction workers, expected labor costs, etc.) and those associated with other construction expenditures (the result of purchases of equipment and materials).

Indirect effects are the impact of local industries buying goods and services from other local industries. These effects are the result of inter-industry linkage. The cycle of local spending works its way backward through the supply chain until all money leaks from the local economy. Money leaks from the local economy at each round. The sum of all the cycles of inter-industry spending represents the indirect effects. Indirect effects are larger for states and for large diversified counties than for counties with smaller economies. This is because the leakage from the area can be quite large at each round of the cycle for small economies, as fewer required intermediary goods are available locally and must be imported.

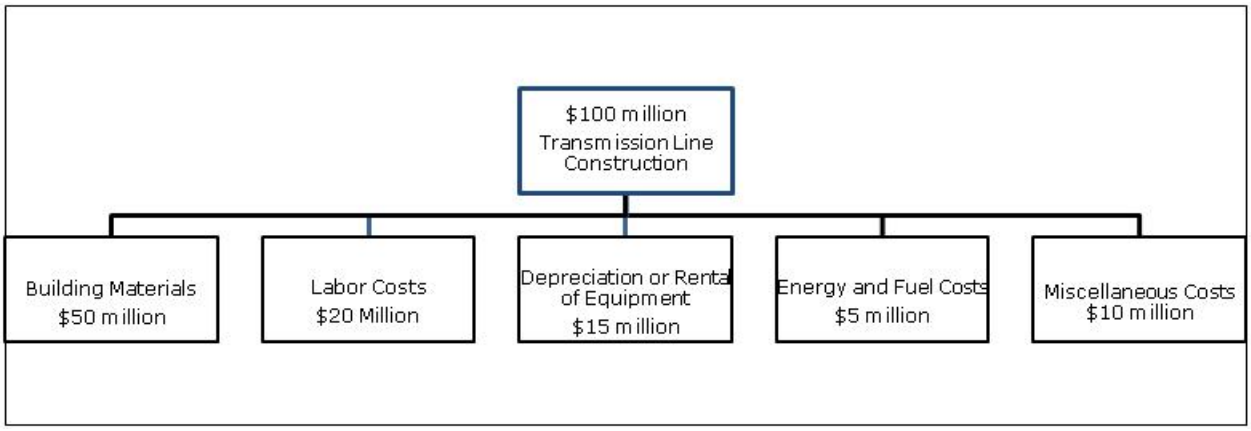
Induced effects measure the response by an economy as income is received and spent locally. Employees in both the direct and indirect sectors spend money locally. The IMPLAN model recognizes that the labor income earned is not a leakage from the regional economy; rather, the money is re-circulated through the local economy causing further local economic activity.

3.4 Hypothetical Example

A hypothetical example of each type of impact can be shown by considering what happens when a new transmission line is constructed. In this example, the construction phase of a hypothetical new line having a cost of $100 million is considered. It is assumed that the $100 million investment in the line is from outside the local area.

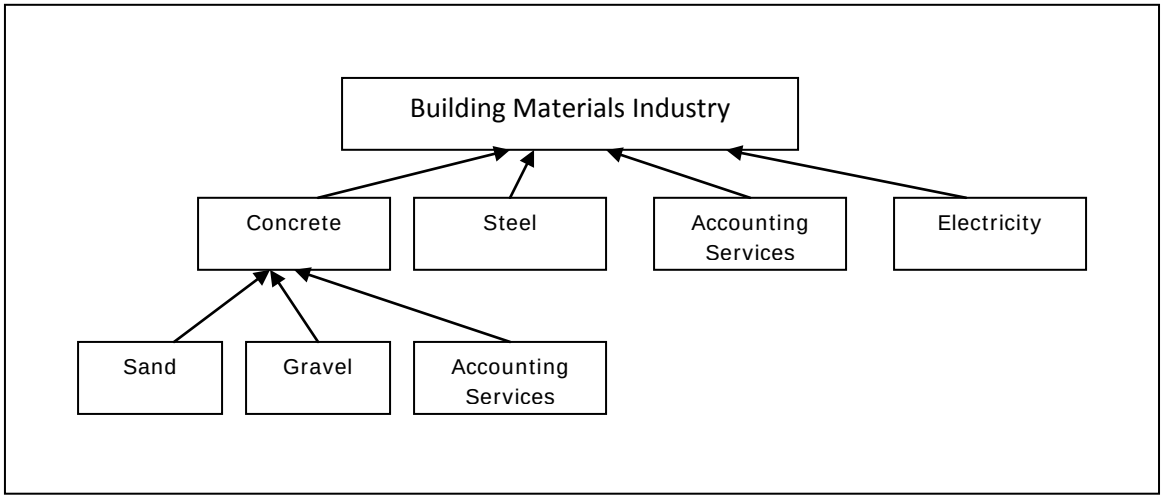
The direct effect on output of the new line is the $100 million that will be spent on construction. The $100 million spent on construction can be placed into several categories as illustrated in Figure 3.4.1. In this highly simplified diagram, the expenditures in the five categories sum to the total cost (new spending) of the line.

Figure 3.4.1 Direct Effects Illustrated



The process, however, is far from complete. Consider, for example, the $50 million in materials supplied by the building materials industry for to the construction of the new transmission line. In order to supply these direct inputs, the building materials industry purchases many additional inputs. Some of these inputs are obvious and include such items as concrete, steel, and other materials. Some of the inputs are not so obvious. The building materials industry may also purchase accounting services, consume electricity, and expand its storage facilities in order to get the job done. These inputs purchased by the building materials industry will, in turn, generate additional expenditures by the firms or industries that supplied them. This process is illustrated in Figure 3.4.2 below. The combined expenditures are known as indirect effects.

Figure 3.4.2 Indirect Effects Illustrated



Finally, additional spending by households will be generated because workers on the new transmission line receive wage and salary income. The additional household spending is known as an induced effect.

3.5 Important Basic Concepts

There are three basic concepts in input-output analysis. First, a new dollar of spending (the direct effect) in a given area will generate more than a single dollar's worth of new economic activity in that area. Second, all industries purchase inputs from other industries (the indirect effects). Third, households will spend additional income generated from the new economic activity (induced effects).

There are three main areas of concern in estimating local economic impacts. First, the new spending must, in fact, be new to the geographic area being considered. In the example above, the $100 million investment in the transmission line is assumed to be from outside the area. Second, the size of the local economy matters. To the extent that the direct inputs are imported from other areas, new spending doesn't do much for the local economy. In general, the smaller the local economy under consideration, the more likely it is for firms operating locally to obtain inputs from outside the area. Third, supply constraints in the local economy are important. All three areas of concern will be addressed appropriately in the discussion of results.

Given knowledge of a pattern of new spending, the direct, indirect, and induced effects of that spending can be computed using input-output models (and occasionally other techniques). Most economic impact studies relate to the concept of multipliers. A multiplier reflects the idea that a new dollar of spending in an economy generates more than a dollar's worth of economic activity. The multipliers used in economic impact studies are industry specific. That is, there is no single multiplier for all industries. The multipliers are also specific to a particular geographic area (county, state, or nation) and reflect the structure of the economy of that area. Multipliers can be calculated for a variety of economic variables such as output, income, or employment.

Multipliers are almost always larger for larger economies than for smaller economies. In this context, "larger" does not refer to the size of the geographic area or population; instead, "larger" refers to the size and diversity of the economic sectors in an area. Larger economies are more likely to produce the wide range of inputs needed by industries. That is, larger economies tend to be more self-sufficient in the production of inputs, while smaller economies tend to import a greater share of their inputs.

Appendix B describes the essential features of input-output models and multipliers and how they are used in economic impact analysis in a reasonably non-technical fashion.

4. Economic Impact Estimates

The purpose of this section is to estimate the impact of the construction of a the Project spanning the distance from a location in the middle of Pinal County, Arizona, east through southern New Mexico to a point in northern Lincoln County, just south of Corona, NM. Given the EIA reference routes considered below, the total distance covered will be either 171 or 201 miles within Arizona and either 342 or 345 miles in New Mexico. In addition, estimates of the impacts of proposed substations and of operations and maintenance will be provided.

4.1 Scenarios to be Analyzed

The exact makeup of the transmission project has yet to be determined. The scenarios considered are as follows. Scenario 1 consists of one alternating current (AC) transmission line. Scenario 2 consists of two AC transmission lines running parallel to each other. Scenario 3 consists of two transmission lines running parallel to each other, the first being an AC line and the second being a direct current (DC) line.

The impacts of the following three scenarios are presented:

Scenario 1: The construction of a single AC transmission line and five associated substations
Scenario 2: The construction of two parallel AC transmission lines.
Scenario 3: The construction of two parallel transmission lines, one AC and one DC.

These three scenarios are assessed for the construction of the transmission lines and for the potential substations proposed and, later, for the operations and maintenance of the lines and substations.

The exact route of the Project has also not yet been determined. For this EIA, we have assessed two reference routes in Arizona and two in New Mexico. In Arizona, the reference routes are referred to as Routes A and B. In New Mexico, the routes are referred to as East and West, which refer to which side of the White Sands Missile Range the transmission line(s) are built. Thus, Scenarios 1, 2 and 3 are assessed for Routes A and B in Arizona and for the East and West routes in New Mexico.

Data for this analysis was provided by the Project Manager, SunZia Southwest LLC and its consultants, PDS Consulting, Power Engineers, Loria Emerging Energy Consultants, William B. Hitchcock & Associates, and Thomson Property Tax Services on behalf of the Project. SunZia Southwest provided construction costs for the lines and substations by county. The costs were broken down by expenditure category (i.e., labor, materials, etc.) and an estimate of the percentage of each category spent within the county and within the state was provided.

The estimated impacts presented below are for the entire construction period, not for a given year of construction. Year by year impacts are presented later in the report on a projected time-line. All of the cost data used in this analysis and all estimated dollar impacts in this study are expressed in (2010) millions of dollars.

The direct jobs impact includes all construction workers projected to be on the site. It is expected that approximately ten percent of all construction workers, on average, will be hired locally in all counties through subcontracts and an additional twenty percent of workers will be hired within the state but from outside the county in which the work is done.

The direct labor income impact includes all income of all construction workers projected to be on the site. It is assumed that the locally-hired workers spend their income in a pattern similar to other local residents. In-state hires are assumed to spend 40 percent of their income in-county and the rest elsewhere in the state. Imported (non-local) workers are assumed to spend 40 percent of their income in the county in which they are working and living and an additional 40 percent of their income elsewhere in the state and 20 percent is spent out of state. In addition to their payroll, all workers, both local and non-local receive per diem living expenses, which is 15 percent of total labor income. This is assumed to be spent on lodging, food, restaurants, entertainment, and fuel.

Direct state product and direct total sales for the labor expenditures portion of direct expenditures are equal to direct labor income.

The economic impacts of the Project are presented in three parts: Line Construction, Substation Construction and Operations & Maintenance.

4.2 Line Construction Impacts, by Scenario and by State

Scenario 1: The first scenario analyzed is the construction of one 500 kV AC line. The total cost of the line portion of the Project is estimated to be between $604 million and $648 million dollars, depending on the route. The average cost per mile is approximately $1.2 million.

The following Table 4.2.1 contains the estimated economic impacts at the state level of the construction of the transmission line for Scenario 1 for the two reference routes in Arizona and the two in New Mexico.

For each route, the number of direct jobs generated from spending on construction labor is listed in the column labeled Direct Effect, Labor Expenditure. The direct jobs generated from the spending on materials etc., is listed under the column labeled Direct Effect, Other Expenditures. The column labeled Indirect Effect lists the number of jobs generated as the businesses listed in

the direct effect buy goods and services from other businesses. And the column labeled Induced Effects calculates the jobs generated as workers spend the income they receive on goods and services.

Table 4.2.1. Economic Impact of Line Construction, by State, Scenario 1

State/ Route	Line Miles in State	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Arizona Route							
Route A	**171**	Employment (# of jobs)	253	231	96	451	**1,032**
		Labor Income (2010 $Mil)	$ 30.4	$ 13.0	$ 4.5	$ 19.4	**$ 67.4**
		State Product (2010 $Mil)	$ 30.4	$ 17.4	$ 7.4	$ 33.1	**$ 88.3**
		Total Sales (2010 $Mil)	$ 30.4	$ 30.3	$ 12.2	$ 51.9	**$ 124.8**
Route B	**201**	Employment (# of jobs)	318	280	111	546	**1,255**
		Labor Income (2010 $Mil)	$ 38.2	$ 15.0	$ 5.2	$ 23.6	**$ 82.0**
		State Product (2010 $Mil)	$ 38.2	$ 20.3	$ 8.5	$ 40.2	**$ 107.1**
		Total Sales (2010 $Mil)	$ 38.2	$ 35.2	$ 14.1	$ 63.0	**$ 150.5**
New Mexico Route							
East	**345**	Employment (# of jobs)	565	492	150	571	**1,778**
		Labor Income (2010 $Mil)	$ 67.8	$ 22.4	$ 5.9	$ 19.9	**$ 116.1**
		State Product (2010 $Mil)	$ 67.8	$ 30.3	$ 9.3	$ 36.3	**$ 143.7**
		Total Sales (2010 $Mil)	$ 67.8	$ 55.9	$ 16.1	$ 60.1	**$ 199.9**
West	**342**	Employment (# of jobs)	566	410	150	571	**1,696**
		Labor Income (2010 $Mil)	$ 67.9	$ 22.4	$ 5.9	$ 19.9	**$ 116.1**
		State Product (2010 $Mil)	$ 67.9	$ 30.3	$ 9.3	$ 36.3	**$ 143.7**
		Total Sales (2010 $Mil)	$ 67.9	$ 55.9	$ 16.0	$ 60.1	**$ 199.8**

The results for labor income, state product and total sales correspond to the same type of interpretation. The total effect is the sum of the direct, indirect and induced effects.

For Scenario 1, the total impact of construction of Route A in Arizona is a generation of 1,032 job-years, labor income of $67.4 million, state product of $88.3 million and total sales of $128.4 million. The difference between route impacts is related to the total miles of line that are built in each of the routes.

Similarly for Scenario 1, the total impact of construction of the East Route in New Mexico is a generation of 1,778 job-years, labor income of $116.1 million, state product of $143.7 million and total sales of $199.9 million.

Appendix C includes tables that provide county impacts resulting from the expenditures made in that county. As noted earlier the impacts for the counties do not sum to the impact for the state. State multipliers are larger than county multipliers.

Scenario 2: The second scenario analyzed is the construction of two AC lines running parallel to each other. The total cost of the line portion of the Project is estimated to be between $1,176 million and $1,261 million dollars depending on the route. The average cost per mile for the two lines is approximately $2.3 million.

The following table contains the estimated economic impacts at the state level of the construction of the transmission line for Scenario 2 and for the two reference routes in Arizona and the two in New Mexico.

Table 4.2.2. Economic Impact of Line Construction, by State, Scenario 2

State/ Route	Line Miles in State	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Arizona Route							
Route A	**171**	Employment (# of jobs)	488	450	187	872	**1,997**
		Labor Income (2010 $Mil)	$ 58.6	$ 25.4	$ 8.8	$ 37.6	**$ 130.4**
		State Product (2010 $Mil)	$ 58.6	$ 33.9	$ 14.4	$ 64.1	**$ 171.0**
		Total Sales (2010 $Mil)	$ 58.6	$ 59.0	$ 23.7	$ 100.5	**$ 241.8**
Route B	**201**	Employment (# of jobs)	615	546	216	1,060	**2,437**
		Labor Income (2010 $Mil)	$ 73.8	$ 29.3	$ 10.2	$ 45.7	**$ 159.0**
		State Product (2010 $Mil)	$ 73.8	$ 39.5	$ 16.6	$ 77.9	**$ 207.9**
		Total Sales (2010 $Mil)	$ 73.8	$ 68.8	$ 27.5	$ 122.2	**$ 292.3**
New Mexico Route							
East	**345**	Employment (# of jobs)	1,094	959	293	1,108	**3,455**
		Labor Income (2010 $Mil)	$ 131.3	$ 43.8	$ 11.6	$ 38.6	**$ 225.3**
		State Product (2010 $Mil)	$ 131.3	$ 59.1	$ 18.2	$ 70.4	**$ 279.0**
		Total Sales (2010 $Mil)	$ 131.3	$ 109.4	$ 31.4	$ 116.6	**$ 388.7**
West	**342**	Employment (# of jobs)	1,095	799	293	1,108	**3,294**
		Labor Income (2010 $Mil)	$ 131.4	$ 43.7	$ 11.6	$ 38.6	**$ 225.2**
		State Product (2010 $Mil)	$ 131.4	$ 59.0	$ 18.1	$ 70.4	**$ 279.0**
		Total Sales (2010 $Mil)	$ 131.4	$ 109.2	$ 31.4	$ 116.6	**$ 388.5**

The interpretations of these results are the same as those for Scenario 1. The impacts are just less than double the impacts of Scenario 1 because the expenditures are just less than double the expenditures of Scenario 1.

The impacts for each of the counties for Scenario 2 are also reported in Appendix C.

Scenario 3: The third scenario analyzed is the construction of one AC line and one DC line running parallel to each other. The total cost of the line portion of the Project is estimated to be between $1,123 million and $1,193 million dollars depending on the route. The average cost per mile for the two lines is approximately $2.2 million. The cost of the DC line is less than the cost of the second AC line.

The following table contains the estimated economic impacts at the state level of the construction of the transmission line for Scenario 3 for the two reference routes in Arizona and the two in New Mexico.

Table 4.2.3. Economic Impact of Line Construction, by State, Scenario 3

State/ Route	Line Miles in State	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Arizona Route							
Route A	**171**	Employment (# of jobs)	559	461	185	941	**2,146**
		Labor Income (2010 $Mil)	$ 67.0	$ 25.2	$ 8.7	$ 40.6	**$ 141.6**
		State Product (2010 $Mil)	$ 67.0	$ 34.0	$ 14.3	$ 69.2	**$ 184.5**
		Total Sales (2010 $Mil)	$ 67.0	$ 58.9	$ 23.5	$ 108.6	**$ 258.1**
Route B	**201**	Employment (# of jobs)	682	546	209	1,117	**2,554**
		Labor Income (2010 $Mil)	$ 81.8	$ 28.6	$ 9.9	$ 48.2	**$ 168.5**
		State Product (2010 $Mil)	$ 81.8	$ 38.9	$ 16.2	$ 82.2	**$ 219.0**
		Total Sales (2010 $Mil)	$ 81.8	$ 67.3	$ 26.7	$ 128.9	**$ 304.8**
New Mexico Route							
East	**345**	Employment (# of jobs)	1,193	1,009	307	1,192	**3,701**
		Labor Income (2010 $Mil)	$ 143.2	$ 45.8	$ 12.1	$ 41.5	**$ 242.6**
		State Product (2010 $Mil)	$ 143.2	$ 61.8	$ 19.0	$ 75.8	**$ 299.7**
		Total Sales (2010 $Mil)	$ 143.2	$ 113.7	$ 32.7	$ 125.4	**$ 415.1**
West	**342**	Employment (# of jobs)	1,196	802	288	1,169	**3,454**
		Labor Income (2010 $Mil)	$ 143.5	$ 42.9	$ 11.3	$ 40.7	**$ 238.4**
		State Product (2010 $Mil)	$ 143.5	$ 58.3	$ 17.8	$ 74.3	**$ 293.9**
		Total Sales (2010 $Mil)	$ 143.5	$ 107.6	$ 30.8	$ 123.0	**$ 404.9**

The interpretations of these results are the same as those for Scenario 1 and 2. The impacts are less than the impacts of Scenario 2 because the expenditures are less for an additional DC than the expenditures for the additional AC line. County impacts are included in Appendix C.

4.3 Substation Construction Impacts, by Scenario and by State

The following tables present the substation construction impacts, by scenario and by state that are proposed to be constructed along the route. Two substations are proposed in Arizona, one in Graham County and one in Pinal County. Three substations are proposed in New Mexico, one in Lincoln County and one potentially in Hidalgo and Luna counties. Estimates of the impacts at the county level are included in Appendix C.

County impacts vary substantially across substations for several reasons. Some substation construction projects are modifications of existing substations, while other substations are new. In addition, the engineering requirements for substations differ, depending on their location.

Assuming that 5 substations are built, the total cost of the substation portion of the Project is estimated to be $221.6 million (Scenario 1), $299.3 million (Scenario 2) or $1,413.9 million (Scenario 3).

Table 4.3.1. Economic Impact of Substation Construction, by State, Scenario 1

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona					
Employment (# of Jobs)	45	35	12	68	**160**
Labor Income (2010 $Mil)	$ 6.7	$ 1.5	$ 0.6	$ 3.0	**$ 11.8**
State Product (2010 $Mil)	$ 6.7	$ 2.2	$ 1.0	$ 5.0	**$ 15.0**
Total Sales (2010 $Mil)	$ 6.7	$ 4.3	$ 1.7	$ 7.9	**$ 20.7**
New Mexico					
Employment (# of Jobs)	266	121	42	141	**570**
Labor Income (2010 $Mil)	$ 31.9	$ 5.6	$ 1.7	$ 4.9	**$ 44.1**
State Product (2010 $Mil)	$ 31.9	$ 8.0	$ 2.7	$ 9.0	**$ 51.5**
Total Sales (2010 $Mil)	$ 31.9	$ 16.6	$ 4.8	$ 14.9	**$ 68.1**

Table 4.3.2. Economic Impact of Substation Construction, by State, Scenario 2

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona					
Employment (# of Jobs)	61	47	17	94	**219**
Labor Income (2010 $Mil)	$ 9.1	$ 2.1	$ 0.8	$ 4.1	**$ 16.1**
State Product (2010 $Mil)	$ 9.1	$ 3.1	$ 1.3	$ 6.9	**$ 20.5**
Total Sales (2010 $Mil)	$ 9.1	$ 5.8	$ 2.3	$ 10.8	**$ 28.1**
New Mexico					
Employment (# of Jobs)	321	147	50	170	**687**
Labor Income (2010 $Mil)	$ 38.5	$ 6.8	$ 2.0	$ 5.9	**$ 53.2**
State Product (2010 $Mil)	$ 38.5	$ 9.6	$ 3.2	$ 10.8	**$ 62.0**
Total Sales (2010 $Mil)	$ 38.5	$ 19.7	$ 5.7	$ 17.8	**$ 81.6**

Table 4.3.3. Economic Impact of Substation Construction, by State, Scenario 3

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona					
Employment (# of Jobs)	85	52	17	119	**273**
Labor Income (2010 $Mil)	$ 12.7	$ 2.2	$ 0.8	$ 5.1	**$ 20.8**
State Product (2010 $Mil)	$ 12.7	$ 3.3	$ 1.4	$ 8.8	**$ 26.1**
Total Sales (2010 $Mil)	$ 12.7	$ 6.0	$ 2.3	$ 13.8	**$ 34.8**
New Mexico					
Employment (# of Jobs)	326	140	46	174	**685**
Labor Income (2010 $Mil)	$ 39.1	$ 6.2	$ 1.9	$ 6.1	**$ 53.2**
State Product (2010 $Mil)	$ 39.1	$ 8.9	$ 2.9	$ 11.1	**$ 62.0**
Total Sales (2010 $Mil)	$ 39.1	$ 18.2	$ 5.2	$ 18.3	**$ 80.9**

4.4 Operations and Maintenance Impacts, by Scenario, and by State

The following tables present the impacts associated with operations and maintenance of the Project. The estimated economic impacts in these tables will occur each and every year after the facilities begin operation. The operations center for the Project is expected to be located in Maricopa County in the Metro-Phoenix area. The maintenance base in Arizona is expected to be in Pima County (in or near Tucson). In New Mexico, the maintenance base is expected to be in Doña Ana County (in or near Las Cruces). County level impacts are included in Appendix C.

The statewide economic impacts are, again, larger than the county impacts. For New Mexico, the statewide impacts reflect intrastate linkages that create impacts in other counties within the state. For Arizona, the statewide impacts are substantially larger than the Pima County impacts because the central management of the lines and substations is expected to be located in Maricopa County (Phoenix). The Arizona impacts include both the Phoenix operations and the maintenance facilities that are expected to be located predominately in Pima County.

Table 4.4.1 Economic Impacts of Operations and Maintenance, by State, Scenario 1

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona					
Employment (# of Jobs)	18	9	3	27	**57**
Labor Income (2010 $ Mils)	$ 2.1	$ 0.3	$ 0.2	$ 1.2	**$ 3.7**
State Product (2010 $ Mils)	$ 2.1	$ 0.9	$ 0.3	$ 2.0	**$ 5.3**
Total Sales (2010 $ Mils)	$ 2.1	$ 1.4	$ 0.5	$ 3.1	**$ 7.1**
New Mexico					
Employment (# of Jobs)	11	5	2	8	**26**
Labor Income (2010 $ Mils)	$ 1.0	$ 0.2	$ 0.1	$ 0.3	**$ 1.6**
State Product (2010 $ Mils)	$ 1.0	$ 0.4	$ 0.1	$ 0.5	**$ 2.1**
Total Sales (2010 $ Mils)	$ 1.0	$ 0.8	$ 0.2	$ 0.9	**$ 2.8**

Table 4.4.2 Economic Impacts of Operations and Maintenance, by State, Scenario 2

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona					
Employment (# of Jobs)	28	13	5	40	**86**
Labor Income (2010 $ Mils)	$ 3.2	$ 0.4	$ 0.2	$ 1.7	**$ 5.6**
State Product (2010 $ Mils)	$ 3.2	$ 1.4	$ 0.4	$ 3.0	**$ 8.0**
Total Sales (2010 $ Mils)	$ 3.2	$ 2.1	$ 0.7	$ 4.6	**$ 10.7**
New Mexico					
Employment (# of Jobs)	17	8	3	13	**40**
Labor Income (2010 $ Mils)	$ 1.5	$ 0.3	$ 0.1	$ 0.4	**$ 2.4**
State Product (2010 $ Mils)	$ 1.5	$ 0.6	$ 0.2	$ 0.8	**$ 3.2**
Total Sales (2010 $ Mils)	$ 1.5	$ 1.2	$ 0.3	$ 1.3	**$ 4.3**

Table 4.4.3 Economic Impacts of Operations and Maintenance, by State, Scenario

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona					
Employment (# of Jobs)	33	14	6	47	**99**
Labor Income (2010 $ Mils)	$ 3.8	$ 0.5	$ 0.3	$ 2.0	**$ 6.6**
State Product (2010 $ Mils)	$ 3.8	$ 1.5	$ 0.5	$ 3.4	**$ 9.2**
Total Sales (2010 $ Mils)	$ 3.8	$ 2.2	$ 0.8	$ 5.4	**$ 12.2**
New Mexico					
Employment (# of Jobs)	21	10	3	16	**50**
Labor Income (2010 $ Mils)	$ 1.9	$ 0.4	$ 0.1	$ 0.5	**$ 3.0**
State Product (2010 $ Mils)	$ 1.9	$ 0.8	$ 0.2	$ 1.0	**$ 3.9**
Total Sales (2010 $ Mils)	$ 1.9	$ 1.4	$ 0.4	$ 1.6	**$ 5.4**

5. Revenue Impact Analysis

State tax revenue will result from the construction and operations of the proposed transmission lines and substations and will also occur because employees whose jobs depend on the new activity earn and spend income locally. This applies to those who work directly on the SunZia Project (including contractor employees during construction) and those workers who earn and spend income as a result of the direct and indirect effects of construction and on-going operations and maintenance.

5.1 Revenues to be Estimated

In New Mexico, these taxes include Gross Receipts Taxes (GRT), Personal Income Taxes, Corporate Income Taxes and a broad category called other taxes. Combined, the GRT (sales tax) and the two income taxes accounted for 77 percent of all New Mexico Tax revenue between 2001 and 2009. Other revenue consists primarily of revenue from the extractive industry taxes (the severance tax, the resources excise tax, the school tax), small revenue sources (i.e., sin taxes) and property taxes. Estimated property taxes paid as a result of the Project are provided. The extractive taxes are not relevant to this discussion, and the other taxes are small as a proportion of all taxes and will not be estimated.

In Arizona, the three largest state revenue sources are the Transaction Privilege Tax (sales), the Individual Income Taxes (referred to as personal income taxes herein) and the Corporate Income Tax. These three taxes comprise 92 percent of all Arizona General Fund tax revenues. There are no state property taxes. Local governments (counties and cities/towns) collect most of their tax dollars from either property taxes (especially counties) or sales taxes (especially cities/towns). Another major source of city and county revenues are state-shared revenues. Arizona state government shares a portion of its sales tax collections with both counties and incorporated cities and towns. In addition, state income tax revenues (both personal and corporate) are shared (with a 2-year lag) with incorporated cities and towns according to population.

All tax revenue estimates presented below are expressed in (2010) millions of dollars and have been estimated based on current tax rates. Two sets of revenues are estimated. The first set of revenues is the direct taxes attributed to the Project itself. The second set of revenues is associated with the income that is generated and spending that occurs because of the Project. This second set of revenues will be referred to as induced taxes.

5.2 Computation of Taxes

Direct taxes are levied on an appropriate portion of the contract value of the Project. It is assumed, because of the size and expertise required, that the Project will be built by an Engineering, Procurement and Construction ("EPC") contractor from a state other than New Mexico or Arizona. For New Mexico, the only direct tax is the gross receipts (sales) tax. For Arizona, the direct tax is the sales tax under the contracting subcategory.

In New Mexico, an out-of-state contractor will pay GRT on the value of goods and services provided in the state. The appropriate GRT rate will be the rate that is applicable at the location where the goods and services are provided. SunZia Southwest provided the authors with estimated costs of line and substation construction and operations and maintenance by county. Since it is impossible to say where in the county the expenditures will be made, and each governmental unit has a different GRT rate, a weighted average GRT rate has been calculated for each county. The weighted average is based on the proportion of total gross receipts received by each entity.

In Arizona, state contractors pay sales taxes on sixty-five percent of the construction contract (net of any exemptions). Arizona excludes labor from the sales tax base so for construction projects the state allows a 35 percent labor exemption. Therefore, net in contracting are multiplied by a factor of 0.65 to get taxable sales. Arizona also has special exemptions for production equipment, which are deducted from the EPC contract value before the 0.65 factor is applied. In the present analysis, all transmission-related equipment and all components used/incorporated into the Project are exempted. These are subtracted from the SunZia-provided cost estimates before the sales taxes are computed. In addition, the out-of-state engineering costs are deducted from the EPC contract taxable sales base.

The induced tax revenue estimates in this report are based on effective tax rates averaged over the 2001 to 2009 period. The main reason for using effective tax rates instead of statutory rates is to avoid the nearly impossible task of estimating deductions and exemptions and tracking small changes in tax law. The effective tax rates used here represent the proportion of labor income actually paid by Arizonans and New Mexicans on average between 2001 and 2009. For a discussion of how the rates were calculated, refer to Appendix D, Revenue Methodology.

5.3 Local Government Receipts

The State of New Mexico collects personal and corporate income taxes and all gross receipt taxes (even those imposed by local entities). Personal and corporate income taxes are retained by the state but the gross receipt tax is a combination of state and local taxes. A portion of the GRT tax revenue collected by the state is then distributed back to local government units according to the locally imposed tax rates. The GRT rate for the state is 5.125%. Each local government entity (cities and counties) has the option to impose local GRT rates. The highest local option increases the total GRT rate to 8.685%. The local option rates adopted vary so that each of the local government entities has a different GRT rate. Since it is difficult to determine where actual spending occurs within a county and the appropriate applied rate varies across counties, GRT revenues have been calculated based on income (see discussion above). When calculating state wide effects, the distribution of revenues between the state and local government entities is assumed to be 60% to the state and 40% to the local government entities. This is a rule of thumb that has been used by the state and the authors of this report when estimating the amount of GRT revenues going to local government entities.

To verify the rule of thumb, an average disbursement rate to local government units for the counties directly affected by the Project was estimated based on 2010 tax accrual (RP-80) and disbursement (RP-500) reports from the New Mexico Taxation and Revenue Department. The calculated disbursement rate of 41% is close to the rule-of-thumb. For state level effects, the disbursement rate of 40% will be used. For those effects attributed to a particular county, the average disbursement rate for all government entities in that county will be used.

In Arizona, the state does not collect all locally-imposed sales taxes. The state is willing to collect sales tax revenues for all local entities but larger cities/towns opt out of the program and collect their own. In Arizona, there are locally imposed city and county taxes. Counties are extremely limited in what and how much sales taxes they can impose. They require special legislation (and sometimes referendums) in order to impose county sales taxes. Major examples include the regional road fund sales taxes imposed by Maricopa, Pima, Pinal and Gila counties. Other county sales taxes include excise taxes, stadium taxes, and jail taxes. All Arizona cities impose their own sales taxes.

In addition to all the locally-imposed sales taxes, the state of Arizona shares portions of the state-imposed sales tax with cities and counties and a portion of the income tax (both personal and corporate). The legislated formulas to compute the sales tax shares are extremely complicated. For example, different portions of each of twenty subcomponents of the state sales tax comprise the distribution base. Then portions of this distribution base are shared to cities and counties. The portion to cities is population based; however, the portion shared to counties is based on a two-part formula related to point of sale and either net assessed value or population, depending on whichever is more advantageous to the county. Since the actual portion of the sales tax shared with cities and counties is extremely stable over time, these portions were used to estimate shared revenues rather than applying the precise formulas (see Appendix D).

5.4 Direct Revenue Estimates for the Construction Phase

The estimated direct and induced revenues are reported separately for the construction phase (transmission lines and substations) and the operations and maintenance phase (once all construction has been completed). Revenue estimates are provided for the three scenarios and the four reference routes, Routes A and B in Arizona and East and West in New Mexico. All revenues in this section are for the entire construction period. The construction phase for Scenario 1 is expected to start in mid-2013 and finish by the end of 2015. Scenarios 2 and 3 call for constructing a second transmission line (either AC or DC) and require additional substation expenditures. The second line is expected to begin construction in mid-2014 and finish by the end of 2016.

Table 5.4.1 contains the direct sales tax revenue to state and local governments during the construction phase in (2010) millions of dollars. In Arizona, total estimated direct revenues to state and local governments associated with the transmission lines are between $6.7 million and $16.3 million in Arizona, depending on the scenario and the route. Scenarios 2 and 3 always produce higher economic and revenue impacts than Scenario 1 because the former represent two transmission lines and latter represents only one. Substation construction generates additional Arizona revenues between $1.4 million and $6.8 million, depending on the scenario.

New Mexico's revenues are substantially higher than Arizona's because more miles of line and more substations are expected to be built in New Mexico. In addition, New Mexico has fewer exemptions from the sales tax base than Arizona. Transmission line construction will generate between $18.3 million and $36.8 million in total state and local revenues, depending on route and scenario. Substation construction generates an additional $8.1 million to $45.0 million to state and local revenues.

Table 5.4.1. Direct Sales Tax Revenue to State and Local Governments, Construction of Lines and Substations

		Scenario 1			Scenario 2			Scenario 3		
		Transmission Line		Sub-stations	Transmission Line		Sub-stations	Transmission Line		Sub-stations
					Arizona (2010 $Mil)					
		Route A	Route B		Route A	Route B		Route A	Route B	
State Sales Tax	State	$ 3.74	$ 4.52	$ 0.77	$ 7.24	$ 8.78	$ 1.12	$ 7.37	$ 8.77	$ 3.55
Shared State Sales Tax	Local	$ 0.87	$ 1.05	$ 0.18	$ 1.68	$ 2.04	$ 0.26	$ 1.71	$ 2.04	$ 0.83
Local Sales Tax	Local	$ 2.15	$ 2.80	$ 0.41	$ 4.16	$ 5.44	$ 0.61	$ 4.11	$ 5.28	$ 2.43
Total		**$ 6.75**	**$ 8.37**	**$ 1.36**	**$ 13.09**	**$ 16.26**	**$ 2.00**	**$ 13.20**	**$ 16.08**	**$ 6.80**
					New Mexico (2010 $Mil)					
		East	West		East	West		East	West	
State Sales Tax	State	$ 10.60	$ 11.14	$ 4.46	$ 20.63	$ 21.70	$ 5.75	$ 19.65	$ 20.49	$ 24.40
Local Salex Tax	Local	$ 8.30	$ 7.17	$ 3.65	$ 16.15	$ 13.96	$ 4.72	$ 15.40	$ 13.22	$ 20.63
Total		**$ 18.90**	**$ 18.32**	**$ 8.11**	**$ 36.79**	**$ 35.66**	**$ 10.47**	**$ 35.05**	**$ 33.70**	**$ 45.04**

The top row of Table 5.4.1 in the Arizona section represents state sales taxes retained by the state. The row labeled Shared State Sales Taxes represents estimates of the portion the state distributes back to cities and counties. Note that all counties and cities receive a share of any new taxable activity in the state. If there is a major project in Cochise County for example, all cities and counties in the state receive a portion of those new revenues. The state is expected to retain between $3.7 million and $8.8 million for the transmission line construction, and between $770,000 and $3.6 million, for substation construction, depending on the scenario and route. Local governments are expected to receive between $870,000 and $2.04 million for the transmission line construction and between $180,000 and $830,000 for substation construction, due to state revenue sharing.

New Mexico does not share state revenues with local government entities; rather, they collect revenues on their behalf. New Mexico's state portion of sales tax generates between $10.6 million and $21.7 million in revenues due to transmission construction and an additional $4.5 million to $24.4 million due to substations, for a total of between $15.1 million and $46.1 million.

Estimated sales taxes to each county (including both county and city entities) are provided in the Local Sales Tax rows. County and city government entities in the affected Arizona counties are expected to receive combined revenues of between $2.15 million and $5.44 million for the transmission lines, depending on the route and scenario. Affected counties can also expect to receive direct revenues from substation construction between $410,000 and $2.4 million, depending on the county and the scenario. Revenue estimates for individual counties are contained in Appendix E.

Local government entities in New Mexico will receive between $7.2 million and $16.2 million due to the construction of transmission lines and between $3.7 million and $20.6 million from the construction of substations, depending on the county, the scenario and route, for a total of between $10.9 million and $36.8 million.

5.5 Induced Revenue Estimates for the Construction Phase

Induced revenues result from the spending by individuals who receive income directly from the construction of the Project and the induced income generated by the Project. Table 5.5.1 provides estimates of revenues generated by state and scenario.

Table 5.5.1. Induced Tax Revenues to State and Local Governments, Construction of Lines and Substations

		Scenario 1			Scenario 2			Scenario 3		
		Transmission Line		Sub-stations	Transmission Lines		Sub-stations	Transmission Lines		Sub-stations
Arizona (2010 $Mil)										
		Route A	Route B		Route A	Route B		Route A	Route B	
State Sales Tax	State	$ 1.69	$ 2.08	$ 0.26	$ 3.29	$ 4.03	$ 0.36	$ 3.56	$ 4.26	$ 0.46
Shared State Sales Tax	Local	$ 0.39	$ 0.48	$ 0.06	$ 0.76	$ 0.94	$ 0.08	$ 0.83	$ 0.99	$ 0.35
Local Sales Tax	Local	$ 1.18	$ 1.46	$ 0.18	$ 2.31	$ 2.83	$ 0.25	$ 2.50	$ 2.99	$ 0.32
Personal Income Tax	State	$ 1.46	$ 1.78	$ 0.26	$ 2.83	$ 3.45	$ 0.35	$ 3.07	$ 3.66	$ 0.45
Corporate Income Tax	State	$ 0.27	$ 0.33	$ 0.04	$ 0.52	$ 0.64	$ 0.06	$ 0.57	$ 0.67	$ 0.07
Shared Income Tax	Cities	$ 0.22	$ 0.27	$ 0.04	$ 0.43	$ 0.52	$ 0.05	$ 0.46	$ 0.55	$ 0.07
Total		**$ 5.22**	**$ 6.40**	**$ 0.84**	**$ 10.14**	**$ 12.41**	**$ 1.15**	**$ 10.99**	**$ 13.12**	**$ 1.72**
New Mexico (2010 $Mil)										
		East	West		East	West		East	West	
State Sales Tax	State	$ 3.10	$ 3.10	$ 0.99	$ 6.01	$ 6.01	$ 1.20	$ 6.47	$ 6.35	$ 1.19
Local Sales Tax	Local	$ 2.06	$ 2.06	$ 0.66	$ 4.01	$ 4.01	$ 0.80	$ 4.31	$ 4.23	$ 0.79
Personal Income Tax	State	$ 2.56	$ 2.56	$ 0.98	$ 4.98	$ 4.98	$ 1.18	$ 5.36	$ 5.27	$ 1.18
Corporate Income Tax	State	$ 0.54	$ 0.54	$ 0.17	$ 1.05	$ 1.05	$ 0.21	$ 1.13	$ 1.11	$ 0.21
Total		**$ 8.27**	**$ 8.27**	**$ 2.80**	**$ 16.05**	**$ 16.04**	**$ 3.38**	**$ 17.27**	**$ 16.95**	**$ 3.37**

Induced revenues generated by workers who earn and spend their income are provided in Table 5.5.1. These induced revenues, generated during the construction phase, include state sales tax, local sales tax, personal income tax and corporate income tax collections. For Arizona, induced revenues also include the portion of the state sales tax shared with local governments and the portion of the state income taxes shared with cities.

Total Induced revenues for transmission line construction in Arizona range between $5.22 million and $13.12 million and between $0.84 million and $1.72 million for substation construction. Figures for New Mexico are similar, ranging from $8.27 million to $17.27 million for transmission lines and $2.80 million to $3.38 million for substations.

5.6 Revenue Estimates for the Operations and Maintenance Phase

Both direct and induced revenues are estimated for the operations phase. The direct revenues are the sales taxes paid during the operations phase. Induced revenues are generated by workers employed to operate and maintain the facilities, as well as by workers that are indirectly connected to the operations and maintenance, as they earn and spend their incomes.

SunZia expects that a major portion of its operations will be located in Maricopa County (Phoenix area). These include company administration, as well as centralized line and substation operations. Transmission line and substation maintenance works are assumed to be centered in Doña Ana County (Las Cruces) for the New Mexico facilities and in Pima County (Tucson) for Arizona's facilities. Unlike the construction impacts above which occur only during the construction phase, the operations and maintenance impacts will accrue each and every year once construction is completed.

Table 5.6.1. Direct Sales Tax Revenue to State and Local Governments, Operations and Maintenance

		Scenario 1	Scenario 2	Scenario 3
		Arizona (2010 $Mil)		
State Sales Tax	**State**	$ 0.03	$ 0.04	$ 0.04
Shared State Sales Tax	**Local**	$ 0.01	$ 0.01	$ 0.01
Local Sales Tax	**Pima**	$ 0.01	$ 0.01	$ 0.02
Total		**$ 0.04**	**$ 0.06**	**$ 0.07**
		New Mexico (2010 $Mil)		
State Sales Tax	**State**	$ 0.07	$ 0.12	$ 0.14
Local Salex Tax	**Dona Ana**	$ 0.06	$ 0.09	$ 0.11
Total		**$ 0.13**	**$ 0.21**	**$ 0.25**

Figures may not add due to rounding.

Table 5.6.1 contains estimates of the direct sales tax revenues for both Arizona and New Mexico. Total Arizona direct ongoing revenues, due to operations and maintenance, range from $40,000 to $70,000 per year, depending on the scenario. New Mexico's direct ongoing revenues range from $130,000 to $250,000, depending on the scenario.

Table 5.6.2 contains the induced tax revenues associated with ongoing operations and maintenance. In Arizona, annual induced revenues range from $300,000 to $620,000 and from $80,000 to $160,000 for New Mexico. Arizona's induced revenues are substantially larger than New Mexico's because the central office and centralized operations functions are expected to be located in the Phoenix area

Table 5.6.2. Induced Tax Revenues to State and Local Governments, Operations & Maintenance

		Scenario 1	Scenario 2	Scenario 3
		Arizona (2010 $Mil)		
State Sales Tax	**State**	$ 0.10	$ 0.15	$ 0.20
Shared State Sales Tax	**Local**	$ 0.02	$ 0.04	$ 0.05
Local Sales Tax	**Local**	$ 0.07	$ 0.11	$ 0.14
Personal Income Tax	**State**	$ 0.08	$ 0.12	$ 0.17
Corporate Income Tax	**State**	$ 0.02	$ 0.02	$ 0.03
Shared Income Tax	**Cities**	$ 0.01	$ 0.02	$ 0.03
Total		**$ 0.30**	**$ 0.46**	**$ 0.62**
		New Mexico (2010 $Mil)		
State Sales Tax	**State**	$ 0.03	$ 0.04	$ 0.05
Local Sales Tax	**Local**	$ 0.02	$ 0.03	$ 0.03
Personal Income Tax	**State**	$ 0.03	$ 0.05	$ 0.07
Corporate Income Tax	**State**	$ 0.00	$ 0.01	$ 0.01
Total		**$ 0.08**	**$ 0.13**	**$ 0.16**

5.7 Property Tax Impacts

Property taxes in New Mexico are levied at the local government level. For the Project, the evaluation of taxable improvements is done at the state level since the Project is a multi-county project. Depreciation is applied using the straight-line method. The determination of the life of the assets is in accordance with federal IRS guidelines. For transmission property, the life of the assets is 25 years. Therefore, the depreciation rate is 4% per year with a New Mexico residual or minimum value of 20%. This means that the taxable value of the improvements cannot fall below

20% of its initial value (for property tax purposes). Estimates of property taxes by county and list of specific property tax assumptions for New Mexico are included in Appendix F.

In Arizona, taxable improvements are also centrally assessed by the state. Arizona also follows federal IRS guidelines for depreciation and thus a 25-year straight-line depreciation rate is used. Arizona has a 10% residual or minimum value as opposed to New Mexico's 20% residual. Unlike New Mexico, which imposes taxes mostly at the city/county level, Arizona's counties have numerous property taxing jurisdictions and most do not share boundaries with counties, e.g., school districts, library districts and specialized districts, such as flood, fire and lighting districts. The property tax rates to be applied to the Project are the sum of all the tax rates imposed by all the different jurisdictions, depending on the route of the Project. Therefore, the total tax rate we have used for each Arizona county critically depends on the route, which at this phase can only be preliminarily determined. An estimate of property taxes by county and a list of specific property tax assumptions for Arizona are in [Appendix F].

As facilities are added or new equipment installed/replaced during the operational life of the Project, the property tax value of the new facilities/equipment is its initial book value (which then depreciates over time). Property taxes have been estimated for the construction period plus 25 operating years. No additional or replacement equipment is assumed to installed during this period.

Property tax data were provided by William B Hitchcock and Associates and Thomson Property Tax Services. The property tax data only includes the property taxes on improvements due to the Project. Land lease payments to federal and state agencies for use of Bureau of Land Management and State Trust lands have not been estimated.

Table 5.7.1 summarizes statewide property tax estimates, by state, by scenario, by route and by year. The results are shown only through 2020. In following years, the estimates decrease 4% per year due to depreciation.

The largest amount of property tax revenues generated will occur in either 2015, 2016 or 2017. Depending on the scenario selected, Arizona counties will receive between $1.05 million and $5.33 million in property taxes. New Mexico counties would receive between $5.04 million and $13.23 million. In the years following the completion of construction, estimated property tax revenues decrease each year due to depreciation. Depreciation is four percent of the initial property value per year.

Table 5.7.1 Summary of Property Tax Estimates, by State, by Scenario, by Route

	2013	2014	2015	2016	2017	2018	2019	2020
				(2010 $Mil)				
				Arizona				
Scenario 1								
Route A	$ 0.21	$ 0.63	$ 1.05	$ 1.00	$ 0.96	$ 0.92	$ 0.88	$ 0.84
Route B	$ 0.29	$ 0.86	$ 1.44	$ 1.38	$ 1.33	$ 1.27	$ 1.21	$ 1.15
Scenario 2								
Route A	$ 0.21	$ 0.81	$ 1.59	$ 1.91	$ 1.83	$ 1.75	$ 1.68	$ 1.60
Route B	$ 0.29	$ 1.12	$ 2.21	$ 2.66	$ 2.56	$ 2.45	$ 2.34	$ 2.23
Scenario 3								
Route A	$ 0.21	$ 1.36	$ 3.24	$ 4.65	$ 4.47	$ 4.28	$ 4.09	$ 3.90
Route B	$ 0.29	$ 1.65	$ 3.81	$ 5.33	$ 5.12	$ 4.90	$ 4.69	$ 4.47
				New Mexico				
Scenario 1								
East Route	$ 0.52	$ 1.57	$ 2.62	$ 5.04	$ 4.83	$ 4.62	$ 4.41	$ 4.20
West Route	$ 0.53	$ 1.58	$ 2.64	$ 5.07	$ 4.86	$ 4.64	$ 4.43	$ 4.22
Scenario 2								
East Route	$ 0.52	$ 1.98	$ 3.83	$ 7.05	$ 8.68	$ 8.31	$ 7.94	$ 7.57
West Route	$ 0.53	$ 1.99	$ 3.85	$ 7.09	$ 8.74	$ 8.37	$ 8.00	$ 7.62
Scenario 3								
East Route	$ 0.52	$ 2.45	$ 5.25	$ 9.41	$ 13.23	$ 12.67	$ 12.11	$ 11.55
West Route	$ 0.53	$ 2.45	$ 5.25	$ 9.42	$ 13.21	$ 12.65	$ 12.09	$ 11.53

6. Economic and Revenue Impacts, by Year

The economic and revenue impacts were computed and presented for the entire Project. Thus, economic and revenue impacts for the construction of lines and substations, shown above in Tables 4.2.1 through Tables 4.4.3, are for the entire 2.5 or 3.5 year construction period (depending on the scenario). The construction period for Scenario 1 is 2.5 years, and is expected to start in mid-2013 and end at the end of 2015. After that, the operations and maintenance phase begins. For Scenarios 2 and 3, the construction period is the same 2.5 years but is expected to start and end one year later than Scenario 1. The second line (AC for Scenario 2 and DC for Scenario 3) is expected to start construction in mid-2014 and finish at the end of 2016. For Scenarios 2 and 3, part of the operations and maintenance impacts begin in 2016, following the construction of the first AC line, and additional operations and maintenance impacts begin in 2017, following construction of the 2nd line. This timing is used for converting the total economic and revenue impacts (except property taxes) from a project basis to a time series.

Tables 4.2.1 through 4.4.3 and Tables 5.4.1 through 5.6.2 summarize the statewide economic and revenue impacts, respectively, for Arizona and New Mexico. These are summarized, by year of impact, in Tables 6.1 and 6.2. The economic impact figures represent the total impacts (including direct, indirect and induced effects). The property tax effects are the same as in Table 5.7.1. The other revenue impacts (other than property taxes) include both direct and induced revenues. Summary economic and revenue impacts for counties, by year, are contained in Appendix G.

Depending upon the scenario and route, Arizona job impacts in 2013 (the year construction begins) are estimated to be either 238 or 543 jobs and New Mexico job impacts are either 453 or 470. The impacts rise in 2014 for all scenarios and routes both because construction occurs throughout the year and because, for Scenarios 2 and 3, the construction of the 2nd line begins. The largest job impacts occur in 2015 for Scenarios 2 and 3 because during that year both lines and their corresponding substations are being constructed. Job impacts decline for Scenarios 2 and 3 in 2016 because the first line is expected to be completed by then. The job impacts for 2016 are all due to operations and maintenance for Scenario 1 and are a mix of operations and maintenance and construction impacts for Scenarios 2 and 3. After 2017, all impacts are related to operations and maintenance.

The timing of the estimated labor income, state product, and total sales parallel that of the job impact, as does the timing of revenues (except property taxes). Property taxes increase initially as the construction proceeds. Once in operation, property taxes decline as depreciation reduces the book value of the Project assets.

Table 6.1 Arizona Impacts, by Year, by Scenario, by Route

Arizona	2013	2014	2015	2016	2017	2018	2019	2020
Scenario 1 - Route A								
Employment (# of jobs)	238	477	477	57	57	57	57	57
Labor Income (2010 $Mil)	$ 15.83	$ 31.66	$ 31.66	$ 3.72	$ 3.72	$ 3.72	$ 3.72	$ 3.72
State Product (2010 $Mil)	$ 20.67	$ 41.33	$ 41.33	$ 5.34	$ 5.34	$ 5.34	$ 5.34	$ 5.34
Total Sales (2010 $Mil)	$ 29.08	$ 58.16	$ 58.16	$ 7.08	$ 7.08	$ 7.08	$ 7.08	$ 7.08
Property Taxes (2010 $Mil)	$ 0.21	$ 0.63	$ 1.05	$ 1.00	$ 0.96	$ 0.92	$ 0.88	$ 0.84
Other Taxes (2010 $Mil)	$ 2.83	$ 5.67	$ 5.67	$ 0.35	$ 0.35	$ 0.35	$ 0.35	$ 0.35
Scenario 1 - Route B								
Employment (# of jobs)	283	566	566	57	57	57	57	57
Labor Income (2010 $Mil)	$ 18.75	$ 37.50	$ 37.50	$ 3.72	$ 3.72	$ 3.72	$ 3.72	$ 3.72
State Product (2010 $Mil)	$ 24.43	$ 48.85	$ 48.85	$ 5.34	$ 5.34	$ 5.34	$ 5.34	$ 5.34
Total Sales (2010 $Mil)	$ 34.23	$ 68.45	$ 68.45	$ 7.08	$ 7.08	$ 7.08	$ 7.08	$ 7.08
Property Taxes (2010 $Mil)	$ 0.29	$ 0.86	$ 1.44	$ 1.38	$ 1.33	$ 1.27	$ 1.21	$ 1.15
Other Taxes (2010 $Mil)	$ 3.39	$ 6.79	$ 6.79	$ 0.35	$ 0.35	$ 0.35	$ 0.35	$ 0.35
Scenario 2 - Route A								
Employment (# of jobs)	238	682	886	467	86	86	86	86
Labor Income (2010 $Mil)	$ 15.83	$ 45.12	$ 58.58	$ 30.64	$ 5.62	$ 5.62	$ 5.62	$ 5.62
State Product (2010 $Mil)	$ 20.67	$ 58.96	$ 76.58	$ 40.59	$ 8.01	$ 8.01	$ 8.01	$ 8.01
Total Sales (2010 $Mil)	$ 29.08	$ 83.06	$ 107.96	$ 56.88	$ 10.65	$ 10.65	$ 10.65	$ 10.65
Property Taxes (2010 $Mil)	$ 0.21	$ 0.81	$ 1.59	$ 1.91	$ 1.83	$ 1.75	$ 1.68	$ 1.60
Other Taxes (2010 $Mil)	$ 2.83	$ 8.11	$ 10.55	$ 5.23	$ 0.52	$ 0.52	$ 0.52	$ 0.52
Scenario 2 - Route B								
Employment (# of jobs)	283	814	1,062	553	86	86	86	86
Labor Income (2010 $Mil)	$ 18.75	$ 53.77	$ 70.04	$ 36.26	$ 5.62	$ 5.62	$ 5.62	$ 5.62
State Product (2010 $Mil)	$ 24.43	$ 70.10	$ 91.35	$ 47.83	$ 8.01	$ 8.01	$ 8.01	$ 8.01
Total Sales (2010 $Mil)	$ 34.23	$ 98.31	$ 128.18	$ 66.81	$ 10.65	$ 10.65	$ 10.65	$ 10.65
Property Taxes (2010 $Mil)	$ 0.29	$ 1.12	$ 2.21	$ 2.66	$ 2.56	$ 2.45	$ 2.34	$ 2.23
Other Taxes (2010 $Mil)	$ 3.39	$ 9.12	$ 11.46	$ 5.02	$ 0.52	$ 0.52	$ 0.52	$ 0.52
Scenario 3 - Route A								
Employment (# of jobs)	238	722	968	548	99	99	99	99
Labor Income (2010 $Mil)	$ 15.83	$ 48.32	$ 64.97	$ 37.03	$ 6.57	$ 6.57	$ 6.57	$ 6.57
State Product (2010 $Mil)	$ 20.67	$ 62.79	$ 84.26	$ 48.26	$ 9.23	$ 9.23	$ 9.23	$ 9.23
Total Sales (2010 $Mil)	$ 29.08	$ 87.65	$ 117.14	$ 66.06	$ 12.25	$ 12.25	$ 12.25	$ 12.25
Property Taxes (2010 $Mil)	$ 0.21	$ 1.36	$ 3.24	$ 4.65	$ 4.47	$ 4.28	$ 4.09	$ 3.90
Other Taxes (2010 $Mil)	$ 2.83	$ 9.38	$ 13.08	$ 7.76	$ 0.69	$ 0.69	$ 0.69	$ 0.69
Scenario 3 - Route B								
Employment (# of jobs)	283	848	1,131	622	99	99	99	99
Labor Income (2010 $Mil)	$ 18.75	$ 56.62	$ 75.74	$ 41.96	$ 6.57	$ 6.57	$ 6.57	$ 6.57
State Product (2010 $Mil)	$ 24.43	$ 73.46	$ 98.06	$ 54.55	$ 9.23	$ 9.23	$ 9.23	$ 9.23
Total Sales (2010 $Mil)	$ 34.23	$ 102.14	$ 135.84	$ 74.47	$ 12.25	$ 12.25	$ 12.25	$ 12.25
Property Taxes (2010 $Mil)	$ 0.29	$ 1.65	$ 3.81	$ 5.33	$ 5.12	$ 4.90	$ 4.69	$ 4.47
Other Taxes (2010 $Mil)	$ 3.39	$ 10.36	$ 13.94	$ 7.50	$ 0.69	$ 0.69	$ 0.69	$ 0.69

Table 6.2 New Mexico Impacts, by Year, by Scenario, by Route

New Mexico	2013	2014	2015	2016	2017	2018	2019	2020
Scenario 1 - East								
Employment (# of jobs)	470	939	939	26	26	26	26	26
Labor Income (2010 $Mil)	$ 32.04	$ 64.08	$ 64.08	$ 1.55	$ 1.55	$ 1.55	$ 1.55	$ 1.55
State Product (2010 $Mil)	$ 39.04	$ 78.08	$ 78.08	$ 2.05	$ 2.05	$ 2.05	$ 2.05	$ 2.05
Total Sales (2010 $Mil)	$ 53.60	$ 107.20	$ 107.20	$ 2.81	$ 2.81	$ 2.81	$ 2.81	$ 2.81
Property Taxes (2010 $Mil)	$ 0.52	$ 1.57	$ 2.62	$ 5.04	$ 4.83	$ 4.62	$ 4.41	$ 4.20
Other Taxes (2010 $Mil)	$ 7.61	$ 15.23	$ 15.23	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22
Scenario 1 - West								
Employment (# of jobs)	453	907	907	26	26	26	26	26
Labor Income (2010 $Mil)	$ 32.04	$ 64.09	$ 64.09	$ 1.55	$ 1.55	$ 1.55	$ 1.55	$ 1.55
State Product (2010 $Mil)	$ 39.04	$ 78.08	$ 78.08	$ 2.05	$ 2.05	$ 2.05	$ 2.05	$ 2.05
Total Sales (2010 $Mil)	$ 53.59	$ 107.18	$ 107.18	$ 2.81	$ 2.81	$ 2.81	$ 2.81	$ 2.81
Property Taxes (2010 $Mil)	$ 0.53	$ 1.58	$ 2.64	$ 5.07	$ 4.86	$ 4.64	$ 4.43	$ 4.22
Other Taxes (2010 $Mil)	$ 7.50	$ 15.00	$ 15.00	$ 0.22	$ 0.22	$ 0.22	$ 0.22	$ 0.22
Scenario 2 - East								
Employment (# of jobs)	470	1,298	1,657	744	40	40	40	40
Labor Income (2010 $Mil)	$ 32.04	$ 87.74	$ 111.40	$ 48.87	$ 2.39	$ 2.39	$ 2.39	$ 2.39
State Product (2010 $Mil)	$ 39.04	$ 107.25	$ 136.42	$ 60.39	$ 3.15	$ 3.15	$ 3.15	$ 3.15
Total Sales (2010 $Mil)	$ 53.60	$ 147.66	$ 188.12	$ 83.73	$ 4.35	$ 4.35	$ 4.35	$ 4.35
Property Taxes (2010 $Mil)	$ 0.52	$ 1.98	$ 3.83	$ 7.05	$ 8.68	$ 8.31	$ 7.94	$ 7.57
Other Taxes (2010 $Mil)	$ 7.61	$ 20.95	$ 26.67	$ 11.66	$ 0.34	$ 0.34	$ 0.34	$ 0.34
Scenario 2 - West								
Employment (# of jobs)	453	1,250	1,593	712	40	40	40	40
Labor Income (2010 $Mil)	$ 32.04	$ 87.74	$ 111.39	$ 48.85	$ 2.39	$ 2.39	$ 2.39	$ 2.39
State Product (2010 $Mil)	$ 39.04	$ 107.24	$ 136.39	$ 60.37	$ 3.15	$ 3.15	$ 3.15	$ 3.15
Total Sales (2010 $Mil)	$ 53.59	$ 147.62	$ 188.06	$ 83.69	$ 4.35	$ 4.35	$ 4.35	$ 4.35
Property Taxes (2010 $Mil)	$ 0.53	$ 1.99	$ 3.85	$ 7.09	$ 8.74	$ 8.37	$ 8.00	$ 7.62
Other Taxes (2010 $Mil)	$ 7.50	$ 20.61	$ 26.22	$ 11.44	$ 0.34	$ 0.34	$ 0.34	$ 0.34
Scenario 3 - East								
Employment (# of jobs)	470	1,347	1,754	841	50	50	50	50
Labor Income (2010 $Mil)	$ 32.04	$ 91.21	$ 118.34	$ 55.81	$ 2.96	$ 2.96	$ 2.96	$ 2.96
State Product (2010 $Mil)	$ 39.04	$ 111.38	$ 144.68	$ 68.65	$ 3.90	$ 3.90	$ 3.90	$ 3.90
Total Sales (2010 $Mil)	$ 53.60	$ 152.79	$ 198.38	$ 94.00	$ 5.36	$ 5.36	$ 5.36	$ 5.36
Property Taxes (2010 $Mil)	$ 0.52	$ 2.45	$ 5.25	$ 9.41	$ 13.23	$ 12.67	$ 12.11	$ 11.55
Other Taxes (2010 $Mil)	$ 7.61	$ 27.76	$ 40.29	$ 25.28	$ 0.42	$ 0.42	$ 0.42	$ 0.42
Scenario 3 - West								
Employment (# of jobs)	453	1,281	1,656	729	50	50	50	50
Labor Income (2010 $Mil)	$ 32.04	$ 90.37	$ 116.66	$ 50.48	$ 2.96	$ 2.96	$ 2.96	$ 2.96
State Product (2010 $Mil)	$ 39.04	$ 110.20	$ 142.33	$ 62.12	$ 3.90	$ 3.90	$ 3.90	$ 3.90
Total Sales (2010 $Mil)	$ 53.59	$ 150.74	$ 194.30	$ 84.83	$ 5.36	$ 5.36	$ 5.36	$ 5.36
Property Taxes (2010 $Mil)	$ 0.53	$ 2.45	$ 5.25	$ 9.42	$ 13.21	$ 12.65	$ 12.09	$ 11.53
Other Taxes (2010 $Mil)	$ 7.50	$ 27.31	$ 39.63	$ 24.84	$ 0.42	$ 0.42	$ 0.42	$ 0.42

7. Summary

The proposed SunZia Southwest Transmission Project will build up to two 500 kV transmission lines and initially up to five substations, two in Arizona and three in New Mexico. The line will cross three to five counties in Arizona depending on the route and six counties in New Mexico (although the counties differ for each route considered in New Mexico.) Most of the impacted counties are heavily reliant on land-based economic activities, such as agriculture, forestry and fishing, tourism and, for a few counties, mining.

The estimated job impacts of the construction of the lines range from 1,032 to 2,554 for Arizona, depending on the scenario. For New Mexico, which will have more line miles than Arizona, the job impact range is between 1,778 and 3,701, depending on the route and scenario. These impacts are for the entire construction period (30 months for Scenario 1 and 42 months for Scenarios 2 and 3).

Job impacts for the substation construction range from 160 to 273 jobs for Arizona and 570 to 687 jobs for New Mexico, depending on the scenario. Impacts are higher for New Mexico than Arizona both because of the additional substation and the relatively larger scopes of the substations in New Mexico.

Once construction is completed, the ongoing operations and maintenance generates between 57 and 99 jobs in Arizona and between 26 and 50 jobs in New Mexico. The higher figures for Arizona are indicative of the centralized control of operations that are expected to be in the Phoenix area. Line and substation maintenance is expected to be operated out of the Tucson area for the Arizona lines and Las Cruces for the New Mexico lines.

Estimated revenues (2010 $) accruing to state and local governments in Arizona range between $11.97 million to $29.2 million for the construction of the transmission lines and between $2.2 (2010) million and $8.53 million for construction of the substations, depending on the route and scenario. When construction is finished in 2016, property taxes generated would be between $1.0 million and $5.33 million and then decrease by four percent each year.

State and local governments in New Mexico will receive in 2010 dollars between $26.58 million and $52.83 million for the construction of the transmission lines and $10.91 million and $48.41 million for the construction of substations, depending on the route and scenarios. Property taxes generated in 2016 would be between $5.04 million and $9.42 million and then decrease by four percent each year.

Most of the impacted counties are heavily reliant on land-based economic activities, such as agriculture, forestry and fishing, tourism and, for a few counties, mining. Construction and operation of the proposed SunZia project offers substantial job opportunities and, more importantly, provides the necessary new transmission capacity to further the development of renewable energy generation facilities in southern Arizona and New Mexico.

APPENDICES

Appendix A.

Economic Base Analysis of Arizona, New Mexico and Impacted Counties

Economic base analysis of a region distinguishes between two types of economic activity – the economic activities that are exported from the region (export-base industries) and economic activities that service the local population and other local businesses (non-basic industries). The purpose of conducting an economic base analysis of a region is to understand which sectors drive the economy in that region.

The typical method used for identifying which industries in a region are basic and which ones service the local population and businesses is by computing location quotients. Computation of a location quotient for a particular industry in a region simply asks the question: Does this industry represent a larger or smaller share of total employment in the region than it does in the US as a whole. Thus if, say, mining represents 5 percent of a region's employment but only 1 percent of the US employment, then that region relies more heavily on mining than the US as a whole. It is unlikely that the region would be purchasing and utilizing all of its own mining output, so a reasonable assumption is that most of the mining output is exported out of the region.

A location quotient is simply the ratio of an industry's share of total employment in a particular region divided by the industry's share of total US employment. Specifically, a location quotient for a particular industry i in a region is defined as follows:

$$LQ_i = (e_i/e_T)/(E_i/E_T),$$

where e_i is the region's employment in industry i, e_T is total employment in the region, E_i is U.S. employment in industry i, and E_T is total U.S. employment. When an industry has a location quotient greater than 1, it is an indication that the region relies more heavily on that industry for employment than the rest of the U.S., so that industry is likely to be an export-base industry.

Export-base industries do not have to be an industry that ships goods out of the area. Services can be export base, e.g., research and development. In addition, export base industries can also be industries that serve people who come into a region and spend money, e.g., tourism-related industries.

Location quotients were computed for each of the counties through which the SunZia Transmission lines are likely to pass and for counties which have renewable energy potential. Location quotients and export base industries for each county is presented in Table A1 at the end of this text.

Data

This section discusses the methodology and the data used to compute the location quotients. Because many of these counties are small, in terms of population and employment, employment data by industry is very sparse. For many employment sectors for small counties, no employment is reported due to disclosure rules. Disclosure rules prohibit publication of employment figures when there are too few establishments in a particular industry, which is a problem when analyzing small counties (e.g., Greenlee in Arizona and Guadalupe in New Mexico), where more employment categories are labeled ND (not disclosed) than have employment data.

There are three sources of data that can be used for computation of location quotients. All three are presented in Appendices to this report. The Appendices and corresponding databases are as follows:

- Table A2. Regional Economic Information System (REIS), Bureau of Economic Analysis, www.bea.gov
- Table A3. U.S. Census Bureau's County Business Patterns (CBP), http://www.census.gov/econ/cbp/index.html
- Table A4. Detailed Location Quotients, computed from Quarterly Census Employment and Wages (QCEW) by the Bureau of Labor Statistics (BLS), www.bls.gov.

Each of these sources of data has advantages and disadvantages. The REIS data in Table A2 has a total of 33 aggregated and disaggregated subcategories. A major advantage of the REIS data over the other two is that it includes government and government enterprise employment categories, which is broken into: federal civilian, military, and state and local employment. State and Local employment is, in turn, disaggregated into state employment and local employment.

The CBP aggregate dataset has only 20 sectors and excludes all government and agriculture employment, focusing instead on non-ag private sector employment. The major advantage of the CBP data is that it is the only one of the three datasets that provides a code that represents an employment range for each non-disclosed employment categories. This range is used to estimate employment categories. Table A3, which contains CBP data, also contains a brief write-up of how those missing employment categories are estimated using the employment ranges provided. The final column gives the location quotient based on estimated employment levels. This estimation is done as a check to be sure that a major non-disclosed category is not overlooked in the other two data sets.

The third dataset contains detailed location quotients computed by the BLS from QCEW data. This data base is available for 2-digit and selected 3-digit NAICS codes (North American Industrial Classification System). BLS computes location quotients for the 122 (2- and 3-digit) sectors that they report. Although much more detailed than the other two sources, the disclosure rules dominate some of these tables for the smaller counties.

The identification of export-base industries can vary across data sets, depending on whether they include government sectors and depending on the level of detail provided in the tables. If an area has a very large government sector, including that sector may reduce the shares of the remaining sectors, making it harder to identify private export-base sectors. The level of detail affects identification of export-base sectors because an export industry can get subsumed in aggregated category and not get identified.

The three datasets are used as follows. The REIS 33 sector dataset receives most of the discussion because it includes government categories and has a moderate number of employment categories. The CBP 20-sector estimated data by category is used to check whether that sectors labeled ND (for non-disclosed) in the other tables might be export-base. The more detailed QCEW is used to double check the export-base industries identified from the REIS data set and, perhaps, identify some subsectors that may qualify as export-base industries.

Location quotients greater than 1.1 are highlighted in all three sets of state and county tables in Table A2 through A4. In general, location quotients below 1.1 are considered to be too close to 1 to be able to confidently conclude that a sector is export base. Similarly, several sectors that are highlighted in Tables A4 will not be counted as export-base. The following sectors will *not* be included in the identified economic base sectors for Arizona, New Mexico, and affected counties.

Construction and construction-related sectors: Both Arizona and New Mexico have had greater than average growth during the years for which data are available (data typically ends in 2008). Construction is usually not considered an export-base industry; rather construction responds to population growth, which is usually driven by growth in the export-base industries. In other words, construction is part of the multiplier effect and is not an export-base industry.

Local government: Although federal government employment can be considered an export-base industry (e.g., the presence of a military base), local government employment reflects local voter preferences and the political environment of the local area. State government can be export base, particularly in education, if the region exports education services via out-of-state students or if the education institutions attract out-of-state funding for research.

Retail industries: Retailing usually serve the local population. For example, rural areas often have location quotients for gas station employment (a subcategory of retailing) greater than 1 because people who live in rural counties utilize more gasoline than their city/urban counterparts. If there is substantial tourism to an area, retail can represent an exporting industry. For the purpose of identifying economic base industries, a strong tourism sector will

be identified through the accommodation and food services category of employment rather than the retail category. If the accommodation and food services category is identified as an export-base industry, then, retail may also be identified as an export-base industry if it has a sufficiently high location quotient.

Health care: Health care and related industries are usually not an export-base industry. The exception is when there are major health centers in the region than conduct research projects and/or provide state-of-the art services. These are usually found in relatively larger counties, such as Pima County (Tucson) and Doña Ana (Las Cruces).

Social services and social assistance: When these sectors have location quotients greater than 1, are usually an indication of an area in need, rather than an area that exports its social services.

Industries with few employees: Even though the sector has a location quotient greater than 1.1, very small industries will not be identified as an export-base industry. A very small industry, even if its share of employment is higher than the US share, cannot "drive" the local economy.

Table A1 summarizes the export-base sectors of Arizona, New Mexico, and the affected counties. The export-base sectors for Arizona and the five affected Arizona counties are on the left-hand side of the first page of Table A1. The export-base sectors for New Mexico and five New Mexico counties are in the right-hand side of the first page. The remaining New Mexico counties are on the 2nd page of Table A1. The following sections discuss the most important industries in the counties that will be affected by the transmission lines or have potential for the development of renewable energy projects.

Agriculture and Related Industries

First, farm proprietor's employment and farm employment are extremely important sectors in all the affected counties. The only exception is that Pima AZ, which still has substantial agricultural activities, has become so urbanized that its agricultural sector has been outgrown by other industries so that it is no longer identified as an export-base industry.

The transportation and warehousing sector is frequently connected to agricultural activities. Farming, particularly the farming of fresh vegetables, requires cold storage (warehousing) and transportation facilities to get product to market in a reasonable amount of time.

Another agrarian-based industry, forestry, fishing and related activities is identified as an export-base industry in 7 areas. Although this category could actually represent forestry and fishing (see the tourism section below), it is also possible that it is related to agriculture because agriculture support activities are subcategories of forestry and fishing.

Tourism

Tourism is identified with high location quotients for accommodation and food services. The entire states of Arizona and New Mexico are tourist-destination locations, but it is more important in some counties than others. Of the 18 counties in Table A1, 10 of them have tourism as an export-base industry. Almost all of these counties have either within their borders or are close to National Forests, National and State Parks, Bureau of Land Management (BLM) lands, recreational and wilderness areas, and other natural attractions. Thus it is sometimes difficult to identify the specific reasons why tourism is identified in some counties as an export-base industry and not in others.

Frequently tourism is high in counties that have specific areas of tourism interest, such as Grant NM (Gila National Forest and Gila Cliff Dwellings National Monument), Graham AZ (Coronado National Forest, Tombstone), Pima AZ(Saguaro National Monuments, Coronado National Forest and destination resorts) and Lincoln NM (ski resorts).

Some of the affected counties have major interstate traffic (Cochise AZ, Pinal AZ, Hidalgo NM,) and others are close to (or are part of) major urban tourism destinations (Pinal County AZ, close to Phoenix). Some counties, such as Cochise AZ, Pima AZ, and Luna NM, attract numerous Mexican visitors with their proximity to the border and shopping availability.

As stated previously, retail is usually not an exporting industry unless accompanied by strong tourism. Of the 10 counties where accommodations and food services were identified as an export-base industry, retail trade also had location quotients greater than 1.1 in six of them.

Similarly, six of the 10 counties identified with tourism also have forestry, fishing and related activities identified as an export-base industry. Again, both Arizona and New Mexico both have ample opportunities for outdoor recreational activities. Therefore, it is not surprising that in most of the counties identified as having strong tourism, most also have forestry and fishing identified as an export base industry. The category, forestry, fishing and related activities, is difficult to identify exactly what it is because it is a mix of both outdoor recreational activities and agriculture support activities.

Arts, entertainment and recreation are often identified as exporting industries when tourism is identified. In some cases, arts, entertainment and recreation can be a draw for tourism; in other cases, tourism creates an environment where the arts can thrive.

Mining

Mining is an extremely important industry in some of these counties, particularly Graham and Greenlee Counties in Arizona and Grant County in New Mexico. For these counties, mining employment is a major component of total employment in the county. Note that mining could not be identified as an exporting industry for Greenlee County, even in the CBP database in Table A3. Mining jobs tend to be relatively high paying jobs in rural areas. Mining was also identified as an export-base industry in Lincoln NM and Pinal AZ, but it is less important than other industries in these counties.

Utilities

Both Arizona and New Mexico appear to be net exporters of utilities. Utilities represents a broad category of services, including water, sewer, electricity and natural gas. Water and sewer provision provide services to the local population, so export-base utilities is likely to represent electricity generation. Of course, not all counties within these states are net exporters of utilities – only Cochise AZ, Greenlee AZ, Pima AZ, and Pinal AZ have utilities identified as export-base industries.

Health Care and Social Assistance

This was identified as export-base only for the two largest affected counties – Pima AZ and Doña Ana NM. Doña Ana NM has the Memorial Medical Center, Inc., Mesilla Valley Hospital, and the UNM Cancer Center. Similarly, Pima AZ has numerous major hospitals (Tucson Medical Center, Northwest Medical Center, Carondelet St. Mary's Hospital, Carondelet St. Joseph's Hospital, among others) and the University Medical Center, a teaching and research hospital, and the Arizona Cancer Center. All of these medical facilities serve patients from a much broader (including international patients) region than just the county in which they are located and several of them conduct major research, attracting research money from outside the area.

Military and Federal Civilian

Military is identified as an export-base industry in three counties: Cochise County, AZ (Fort Huachuca, an Army installation; Pima County AZ (David Monthan Air Force Base); Otero County, NM (Holloman Air Force Base and White Sands Missile Range). In each of these counties, federal civilian employment was also identified as an exporting industry. Military bases hire substantial numbers of federal civilians for numerous types of support positions, both technical and non-technical.

Although many of the analyzed counties are relative close to some type of military installation, some are also identified exporters of forestry, fishing and related activities. Since park rangers and other Bureau of Land Management officials are federal employees, counties with substantial outdoor recreational activities and federal forest lands have relatively high levels of federal civilian employees (Graham AZ, Doña Ana NM, Hidalgo NM, and Luna NM).

Relatively high levels of federal civilian employees also occur in larger urban areas, where federal facilities, such as the justice department and federal courts are concentrated (Pima AZ and Doña Ana NM).

It should also be noted that professional, scientific and technical services were identified as export-base sectors in two of the analyzed areas: Cochise AZ and Socorro NM. These highly skilled professional employees are supporting the military base in Cochise AZ and the telescope in Soccoro NM.

State Government

State government usually services the population of the state and is, therefore, not export-base. The exception to this is when there are educational facilities that serve population from outside the counties in which they are located. Examples would be counties with major universities that draw students from around the country/world and also engage in major research projects that bring substantial research dollars into the county. Doña Ana NM, with New Mexico State University (NMSU), and Pima AZ, with the University of Arizona (UA), are examples of these. Other examples are counties that have substantial state school facilities that serve population from outside those counties. These include Grant (Western New Mexico University, WNMU), and Socorro (New Mexico Institute of Mining and Technology)

Another exception of when state government represents an export-base industry to a county is when substantial state correctional facilities are located there, e.g., Pinal AZ.

Conclusion

Most of the counties through which the SunZia transmission lines pass through rely on export-base industries that are related either to land endowments (agriculture; forestry, fishing and related activities; mining; and tourism) or are related to federal military/defense installations (military; federal civilian; professional, scientific and technical employment). For a few counties, utilities (electricity) represent an export-base sector.

The state government provides export base activities in a few counties that have education centers or corrections facilities. Health and social assistance represents an exporting industry in the two largest counties included in this study.

Table A1. Export-Base Sectors for States and Counties Affected by SunZia (1st of 2)

State or County	Export-Base Sectors	2008 Employment		State or County	Export-Base Sectors	2008 Employment	
Arizona	Mining (except oil and gas)	11,498	1/	**New Mexico**	Farm Proprietors Employment	17,856	
	Utilities	517			Farm Employment	24,523	
	Finance and Insurance	163,525			Mining	27,555	
	Real estate, rental and leasing	153,290			Utilities	4,532	
	Arts, entertainment and recreation	47,638	2/		Professional, scientific and technical services	83,672	
	Accommodation and food services (tourism)	255,049	2/		Accommodation and food services (tourism)	84,138	
	Total employment	**3,039,930**			Federal civilian	30,737	
					Military	14,277	
					State government (including education)	60,459	
					Total employment	**1,117,433**	
Cochise, AZ	Farm Proprietors Employment	12,134		**Dona Ana, NM**	Farm Proprietors Employment	1,514	
	Farm Employment	1,724			Farm Employment	2,984	
	Forestry, fishing and related activities	372			Forestry, fishing and related activities	1,059	
	Utilities	517			Health care and social asssistance	13,029	
	Retail trade	6,727			Federal civilian	3,857	
	Professional, scientific, and technical services	3,371			State government (including education)	8,818	
	Accommodation and food services (tourism)	4,396	2/		**Total employment**	91,977	
	Federal civilian	4,789					
	Military	5,626					
	Total employment	**54,850**					
Graham, AZ	Farm Proprietors Employment	273		**Grant, NM**	Farm Proprietors Employment	262	
	Farm Employment	509			Farm Employment	314	
	Mining	2,783	3/		Management of companies and enterprises	258	
	Retail trade	1,597			Accommodation and food services (tourism)	1,040	
	Accommodation and food services (tourism)	827			State government (including education)	1,527	
	Federal civilian	319			**Total employment**	**14,738**	
	Total employment	**9,774**					
Greenlee, AZ	Farm Proprietors Employment	111		**Hidalgo, NM**	Farm Proprietors Employment	130	
	Farm Employment	142			Farm Employment	205	
	Mining	NA			Forestry, fishing and related activities	8	
	Utilities	51			Retail trade	318	
	Accommodation and food services (tourism)	114	3/		Transportation and warehousing	98	
	Total employment	**4,254**			Accommodation and food services (tourism)	283	3/
					Federal civilian	229	
					Total employment	**2,293**	
Pima, AZ	Mining (except oil and gas)	2,194	1/	**Lincoln, NM**	Farm Proprietors Employment	287	
	Utilities	1,962			Farm Employment	375	
	Real estate, rental and leasing	24,915			Forestry, fishing and related activities	175	
	Administrative and waste services	33,066			Mining	215	
	Health and social assistance	50,966			Retail trade	1,545	
	Arts, entertainment and recreation	8,464	2/		Real estate, rental and leasing	1,062	
	Accommodation and food services (tourism)	42,531	2/		Arts, entertainment and recreation	902	
	Federal civilian	9,749			Accommodation and food services (tourism)	1,295	
	Military	8,587			**Total employment**	**12,003**	
	State government (including education)	(D)	4/				
	Total employment	**465,660**					
Pinal, AZ	Farm Employment	2,029		**Luna, NM**	Farm Proprietors Employment	167	
	Forestry, fishing and related activities	584			Farm Employment	357	
	Mining	973			Forestry, fishing and related activities	507	5/
	Utilities	216			Manufacturing	1,140	
	Arts, entertainment and recreation	1,317	2/		Retail trade	1,533	
	Accommodation and food services (tourism)	5,886	2/		Accommodation and food services (tourism)	830	
	Federal civilian	1,079			Federal civilian	529	
	State government (including education)	3,289			**Total employment**	**10,436**	
	Total employment	**55,329**					

Table A1. Export-Base Sectors for States and Counties Affected by SunZia (2nd of 2)

State or County	Export-Base Sectors	2,008 Employment		State or County	Export-Base Sectors	2,008 Employment	
Otero, NM	Farm Proprietors Employment	418		**Socorro, NM**	Farm Proprietors Employment	463	
	Farm Employment	541			Farm Employment	603	
	Forestry, fishing and related activities	202	6/		Professional, scientific and technical services	695	
	Retail trade	3,137	1/		Arts, entertainment and recreation	744	3/
	Accommodation and food services (tourism)	1,758	2/		Federal civilian	220	
	Federal civilian	1,892			State government (including education)	1,821	
	Military	**3,521**			**Total employment**	**8,795**	
	Total employment	**28,216**					
Sierra, NM	Farm Proprietors Employment	1,432					
	Farm Employment	381					
	Arts, entertainment and recreation	117	6/				
	Accommodation and food services (tourism)	481					
	Total employment	**5,115**					

1/ Identified using the QCEW based Detailed Location Quotients in Table A4.
2/ Identified in location quotients computed from County Business Patterns. See Table A3.
3/ Disclosure rules prohibited publication in REIS data. Employment pulled from Table A3
4/ Greater than 12,000, which is the employment at the University of Arizona alone.
5/ 2007 REIS data
6/ 2006 REIS data

Table A2. Employment and Location Quotients, Arizona, New Mexico and Counties (1/8)
Source: Regional Economic Information System (REIS), Bureau of Economic Analysis, www.bea.gov

Arizona Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	2,823,452	2,841,538	2,914,131	3,039,930	1.000	1.000	1.000	1.000
Wage and salary employment	2,351,869	2,354,883	2,395,135	2,482,846	1.007	1.010	1.008	1.004
Proprietors employment	471,583	486,655	518,996	557,084	0.969	0.957	0.967	0.987
Farm proprietors employment	10,086	7,356	9,727	9,541	0.274	0.270	0.409	0.415
Nonfarm proprietors employment 2/	461,497	479,299	509,269	547,543	1.011	0.996	0.998	1.016
Farm employment	22,274	19,246	22,528	22,562	0.473	0.463	0.553	0.533
Nonfarm employment	2,801,178	2,822,292	2,891,603	3,017,368	1.008	1.008	1.007	1.007
Private employment	2,403,969	2,412,294	2,471,149	2,591,783	1.014	1.017	1.013	1.010
Forestry, fishing, and related activities	18,058	18,675	17,433	17,869	1.119	1.109	1.062	1.000
Mining	12,852	11,559	11,708	11,498	0.770	0.766	0.834	0.895
Utilities	11,230	11,291	11,674	11,722	1.146	1.168	1.182	1.183
Construction	213,716	213,314	221,206	241,067	1.341	1.361	1.292	1.170
Manufacturing	210,741	193,360	185,501	186,712	0.695	0.696	0.699	0.703
Wholesale trade	104,906	103,052	102,348	106,146	0.947	0.948	0.956	0.962
Retail trade	323,264	327,746	337,653	352,257	1.079	1.086	1.103	1.103
Transportation and warehousing	81,053	81,383	82,293	85,431	0.858	0.863	0.854	0.865
Information	62,224	58,713	57,795	56,603	0.824	0.794	0.772	0.778
Finance and insurance	150,846	153,509	158,773	163,525	1.127	1.118	1.118	1.111
Real estate and rental and leasing	121,833	126,889	136,069	153,290	1.318	1.322	1.304	1.324
Professional, scientific, and technical services	164,395	164,350	169,414	182,089	0.941	0.945	0.947	0.945
Management of companies and enterprises	22,944	23,105	22,697	24,473	0.747	0.767	0.793	0.805
Administrative and waste services	233,782	231,620	237,584	249,886	1.396	1.395	1.377	1.356
Educational services	31,963	37,027	40,752	44,920	0.762	0.771	0.784	0.816
Health care and social assistance	227,925	237,571	253,006	263,680	0.881	0.878	0.891	0.925
Arts, entertainment, and recreation	53,279	55,311	55,970	58,487	0.944	0.941	0.958	0.970
Accommodation and food services	212,938	213,919	217,614	226,098	1.097	1.087	1.077	1.074
Other services, except public administration	146,020	149,900	151,659	156,030	0.859	0.865	0.852	0.855
Government and government enterprises	397,209	409,998	420,454	425,585	0.975	0.952	0.966	0.987
Federal, civilian	47,034	47,540	50,617	51,114	1.000	0.979	0.980	1.022
Military	33,032	33,316	34,750	34,527	0.906	0.850	0.861	0.861
State and local	317,143	329,142	335,087	339,944	0.979	0.959	0.975	0.996
State government	80,488	82,445	83,506	83,827	0.888	0.859	0.880	0.885
Local government	236,655	246,697	251,581	256,117	1.012	0.996	1.009	1.036

Cochise, AZ Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	51,397	51,038	53,086	54,850	1.000	1.000	1.000	1.000
Wage and salary employment	40,234	40,267	41,572	42,716	0.969	0.966	0.961	0.959
Proprietors employment	11,163	10,771	11,514	12,134	1.132	1.141	1.153	1.152
Farm proprietors employment	1,337	968	1,043	869	1.219	1.094	1.475	1.483
Nonfarm proprietors employment 2/	9,826	9,803	10,471	11,265	1.127	1.143	1.135	1.135
Farm employment	1,997	1,685	1,842	1,724	2.060	1.985	2.250	1.847
Nonfarm employment	49,400	49,353	51,244	53,126	0.983	0.985	0.981	0.988
Private employment	32,661	33,033	34,354	36,066	0.778	0.793	0.790	0.804
Forestry, fishing, and related activities	(D)	(D)	353	372	1.423	1.333	1.377	1.310
Mining	77	111	117	94	0.379	0.358	0.442	0.545
Utilities	502	489	516	517	2.809	2.790	2.849	2.706
Construction	2,982	2,988	3,235	3,479	1.018	1.034	0.959	0.894
Manufacturing	1,156	1,049	1,017	1,082	0.237	0.223	0.225	0.236
Wholesale trade	615	588	660	649	0.311	0.352	0.314	0.318
Retail trade	6,077	6,159	6,495	6,727	1.122	1.141	1.167	1.157
Transportation and warehousing	844	761	762	822	0.456	0.444	0.455	0.477
Information	622	588	598	658	0.517	0.512	0.569	0.639
Finance and insurance	971	1,028	1,076	1,103	0.422	0.427	0.440	0.461
Real estate and rental and leasing	(D)	(D)	1,699	1,906	0.943	1.033	1.062	1.082
Professional, scientific, and technical services	2,556	2,542	2,745	3,371	1.088	1.152	1.107	1.173
Management of companies and enterprises	124	126	124	93	0.189	0.205	0.258	0.265
Administrative and waste services	2,300	2,412	2,371	2,170	0.660	0.729	0.729	0.808
Educational services	296	391	397	452	0.471	0.494	0.484	0.483
Health care and social assistance	4,096	4,204	4,279	4,421	0.814	0.790	0.794	0.797
Arts, entertainment, and recreation	737	770	780	872	0.778	0.792	0.796	0.796
Accommodation and food services	3,913	3,900	3,988	4,104	1.055	1.021	1.001	1.020
Other services, except public administration	3,055	3,078	3,142	3,174	0.889	0.918	0.883	0.881
Government and government enterprises	16,739	16,320	16,890	17,060	2.245	2.181	2.190	2.142
Federal, civilian	4,238	4,327	4,600	4,789	5.373	5.337	5.124	5.291
Military	5,610	5,282	5,674	5,626	8.532	7.748	8.362	7.708
State and local	6,891	6,711	6,616	6,645	1.117	1.131	1.121	1.104
State government	1,338	1,136	1,097	1,090	0.717	0.729	0.730	0.727
Local government	5,553	5,575	5,519	5,555	1.264	1.279	1.264	1.241

Table A2. Employment and Location Quotients, Arizona, New Mexico and Counties (2/8)

Graham, AZ Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	9,594	9,416	9,622	9,774	1.000	1.000	1.000	1.000
Wage and salary employment	7,445	7,440	7,504	7,635	0.971	0.994	1.003	1.018
Proprietors employment	2,149	1,976	2,118	2,139	1.124	1.026	0.988	0.932
Farm proprietors employment	408	287	319	273	2.235	1.988	2.668	2.560
Nonfarm proprietors employment 2/	1,741	1,689	1,799	1,866	1.057	0.972	0.894	0.848
Farm employment	542	462	555	509	3.118	2.995	3.291	3.718
Nonfarm employment	9,052	8,954	9,067	9,265	0.967	0.970	0.966	0.960
Private employment	6,649	6,531	6,681	6,893	0.838	0.841	0.849	0.852
Forestry, fishing, and related activities	364	364	(D)	(D)	(D)	(D)	(D)	(D)
Mining	13	22	(D)	(D)	(D)	(D)	(D)	(D)
Utilities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Construction	393	391	382	437	0.771	0.875	0.962	1.010
Manufacturing	287	264	308	312	0.333	0.360	0.314	0.281
Wholesale trade	126	99	(D)	(D)	(D)	(D)	0.291	0.291
Retail trade	1,578	1,538	1,555	1,597	1.526	1.618	1.481	1.430
Transportation and warehousing	(D)	(D)	(D)	(D)	(D)	0.397	(D)	(D)
Information	(D)	(D)	(D)	(D)	(D)	(D)	0.613	0.597
Finance and insurance	212	180	202	195	0.437	0.396	0.407	0.407
Real estate and rental and leasing	121	126	120	109	0.272	0.178	0.172	(D)
Professional, scientific, and technical services	(D)	226	(D)	236	0.543	0.515	0.507	0.614
Management of companies and enterprises	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Administrative and waste services	215	(D)	206	(D)	(D)	(D)	(D)	(D)
Educational services	(D)	(D)	(D)	(D)	(D)	(D)	0.641	0.559
Health care and social assistance	1,175	1,195	1,210	1,231	1.252	1.139	1.096	1.111
Arts, entertainment, and recreation	82	65	69	76	0.425	(D)	0.380	(D)
Accommodation and food services	804	795	775	827	1.236	(D)	1.242	(D)
Other services, except public administration	643	627	644	632	1.063	1.140	1.209	1.028
Government and government enterprises	2,403	2,423	2,386	2,372	1.755	1.779	1.700	1.641
Federal, civilian	323	332	329	319	2.029	2.455	2.281	2.163
Military	75	74	74	71	0.591	0.556	0.554	0.550
State and local	2,005	2,017	1,983	1,982	1.839	1.811	1.737	1.681
State government	435	443	425	423	(D)	(D)	(D)	(D)
Local government	1,570	1,574	1,558	1,559	(D)	(D)	(D)	(D)

Greenlee, AZ Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	4,727	4,264	4,173	4,254	1.000	1.000	1.000	1.000
Wage and salary employment	4,029	3,650	3,512	3,584	1.062	1.093	1.112	1.133
Proprietors employment	698	614	661	670	0.739	0.614	0.559	0.508
Farm proprietors employment	181	132	137	111	1.898	1.529	1.869	1.726
Nonfarm proprietors employment 2/	517	482	524	559	0.669	0.563	0.486	0.445
Farm employment	219	167	167	142	1.744	1.503	1.650	1.534
Nonfarm employment	4,508	4,097	4,006	4,112	0.988	0.993	0.990	0.992
Private employment	3,960	3,569	3,488	3,587	1.011	1.030	1.030	1.043
Forestry, fishing, and related activities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Mining	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Utilities	47	47	51	51	3.492	3.182	2.994	2.663
Construction	451	260	262	339	1.353	(D)	(D)	(D)
Manufacturing	(D)	(D)	(D)	(D)	(D)	(L)	0.023	0.024
Wholesale trade	71	71	(D)	(D)	(D)	(D)	(D)	(D)
Retail trade	274	238	243	242	0.538	0.458	0.457	0.433
Transportation and warehousing	52	59	(D)	(D)	(D)	(D)	(D)	(D)
Information	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Finance and insurance	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Real estate and rental and leasing	14	13	(D)	(D)	(D)	(D)	(D)	(D)
Professional, scientific, and technical services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Management of companies and enterprises	-	-	-	-	-	-	-	-
Administrative and waste services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Educational services	(L)	(L)	(L)	(L)	(L)	(L)	(L)	(L)
Health care and social assistance	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Arts, entertainment, and recreation	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Accommodation and food services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other services, except public administration	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Government and government enterprises	548	528	518	525	0.848	0.761	0.739	0.672
Federal, civilian	38	39	44	44	0.576	0.502	0.436	0.376
Military	19	17	17	16	0.302	0.257	0.257	0.247
State and local	491	472	457	465	0.945	0.852	0.833	0.759
State government	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Local government	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)

Table A2. Employment and Location Quotients, Arizona, New Mexico and (3/8)

Pima, AZ Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	439,795	439,405	446,987	465,660	1.000	1.000	1.000	1.000
Wage and salary employment	358,953	357,603	359,628	372,526	0.984	0.983	0.980	0.975
Proprietors employment	80,842	81,802	87,359	93,134	1.069	1.070	1.080	1.091
Farm proprietors employment	687	501	561	477	0.081	0.072	0.098	0.099
Nonfarm proprietors employment 2/	80,155	81,301	86,798	92,657	1.128	1.127	1.134	1.143
Farm employment	1,192	981	1,072	986	0.128	0.117	0.132	0.140
Nonfarm employment	438,603	438,424	445,915	464,674	1.014	1.013	1.013	1.013
Private employment	357,822	358,190	363,987	381,929	0.973	0.979	0.977	0.975
Forestry, fishing, and related activities	410	(D)	(D)	(D)	0.136	0.141	0.160	0.178
Mining	2,484	(D)	(D)	(D)	0.897	0.892	0.949	0.952
Utilities	1,565	1,569	1,764	1,962	1.303	1.316	1.304	1.284
Construction	28,870	28,635	29,602	31,098	1.095	1.109	1.059	0.988
Manufacturing	34,793	32,671	30,975	30,162	0.705	0.704	0.714	0.731
Wholesale trade	8,610	8,653	8,606	9,535	0.579	0.598	0.611	0.605
Retail trade	48,079	48,947	49,985	52,300	1.017	1.027	1.050	1.040
Transportation and warehousing	8,838	8,432	8,568	9,043	0.625	0.621	0.596	0.581
Information	9,249	9,171	8,896	9,007	0.892	0.851	0.766	0.703
Finance and insurance	14,340	14,898	15,826	16,472	0.731	0.735	0.767	0.776
Real estate and rental and leasing	19,110	18,749	20,467	24,915	1.391	1.463	1.510	1.519
Professional, scientific, and technical services	26,089	25,682	26,281	28,983	1.008	1.012	1.044	1.030
Management of companies and enterprises	2,834	2,731	2,645	2,309	0.602	0.581	0.589	0.576
Administrative and waste services	31,711	31,649	31,864	33,066	1.211	1.212	1.178	1.197
Educational services	4,737	5,479	5,786	6,179	0.673	0.701	0.713	0.705
Health care and social assistance	45,216	46,950	49,367	50,966	1.144	1.132	1.128	1.159
Arts, entertainment, and recreation	10,466	10,848	10,480	11,014	1.131	1.111	1.064	1.055
Accommodation and food services	34,828	34,505	34,169	35,970	1.130	1.100	1.060	1.056
Other services, except public administration	25,593	26,089	26,389	26,633	0.946	0.979	0.956	0.941
Government and government enterprises	80,781	80,234	81,928	82,745	1.262	1.223	1.242	1.247
Federal, civilian	8,823	8,894	9,504	9,749	1.300	1.282	1.314	1.359
Military	7,810	8,098	8,365	8,587	1.485	1.409	1.384	1.371
State and local	64,148	63,242	64,059	64,409	1.233	1.195	1.216	1.218
State government	(D)	(D)	(D)	(D)	1.639	1.580	1.624	1.603
Local government	(D)	(D)	(D)	(D)	1.083	1.054	1.067	1.078

Pinal, AZ Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	51,477	50,900	52,226	55,329	1.000	1.000	1.000	1.000
Wage and salary employment	42,521	41,563	42,674	44,939	1.005	1.007	1.016	1.024
Proprietors employment	8,956	9,337	9,552	10,390	0.979	0.969	0.937	0.910
Farm proprietors employment	956	715	740	620	0.808	0.696	0.872	0.848
Nonfarm proprietors employment 2/	8,000	8,622	8,812	9,770	0.990	0.985	0.940	0.913
Farm employment	2,348	1,907	2,008	2,029	2.441	2.225	2.240	2.105
Nonfarm employment	49,129	48,993	50,218	53,300	0.977	0.982	0.981	0.984
Private employment	32,711	33,057	33,917	36,640	0.800	0.804	0.804	0.798
Forestry, fishing, and related activities	682	(D)	570	584	2.057	1.997	1.775	1.489
Mining	1,330	1,137	951	973	2.886	3.164	3.456	3.548
Utilities	202	230	231	216	1.105	1.226	1.266	1.262
Construction	2,393	2,488	2,298	2,774	0.987	1.015	0.988	0.966
Manufacturing	3,038	2,655	2,790	3,115	0.729	0.772	0.807	0.792
Wholesale trade	1,202	1,188	1,200	1,178	0.420	0.375	0.359	0.370
Retail trade	5,572	5,879	6,486	6,660	1.064	1.085	1.062	1.077
Transportation and warehousing	755	856	916	1,032	0.556	0.564	0.558	0.639
Information	370	370	387	406	0.341	0.336	0.356	0.354
Finance and insurance	1,004	1,065	1,079	1,197	0.492	0.504	0.509	0.515
Real estate and rental and leasing	1,459	1,543	1,655	1,830	0.856	0.911	0.981	0.971
Professional, scientific, and technical services	(D)	(D)	(D)	(D)	(D)	(D)	0.434	0.450
Management of companies and enterprises	(D)	(D)	(D)	(D)	(D)	(D)	0.087	0.123
Administrative and waste services	3,187	3,253	3,009	3,240	0.957	0.944	0.972	1.087
Educational services	265	339	361	357	0.376	0.397	0.441	0.441
Health care and social assistance	3,558	3,484	3,829	4,152	0.800	0.742	0.701	0.637
Arts, entertainment, and recreation	705	696	767	889	0.980	0.944	0.897	0.760
Accommodation and food services	2,864	2,910	3,028	3,420	0.937	0.918	0.907	0.842
Other services, except public administration	2,744	2,864	2,848	3,083	0.950	1.011	0.990	0.966
Government and government enterprises	16,418	15,936	16,301	16,660	2.062	2.089	2.102	2.153
Federal, civilian	889	916	1,008	1,079	1.149	1.239	1.239	1.372
Military	419	432	460	483	0.724	0.755	0.791	0.824
State and local	15,110	14,588	14,833	15,098	2.339	2.354	2.363	2.405
State government	5,002	3,460	3,310	3,289	1.808	1.677	1.644	1.588
Local government	10,108	11,128	11,523	11,809	2.534	2.603	2.626	2.703

Table A2. Employment and Location Quotients, Arizona, New Mexico and Counties (4/8)

New Mexico Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	1,046,746	1,076,098	1,100,456	1,117,433	1.000	1.000	1.000	1.000
Wage and salary employment	845,127	868,119	878,315	881,422	0.998	1.001	1.000	1.002
Proprietors employment	201,619	207,979	222,141	236,011	1.007	0.995	0.998	0.991
Farm proprietors employment	15,588	15,255	18,183	17,855	1.370	1.367	1.554	1.521
Nonfarm proprietors employment 2/	186,031	192,724	203,958	218,156	0.985	0.974	0.967	0.963
Farm employment	23,262	22,829	25,794	24,532	1.444	1.449	1.583	1.510
Nonfarm employment	1,023,484	1,053,269	1,074,662	1,092,901	0.993	0.993	0.991	0.992
Private employment	804,832	838,993	864,806	880,216	0.908	0.918	0.924	0.926
Forestry, fishing, and related activities	5,239	5,136	5,167	5,410	1.053	1.028	1.004	1.025
Mining	21,171	23,726	24,865	27,555	4.192	4.175	4.015	3.877
Utilities	4,075	4,121	4,450	4,532	1.179	1.182	1.253	1.248
Construction	73,978	79,826	80,573	79,641	1.108	1.140	1.149	1.162
Manufacturing	41,106	42,710	42,732	41,611	0.460	0.476	0.482	0.480
Wholesale trade	28,377	29,288	29,116	29,399	0.738	0.739	0.723	0.728
Retail trade	116,097	116,750	118,932	119,843	1.024	1.014	1.022	1.033
Transportation and warehousing	25,321	25,953	27,443	27,691	0.743	0.737	0.755	0.748
Information	17,299	18,445	18,863	18,936	0.801	0.851	0.866	0.873
Finance and insurance	32,039	32,172	33,567	34,575	0.643	0.629	0.623	0.623
Real estate and rental and leasing	38,209	40,313	42,303	45,629	0.885	0.884	0.890	0.887
Professional, scientific, and technical services	66,337	73,827	81,492	83,672	1.000	1.067	1.116	1.102
Management of companies and enterprises	6,354	6,425	6,084	5,663	0.564	0.551	0.509	0.462
Administrative and waste services	55,224	58,489	60,352	60,954	0.874	0.886	0.890	0.901
Educational services	15,384	15,919	16,072	16,762	0.719	0.710	0.701	0.703
Health care and social assistance	105,151	108,016	111,576	115,883	1.029	1.018	1.013	1.014
Arts, entertainment, and recreation	21,463	21,795	22,867	23,887	1.022	1.005	1.006	1.007
Accommodation and food services	81,343	84,403	85,211	84,138	1.147	1.151	1.136	1.111
Other services, except public administration	50,665	51,679	53,141	54,435	0.849	0.849	0.851	0.857
Government and government enterprises	218,652	214,276	209,856	212,685	1.512	1.461	1.415	1.408
Federal, civilian	30,099	30,536	30,322	30,737	1.778	1.795	1.782	1.775
Military	16,258	15,764	15,118	14,277	1.323	1.265	1.210	1.117
State and local	172,295	167,976	164,416	167,671	1.493	1.433	1.384	1.386
State government	69,019	63,695	59,506	60,469	2.222	2.025	1.869	1.870
Local government	103,276	104,281	104,910	107,202	1.225	1.216	1.206	1.209

Dona Ana, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	85,708	87,931	89,942	91,977	1.000	1.000	1.000	1.000
Wage and salary employment	70,832	72,809	74,001	75,124	1.022	1.028	1.031	1.038
Proprietors employment	14,876	15,122	15,941	16,853	0.908	0.885	0.876	0.860
Farm proprietors employment	1,462	1,358	1,541	1,514	1.570	1.489	1.611	1.566
Nonfarm proprietors employment 2/	13,414	13,764	14,400	15,339	0.868	0.851	0.836	0.823
Farm employment	3,087	2,993	3,219	2,984	2.341	2.325	2.417	2.232
Nonfarm employment	82,621	84,938	86,723	88,993	0.979	0.980	0.979	0.982
Private employment	61,398	63,468	65,050	66,989	0.846	0.850	0.850	0.857
Forestry, fishing, and related activities	(D)	1,116	1,038	1,059	(D)	2.734	2.467	2.438
Mining	(D)	153	158	177	(D)	0.329	0.312	0.303
Utilities	278	302	325	332	0.982	1.060	1.119	1.111
Construction	6,208	6,932	6,850	6,378	1.136	1.211	1.196	1.130
Manufacturing	3,625	3,604	3,500	3,541	0.495	0.491	0.483	0.497
Wholesale trade	1,465	1,480	1,566	1,618	0.465	0.457	0.476	0.487
Retail trade	8,526	8,737	8,872	8,863	0.918	0.929	0.933	0.929
Transportation and warehousing	2,255	2,362	2,526	2,562	0.809	0.821	0.850	0.841
Information	1,317	1,327	1,225	1,147	0.744	0.749	0.688	0.642
Finance and insurance	1,956	2,030	2,135	2,383	0.480	0.485	0.485	0.522
Real estate and rental and leasing	2,639	2,637	2,642	2,863	0.747	0.708	0.680	0.676
Professional, scientific, and technical services	3,686	3,982	4,272	4,886	0.679	0.704	0.716	0.782
Management of companies and enterprises	149	154	152	133	0.161	0.162	0.156	0.132
Administrative and waste services	3,783	3,775	3,851	4,085	0.731	0.700	0.695	0.734
Educational services	863	880	841	867	0.493	0.480	0.449	0.442
Health care and social assistance	11,628	11,817	12,331	13,029	1.390	1.363	1.369	1.385
Arts, entertainment, and recreation	1,785	1,831	1,909	1,908	1.038	1.033	1.027	0.977
Accommodation and food services	5,996	6,240	6,596	6,589	1.032	1.041	1.076	1.057
Other services, except public administration	3,981	4,109	4,261	4,569	0.815	0.826	0.834	0.874
Government and government enterprises	21,223	21,470	21,673	22,004	1.792	1.791	1.788	1.769
Federal, civilian	3,559	3,621	3,713	3,857	2.568	2.605	2.669	2.706
Military	572	570	567	588	0.568	0.560	0.555	0.559
State and local	17,092	17,279	17,393	17,559	1.809	1.804	1.791	1.763
State government	8,790	8,742	8,804	8,818	3.456	3.401	3.383	3.313
Local government	8,302	8,537	8,589	8,741	1.202	1.218	1.208	1.198

Table A2. Employment and Location Quotients, Arizona, New Mexico and Counties (5/8)

Grant, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	14,024	14,510	14,639	14,738	1.000	1.000	1.000	1.000
Wage and salary employment	10,744	11,256	11,304	11,230	0.947	0.963	0.968	0.968
Proprietors employment	3,280	3,254	3,335	3,508	1.223	1.155	1.127	1.117
Farm proprietors employment	247	233	268	262	1.621	1.548	1.721	1.692
Nonfarm proprietors employment 2/	3,033	3,021	3,067	3,246	1.199	1.132	1.094	1.087
Farm employment	300	289	327	314	1.390	1.360	1.509	1.466
Nonfarm employment	13,724	14,221	14,312	14,424	0.994	0.995	0.992	0.993
Private employment	9,822	10,349	10,508	10,616	0.827	0.840	0.844	0.847
Forestry, fishing, and related activities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Mining	(D)	(D)	(D)	1,509	(D)	(D)	(D)	16.100
Utilities	44	46	63	(D)	0.950	0.978	1.333	(D)
Construction	954	941	958	987	1.067	0.997	1.027	1.092
Manufacturing	157	164	179	165	0.131	0.136	0.152	0.144
Wholesale trade	188	195	218	(D)	0.365	0.365	0.407	(D)
Retail trade	1,633	1,657	1,720	1,736	1.075	1.067	1.111	1.135
Transportation and warehousing	199	217	211	225	0.436	0.457	0.436	0.461
Information	199	186	180	171	0.687	0.636	0.621	0.597
Finance and insurance	289	277	279	283	0.433	0.401	0.389	0.387
Real estate and rental and leasing	500	479	453	492	0.864	0.779	0.717	0.725
Professional, scientific, and technical services	419	425	441	473	0.472	0.455	0.454	0.472
Management of companies and enterprises	170	242	259	258	1.126	1.538	1.630	1.596
Administrative and waste services	287	640	673	539	0.339	0.719	0.746	0.604
Educational services	140	162	187	193	0.489	0.536	0.613	0.614
Health care and social assistance	1,251	1,215	1,180	1,258	0.914	0.849	0.805	0.834
Arts, entertainment, and recreation	244	247	249	254	0.867	0.844	0.823	0.811
Accommodation and food services	1,125	1,165	1,109	1,040	1.184	1.178	1.112	1.041
Other services, except public administration	645	685	715	706	0.807	0.835	0.860	0.843
Government and government enterprises	3,902	3,872	3,804	3,808	2.014	1.958	1.928	1.911
Federal, civilian	223	221	205	206	0.983	0.964	0.905	0.902
Military	80	77	77	81	0.486	0.458	0.463	0.480
State and local	3,599	3,574	3,522	3,521	2.328	2.262	2.229	2.206
State government	1,637	1,608	1,513	1,527	3.934	3.791	3.572	3.581
Local government	1,962	1,966	2,009	1,994	1.736	1.700	1.737	1.705

Hidalgo, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	2,179	2,200	2,276	2,293	1.000	1.000	1.000	1.000
Wage and salary employment	1,618	1,644	1,686	1,677	0.918	0.927	0.929	0.929
Proprietors employment	561	556	590	616	1.346	1.301	1.282	1.260
Farm proprietors employment	124	116	132	130	5.237	5.083	5.453	5.395
Nonfarm proprietors employment 2/	437	440	458	486	1.112	1.088	1.050	1.046
Farm employment	226	209	217	205	6.741	6.488	6.440	6.150
Nonfarm employment	1,953	1,991	2,059	2,088	0.910	0.918	0.918	0.924
Private employment	1,409	1,404	1,428	1,417	0.764	0.752	0.738	0.727
Forestry, fishing, and related activities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Mining	(L)	10	11	(D)	(L)	0.861	0.859	(D)
Utilities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Construction	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Manufacturing	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Wholesale trade	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Retail trade	325	341	331	318	1.376	1.448	1.375	1.336
Transportation and warehousing	71	74	94	98	1.001	1.029	1.250	1.290
Information	(D)	27	(D)	25	(D)	0.609	(D)	0.561
Finance and insurance	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Real estate and rental and leasing	(D)	(D)	59	(D)	(D)	(D)	0.600	(D)
Professional, scientific, and technical services	40	(D)	(D)	(D)	0.290	(D)	(D)	(D)
Management of companies and enterprises	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Administrative and waste services	(D)	28	27	29	(D)	0.208	0.192	0.209
Educational services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Health care and social assistance	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Arts, entertainment, and recreation	16	(D)	(D)	(D)	0.366	(D)	(D)	(D)
Accommodation and food services	224	(D)	(D)	(D)	1.517	(D)	(D)	(D)
Other services, except public administration	82	85	92	(D)	0.660	0.683	0.712	(D)
Government and government enterprises	544	587	631	671	1.807	1.958	2.057	2.164
Federal, civilian	95	144	196	229	2.696	4.141	5.568	6.444
Military	13	13	13	13	0.508	0.510	0.503	0.496
State and local	436	430	422	429	1.815	1.795	1.717	1.728
State government	84	84	83	83	1.299	1.306	1.260	1.251
Local government	352	346	339	346	2.005	1.974	1.885	1.902

Table A2. Employment and Location Quotients, Arizona, New Mexico and Counties (6/8)

Lincoln, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	11,045	11,059	11,654	12,003	1.000	1.000	1.000	1.000
Wage and salary employment	7,337	7,263	7,647	7,726	0.821	0.815	0.822	0.818
Proprietors employment	3,708	3,796	4,007	4,277	1.756	1.767	1.700	1.672
Farm proprietors employment	278	259	294	287	2.316	2.258	2.372	2.275
Nonfarm proprietors employment 2/	3,430	3,537	3,713	3,990	1.722	1.740	1.663	1.640
Farm employment	374	356	394	375	2.201	2.198	2.284	2.149
Nonfarm employment	10,671	10,703	11,260	11,628	0.981	0.982	0.981	0.983
Private employment	9,284	9,318	9,896	10,246	0.993	0.992	0.999	1.004
Forestry, fishing, and related activities	131	(D)	176	175	2.495	(D)	3.228	3.087
Mining	149	(D)	170	215	2.796	(D)	2.592	2.817
Utilities	49	51	50	52	1.343	1.423	1.329	1.333
Construction	1,178	1,133	1,304	1,226	1.672	1.574	1.757	1.665
Manufacturing	188	170	171	162	0.199	0.184	0.182	0.174
Wholesale trade	101	90	89	95	0.249	0.221	0.209	0.219
Retail trade	1,538	1,492	1,474	1,545	1.285	1.261	1.196	1.240
Transportation and warehousing	215	206	191	195	0.598	0.570	0.496	0.491
Information	127	130	137	136	0.557	0.583	0.594	0.583
Finance and insurance	365	379	374	385	0.694	0.721	0.656	0.646
Real estate and rental and leasing	854	877	959	1,062	1.875	1.871	1.906	1.921
Professional, scientific, and technical services	611	598	617	619	0.873	0.841	0.798	0.759
Management of companies and enterprises	(D)	25	33	66	(D)	0.208	0.261	0.501
Administrative and waste services	(D)	423	530	541	(D)	0.624	0.738	0.745
Educational services	81	86	84	91	0.359	0.373	0.346	0.355
Health care and social assistance	777	759	781	788	0.721	0.696	0.669	0.642
Arts, entertainment, and recreation	790	776	826	902	3.565	3.481	3.431	3.538
Accommodation and food services	1,111	1,177	1,237	1,295	1.484	1.562	1.558	1.592
Other services, except public administration	617	649	693	696	0.980	1.038	1.047	1.020
Government and government enterprises	1,387	1,385	1,364	1,382	0.909	0.919	0.868	0.851
Federal, civilian	123	119	114	114	0.689	0.681	0.632	0.613
Military	56	55	54	56	0.432	0.429	0.408	0.408
State and local	1,208	1,211	1,196	1,212	0.992	1.005	0.951	0.933
State government	237	237	230	230	0.723	0.733	0.682	0.662
Local government	971	974	966	982	1.091	1.105	1.049	1.031

Luna, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	10,152	10,260	10,410	10,436	1.000	1.000	1.000	1.000
Wage and salary employment	8,290	8,327	8,331	8,246	1.010	1.007	1.003	1.004
Proprietors employment	1,862	1,933	2,079	2,190	0.959	0.970	0.988	0.984
Farm proprietors employment	155	147	171	167	1.405	1.381	1.545	1.523
Nonfarm proprietors employment 2/	1,707	1,786	1,908	2,023	0.932	0.947	0.957	0.957
Farm employment	368	361	388	357	2.356	2.403	2.518	2.353
Nonfarm employment	9,784	9,899	10,022	10,079	0.979	0.979	0.977	0.980
Private employment	7,817	7,831	7,850	7,752	0.910	0.899	0.887	0.874
Forestry, fishing, and related activities	(D)	(D)	510	(D)	(D)	(D)	10.471	(D)
Mining	(D)	(D)	22	(D)	(D)	(D)	0.376	(D)
Utilities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Construction	842	646	618	623	1.300	0.968	0.932	0.973
Manufacturing	1,218	1,281	1,163	1,140	1.406	1.497	1.388	1.409
Wholesale trade	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Retail trade	1,595	1,648	1,664	1,533	1.450	1.501	1.511	1.415
Transportation and warehousing	266	279	286	295	0.805	0.831	0.831	0.854
Information	36	33	34	33	0.172	0.160	0.165	0.163
Finance and insurance	182	187	204	187	0.377	0.383	0.400	0.361
Real estate and rental and leasing	259	290	296	319	0.619	0.667	0.659	0.664
Professional, scientific, and technical services	247	267	289	313	0.384	0.405	0.418	0.442
Management of companies and enterprises	20	(D)	(D)	(D)	0.183	(D)	(D)	(D)
Administrative and waste services	223	(D)	(D)	(D)	0.364	(D)	(D)	(D)
Educational services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Health care and social assistance	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Arts, entertainment, and recreation	107	102	110	114	0.525	0.493	0.511	0.514
Accommodation and food services	712	758	860	830	1.035	1.084	1.212	1.174
Other services, except public administration	471	463	491	503	0.814	0.798	0.831	0.848
Government and government enterprises	1,967	2,068	2,172	2,327	1.402	1.479	1.548	1.649
Federal, civilian	294	350	422	529	1.791	2.158	2.621	3.271
Military	71	70	70	74	0.596	0.589	0.592	0.620
State and local	1,602	1,648	1,680	1,724	1.431	1.475	1.495	1.526
State government	328	340	350	345	1.089	1.134	1.162	1.143
Local government	1,274	1,308	1,330	1,379	1.557	1.600	1.617	1.665

Table A2. Employment and Location Quotients, Arizona, New Mexico and Counties (7/8)

Otero, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	28,735	28,126	28,256	28,216	1.000	1.000	1.000	1.000
Wage and salary employment	23,276	22,664	22,591	22,225	1.002	1.000	1.002	1.001
Proprietors employment	5,459	5,462	5,665	5,991	0.993	1.000	0.991	0.996
Farm proprietors employment	462	402	426	418	1.480	1.378	1.418	1.410
Nonfarm proprietors employment 2/	4,997	5,060	5,239	5,573	0.964	0.979	0.968	0.975
Farm employment	568	524	566	541	1.285	1.272	1.353	1.319
Nonfarm employment	28,167	27,602	27,690	27,675	0.996	0.996	0.995	0.995
Private employment	17,134	16,949	17,153	17,418	0.704	0.710	0.714	0.726
Forestry, fishing, and related activities	(D)	202	(D)	(D)	(D)	1.547	(D)	(D)
Mining	(D)	71	54	67	(D)	0.478	0.340	0.373
Utilities	67	72	(D)	(D)	0.706	0.790	(D)	(D)
Construction	2,063	2,016	1,887	1,969	1.126	1.101	1.048	1.137
Manufacturing	278	333	326	397	0.113	0.142	0.143	0.181
Wholesale trade	307	306	236	277	0.291	0.295	0.228	0.272
Retail trade	2,986	2,936	3,121	3,137	0.959	0.976	1.044	1.071
Transportation and warehousing	655	676	671	632	0.701	0.735	0.719	0.676
Information	295	301	310	304	0.497	0.531	0.554	0.555
Finance and insurance	641	608	601	610	0.469	0.455	0.435	0.435
Real estate and rental and leasing	900	960	1,045	1,147	0.759	0.805	0.857	0.883
Professional, scientific, and technical services	1,079	1,124	1,117	1,139	0.593	0.621	0.596	0.594
Management of companies and enterprises	58	56	45	43	0.187	0.184	0.147	0.139
Administrative and waste services	1,549	1,260	1,350	1,149	0.893	0.730	0.775	0.673
Educational services	141	159	158	155	0.240	0.271	0.268	0.258
Health care and social assistance	2,444	2,522	2,569	2,650	0.872	0.909	0.908	0.918
Arts, entertainment, and recreation	247	280	287	296	0.428	0.494	0.492	0.494
Accommodation and food services	1,883	1,795	1,805	1,758	0.967	0.937	0.937	0.920
Other services, except public administration	1,271	1,272	1,295	1,372	0.776	0.800	0.807	0.856
Government and government enterprises	11,033	10,653	10,537	10,257	2.779	2.779	2.767	2.688
Federal, civilian	1,988	2,007	1,925	1,892	4.279	4.514	4.405	4.326
Military	3,833	3,718	3,717	3,521	11.361	11.413	11.587	10.909
State and local	5,212	4,928	4,895	4,844	1.645	1.609	1.605	1.585
State government	943	949	948	949	1.106	1.154	1.159	1.162
Local government	4,269	3,979	3,947	3,895	1.844	1.775	1.768	1.740

Sierra, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	4,599	4,648	4,803	5,115	1.000	1.000	1.000	1.000
Wage and salary employment	3,093	3,142	3,220	3,457	0.832	0.839	0.840	0.859
Proprietors employment	1,506	1,506	1,583	1,658	1.712	1.668	1.630	1.521
Farm proprietors employment	210	200	231	226	4.202	4.148	4.522	4.205
Nonfarm proprietors employment 2/	1,296	1,306	1,352	1,432	1.562	1.528	1.469	1.382
Farm employment	363	352	385	361	5.130	5.172	5.414	4.855
Nonfarm employment	4,236	4,296	4,418	4,754	0.935	0.938	0.934	0.943
Private employment	3,295	3,365	3,512	3,817	0.846	0.853	0.860	0.878
Forestry, fishing, and related activities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Mining	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Utilities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Construction	337	394	463	517	1.149	1.303	1.513	1.647
Manufacturing	133	146	159	163	0.339	0.377	0.411	0.411
Wholesale trade	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Retail trade	479	489	517	606	0.961	0.983	1.018	1.142
Transportation and warehousing	81	85	90	94	0.541	0.559	0.567	0.555
Information	24	26	25	24	0.253	0.278	0.263	0.242
Finance and insurance	100	97	105	113	0.457	0.439	0.447	0.445
Real estate and rental and leasing	194	196	193	216	1.023	0.995	0.931	0.917
Professional, scientific, and technical services	278	269	286	273	0.954	0.900	0.897	0.786
Management of companies and enterprises	-	-	-	-	-	-	-	-
Administrative and waste services	71	74	80	95	0.256	0.260	0.270	0.307
Educational services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Health care and social assistance	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Arts, entertainment, and recreation	118	117	(D)	(D)	1.279	1.249	(D)	(D)
Accommodation and food services	497	481	(D)	(D)	1.595	1.519	(D)	(D)
Other services, except public administration	302	282	290	298	1.152	1.073	1.063	1.025
Government and government enterprises	941	931	906	937	1.481	1.470	1.400	1.355
Federal, civilian	108	103	98	115	1.452	1.402	1.319	1.451
Military	34	33	32	34	0.630	0.613	0.587	0.581
State and local	799	795	776	788	1.576	1.570	1.497	1.423
State government	311	311	293	297	2.279	2.289	2.108	2.007
Local government	488	484	483	491	1.317	1.307	1.273	1.210

Table A2. Employment and Location Quotients, Arizona, New Mexico and Counties (8/8)

Socorro, NM Category	Employment 2005	Employment 2006	Employment 2007	Employment 2008	Location Quotient 2005	Location Quotient 2006	Location Quotient 2007	Location Quotient 2008
Total employment	8,219	8,315	8,568	8,795	1.000	1.000	1.000	1.000
Wage and salary employment	6,270	6,307	6,369	6,491	0.943	0.941	0.932	0.938
Proprietors employment	1,949	2,008	2,199	2,304	1.240	1.243	1.269	1.229
Farm proprietors employment	402	395	471	463	4.501	4.579	5.169	5.010
Nonfarm proprietors employment 2/	1,547	1,613	1,728	1,841	1.044	1.055	1.053	1.033
Farm employment	563	554	630	603	4.452	4.550	4.967	4.717
Nonfarm employment	7,656	7,761	7,938	8,192	0.946	0.947	0.940	0.945
Private employment	4,574	4,701	4,916	5,063	0.657	0.666	0.675	0.677
Forestry, fishing, and related activities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Mining	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Utilities	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Construction	243	260	255	271	0.464	0.481	0.467	0.502
Manufacturing	210	240	254	255	0.299	0.346	0.368	0.374
Wholesale trade	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Retail trade	691	669	675	674	0.776	0.752	0.745	0.738
Transportation and warehousing	146	134	136	143	0.546	0.493	0.480	0.491
Information	69	67	69	67	0.407	0.400	0.407	0.392
Finance and insurance	145	145	180	182	0.371	0.367	0.429	0.417
Real estate and rental and leasing	219	215	220	241	0.646	0.610	0.595	0.595
Professional, scientific, and technical services	700	702	680	695	1.344	1.313	1.196	1.163
Management of companies and enterprises	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Administrative and waste services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Educational services	(D)	(D)	51	(D)	(D)	(D)	0.286	(D)
Health care and social assistance	(D)	(D)	786	(D)	(D)	(D)	0.916	(D)
Arts, entertainment, and recreation	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Accommodation and food services	(D)	(D)	(D)	(D)	(D)	(D)	(D)	(D)
Other services, except public administration	315	325	336	344	0.673	0.691	0.691	0.688
Government and government enterprises	3,082	3,060	3,022	3,129	2.714	2.700	2.617	2.631
Federal, civilian	237	241	226	220	1.783	1.834	1.705	1.614
Military	49	48	47	49	0.508	0.498	0.483	0.487
State and local	2,796	2,771	2,749	2,860	3.086	3.060	2.972	3.003
State government	1,791	1,768	1,744	1,821	7.344	7.274	7.034	7.156
Local government	1,005	1,003	1,005	1,039	1.518	1.514	1.484	1.489

County Business Pattern Employment Estimation Methodology

In the following Table A3, County Business Pattern data is used to compute location quotients. The data in this section is highly aggregated with only 20 employment sectors for each area/county. The reason this database is used in addition to the REIS database in the previous Appendix is that employment ranges are provided for all the missing, non-disclosed data. For sectors with missing employment figures, the Census Bureau provides letters A-M, each of which represent a range of employment, e.g., A is 0-19, B is 20-50,….M is 100,000+. For some counties, there is only one missing category; for others, there are as many as 12 out of the 20 major economic sectors missing. In most cases of missing employment figures, the annual payroll figures are also missing. However, in the few cases where annual payroll data is provided, that data is used to estimate employment. Several methods were employed to estimate missing employment figures. The following outlines the methods employed:

R: The residual method simply subtracts the sum of the reported categories from the reported total. The resulting estimate is checked to be sure it falls within the employment range provided by the Census Bureau. In some cases, two or three categories that had the same employment range, as designated by the same letter, were determined by dividing the residual up between/among the sectors. The residual method was applied after other sectors' employment was determined using other methods.

M: The midpoint method simply uses the midpoint of the employment range provided by the Census Bureau. Sometimes M- and M+ is used to indicate that the midpoint is reduced or increased because using the midpoint results in other, residual-determined, categories to be too small or too large for the specified range.

P: The payroll method is used when the Census Bureau provides annual payroll figures for a sector, but only provides letters representing employment ranges. The payroll method divides the county payroll figures for the county by the (state payroll/state employment) in the corresponding sector. The resulting employment estimate is checked to be sure it is within the reported range. P- and P+ are used to indicate that other estimates fell outside the required range so the categories marked with P- or P+ had to be adjusted down or up accordingly.

Each location quotient is accompanied by a letter indicating the method used to estimate county employment. Thus, location quotients with a notation next to it, indicates that the underlying employment data had to be estimated and should be interpreted carefully.

Table A3. Methodology for Estimating Missing Data and County Business Pattern Location Quotients (1/6 pages)

Industry Code	Industry Code Description	Paid Employees for pay-period including March 12	Annual Payroll ($1,000)	Total Number of Estab.	Estimated Paid Employees for pay-period including March 12		Employment Shares	Location Quotient
UNITED STATES								
11	Forestry, Fishing, Hunting and Agricultural Support	172,105	5,564,225	23,645	172,105		0.0014270	
21	Mining	700,887	40,444,016	26,202	700,887		0.0058115	
22	Utilities	622,757	51,124,656	16,674	622,757		0.0051636	
23	Construction	7,267,883	336,131,094	811,452	7,267,883		0.0602622	
31	Manufacturing	13,320,172	626,529,930	331,355	13,320,172		0.1104453	
42	Wholesale Trade	5,964,850	327,990,681	434,464	5,964,850		0.0494580	
44	Retail Trade	15,759,928	375,200,265	1,123,629	15,759,928		0.1306747	
48	Transportation and Warehousing	4,395,432	175,479,796	219,806	4,395,432		0.0364451	
51	Information	3,399,313	223,097,632	143,779	3,399,313		0.0281857	
52	Finance and Insurance	6,548,868	510,557,742	508,091	6,548,868		0.0543005	
53	Real Estate and Rental and Leasing	2,224,175	89,013,549	380,138	2,224,175		0.0184419	
54	Professional Scientific and Technical Services	8,179,941	532,997,294	867,556	8,179,941		0.0678246	
55	Management of Companies and Enterprises	3,121,402	292,691,203	50,643	3,121,402		0.0258814	
56	Admin. & Support & Waste Mgt & Remediation Service	9,983,661	299,933,212	384,501	9,983,661		0.0827803	
61	Educational Services	3,039,385	94,112,286	86,896	3,039,385		0.0252013	
62	Health Care and Social Assistance	16,797,647	668,271,254	784,231	16,797,647		0.1392790	
71	Arts, Entertainment and Recreation	2,008,567	60,357,153	125,222	2,008,567		0.0166542	
72	Accomodation and Food Services	11,564,864	176,343,816	632,489	11,564,864		0.0958910	
81	Other Services	5,519,773	140,671,497	744,252	5,519,773		0.0457676	
99	Unclassified	12,655	266,931	9,993	12,655		0.0001049	
Total		**120,604,265**	**5,026,778,232**	**7,705,018**	**120,604,265**		**1.0000000**	
ARIZONA								
11	Forestry, Fishing, Hunting and Agricultural Support	1,429	35,203	201	1,429		0.0005944	0.42
21	Mining	11112	599773	246	11,112		0.0046221	0.80
22	Utilities	J	D	229	15,670	R	0.0065181	1.26
23	Construction	237252	9303932	16781	237,252		0.0986869	1.64
31	Manufacturing	172492	8692662	5038	172,492		0.0717494	0.65
42	Wholesale Trade	99104	5239270	6965	99,104		0.0412231	0.83
44	Retail Trade	342349	8240544	19341	342,349		0.1424028	1.09
48	Transportation and Warehousing	84580	3315931	3378	84,580		0.0351817	0.97
51	Information	52693	2973845	2325	52,693		0.0219181	0.78
52	Finance and Insurance	145473	7870737	10605	145,473		0.0605107	1.11
53	Real Estate and Rental and Leasing	55799	2208375	9430	55,799		0.0232100	1.26
54	Professional Scientific and Technical Services	137920	7689742	17019	137,920		0.0573689	0.85
55	Management of Companies and Enterprises	64371	4321992	848	64,371		0.0267756	1.03
56	Admin. & Support & Waste Mgt & Remediation Service	268593	8196259	8497	268,593		0.1117234	1.35
61	Educational Services	44661	1481941	1791	44,661		0.0185771	0.74
62	Health Care and Social Assistance	275846	11831216	15496	275,846		0.1147403	0.82
71	Arts, Entertainment and Recreation	47639	1456011	1850	47,639		0.0198158	1.19
72	Accomodation and Food Services	255049	3834483	11527	255,049		0.1060897	1.11
81	Other Services	91855	2223629	11224	91,855		0.0382078	0.83
99	Unclassified	202	2963	134	202		0.0000840	0.80
Total		**2,404,089**	**90,797,015**	**142,925**	**2,404,089**		**1.0000000**	
Cochise County, AZ								
11	Forestry, Fishing, Hunting and Agricultural Support	C	2,133	6	196	R	0.0065043	4.56
21	Mining	B	3,455	12	64	P	0.0021242	0.37
22	Utilities	479	32,605	26	479		0.0158957	3.08
23	Construction	2,364	65,680	313	2,364		0.0784496	1.30
31	Manufacturing	654	19,777	53	654		0.0217031	0.20
42	Wholesale Trade	475	13,641	69	475		0.0157629	0.32
44	Retail Trade	6,457	130,424	456	6,457		0.2142762	1.64
48	Transportation and Warehousing	518	15,571	84	518		0.0171899	0.47
51	Information	451	17,064	44	451		0.0149665	0.53
52	Finance and Insurance	626	18,669	113	626		0.0207739	0.38
53	Real Estate and Rental and Leasing	494	12,360	135	494		0.0163934	0.89
54	Professional Scientific and Technical Services	4,399	255,307	219	4,399		0.1459813	2.15
55	Management of Companies and Enterprises	162	9,345	8	162		0.0053760	0.21
56	Administrative & Support & Waste Mgt & Remediation S	1,477	54,474	115	1,477		0.0490144	0.59
61	Educational Services	481	9,715	36	481		0.0159620	0.63
62	Health Care and Social Assistance	4,911	163,363	273	4,911		0.1629721	1.17
71	Arts, Entertainment and Recreation	386	5,063	36	386		0.0128095	0.77
72	Accomodation and Food Services	4,396	50,723	279	4,396		0.1458817	1.52
81	Other Services	1124	18,700	245	1,124		0.0373001	0.81
99	Unclassified	20	50	3	20		0.0006637	6.33
Total		**30,134**	**898,109**	**2525**	**30,134**		**1.0000004**	

Table A3. Methodology for Estimating Missing Data and County Business Pattern Location Quotients (continued 2/6)

Industry Code	Industry Code Description	Paid Employees for pay-period including March 12	Annual Payroll ($1,000)	Total Number of Estab.	Estimated Paid Employees for pay-period including March 12		Employment Shares	Location Quotient
Graham County, AZ								
11	Forestry, Fishing, Hunting and Agricultural Support	B	D	3	60	M	0.0063198	4.43
21	Mining	H	D	4	2,783	R	0.2931325	50.44
22	Utilities	B	D	5	60	M	0.0063198	1.22
23	Construction	579	16,944	93	579		0.0609859	1.01
31	Manufacturing	E	6,228	18	375	M	0.0394986	0.36
42	Wholesale Trade	265	9,190	23	265		0.0279124	0.56
44	Retail Trade	1,550	35,966	93	1,550		0.1632610	1.25
48	Transportation and Warehousing	186	7,436	26	186		0.0195913	0.54
51	Information	115	2,933	12	115		0.0121129	0.43
52	Finance and Insurance	C	3,973	22	125	M	0.0131662	0.24
53	Real Estate and Rental and Leasing	142	2,512	27	142		0.0149568	0.81
54	Professional Scientific and Technical Services	511	12,050	27	511		0.0538235	0.79
55	Management of Companies and Enterprises	A	D	2	10	M	0.0010533	0.04
56	Admin. & Support & Waste Mgt & Remediation Service:	115	2,458	11	115		0.0121129	0.15
61	Educational Services	70	1,070	8	70		0.0073731	0.29
62	Health Care and Social Assistance	1,167	38,755	71	1,167		0.1229197	0.88
71	Arts, Entertainment and Recreation	41	408	8	41		0.0043185	0.26
72	Accomodation and Food Services	995	8,296	53	995		0.1048030	1.09
81	Other Services	335	10,491	55	335		0.0352854	0.77
99	Unclassified	A	D	1	10	M	0.0010533	10.04
Total		**9,494**	**325,405**	**562**	**9,494**		**1.0000000**	
Greenlee County, AZ								
11	Forestry, Fishing, Hunting and Agricultural Support	N/A	N/A	N/A	N/A		0.0000000	-
21	Mining	N/A	N/A	N/A	N/A		0.0000000	-
22	Utilities	46	2,091	4	46		0.0668605	12.95
23	Construction	20	432	4	20		0.0290698	0.48
31	Manufacturing	N/A	N/A	N/A	N/A		0.0000000	-
42	Wholesale Trade	B	D	3	60	M	0.0872093	1.76
44	Retail Trade	C	2,875	19	116	R	0.1686047	1.29
48	Transportation and Warehousing	14	399	4	14		0.0203488	0.56
51	Information	A	D	6	10	M	0.0145349	0.52
52	Finance and Insurance	A	D	6	10	M	0.0145349	0.27
53	Real Estate and Rental and Leasing	B	D	3	60	M	0.0872093	4.73
54	Professional Scientific and Technical Services	29	379	4	29		0.0421512	0.62
55	Management of Companies and Enterprises	A	D	1	10	M	0.0145349	0.56
56	Admin. & Support & Waste Mgt & Remediation Service:	A	D	1	10	M	0.0145349	0.18
61	Educational Services	N/A	N/A	N/A	N/A		0.0000000	-
62	Health Care and Social Assistance	119	4,014	8	119		0.1729651	1.24
71	Arts, Entertainment and Recreation	A	D	2	10	M	0.0145349	0.87
72	Accomodation and Food Services	114	1,883	15	114		0.1656977	1.73
81	Other Services	B	D	6	60	M	0.0872093	1.91
99	Unclassified	N/A	N/A	N/A	N/A		0.0000000	-
Total		**688**	**15,596**	**86**	**688**		**1.0000000**	
Pima County, AZ								
11	Forestry, Fishing, Hunting and Agricultural Support	157	3,769	22	157		0.0004709	0.33
21	Mining	2,194	124,581	34	2,194		0.0065801	1.13
22	Utilities	G	D	26	1,736	R	0.0052065	1.01
23	Construction	31,025	1,123,944	2,328	31,025		0.0930480	1.54
31	Manufacturing	29,495	1,839,543	760	29,495		0.0884593	0.80
42	Wholesale Trade	8,865	385,327	856	8,865		0.0265873	0.54
44	Retail Trade	51,225	1,211,186	2,962	51,225		0.1536304	1.18
48	Transportation and Warehousing	8,052	311,718	432	8,052		0.0241490	0.66
51	Information	8,207	391,991	331	8,207		0.0246139	0.87
52	Finance and Insurance	12,063	548,114	1,421	12,063		0.0361785	0.67
53	Real Estate and Rental and Leasing	8,351	262,152	1,455	8,351		0.0250457	1.36
54	Professional Scientific and Technical Services	17,310	845,719	2,714	17,310		0.0519149	0.77
55	Management of Companies and Enterprises	5,907	399,476	125	5,907		0.0177159	0.68
56	Admin. & Support & Waste Mgt & Remediation Service:	25,812	560,302	1,291	25,812		0.0774136	0.94
61	Educational Services	5,528	145,825	322	5,528		0.0165792	0.66
62	Health Care and Social Assistance	50,929	2,105,295	2,675	50,929		0.1527427	1.10
71	Arts, Entertainment and Recreation	8,464	180,873	326	8,464		0.0253846	1.52
72	Accomodation and Food Services	42,531	586,275	1,739	42,531		0.1275560	1.33
81	Other Services	15,556	352,756	1,880	15,556		0.0466545	1.02
99	Unclassified	23	318	26	23		0.0000690	0.66
Total		**333,430**	**11,506,905**	**21,725**	**333,430**		**1.0000000**	

Table A3. Methodology for Estimating Missing Data and County Business Pattern Location Quotients (continued 3/6)

Industry Code	Industry Code Description	Paid Employees for pay-period including March 12	Annual Payroll ($1,000)	Total Number of Estab.	Estimated Paid Employees for pay-period including March 12		Employment Shares	Location Quotient
Pinal County, AZ								
11	Forestry, Fishing, Hunting and Agricultural Support	78	2,332	7	78		0.0018515	1.30
21	Mining	346	18,337	25	346		0.0082131	1.41
22	Utilities	283	16,290	15	283		0.0067176	1.30
23	Construction	3,997	128,200	462	3,997		0.0948775	1.57
31	Manufacturing	3,851	147,048	126	3,851		0.0914119	0.83
42	Wholesale Trade	1,282	70,825	128	1,282		0.0304311	0.62
44	Retail Trade	8,584	179,750	521	8,584		0.2037600	1.56
48	Transportation and Warehousing	1,507	46,501	135	1,507		0.0357719	0.98
51	Information	399	15,482	39	399		0.0094711	0.34
52	Finance and Insurance	1,117	49,175	202	1,117		0.0265144	0.49
53	Real Estate and Rental and Leasing	822	19,419	203	822		0.0195120	1.06
54	Professional Scientific and Technical Services	903	26,131	237	903		0.0214347	0.32
55	Management of Companies and Enterprises	B	D	5	91	R	0.0021601	0.08
56	Admin. & Support & Waste Mgt & Remediation Service:	3,793	125,149	175	3,793		0.0900351	1.09
61	Educational Services	388	10,414	34	388		0.0092100	0.37
62	Health Care and Social Assistance	5,582	208,934	322	5,582		0.1325009	0.95
71	Arts, Entertainment and Recreation	1,317	14,152	52	1,317		0.0312619	1.88
72	Accomodation and Food Services	5,886	84,683	323	5,886		0.1397171	1.46
81	Other Services	1,892	34,603	311	1,892		0.0449107	0.98
99	Unclassified	A	D	2	10	M	0.0002374	2.26
Total		**42,128**	**1,199,177**	**3,324**	**42,128**		**1.0000000**	
NEW MEXICO								
11	Forestry, Fishing, Hunting and Agricultural Support	563	16720	102	563		0.0008767	0.61
21	Mining	19537	1111899	683	19,537		0.0304228	5.23
22	Utilities	4291	274578	221	4,291		0.0066819	1.29
23	Construction	55309	2011989	5896	55,309		0.0861265	1.43
31	Manufacturing	34535	1482774	1540	34,535		0.0537775	0.49
42	Wholesale Trade	22393	926959	2011	22,393		0.0348701	0.71
44	Retail Trade	99908	2377225	7242	99,908		0.1555756	1.19
48	Transportation and Warehousing	17153	596641	1379	17,153		0.0267105	0.73
51	Information	12825	481370	821	12,825		0.0199709	0.71
52	Finance and Insurance	25906	1685808	2978	25,906		0.0403405	0.74
53	Real Estate and Rental and Leasing	11306	354618	2516	11,306		0.0176056	0.95
54	Professional Scientific and Technical Services	44729	2604905	4923	44,729		0.0696515	1.03
55	Management of Companies and Enterprises	10877	703782	236	10,877		0.0169375	0.65
56	Admin. & Support & Waste Mgt & Remediation Servic	45592	1121564	1955	45,592		0.0709953	0.86
61	Educational Services	9958	253107	604	9,958		0.0155065	0.62
62	Health Care and Social Assistance	103803	3852391	4742	103,803		0.1616408	1.16
71	Arts, Entertainment and Recreation	14833	315055	699	14,833		0.0230978	1.39
72	Accomodation and Food Services	81036	1083270	4122	81,036		0.1261883	1.32
81	Other Services	27576	633945	4154	27,576		0.0429410	0.94
99	Unclassified	53	867	45	53		0.0000825	0.79
Total		**642183**	**21889467**	**46869**	**642,183**		**1.0000000**	
Doña Ana County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	176	4,689	13	176		0.0036749	2.58
21	Mining	113	3,741	9	113		0.0023594	0.41
22	Utilities	253	15,210	22	253		0.0052826	1.02
23	Construction	4,748	125,237	608	4,748		0.0991377	1.65
31	Manufacturing	2,455	84,711	141	2,455		0.0512601	0.46
42	Wholesale Trade	1,160	36,923	125	1,160		0.0242207	0.49
44	Retail Trade	8,021	163,535	530	8,021		0.1674775	1.28
48	Transportation and Warehousing	1,323	30,138	151	1,323		0.0276241	0.76
51	Information	444	18,145	49	444		0.0092707	0.33
52	Finance and Insurance	1,585	56,889	231	1,585		0.0330946	0.61
53	Real Estate and Rental and Leasing	980	23,507	239	980		0.0204623	1.11
54	Professional Scientific and Technical Services	3,047	133,639	319	3,047		0.0636210	0.94
55	Management of Companies and Enterprises	E	D	11	311	R	0.0064936	0.25
56	Admin. & Support & Waste Mgt & Remediation Service:	2,725	60,924	175	2,725		0.0568977	0.69
61	Educational Services	506	10,624	39	506		0.0105652	0.42
62	Health Care and Social Assistance	10,729	323,496	470	10,729		0.2240202	1.61
71	Arts, Entertainment and Recreation	1,272	20,267	41	1,272		0.0265592	1.59
72	Accomodation and Food Services	6,056	66,674	304	6,056		0.1264485	1.32
81	Other Services	1,979	39,974	326	1,979		0.0413213	0.90
99	Unclassified	A	D	2	10	M	0.0002088	1.99
Total		**47,893**	**1,238,856**	**3,805**	**47,893**		**1.0000000**	

Table A3. Methodology for Estimating Missing Data and County Business Pattern Location Quotients (continued 4/6)

Industry Code	Industry Code Description	Paid Employees for pay-period including March 12	Annual Payroll ($1,000)	Total Number of Estab.	Estimated Paid Employees for pay-period including March 12		Employment Shares	Location Quotient
Grant County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	A	156	3	5	P	0.0006573	0.46
21	Mining	G	D	7	1,191	R	0.1490240	25.64
22	Utilities	B	D	6	60	M	0.0075075	1.45
23	Construction	1,165	36,934	106	1,165		0.1457708	2.42
31	Manufacturing	156	4,067	9	156		0.0195195	0.18
42	Wholesale Trade	124	4,059	18	124		0.0155155	0.31
44	Retail Trade	1,331	26,463	135	1,331		0.1665415	1.27
48	Transportation and Warehousing	122	2,773	19	122		0.0152653	0.42
51	Information	C	D	19	125	M	0.0156406	0.55
52	Finance and Insurance	239	6,741	35	239		0.0299049	0.55
53	Real Estate and Rental and Leasing	128	2,687	44	128		0.0160160	0.87
54	Professional Scientific and Technical Services	164	4,015	47	164		0.0205205	0.30
55	Management of Companies and Enterprises	249	9,114	5	249		0.0311562	1.20
56	Admin. & Support & Waste Mgt & Remediation Service:	85	2,685	18	85		0.0106356	0.13
61	Educational Services	92	924	9	92		0.0115115	0.46
62	Health Care and Social Assistance	1,434	46,495	94	1,434		0.1794294	1.29
71	Arts, Entertainment and Recreation	B	712	13	34	P	0.0041944	0.25
72	Accomodation and Food Services	1,000	8,673	75	1,000		0.1251251	1.30
81	Other Services	283	5,034	78	283		0.0354104	0.77
99	Unclassified	A	D	1	10	M	0.0012513	11.92
Total		**7,992**		**741**	**7,992**		**1.0005974**	
Hidalgo County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	A	D	1	8	M-	0.0088790	6.22
21	Mining	B	D	2	30	1/3R	0.0332963	5.73
22	Utilities	A	D	3	8	M-	0.0088790	1.72
23	Construction	20	350	6	20		0.0221976	0.37
31	Manufacturing	B	D	1	30	1/3R	0.0332963	0.30
42	Wholesale Trade	A	D	2	8	M-	0.0088790	0.18
44	Retail Trade	290	5,062	36	290		0.3218646	2.46
48	Transportation and Warehousing	34	1,560	11	34		0.0377358	1.04
51	Information	10	250	3	10		0.0110988	0.39
52	Finance and Insurance	B	D	4	30	1/3R	0.0332963	0.61
53	Real Estate and Rental and Leasing	A	D	2	8	M-	0.0088790	0.48
54	Professional Scientific and Technical Services	A	D	2	8	M-	0.0088790	0.13
55	Management of Companies and Enterprises	N/A	N/A	N/A	N/A		0.0000000	-
56	Admin. & Support & Waste Mgt & Remediation Service:	A	D	2	8	M-	0.0088790	0.11
61	Educational Services	A	D	1	8	M-	0.0088790	0.35
62	Health Care and Social Assistance	98	1,529	10	98		0.1087680	0.78
71	Arts, Entertainment and Recreation	N/A	N/A	N/A	N/A		0.0000000	-
72	Accomodation and Food Services	283	2,833	18	283		0.3140954	3.28
81	Other Services (Except Public Administration)	B	433	8	20	P+	0.0221976	0.49
99	Unclassified	N/A	N/A	N/A	N/A		0.0000000	-
Total		**901**	**16,953**	**112**	**901**		**1.0000000**	
Lincoln County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	40	1,074	6	40		0.0071200	4.99
21	Mining	A	D	1	10	M	0.0017800	0.31
22	Utilities	B	3,666	7	77	P+	0.0137577	2.66
23	Construction	421	10,508	141	421		0.0749377	1.24
31	Manufacturing	100	2,145	22	100		0.0177999	0.16
42	Wholesale Trade	35	1,386	13	35		0.0062300	0.13
44	Retail Trade	1,185	25,829	151	1,185		0.2109292	1.61
48	Transportation and Warehousing	80	1,142	13	80		0.0142399	0.39
51	Information	46	1,647	8	46		0.0081880	0.29
52	Finance and Insurance	278	9,256	49	278		0.0494838	0.91
53	Real Estate and Rental and Leasing	204	4,217	72	204		0.0363119	1.97
54	Professional Scientific and Technical Services	192	6,704	62	192		0.0341759	0.50
55	Management of Companies and Enterprises	B	1,045	4	21	P+	0.0037648	0.15
56	Admin. & Support & Waste Mgt & Remediation Service:	232	4,661	27	232		0.0412958	0.50
61	Educational Services	22	191	4	22		0.0039160	0.16
62	Health Care and Social Assistance	617	23,076	46	617		0.1098256	0.79
71	Arts, Entertainment and Recreation	716	14,092	27	716		0.1274475	7.65
72	Accomodation and Food Services	1,040	15,083	102	1,040		0.1851193	1.93
81	Other Services (Except Public Administration)	292	5,893	61	292		0.0519758	1.14
99	Unclassified	A	D	1	10	M	0.0017800	16.96
Total		**5,618**	**131,667**	**817**	**5,618**		**1.0000786**	

Table A3. Methodology for Estimating Missing Data and County Business Pattern Location Quotients (continued 5/6)

Industry Code	Industry Code Description	Paid Employees for pay-period including March 12	Annual Payroll ($1,000)	Total Number of Estab.	Estimated Paid Employees for pay-period including March 12		Employment Shares	Location Quotient
Luna County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	A	D	2	10	M	0.0019604	1.37
21	Mining	A	D	1	10	M	0.0019604	0.34
22	Utilities	B	D	2	60	M	0.0117624	2.28
23	Construction	266	5,233	47	266		0.0521466	0.87
31	Manufacturing	725	19,039	13	725		0.1421290	1.29
42	Wholesale Trade	E	D	19	286	R	0.0560674	1.13
44	Retail Trade	1,140	21,026	74	1,140		0.2234856	1.71
48	Transportation and Warehousing	152	4,496	21	152		0.0297981	0.82
51	Information	B	D	11	60	M	0.0117624	0.42
52	Finance and Insurance	C	4,346	24	125	M	0.0245050	0.45
53	Real Estate and Rental and Leasing	72	1,209	25	72		0.0141149	0.77
54	Professional Scientific and Technical Services	89	2,522	25	89		0.0174476	0.26
55	Management of Companies and Enterprises	A	D	1	10	M	0.0019604	0.08
56	Admin. & Support & Waste Mgt & Remediation Service:	89	2,376	19	89		0.0174476	0.21
61	Educational Services	A	D	2	10	M	0.0019604	0.08
62	Health Care and Social Assistance	843	26,238	47	843		0.1652617	1.19
71	Arts, Entertainment and Recreation	42	523	4	42		0.0082337	0.49
72	Accomodation and Food Services	958	8,658	59	958		0.1878063	1.96
81	Other Services (Except Public Administration)	154	2,278	41	154		0.0301902	0.66
99	Unclassified	N/A	N/A	N/A	N/A		0.0000000	-
Total		**5,101**	**109,892**	**437**	**5,101**		**1.0000000**	
Otero County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	B	D	1	60	M	0.0048477	3.40
21	Mining	B	D	4	60	M	0.0048477	0.83
22	Utilities	125	6,414	15	125		0.0100994	1.96
23	Construction	1,169	31,761	165	1,169		0.0944494	1.57
31	Manufacturing	190	4,480	32	190		0.0153511	0.14
42	Wholesale Trade	154	3,973	29	154		0.0124424	0.25
44	Retail Trade	2,421	47,124	192	2,421		0.1956048	1.50
48	Transportation and Warehousing	249	5,926	31	249		0.0201180	0.55
51	Information	195	7,758	19	195		0.0157550	0.56
52	Finance and Insurance	489	14,039	54	489		0.0395088	0.73
53	Real Estate and Rental and Leasing	253	4,032	62	253		0.0204411	1.11
54	Professional Scientific and Technical Services	529	19,982	85	529		0.0427406	0.63
55	Management of Companies and Enterprises	A	D	3	10	M	0.0008080	0.03
56	Admin. & Support & Waste Mgt & Remediation Service:	E	D	41	471	1/2R	0.0380545	0.46
61	Educational Services	354	10,844	10	354		0.0286014	1.13
62	Health Care and Social Assistance	2,237	72,411	112	2,237		0.1807385	1.30
71	Arts, Entertainment and Recreation	E	D	23	470	1/2R	0.0379737	2.28
72	Accomodation and Food Services	2,339	39,573	101	2,339		0.1889796	1.97
81	Other Services (except Public Administration)	602	9,166	109	602		0.0486386	1.06
99	Unclassified	N/A	N/A	N/A	N/A		0.0000000	-
Total		**12,377**	**305,075**	**1,088**	**12,377**		**1.0000000**	
Sierra County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	N/A	N/A	N/A	N/A		0.0000000	-
21	Mining	B	D	3	35	1/2R	0.0163551	2.81
22	Utilities	B	D	2	35	1/2R	0.0163551	3.17
23	Construction	263	6,835	35	263		0.1228972	2.04
31	Manufacturing	85	2,974	5	85		0.0397196	0.36
42	Wholesale Trade	N/A	N/A	N/A	N/A		0.0000000	-
44	Retail Trade	389	6,935	53	389		0.1817757	1.39
48	Transportation and Warehousing	6	191	7	6		0.0028037	0.08
51	Information	B	427	4	20	P+	0.0093458	0.33
52	Finance and Insurance	79	1,996	16	79		0.0369159	0.68
53	Real Estate and Rental and Leasing	B	239	11	20	P+	0.0093458	0.51
54	Professional Scientific and Technical Services	53	1,109	15	53		0.0247664	0.37
55	Management of Companies and Enterprises	A	D	1	8	M-	0.0037383	0.14
56	Admin. & Support & Waste Mgt & Remediation Service:	A	D	6	8	M-	0.0037383	0.05
61	Educational Services	A	D	1	8	M-	0.0037383	0.15
62	Health Care and Social Assistance	541	15,320	21	541		0.2528037	1.82
71	Arts, Entertainment and Recreation	35	394	5	35		0.0163551	0.98
72	Accomodation and Food Services	414	3,956	38	414		0.1934579	2.02
81	Other Services	141	2,575	25	141		0.0658879	1.44
99	Unclassified	N/A	N/A	N/A	N/A		0.0000000	-
Total		**2,140**	**45,798**	**248**	**2,140**		**1.0000000**	

Table A3. Methodology for Estimating Missing Data and County Business Pattern Location Quotients (continued 6/6)

Industry Code	Industry Code Description	Paid Employees for pay-period including March 12	Annual Payroll ($1,000)	Total Number of Estab.	Estimated Paid Employees for pay-period including March 12		Employment Shares	Location Quotient
Socorro County, NM								
11	Forestry, Fishing, Hunting and Agricultural Support	A	D	1	10	M	0.0032248	2.26
21	Mining	B	D	2	60	M	0.0193486	3.33
22	Utilities	B	D	2	60	M	0.0193486	3.75
23	Construction	81	1,912	29	81		0.0261206	0.43
31	Manufacturing	115	2,939	10	115		0.0370848	0.34
42	Wholesale Trade	4	35	3	4		0.0012899	0.03
44	Retail Trade	584	10,990	47	584		0.1883263	1.44
48	Transportation and Warehousing	67	1,870	8	67		0.0216059	0.59
51	Information	B	D	5	60	M	0.0193486	0.69
52	Finance and Insurance	B	2,221	18	34	P+	0.0110062	0.20
53	Real Estate and Rental and Leasing	43	819	15	43		0.0138665	0.75
54	Professional Scientific and Technical Services	479	22,052	30	479		0.1544663	2.28
55	Management of Companies and Enterprises	B	639	5	20	P+	0.0064495	0.25
56	Admin. & Support & Waste Mgt & Remediation Service:	A	D	2	10	M	0.0032248	0.04
61	Educational Services	F	D	30	641	R	0.2067075	8.20
62	Health Care and Social Assistance	A	D	2	10	M	0.0032248	0.02
71	Arts, Entertainment and Recreation	744	6,918	46	744		0.2399226	14.41
72	Accomodation and Food Services	69	844	20	69		0.0222509	0.23
81	Other Services	A	D	1	10	M	0.0032248	0.07
99	Unclassified	N/A	N/A	N/A	N/A		0.0000000	-
Total		**3,101**	**80,303**	**276**	**3,101**		**1.0000420**	

Source: U.S. Census Bureau, County Business Patterns, http://www.census.gov/econ/cbp/index.html

Number of employees designated by letters: A 0-19; B 20-99; C 100-259; E 250-499; F 500-999; G 1,000-2,499; H 2,500-4,999; I 5,000-9,999; J 10,000-24,999; K 25,000-49,999; L 50,000-99,999; M 100,000+

D is data withheld to avoid disclosing data for individual companies; data are included in higher level totals.

Table A4. Detailed Location Quotients (1/4)
Source: Bureau of Labor Statistics, BLS.com

Industry	Arizona -- Statewide	Cochise County, Arizona	Graham County, Arizona	Greenlee County, Arizona	Pima County, Arizona	Pinal County, Arizona
Base Industry:	1	1	1	1	1	1
NAICS 11	1.13	1.83	ND	0.57	0.21	5.45
NAICS 21	0.98	0.58	ND	ND	1.04	6.85
NAICS 22	1.19	3.95	ND	1.89	1.44	1.66
NAICS 23	1.36	1.17	1.29	ND	1.22	1.31
NAICS 31-33	0.67	0.25	0.26	NC	0.77	0.92
NAICS 42	0.94	0.37	0.3	ND	0.62	0.45
NAICS 44-45	1.1	1.48	1.5	0.21	1.09	1.48
NAICS 48-49	0.86	0.48	ND	ND	0.57	0.65
NAICS 51	0.73	0.84	0.59	ND	0.67	0.4
NAICS 61	0.92	0.53	0.51	NC	0.72	0.48
NAICS 62	0.92	1.07	1.08	0.16	1.27	0.72
NAICS 71 Arts,	0.93	0.82	ND	ND	0.95	0.88
NAICS 52	1.1	0.57	0.29	ND	0.68	0.47
NAICS 53 Real	1.26	0.65	0.53	ND	1.24	1.07
NAICS 54	0.88	1.93	0.7	ND	0.99	0.47
NAICS 55	0.76	0.31	ND	NC	0.6	0.1
NAICS 56	1.48	1.02	ND	ND	1.35	1.39
NAICS 72	1.07	1.4	ND	ND	1.17	1.07
NAICS 81	0.83	0.73	1.03	ND	0.99	0.84
NAICS 99	0.49	0.15	0.08	NC	0.45	0.42
NAICS 316	0.48	ND	NC	NC	0.33	NC
NAICS 321	0.65	0.23	ND	NC	0.64	2.41
NAICS 322	0.31	NC	NC	NC	0.11	NC
NAICS 323	0.56	0.11	3.83	NC	0.53	0.12
NAICS 111	0.85	2.38	22.75	ND	0.34	5.34
NAICS 112	0.97	1.68	ND	ND	0.17	12.22
NAICS 113	ND	NC	NC	NC	NC	NC
NAICS 114	ND	NC	NC	NC	ND	NC
NAICS 115	1.92	1.42	2.42	NC	ND	2.19
NAICS 211 Oil	0	NC	NC	NC	NC	NC
NAICS 212	3.02	1.65	ND	ND	3.26	21.39
NAICS 213	0.08	0.14	NC	NC	0.04	0.35
NAICS 221	1.19	3.95	ND	1.89	1.44	1.66
NAICS 236	1.15	1.26	2.12	4.15	0.94	1.64
NAICS 237	1.39	1.11	0.89	ND	0.81	2.46
NAICS 238	1.43	1.14	1.08	0.49	1.41	0.95
NAICS 311	0.36	0.48	ND	NC	0.1	1.76
NAICS 312	0.98	NC	ND	NC	1.39	NC
NAICS 313	0.13	NC	NC	NC	ND	NC
NAICS 314	0.46	0.32	NC	NC	0.19	ND
NAICS 315	0.08	ND	NC	NC	0.08	NC
NAICS 334	1.75	0.08	NC	NC	1.01	ND
NAICS 335	0.3	ND	NC	NC	0.61	ND
NAICS 336	1.06	ND	ND	NC	ND	ND
NAICS 337	0.79	ND	NC	NC	0.26	2.6
NAICS 339	0.76	0.16	ND	NC	0.9	0.44
NAICS 423	1.02	0.34	0.33	ND	0.77	0.32
NAICS 424	0.82	0.39	0.39	NC	0.51	0.74
NAICS 425	0.95	0.44	NC	ND	0.36	0.27
NAICS 441	1.21	1.44	2.56	NC	1.24	1.15
NAICS 442	1.22	0.81	1.73	NC	1.36	0.73
NAICS 443	1.23	0.77	0.72	NC	0.82	0.56
NAICS 444	1.02	1.61	2.29	NC	0.93	1.15
NAICS 445	1.08	1.59	1.47	ND	1.24	1.62
NAICS 446	0.97	0.74	0.79	NC	0.96	1.42

Table A4. Detailed Location Quotients (continued 2/4)

Industry	Arizona -- Statewide	Cochise County, Arizona	Graham County, Arizona	Greenlee County, Arizona	Pima County, Arizona	Pinal County, Arizona
NAICS 447	1.03	2.69	0.94	ND	0.82	2.44
NAICS 448	0.81	0.7	0.31	NC	0.81	1.15
NAICS 451	1.05	0.84	0.33	ND	1.26	0.43
NAICS 452	1.14	2.11	ND	ND	1	2.52
NAICS 453	1.28	1.61	1.18	ND	1.68	0.68
NAICS 324	0.09	NC	NC	NC	ND	NC
NAICS 325	0.28	ND	NC	NC	0.14	1.49
NAICS 326	0.31	NC	NC	NC	0.24	0.99
NAICS 327	0.96	2.47	0.89	NC	0.93	3.82
NAICS 331	0.54	ND	NC	NC	0.1	0.89
NAICS 332	0.64	0.19	NC	NC	0.63	0.23
NAICS 333	0.34	NC	NC	NC	0.47	0.15
NAICS 454	1.35	0.4	ND	NC	1.01	0.17
NAICS 481 Air	1.63	NC	ND	NC	0.41	NC
NAICS 482 Rail	ND	NC	NC	NC	NC	NC
NAICS 483	ND	NC	NC	NC	NC	NC
NAICS 484	0.74	0.56	0.34	0.26	0.55	0.71
NAICS 485	0.92	ND	NC	NC	1.29	0.6
NAICS 486	0.33	ND	NC	NC	0.97	ND
NAICS 487	1.12	NC	NC	NC	ND	ND
NAICS 488	0.82	1.02	ND	NC	0.8	2.06
NAICS 491	2.12	NC	NC	ND	ND	ND
NAICS 492	0.86	ND	ND	NC	0.6	ND
NAICS 493	0.66	ND	ND	NC	0.07	0.06
NAICS 511	0.63	0.62	ND	ND	1.1	0.75
NAICS 512	0.63	0.17	ND	NC	0.69	ND
NAICS 515	0.75	0.34	ND	NC	1.08	ND
NAICS 562	0.65	0.3	ND	ND	0.56	0.88
NAICS 611	0.92	0.53	0.51	NC	0.72	0.48
NAICS 621	1.14	1.17	0.69	ND	1.32	0.86
NAICS 713	0.93	0.95	ND	ND	0.97	0.92
NAICS 622	0.85	1.36	ND	NC	1.23	ND
NAICS 623	0.69	0.71	0.87	NC	1.19	ND
NAICS 624	0.79	0.76	ND	ND	1.35	0.92
NAICS 711	1.02	0.17	NC	NC	0.85	0.92
NAICS 712	0.75	1.43	NC	NC	1.13	0.27
NAICS02 516	NC	NC	NC	NC	NC	NC
NAICS 517	0.81	1.45	0.52	NC	0.37	0.38
NAICS 518	0.99	1.23	NC	NC	0.15	ND
NAICS 519	0.53	NC	NC	NC	0.21	ND
NAICS 521	0.3	NC	NC	NC	NC	NC
NAICS 522	1.44	0.73	0.39	ND	0.95	0.6
NAICS 523	0.78	0.09	NC	NC	0.36	0.04
NAICS 524	0.83	0.59	0.28	0.09	0.44	0.5
NAICS 525	0.76	NC	NC	NC	1.38	NC
NAICS 531	1.21	0.81	ND	NC	1.29	0.78
NAICS 532	1.29	0.3	ND	ND	1.18	1.81
NAICS 533	3.33	NC	NC	NC	0.18	NC
NAICS 541	0.88	1.93	0.7	ND	0.99	0.47
NAICS 551	0.76	0.31	ND	NC	0.6	0.1
NAICS 561	1.51	1.05	0.18	ND	1.39	1.41
NAICS 721	1.34	1.68	ND	ND	1.43	0.93
NAICS 722	1.02	1.35	1.35	0.16	1.12	1.09
NAICS 811	1.06	1.07	1.98	ND	1.25	1.47
NAICS 812	0.9	0.59	0.65	NC	0.97	0.53
NAICS 813	0.76	0.41	0.7	NC	0.92	0.79
NAICS 814	0.31	1.1	0.68	ND	0.62	0.36
NAICS 999	0.49	0.15	0.08	NC	0.45	0.42

Footnotes:
(ND) Not Disclosable
(NC) Not Calculable, the data does not exist or it is zero

Table A4. Detailed Location Quotients (continued 3/4)

Industry	New Mexico -- Statewide	Dona Ana County, New Mexico	Grant County, New Mexico	Hidalgo County, New Mexico	Lincoln County, New Mexico	Luna County, New Mexico	Otero County, New Mexico	Sierra County, New Mexico	Socorro County, New Mexico
Base Industry:	1	1	1	1	1	1	1	1	1
NAICS 11	1.7	6.46	ND	ND	1.56	ND	1.34	ND	ND
NAICS 21	5.24	0.22	32.66	ND	0.6	ND	0.13	ND	ND
NAICS 22	1.38	1.31	ND	ND	1.8	ND	1.32	ND	ND
NAICS 23	1.43	1.33	1.26	ND	1.62	1.04	1.84	2.01	0.53
NAICS 31-33	0.46	0.53	ND	ND	0.15	1.58	0.2	0.45	0.45
NAICS 42	0.71	0.51	ND	ND	0.2	ND	0.31	ND	ND
NAICS 44-45	1.12	1.07	1.32	1.72	1.49	1.54	1.48	1.3	1.25
NAICS 48-49	0.77	0.74	0.5	0.73	0.34	0.65	0.88	0.18	0.62
NAICS 51	0.95	0.74	0.64	0.54	0.57	0.14	0.79	0.22	0.45
NAICS 61	0.55	0.32	0.4	ND	0.11	ND	0.18	ND	ND
NAICS 62	1.09	1.46	0.89	ND	0.74	ND	1.37	ND	ND
NAICS 71 Arts,	0.77	1.28	0.46	ND	6.08	0.44	0.34	ND	ND
NAICS 52	0.68	0.63	0.52	ND	0.73	0.43	0.7	0.58	0.84
NAICS 53 Real	0.93	0.87	0.85	ND	1.99	0.55	0.8	0.56	0.69
NAICS 54	1.29	0.97	0.35	ND	0.76	0.4	0.94	0.81	2.03
NAICS 55	0.5	0.13	2.16	ND	0.54	ND	0.17	NC	ND
NAICS 56	1.03	0.84	0.61	NC	0.6	ND	0.93	0.14	ND
NAICS 72	1.21	1.2	1.31	ND	1.92	1.26	1.39	ND	ND
NAICS 81	0.9	0.8	0.81	ND	0.74	0.55	1.19	0.73	0.32
NAICS 99	0.02	NC	NC	ND	NC	NC	0.05	NC	NC
NAICS 316	0.24	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 321	0.5	0.39	ND	NC	1.28	ND	ND	NC	ND
NAICS 322	0.31	ND	NC	NC	NC	NC	NC	NC	NC
NAICS 323	0.33	0.4	ND	NC	ND	ND	0.22	NC	NC
NAICS 111	0.92	5.75	NC	12.48	NC	9.68	1.22	11.72	ND
NAICS 112	4.72	8.8	1.59	ND	4.86	ND	ND	14.99	20.95
NAICS 113	0.15	NC	NC	NC	ND	NC	NC	NC	NC
NAICS 114	NC	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 115	1.24	7.38	ND	ND	ND	29.71	ND	ND	NC
NAICS 211 Oil	4.78	0.07	3.9	NC	ND	NC	NC	NC	NC
NAICS 212	3.86	0.44	ND	ND	NC	ND	ND	NC	ND
NAICS 213	6.4	0.14	ND	NC	ND	ND	ND	ND	NC
NAICS 221	1.38	1.31	ND	ND	1.8	ND	1.32	ND	ND
NAICS 236	1.68	1.67	2.38	1.05	2.74	2.99	2.81	1.04	ND
NAICS 237	1.79	0.99	1.81	1.12	3.1	1.02	1.82	9.64	ND
NAICS 238	1.26	1.28	0.74	ND	0.91	0.33	1.48	0.74	0.5
NAICS 311	0.63	1.3	ND	ND	ND	7.77	ND	ND	NC
NAICS 312	0.53	ND	ND	NC	ND	16.55	ND	NC	NC
NAICS 313	0.14	ND	NC	NC	NC	NC	NC	NC	NC
NAICS 314	0.12	ND	NC	ND	NC	NC	ND	NC	NC
NAICS 315	0.09	ND	NC	NC	NC	NC	NC	NC	NC
NAICS 334	1.17	0.87	NC	NC	NC	NC	NC	NC	NC
NAICS 335	0.2	ND	NC	NC	NC	ND	ND	NC	NC
NAICS 336	0.32	ND	NC	NC	ND	ND	ND	ND	ND
NAICS 337	0.51	0.33	ND	NC	0.36	ND	ND	NC	ND
NAICS 339	0.66	0.28	0.34	NC	0.77	NC	ND	NC	3.18
NAICS 423	0.77	0.55	0.33	ND	0.37	0.3	ND	ND	ND
NAICS 424	0.73	0.58	0.27	ND	ND	ND	ND	ND	0.18
NAICS 425	0.46	0.19	ND	NC	ND	ND	ND	NC	NC
NAICS 441	1.27	1.35	1.24	1.54	1.18	1.06	1.54	1.5	1.07
NAICS 442	1	0.87	1.06	NC	2.1	ND	0.78	ND	ND
NAICS 443	0.9	0.99	0.68	ND	ND	ND	0.94	ND	NC
NAICS 444	1.18	1.29	1.09	ND	1.3	ND	2.07	ND	1.31
NAICS 445	0.84	0.72	1.39	2.86	1.17	1.24	0.65	2.19	1.53
NAICS 446	0.76	0.72	0.33	ND	0.92	ND	1.13	ND	NC

Table A4. Detailed Location Quotients (continued 4/4)

Industry	New Mexico -- Statewide	Dona Ana County, New Mexico	Grant County, New Mexico	Hidalgo County, New Mexico	Lincoln County, New Mexico	Luna County, New Mexico	Otero County, New Mexico	Sierra County, New Mexico	Socorro County, New Mexico
NAICS 447	1.67	1.86	2.69	13.57	3.47	4.17	3.23	2.19	3.31
NAICS 448	0.82	0.49	0.4	NC	1.47	0.13	0.4	0.42	ND
NAICS 451	1.09	0.76	ND	NC	ND	ND	1.84	ND	ND
NAICS 452	1.33	1.52	ND	0.57	2.16	2.65	2.11	1.82	ND
NAICS 453	1.45	1.13	1.01	ND	1.67	1.11	2.4	0.62	1.08
NAICS 324	1.27	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 325	0.28	0.26	NC	NC	NC	ND	NC	NC	NC
NAICS 326	0.19	ND	NC	NC	NC	NC	NC	NC	NC
NAICS 327	0.98	0.73	ND	NC	0.83	NC	ND	ND	ND
NAICS 331	0.21	0.87	ND	NC	NC	ND	NC	NC	NC
NAICS 332	0.34	0.33	ND	NC	NC	ND	ND	NC	ND
NAICS 333	0.2	0.28	NC	NC	NC	ND	0.14	NC	ND
NAICS 454	1.19	0.28	1.32	ND	0.67	1.3	0.73	ND	NC
NAICS 481 Air	0.55	ND	ND	ND	NC	ND	NC	NC	ND
NAICS 482 Rail	ND	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 483	ND	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 484	0.98	0.56	ND	1.47	0.29	0.62	0.57	ND	0.76
NAICS 485	1.15	1.97	1.82	ND	2.19	2.16	1.99	ND	ND
NAICS 486	3.81	ND	ND	ND	NC	ND	ND	ND	NC
NAICS 487	1.05	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 488	0.58	1	NC	ND	ND	0.86	1.94	ND	ND
NAICS 491	7.94	ND	ND	NC	ND	ND	ND	NC	NC
NAICS 492	0.69	ND	ND	NC	NC	ND	ND	NC	ND
NAICS 493	0.33	0.35	ND	NC	NC	NC	NC	NC	NC
NAICS 511	0.58	0.95	0.45	NC	0.07	NC	ND	ND	ND
NAICS 512	1.61	ND	ND	NC	ND	NC	ND	NC	ND
NAICS 515	0.83	0.43	0.62	NC	1.22	ND	ND	ND	ND
NAICS 562	1.25	0.8	2.62	NC	3.64	ND	1.58	ND	ND
NAICS 611	0.55	0.32	0.4	ND	0.11	ND	0.18	ND	ND
NAICS 621	1.26	1.72	1.26	ND	0.5	0.63	1.19	0.81	1.66
NAICS 713	0.77	0.89	0.56	NC	6.92	0.61	0.4	ND	ND
NAICS 622	0.79	1.15	NC	NC	ND	ND	ND	ND	ND
NAICS 623	0.74	0.76	0.78	ND	ND	ND	ND	ND	ND
NAICS 624	1.68	2.37	1.87	1.33	1.36	0.86	2.22	1.56	0.78
NAICS 711	0.78	ND	0.28	NC	4.53	NC	ND	NC	NC
NAICS 712	0.8	ND	NC	ND	1.78	NC	ND	ND	NC
NAICS02 516	NC	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 517	1.29	0.67	1.1	ND	0.78	ND	1.66	ND	0.25
NAICS 518	0.3	ND	NC	ND	ND	ND	ND	NC	NC
NAICS 519	0.42	NC	ND	NC	ND	NC	ND	NC	NC
NAICS 521	ND	NC	NC	NC	NC	NC	NC	NC	NC
NAICS 522	0.85	0.83	0.88	ND	1.17	0.76	1.17	0.94	1.62
NAICS 523	0.33	0.15	NC	NC	ND	NC	NC	NC	NC
NAICS 524	0.61	0.59	ND	NC	0.43	0.2	ND	0.37	ND
NAICS 525	ND	0.2	ND	ND	ND	NC	ND	NC	ND
NAICS 531	0.81	1.02	0.7	ND	2.3	ND	0.85	0.42	0.57
NAICS 532	1.23	ND	1.23	NC	1.33	ND	ND	0.93	1.01
NAICS 533	0.19	ND	NC	NC	NC	NC	ND	NC	NC
NAICS 541	1.29	0.97	0.35	ND	0.76	0.4	0.94	0.81	2.03
NAICS 551	0.5	0.13	2.16	ND	0.54	ND	0.17	NC	ND
NAICS 561	1.02	0.84	0.52	NC	0.45	0.18	0.9	ND	0.19
NAICS 721	1.36	0.82	1.77	ND	2.52	2.42	0.93	ND	ND
NAICS 722	1.18	1.27	1.23	1.49	1.8	1.03	1.48	1.43	1.96
NAICS 811	1.21	1.38	1.13	ND	0.86	1.01	1.73	0.7	0.36
NAICS 812	0.85	0.8	0.95	ND	0.26	0.67	0.81	0.64	ND
NAICS 813	0.86	0.33	0.36	NC	1.28	0.21	1.45	1	0.43
NAICS 814	0.48	0.64	0.9	ND	0.33	0.13	0.32	0.33	ND
NAICS 999	0.02	NC	NC	ND	NC	NC	0.05	NC	NC

Footnotes:
(ND) Not Disclosable
(NC) Not Calculable, the data does not exist or it is zero

Appendix B.

Multipliers and Input-Output Models

Table B1 below displays total output multipliers for selected industries for the U.S., N.M., and Eddy County, N.M. Total output multipliers reflect the direct, indirect, and induced effects of new economic activity in a given industry. As shown in Table B1, the larger the economy, the larger the multiplier.

Table B1. Output Multiplier Comparisons

Output Multiplier Comparisons				
IMPLAN SECTOR	Description	US	NM	Eddy County
27	Mining and quarrying other nonmetallic minerals	2.5498	1.4263	1.2438
37	Construction of new residential Structures	3.0142	1.6006	1.3454
411	Hotels and motels, including casino hotels	2.6344	1.6284	1.3377
	Average all sectors	2.8924	1.5059	1.3348
	Number of sectors in average	432	356	154
Source: IMPLAN PRO Version 3.1.2, December 2010				

How large are total output multipliers? There is no easy answer to this question because multipliers differ by the size and structure of the economy under consideration. However, one should always be suspicious of a state or local total output multiplier greater than 3.0. Sometimes analysts who are attempting to promote a particular activity simply make up a number to be used as a multiplier without the benefit of an economic model or other form of economic analysis. For reference purposes, the ten industries with the largest total output multipliers are listed for New Mexico (Table B2) and Sierra County (Table B3) based on the IMPLAN (2009) modeling system.

Employment multipliers are measured in different units than total output multipliers. Typically employment multipliers are presented as jobs required per $1,000,000 of new expenditures or sales in a given industry. As an example, the direct effect employment multiplier for mining and quarrying of non-metallic minerals (IMPLAN Sector 27) in New Mexico is 2.51 while the total employment multiplier for that industry is 4.36. The interpretation of these numbers is straight-forward. A $1 million increase in economic activity in IMPLAN sector 27 leads to an additional 2.51 jobs in that sector. When the indirect and induced effects are considered, the $1 million increase in mining and quarrying other nonmetallic minerals leads to a total of 4.36 additional jobs (including the 2.51 direct jobs already mentioned).

Multipliers are often derived from an input-output (I-O) model. A non-technical introduction to I-O models follows.

Table B2. New Mexico: Largest 10 Total Output Multipliers

New Mexico: Largest 10 Total Output Multipliers (2009)		
Implan Sector	Description	Total Output Multiplier
429	Other Federal Government enterprises	2.4181
430	State and local government passenger transit	2.2544
4	Fruit farming	2.1047
16	Commercial logging	2.0314
95	Sawmills and wood preservation	1.9859
348	Radio and television broadcasting	1.9641
372	Computer systems design services	1.9519
3	Vegetable and melon farming	1.9248
56	Cheese manufacturing	1.9025
404	Promoters of performing arts and sports and agents for public figures	1.9002
Source: Author Rankings from IMPLAN PRO Version 3.0		

Multipliers

Table B3. Sierra County, NM: Largest 10 Total Output Multipliers

Sierra County,NM Largest 10 Total Output Multipliers (2009)		
IMPLAN Sector	Description	Total Output Multiplier
4	Fruit farming	1.6185
430	State and local government passenger transit	1.5533
3	Vegetable and melon farming	1.4800
6	Greenhouse, nursery, and floriculture production	1.4706
5	Tree nut farming	1.4615
432	Other state and local government enterprises	1.4131
369	Architectural, engineering, and related services	1.3884
427	US Postal Service	1.3860
11	Cattle ranching and farming	1.3799
375	Environmental and other technical consulting services	1.3786
Source: Author Rankings from IMPLAN Pro Version 3		

Input-Output Models

I-O models were first developed by Nobel Laureate Wassily Leontief (1906-1999) during the 1930s (*The Structure of the American Economy: 1919-1929*. Cambridge: Harvard University Press, 1941). Contemporary I- O models closely resemble Leontief's original model. Leontief combined three simple ideas to construct his model.

First, Leontief recognized that industries depend on each other. That is, the output of any given industry requires inputs from other industries (interdependence). Second, Leontief made a distinction between intermediate demand and final demand. Intermediate demand is the demand of one industry for the output of other industries. Final demand is the demand of ultimate consumers. Third, Leontief used linear production functions in a system of equations to represent transactions among industries. This is not a complicated idea. A production function is merely an equation that relates output to inputs and may be thought of as a recipe for making something. A simple example is:

$$X = 3F + 1S + 1E,$$

where X is output (cookies), F is flour, S is sugar, and E is eggs.

Of course, we would need to add an oven and labor and perhaps some other ingredients to finish the job, but the idea of a production function is really no more complicated than this simple example. I-O models may have hundreds of these linear production functions combined with additional information about final demand. The equations are solved simultaneously to produce industry specific multipliers as described above. I-O models consist of a series of tables (matrices) described as follows.

The transactions table is the basic table (matrix) from which all others are derived. In the example below (Table B4), the transactions table contains four industries (the processing sector) and two final demand entries (Households and Government). The processing sector indicates the purchases and sales of the output of each industry to each of the other industries in the table. Reading this table across a row indicates the sales of an industry listed at the left to each of the industries listed across the top.

Table B4. The Transactions Table

The Transactions Table

	Processing Sector				Final Demand Sector		
	1	2	3	4	HH	Gov	Totals
1	48	60	8	20	56	8	200
2	20	16	4	12	68	12	132
3	44	4	32	24	16	4	124
4	16	0	56	11	24	10	117
HH	60	42	20	46	4	0	172
Gov	12	10	4	4	0	0	30
Totals	200	**132**	**124**	**117**	**168**	**34**	775

Each row indicates the sales of an industry listed at the left to each of the industries listed across the top. For example, in this model, industry 2 sold $20 to industry 1.

Each column indicates the purchases of an industry listed at the top from an industry listed on the left hand side. For example, industry 3 purchased $56 from industry 4.

In other words, a column in the transactions table indicates how an industry produced its output while a row indicates how the industry disposed of its output. The diagonal elements in the transactions table represent purchases by an industry listed at the top to itself. Many industries require part of their own output to produce for final demand. Consider, for example, the electricity generating industry which will use some electricity to keep the lights on in a plant and for other purposes to produce the electricity it sells to you and me –the ultimate consumer.

The other two sectors in the transactions table are the payments sector and the final demand sector. The payments sector is read completely across the table. For example, the row labeled HH (for households) indicates that households sold 60 dollars to industry 1 and $42 to industry 2. Households sell labor and other resources to the industries listed at the top of the matrix. Government "sold" $12 of services (think of roads, police protection, etc) to industry 1.

The final demand sector is read down the columns of the table. In this case, households purchased $56 from industry 1. Thus, the total demand for the output of an industry can be thought of as consisting of intermediate demand plus final demand. Intermediate demand is the demand of industries for the output of other industries. Final demand is the demand of ultimate consumers (households, governments, exports, etc).

Note that the first four entries in the "totals" column are identical to the first four entries in the "totals" row. However, the row and column totals in the final demand and payments sectors are not required to be equal. For example, imports and exports (missing from this model) are rarely equal. Nevertheless, the overall row and column totals must be equal.

The transactions table for the entire economy could be reconciled with the Gross Domestic Product (GDP) accounts. However, the total in the lower right hand corner of a transactions table is not equal to GDP. In the GDP accounting system there is a deliberate effort to avoid double counting, while in the input-output model all transactions must be accounted for.

The transactions table is constructed for a specific period of time for a particular geographic area. Usually, the period of time is one year. The geographic area may be a nation or a smaller region within a nation –such as a state.

The sampling problem in constructing an input-output model is immense. Consider a 100 by 100 sector model. The construction of the transactions table would require estimation of 10,000 parameters --all of which need to be consistent with one another.

All of the other tables or matrices in an input-output model are derived from the transactions table. The transactions table, by itself, however, is a useful snapshot or description of the economy.

The next step in the construction of an input-output model is to build a table of technical coefficients. This table is known as the direct requirements table. A technical coefficient as listed in the direct requirements table represents the amount of input required from each industry in order to produce $1 of output in any given industry. The direct requirements table is calculated by dividing each entry in the processing sector of the transactions table by the total output of the corresponding industry (the row total). Table B5 is an example of a direct requirements table derived from the transactions table shown above. The entry in row 1 and column 1 of the direct requirements table 0.2400 is simply the entry in row 1, column `1 of the transactions table (48) divided by the column total (200).

An entry in the direct requirements table (a technical coefficient) indicates the amount of an input directly required in order to produce an additional dollar of output in an industry-- directed towards final demand.

The third table in an input-output model is the direct and indirect requirements matrix. This table is sometimes referred to as a total requirements table. In order to increase output, the industries described in the direct requirements table purchased inputs from other industries in the table. These (supplying) industries also were required to increase output and this increase in output will cause each of these industries to purchase additional inputs. The direct and indirect requirements table reflects all of the transactions required in order for an industry to expand output.

Table B5. The Direct Requirements Table

The Direct Requirements Table

	1	2	3	4
1	0.2400	0.4545	0.0645	0.1709
2	0.1000	0.1212	0.0323	0.1026
3	0.2200	0.0303	0.2581	0.2051
4	0.0800	0.0000	0.4516	0.0940
H	0.3000	0.3182	0.1613	0.3932
G	0.0600	0.0758	0.0323	0.0342
Totals	1.0000	1.0000	1.0000	1.0000

The direct and indirect requirements table is constructed through a series of matrix operations. These manipulations are the equivalent of solving a set of simultaneous linear equations. If the direct requirements table is designated as a matrix A and an identity matrix (I) of the same dimension is constructed, then the direct and indirect requirements table is given by:

$(I - A)^{-1}$

The identity matrix (I) looks like this:

Table B6. An Identity Matrix

An Identity Matrix				
	1	2	3	4
1	1	0	0	0
2	0	1	0	0
3	0	0	1	0
4	0	0	0	1

The (I-A) matrix looks like this:

Table B7. (I-A) Matrix

(I-A) Matrix

	1	2	3	4
1	0.7600	-0.4545	-0.0645	-0.1709
2	-0.1000	0.8788	-0.0323	-0.1026
3	-0.2200	-0.0303	0.7419	-0.2051
4	-0.0800	0.0000	-0.4516	0.9060

Notice that in both the identity matrix (I) and the (I – A) matrix, only the processing sector is being used.

An example of the direct and indirect requirements table $(I - A)^{-1}$ follows:

Table B8. The Direct and Indirect Requirements Table

The Direct and Indirect Requirements Table				
	1	2	3	4
1	1.6254	0.8577	0.4922	0.5152
2	0.2603	1.2804	0.2278	0.2456
3	0.6173	0.3799	1.7573	0.5574
4	0.4513	0.2651	0.9194	1.4271
Totals	2.9543	2.7831	3.3968	2.7453

The totals row of the direct and indirect requirements table contains the industry specific multipliers so frequently used in economic impact studies. For example, the activity of producing an additional dollar of output for final demand from industry 1, results in a total change in economic activity of $2.9543.

The diagonal entries in the direct and indirect requirements table (shaded in blue) are all greater than one. The entry in row 1 and column 1 (1.6254) is the direct and indirect effect of industry 1 producing one dollar's worth of output for final demand. We may break down the $1.6254 as follows:

$1.00 = the amount produced for final demand

$0.24 = the amount of its own product needed by industry 1 to produce $1 for final demand

$0.38 = the amount of industry 1's output needed by other industries to produce inputs Used by industry 1

$1.62 = (total)

How does this make sense? Consider an electric utility producing a dollar's worth of output for your consumption. In order to produce the dollar's worth of electricity for you, the ultimate consumer, the utility will produce more than a dollar's electricity. The utility will need some of its own product (electricity) to keep the lights on at the generation plant and additional electricity to run the computers that send you a bill. In addition, the industries that provide inputs to the utility will also need electricity.

Projections with I-O models

Once an I-O model is constructed, projections are relatively simple. The example that follows (Table B9) is a projection of a 10 percent increase in final demand for the output of industry 2. First, a new final demand vector is needed. This can be calculated from the final demand columns in the original transactions matrix. The table below shows: (a) the original final demand columns (HH and GOV), (b) the total original final demand (the sum of HH and GOV), and (c) the new projected final demand with a 10 percent increase in the demand for the output of industry 2.

Table B9. Final Demand Sector for Projection Example

Final Demand Sector for Projection Example				
Industry	HH	Gov	Original Final Demand	New* Final Demand
1	56	8	64	64
2	68	12	80	88
3	16	4	20	20
4	24	10	34	34
The New Final Demand vector reflects a 10% increase in the Demand for the output of industry 2.				

The original output required to satisfy the original final demand is calculated from $X = (I - A)^{)-1}$ d. In other words, this is the direct and indirect requirements table multiplied by the demand vector. The required output for the first entry is calculated as follows:

(1.6254 x 64) + (0.8577 x 80) + (0.4922 * 20) + (0.5152 * 34) = 200

The other output requirements are calculated in a similar fashion.

Table B10. Original Output Required

Original Output required						
	The Direct and Indirect Requirements Table				Original Final Demand (d)	Original Output Required (x)
	1	2	3	4		
1	1.6254	0.8577	0.4922	0.5152	64	200
2	0.2603	1.2804	0.2278	0.2456	80	132
3	0.6173	0.3799	1.7573	0.5574	20	124
4	0.4513	0.2651	0.9194	1.4271	34	117

Results obtained before and after changing final demand for industry 2 are shown below. A 10 percent change in final demand in industry 2 changes the output required in all industries, but not by the same amounts.

Table B11. Changes in Final Demand and Output from Projection Example

Changes in Final Demand and Output from Projection Example						
Industry	Original Final Demand	New Final Demand	Percent Change in Final Demand	Original Output Required	New Output Required	Percent Change in Output
1	64.0	64.0	0.0	200.0	206.9	3.4
2	80.0	88.0	10.0	132.0	142.2	7.8
3	20.0	20.0	0.0	124.0	127.0	2.5
4	34.0	34.0	0.0	117.0	119.1	1.8

Of course, the Projection process can be reversed. If it is known that an industry plans to increase output, the final demand required to consume this output can also be calculated.

Advantages and Disadvantages of I-O models:

The advantages and disadvantages of I-O models are well known. First and perhaps the most important advantage of I-O models is that they are based on detailed inter-industry relationships. This allows us to examine the effects of a change in one industry on other industries. Second, I-O models allow analysts to examine both the direct and indirect effects of a change in economic activity. Third, I-O models are relatively easy to understand. Fourth, after the basic transactions table has been constructed, I-O models are relatively inexpensive to use. Fifth, I-O models can be modified. For example, the national input-output models can be scaled to a different geographic level such as a state or a county. I-O models can also be modified to take into account a new industry. Finally, the results of I-O models can be reconciled with other familiar measures of economic activity such as GDP.

There are also several disadvantages or limitations of I-O models. First, I-O models are initially very expensive to construct and doing so takes a long time (years). Second, I-O models use linear production functions. This means that I-O models have constant returns to scale (doubling all inputs results in a doubling of output), while many modern industries exhibit increasing returns to scale. Third, the coefficients of I-O models are based on a given set of relative prices that are assumed not to change during the Projection period. If, for example, energy prices increase substantially after the model is constructed, the model will not reflect the tendency of industry to

reduce energy use through more energy efficient production techniques or equipment. Fourth, the relationships expressed in I-O models are based on the technology used at the time the model was constructed. Rapid changes in technology will not be appropriately accounted for in the models. Fifth, regional (state and county) I-O models are generally derived from the national models and may not adequately capture specific regional inter-industry relationships. Finally, separate final demand projections (from outside the model) are generally needed to perform useful analysis. These exogenous projections may themselves be problematic.

The advantages of I-O models far outweigh the disadvantages and I-O models remain the single most widely used technique for estimating the impacts of regional policy and industry changes. No other modeling approach captures the many complex relationships among industries and ultimate consumers as well as I-O models.

The National (U.S.) Input Output Model.

The Bureau of Economic Analysis of the U.S. Department of Commerce constructs an input-output model of the U.S. economy every five years (in years ending in 2 and 7). These models are referred to as benchmark models because they are constructed from data from the Economic Census. It takes BEA approximately 6 or 7 years after each economic census to construct the benchmark models. Annual revisions to the models based on less comprehensive data are also available. The current U.S. models produced by BEA contain over 400 sectors. The national I-O models can be found at: www.bea.gov. A small portion of the highly aggregated 15 sector) 2002 benchmark model is shown below. As mentioned earlier, all of the I-O models used for economic impact analysis are ultimately derived from the national models produced by BEA.

Table B12. The Make of Commodities by Industries before Redefinitions, 2002

(Millions of dollars at producers' prices)

Industry code	For the distribution of industries producing a commodity, read the column for that commodity. For the distribution of commodities produced by an industry, read the row for that industry.	Agriculture, forestry, fishing and hunting	Mining	Utilities
	Commodity code	1	2	3
1	Agriculture, forestry, fishing and hunting	269,261.7	0.0	0.0
2	Mining	0.0	168,825.5	0.0
3	Utilities	0.0	33.4	314,459.2
4	Construction	0.0	0.0	0.0
5	Manufacturing	0.0	806.9	62.9
6	Wholesale trade	389.9	0.0	0.0
7	Retail trade	0.0	0.0	0.0
8	Transportation and warehousing	5.3	0.0	180.9
9	Information	0.0	0.0	0.0
10	Finance, insurance, real estate, rental, and leasing	0.0	0.0	0.0
11	Professional and business services	0.0	46.2	0.0
12	Educational services, health care, and social assistance	0.0	0.0	0.0
13	Arts, entertainment, recreation, accommodation, and food services	0.0	0.0	0.0
14	Other services, except government	0.0	0.0	0.0
15	Government	2,155.5	355.5	71,890.2
T007	**Total commodity output**	**271,812.4**	**170,067.5**	**386,593.1**

Source: http://www.bea.gov/newsreleases/industry/io/ionewsrelease.htm Downloaded December 17, 2010.

Appendix C.

Estimated County Impacts for Transmission Line Construction, Substation Construction, and Operations and Maintenance

Table C1. Economic Impact of Line Construction by County
Scenario 1, Arizona - Route A

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Graham	**93**	Employment (# of jobs)	137	118	24	79	**358**
		Labor Income (2010 $Mil)	$ 16.4	$ 6.1	$ 0.7	$ 2.5	**$ 25.6**
		State Product (2010 $Mil)	$ 16.4	$ 8.3	$ 1.0	$ 4.3	**$ 30.0**
		Total Sales (2010 $Mil)	$ 16.4	$ 14.6	$ 1.9	$ 7.0	**$ 39.9**
Greenlee	**8**	Employment (# of jobs)	14	9	1	1	**25**
		Labor Income (2010 $Mil)	$ 1.7	$ 0.5	$ 0.0	$ 0.1	**$ 2.2**
		State Product (2010 $Mil)	$ 1.7	$ 0.6	$ 0.1	$ 0.1	**$ 2.5**
		Total Sales (2010 $Mil)	$ 1.7	$ 1.1	$ 0.1	$ 0.2	**$ 3.1**
Pinal	**70**	Employment (# of jobs)	102	64	10	41	**217**
		Labor Income (2010 $Mil)	$ 12.3	$ 3.4	$ 0.3	$ 1.6	**$ 17.6**
		State Product (2010 $Mil)	$ 12.3	$ 4.7	$ 0.5	$ 2.8	**$ 20.3**
		Total Sales (2010 $Mil)	$ 12.3	$ 8.1	$ 0.8	$ 4.2	**$ 25.4**

Table C2. Economic Impact of Line Construction by County
Scenario 1, Arizona - Route B

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Cochise	**56**	Employment (# of jobs)	103	87	14	48	**252**
		Labor Income (2010 $Mil)	$ 12.4	$ 3.9	$ 0.7	$ 1.7	**$ 18.6**
		State Product (2010 $Mil)	$ 12.4	$ 5.3	$ 1.1	$ 3.0	**$ 21.8**
		Total Sales (2010 $Mil)	$ 12.4	$ 9.5	$ 1.8	$ 4.7	**$ 28.3**
Graham	**36**	Employment (# of jobs)	53	37	7	26	**123**
		Labor Income (2010 $Mil)	$ 6.4	$ 1.7	$ 0.2	$ 0.8	**$ 9.1**
		State Product (2010 $Mil)	$ 6.4	$ 2.3	$ 0.3	$ 1.4	**$ 10.5**
		Total Sales (2010 $Mil)	$ 6.4	$ 4.2	$ 0.5	$ 2.4	**$ 13.5**
Greenlee	**8**	Employment (# of jobs)	14	9	1	1	**25**
		Labor Income (2010 $Mil)	$ 1.7	$ 0.5	$ 0.0	$ 0.1	**$ 2.2**
		State Product (2010 $Mil)	$ 1.7	$ 0.6	$ 0.1	$ 0.1	**$ 2.5**
		Total Sales (2010 $Mil)	$ 1.7	$ 1.1	$ 0.1	$ 0.2	**$ 3.1**
Pima	**16**	Employment (# of jobs)	24	16	5	22	**67**
		Labor Income (2010 $Mil)	$ 2.9	$ 0.8	$ 0.2	$ 0.8	**$ 4.7**
		State Product (2010 $Mil)	$ 2.9	$ 1.1	$ 0.3	$ 1.4	**$ 5.7**
		Total Sales (2010 $Mil)	$ 2.9	$ 1.9	$ 0.5	$ 2.2	**$ 7.5**
Pinal	**85**	Employment (# of jobs)	123	85	13	53	**274**
		Labor Income (2010 $Mil)	$ 14.8	$ 4.8	$ 0.5	$ 2.0	**$ 22.0**
		State Product (2010 $Mil)	$ 14.8	$ 6.5	$ 0.7	$ 3.6	**$ 25.6**
		Total Sales (2010 $Mil)	$ 14.8	$ 11.1	$ 1.2	$ 5.3	**$ 32.4**

Table C3. Economic Impact of Line Construction by County
Scenario 1, New Mexico - East Route

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Dona Ana	**59**	Employment (# of Jobs)	99	82	20	59	**260**
		Labor Income (2010 $	$ 11.9	$ 3.4	$ 0.7	$ 1.8	**$ 17.9**
		State Product (2010 $ Mils)	$ 11.9	$ 4.8	$ 1.1	$ 3.4	**$ 21.1**
		Total Sales (2010 $ Mils)	$ 11.9	$ 8.9	$ 1.9	$ 5.6	**$ 28.3**
Grant	**19**	Employment (# of Jobs)	27	17	3	10	**57**
		Labor Income (2010 $	$ 3.3	$ 0.7	$ 0.1	$ 0.3	**$ 4.4**
		State Product (2010 $ Mils)	$ 3.3	$ 1.0	$ 0.2	$ 0.6	**$ 5.0**
		Total Sales (2010 $ Mils)	$ 3.3	$ 1.8	$ 0.3	$ 0.9	**$ 6.3**
Hidalgo	**32**	Employment (# of Jobs)	50	25	3	8	**87**
		Labor Income (2010 $	$ 6.0	$ 0.8	$ 0.1	$ 0.2	**$ 7.1**
		State Product (2010 $ Mils)	$ 6.0	$ 1.0	$ 0.2	$ 0.4	**$ 7.6**
		Total Sales (2010 $ Mils)	$ 6.0	$ 2.0	$ 0.3	$ 0.7	**$ 9.0**
Linclon	**63**	Employment (# of Jobs)	114	80	18	59	**272**
		Labor Income (2010 $	$ 13.7	$ 3.0	$ 0.5	$ 1.8	**$ 19.0**
		State Product (2010 $ Mils)	$ 13.7	$ 4.2	$ 0.9	$ 3.6	**$ 22.5**
		Total Sales (2010 $ Mils)	$ 13.7	$ 8.0	$ 1.7	$ 5.9	**$ 29.3**
Luna	**63**	Employment (# of Jobs)	95	72	8	25	**200**
		Labor Income (2010 $	$ 11.5	$ 2.6	$ 0.2	$ 0.7	**$ 15.0**
		State Product (2010 $ Mils)	$ 11.5	$ 3.6	$ 0.3	$ 1.4	**$ 16.8**
		Total Sales (2010 $ Mils)	$ 11.5	$ 6.7	$ 0.6	$ 2.3	**$ 21.1**
Otero	**109**	Employment (# of Jobs)	179	132	20	66	**396**
		Labor Income (2010 $	$ 21.5	$ 5.5	$ 0.6	$ 1.9	**$ 29.4**
		State Product (2010 $ Mils)	$ 21.5	$ 7.5	$ 1.0	$ 3.6	**$ 33.6**
		Total Sales (2010 $ Mils)	$ 21.5	$ 13.9	$ 1.9	$ 6.2	**$ 43.4**

Table C4. Economic Impact of Line Construction by County
Scenario 1, New Mexico – West Route

County	Line Miles in County	Impact Category	Direct Effect Labor Expend.	Direct Effect Other Expend.	Indirect Effect	Induced Effect	Total Effect
Grant	**19**	Employment (# of Jobs)	27	17	3	10	**57**
		Labor Income (2010 $	$ 3.3	$ 0.7	$ 0.1	$ 0.3	**$ 4.4**
		State Product (2010 $ Mils)	$ 3.3	$ 1.0	$ 0.2	$ 0.6	**$ 5.0**
		Total Sales (2010 $ Mils)	$ 3.3	$ 1.8	$ 0.3	$ 0.9	**$ 6.3**
Hidalgo	**32**	Employment (# of Jobs)	50	25	3	8	**87**
		Labor Income (2010 $	$ 6.0	$ 0.8	$ 0.1	$ 0.2	**$ 7.1**
		State Product (2010 $ Mils)	$ 6.0	$ 1.0	$ 0.2	$ 0.4	**$ 7.6**
		Total Sales (2010 $ Mils)	$ 6.0	$ 2.0	$ 0.3	$ 0.7	**$ 9.0**
Lincoln	**15**	Employment (# of Jobs)	24	16	4	12	**56**
		Labor Income (2010 $	$ 2.8	$ 0.6	$ 0.1	$ 0.4	**$ 3.9**
		State Product (2010 $ Mils)	$ 2.8	$ 0.9	$ 0.2	$ 0.7	**$ 4.6**
		Total Sales (2010 $ Mils)	$ 2.8	$ 1.6	$ 0.4	$ 1.2	**$ 6.0**
Luna	**59**	Employment (# of Jobs)	84	65	7	22	**178**
		Labor Income (2010 $	$ 10.1	$ 2.4	$ 0.2	$ 0.6	**$ 13.3**
		State Product (2010 $ Mils)	$ 10.1	$ 3.3	$ 0.3	$ 1.2	**$ 14.9**
		Total Sales (2010 $ Mils)	$ 10.1	$ 6.1	$ 0.6	$ 2.0	**$ 18.8**
Sierra	**97**	Employment (# of Jobs)	185	87	13	54	**338**
		Labor Income (2010 $	$ 22.2	$ 2.9	$ 0.4	$ 1.5	**$ 27.0**
		State Product (2010 $ Mils)	$ 22.2	$ 3.7	$ 0.6	$ 2.9	**$ 29.5**
		Total Sales (2010 $ Mils)	$ 22.2	$ 7.4	$ 1.1	$ 5.1	**$ 35.8**
Socorro	**120**	Employment (# of Jobs)	195	116	13	69	**393**
		Labor Income (2010 $	$ 23.4	$ 4.7	$ 0.4	$ 1.9	**$ 30.4**
		State Product (2010 $ Mils)	$ 23.4	$ 5.8	$ 0.6	$ 3.7	**$ 33.6**
		Total Sales (2010 $ Mils)	$ 23.4	$ 11.3	$ 1.2	$ 6.5	**$ 42.4**

Table C5. Economic Impact of Line Construction by County
Scenario 2, Arizona – Route A

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Graham	**93**	Employment (# of jobs)	264	228	47	153	**692**
		Labor Income (2010 $Mil)	$ 31.6	$ 11.8	$ 1.4	$ 4.8	**$ 49.5**
		State Product (2010 $Mil)	$ 31.6	$ 16.2	$ 1.9	$ 8.3	**$ 58.0**
		Total Sales (2010 $Mil)	$ 31.6	$ 28.4	$ 3.7	$ 13.6	**$ 77.3**
Greenlee	**8**	Employment (# of jobs)	27	17	2	3	**49**
		Labor Income (2010 $Mil)	$ 3.3	$ 0.9	$ 0.1	$ 0.1	**$ 4.3**
		State Product (2010 $Mil)	$ 3.3	$ 1.2	$ 0.1	$ 0.2	**$ 4.9**
		Total Sales (2010 $Mil)	$ 3.3	$ 2.1	$ 0.2	$ 0.4	**$ 6.0**
Pinal	**70**	Employment (# of jobs)	197	124	19	79	**419**
		Labor Income (2010 $Mil)	$ 23.7	$ 6.7	$ 0.6	$ 3.0	**$ 34.0**
		State Product (2010 $Mil)	$ 23.7	$ 9.2	$ 0.9	$ 5.4	**$ 39.3**
		Total Sales (2010 $Mil)	$ 23.7	$ 15.7	$ 1.6	$ 8.0	**$ 49.1**

Table C6. Economic Impact of Line Construction by County
Scenario 2, Arizona – Route B

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Cochise	**56**	Employment (# of jobs)	201	170	28	93	**492**
		Labor Income (2010 $Mil)	$ 24.1	$ 7.6	$ 1.3	$ 3.3	**$ 36.2**
		State Product (2010 $Mil)	$ 24.1	$ 10.5	$ 2.1	$ 5.8	**$ 42.5**
		Total Sales (2010 $Mil)	$ 24.1	$ 18.5	$ 3.5	$ 9.2	**$ 55.3**
Graham	**36**	Employment (# of jobs)	103	71	13	51	**238**
		Labor Income (2010 $Mil)	$ 12.3	$ 3.3	$ 0.4	$ 1.6	**$ 17.6**
		State Product (2010 $Mil)	$ 12.3	$ 4.6	$ 0.5	$ 2.8	**$ 20.2**
		Total Sales (2010 $Mil)	$ 12.3	$ 8.1	$ 1.1	$ 4.6	**$ 26.1**
Greenlee	**8**	Employment (# of jobs)	27	17	2	3	**49**
		Labor Income (2010 $Mil)	$ 3.3	$ 0.9	$ 0.1	$ 0.1	**$ 4.3**
		State Product (2010 $Mil)	$ 3.3	$ 1.2	$ 0.1	$ 0.2	**$ 4.9**
		Total Sales (2010 $Mil)	$ 3.3	$ 2.1	$ 0.2	$ 0.4	**$ 6.0**
Pima	**16**	Employment (# of jobs)	46	32	10	42	**130**
		Labor Income (2010 $Mil)	$ 5.6	$ 1.5	$ 0.4	$ 1.6	**$ 9.1**
		State Product (2010 $Mil)	$ 5.6	$ 2.1	$ 0.6	$ 2.7	**$ 11.0**
		Total Sales (2010 $Mil)	$ 5.6	$ 3.8	$ 1.1	$ 4.2	**$ 14.6**
Pinal	**85**	Employment (# of jobs)	238	164	26	102	**530**
		Labor Income (2010 $Mil)	$ 28.5	$ 9.3	$ 0.9	$ 3.9	**$ 42.6**
		State Product (2010 $Mil)	$ 28.5	$ 12.7	$ 1.3	$ 7.0	**$ 49.5**
		Total Sales (2010 $Mil)	$ 28.5	$ 21.6	$ 2.3	$ 10.3	**$ 62.7**

Table C7. Economic Impact of Line Construction by County
Scenario 2, New Mexico – East Route

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Dona Ana	**59**	Employment (# of Jobs)	193	161	38	114	**506**
		Labor Income (2010 $ Mils	$ 23.1	$ 6.7	$ 1.4	$ 3.6	**$ 34.8**
		State Product (2010 $ Mils)	$ 23.1	$ 9.3	$ 2.1	$ 6.5	**$ 41.1**
		Total Sales (2010 $ Mils)	$ 23.1	$ 17.3	$ 3.7	$ 10.9	**$ 55.0**
Grant	**19**	Employment (# of Jobs)	53	33	6	19	**110**
		Labor Income (2010 $ Mils	$ 6.3	$ 1.5	$ 0.2	$ 0.5	**$ 8.5**
		State Product (2010 $ Mils)	$ 6.3	$ 2.0	$ 0.3	$ 1.1	**$ 9.7**
		Total Sales (2010 $ Mils)	$ 6.3	$ 3.5	$ 0.6	$ 1.8	**$ 12.2**
Hidalgo	**32**	Employment (# of Jobs)	96	49	6	16	**167**
		Labor Income (2010 $ Mils	$ 11.5	$ 1.6	$ 0.2	$ 0.4	**$ 13.7**
		State Product (2010 $ Mils)	$ 11.5	$ 2.0	$ 0.3	$ 0.9	**$ 14.7**
		Total Sales (2010 $ Mils)	$ 11.5	$ 3.8	$ 0.6	$ 1.4	**$ 17.3**
Linclon	**63**	Employment (# of Jobs)	223	156	35	115	**529**
		Labor Income (2010 $ Mils	$ 26.7	$ 5.9	$ 1.0	$ 3.5	**$ 37.1**
		State Product (2010 $ Mils)	$ 26.7	$ 8.2	$ 1.8	$ 7.0	**$ 43.7**
		Total Sales (2010 $ Mils)	$ 26.7	$ 15.6	$ 3.4	$ 11.4	**$ 57.1**
Luna	**63**	Employment (# of Jobs)	184	140	15	48	**387**
		Labor Income (2010 $ Mils	$ 22.1	$ 5.1	$ 0.4	$ 1.4	**$ 29.0**
		State Product (2010 $ Mils)	$ 22.1	$ 7.0	$ 0.7	$ 2.6	**$ 32.4**
		Total Sales (2010 $ Mils)	$ 22.1	$ 13.1	$ 1.2	$ 4.4	**$ 40.8**
Otero	**109**	Employment (# of Jobs)	346	257	38	128	**769**
		Labor Income (2010 $ Mils	$ 41.6	$ 10.7	$ 1.2	$ 3.7	**$ 57.1**
		State Product (2010 $ Mils)	$ 41.6	$ 14.7	$ 1.9	$ 7.0	**$ 65.1**
		Total Sales (2010 $ Mils)	$ 41.6	$ 27.2	$ 3.7	$ 12.0	**$ 84.4**

Table C8. Economic Impact of Line Construction by County
Scenario 2, New Mexico – West Route

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Grant	**19**	Employment (# of Jobs)	53	33	6	19	**110**
		Labor Income (2010 $ Mils	$ 6.3	$ 1.5	$ 0.2	$ 0.5	**$ 8.5**
		State Product (2010 $ Mils)	$ 6.3	$ 2.0	$ 0.3	$ 1.1	**$ 9.7**
		Total Sales (2010 $ Mils)	$ 6.3	$ 3.5	$ 0.6	$ 1.8	**$ 12.2**
Hidalgo	**32**	Employment (# of Jobs)	96	49	6	16	**167**
		Labor Income (2010 $ Mils	$ 11.5	$ 1.6	$ 0.2	$ 0.4	**$ 13.7**
		State Product (2010 $ Mils)	$ 11.5	$ 2.0	$ 0.3	$ 0.9	**$ 14.7**
		Total Sales (2010 $ Mils)	$ 11.5	$ 3.8	$ 0.6	$ 1.4	**$ 17.3**
Lincoln	**15**	Employment (# of Jobs)	45	32	7	23	**108**
		Labor Income (2010 $ Mils	$ 5.5	$ 1.2	$ 0.2	$ 0.7	**$ 7.6**
		State Product (2010 $ Mils)	$ 5.5	$ 1.7	$ 0.4	$ 1.4	**$ 8.9**
		Total Sales (2010 $ Mils)	$ 5.5	$ 3.2	$ 0.7	$ 2.3	**$ 11.7**
Luna	**59**	Employment (# of Jobs)	162	126	14	42	**344**
		Labor Income (2010 $ Mils	$ 19.5	$ 4.6	$ 0.4	$ 1.2	**$ 25.7**
		State Product (2010 $ Mils)	$ 19.5	$ 6.3	$ 0.6	$ 2.3	**$ 28.7**
		Total Sales (2010 $ Mils)	$ 19.5	$ 11.8	$ 1.1	$ 3.9	**$ 36.3**
Sierra	**97**	Employment (# of Jobs)	361	169	25	104	**659**
		Labor Income (2010 $ Mils	$ 43.3	$ 5.7	$ 0.8	$ 2.9	**$ 52.7**
		State Product (2010 $ Mils)	$ 43.3	$ 7.3	$ 1.1	$ 5.7	**$ 57.4**
		Total Sales (2010 $ Mils)	$ 43.3	$ 14.5	$ 2.1	$ 9.9	**$ 69.8**
Socorro	**120**	Employment (# of Jobs)	377	227	25	133	**762**
		Labor Income (2010 $ Mils	$ 45.3	$ 9.1	$ 0.8	$ 3.7	**$ 58.8**
		State Product (2010 $ Mils)	$ 45.3	$ 11.4	$ 1.1	$ 7.2	**$ 65.0**
		Total Sales (2010 $ Mils)	$ 45.3	$ 22.2	$ 2.3	$ 12.6	**$ 82.3**

Table C9. Economic Impact of Line Construction by County
Scenario 3, Arizona – Route A

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Graham	**93**	Employment (# of jobs)	302	236	47	164	**750**
		Labor Income (2010 $Mil)	$ 36.3	$ 11.7	$ 1.4	$ 5.1	**$ 54.5**
		State Product (2010 $Mil)	$ 36.3	$ 16.2	$ 1.9	$ 8.9	**$ 63.3**
		Total Sales (2010 $Mil)	$ 36.3	$ 28.5	$ 3.7	$ 14.6	**$ 83.0**
Greenlee	**8**	Employment (# of jobs)	29	17	2	3	**51**
		Labor Income (2010 $Mil)	$ 3.5	$ 0.9	$ 0.1	$ 0.1	**$ 4.6**
		State Product (2010 $Mil)	$ 3.5	$ 1.2	$ 0.1	$ 0.2	**$ 5.1**
		Total Sales (2010 $Mil)	$ 3.5	$ 2.1	$ 0.2	$ 0.4	**$ 6.2**
Pinal	**70**	Employment (# of jobs)	227	131	19	86	**463**
		Labor Income (2010 $Mil)	$ 27.2	$ 6.8	$ 0.6	$ 3.3	**$ 37.9**
		State Product (2010 $Mil)	$ 27.2	$ 9.4	$ 0.9	$ 5.9	**$ 43.5**
		Total Sales (2010 $Mil)	$ 27.2	$ 16.0	$ 1.7	$ 8.8	**$ 53.7**

Table C10. Economic Impact of Line Construction by County
Scenario 3, Arizona – Route B

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Cochise	**56**	Employment (# of jobs)	209	164	27	92	**492**
		Labor Income (2010 $Mil)	$ 25.1	$ 7.1	$ 1.2	$ 3.2	**$ 36.7**
		State Product (2010 $Mil)	$ 25.1	$ 9.9	$ 1.9	$ 5.8	**$ 42.7**
		Total Sales (2010 $Mil)	$ 25.1	$ 17.4	$ 3.2	$ 9.1	**$ 54.9**
Graham	**36**	Employment (# of jobs)	116	74	14	55	**259**
		Labor Income (2010 $Mil)	$ 14.0	$ 3.3	$ 0.4	$ 1.7	**$ 19.4**
		State Product (2010 $Mil)	$ 14.0	$ 4.6	$ 0.6	$ 3.0	**$ 22.1**
		Total Sales (2010 $Mil)	$ 14.0	$ 8.2	$ 1.1	$ 4.9	**$ 28.2**
Greenlee	**8**	Employment (# of jobs)	29	17	2	3	**51**
		Labor Income (2010 $Mil)	$ 3.5	$ 0.9	$ 0.1	$ 0.1	**$ 4.6**
		State Product (2010 $Mil)	$ 3.5	$ 1.2	$ 0.1	$ 0.2	**$ 5.1**
		Total Sales (2010 $Mil)	$ 3.5	$ 2.1	$ 0.2	$ 0.4	**$ 6.2**
Pima	**16**	Employment (# of jobs)	52	33	10	45	**141**
		Labor Income (2010 $Mil)	$ 6.3	$ 1.6	$ 0.4	$ 1.8	**$ 10.0**
		State Product (2010 $Mil)	$ 6.3	$ 2.2	$ 0.6	$ 2.9	**$ 12.0**
		Total Sales (2010 $Mil)	$ 6.3	$ 3.8	$ 1.1	$ 4.5	**$ 15.7**
Pinal	**85**	Employment (# of jobs)	274	172	26	111	**583**
		Labor Income (2010 $Mil)	$ 32.9	$ 9.3	$ 0.9	$ 4.2	**$ 47.4**
		State Product (2010 $Mil)	$ 32.9	$ 12.9	$ 1.3	$ 7.5	**$ 54.7**
		Total Sales (2010 $Mil)	$ 32.9	$ 21.9	$ 2.3	$ 11.2	**$ 68.3**

Table C11. Economic Impact of Line Construction by County
Scenario 3, New Mexico – East Route

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Dona Ana	**59**	Employment (# of Jobs)	209	192	48	132	**582**
		Labor Income (2010 $ Mils	$ 25.1	$ 8.3	$ 1.7	$ 4.1	**$ 39.3**
		State Product (2010 $ Mils)	$ 25.1	$ 11.5	$ 2.6	$ 7.6	**$ 46.8**
		Total Sales (2010 $ Mils)	$ 25.1	$ 21.2	$ 4.6	$ 12.6	**$ 63.4**
Grant	**19**	Employment (# of Jobs)	59	34	6	20	**119**
		Labor Income (2010 $ Mils	$ 7.1	$ 1.4	$ 0.2	$ 0.6	**$ 9.4**
		State Product (2010 $ Mils)	$ 7.1	$ 2.0	$ 0.3	$ 1.1	**$ 10.6**
		Total Sales (2010 $ Mils)	$ 7.1	$ 3.5	$ 0.6	$ 1.9	**$ 13.2**
Hidalgo	**32**	Employment (# of Jobs)	104	50	6	17	**176**
		Labor Income (2010 $ Mils	$ 12.4	$ 1.6	$ 0.2	$ 0.4	**$ 14.5**
		State Product (2010 $ Mils)	$ 12.4	$ 2.0	$ 0.3	$ 0.9	**$ 15.6**
		Total Sales (2010 $ Mils)	$ 12.4	$ 3.7	$ 0.6	$ 1.5	**$ 18.3**
Linclon	**63**	Employment (# of Jobs)	236	156	35	119	**546**
		Labor Income (2010 $ Mils	$ 28.3	$ 5.8	$ 1.0	$ 3.6	**$ 38.7**
		State Product (2010 $ Mils)	$ 28.3	$ 8.1	$ 1.8	$ 7.2	**$ 45.4**
		Total Sales (2010 $ Mils)	$ 28.3	$ 15.4	$ 3.3	$ 11.8	**$ 58.8**
Luna	**63**	Employment (# of Jobs)	210	145	16	52	**423**
		Labor Income (2010 $ Mils	$ 25.2	$ 5.2	$ 0.5	$ 1.5	**$ 32.3**
		State Product (2010 $ Mils)	$ 25.2	$ 7.2	$ 0.7	$ 2.9	**$ 35.9**
		Total Sales (2010 $ Mils)	$ 25.2	$ 13.3	$ 1.3	$ 4.8	**$ 44.6**
Otero	**109**	Employment (# of Jobs)	375	263	39	134	**811**
		Labor Income (2010 $ Mils	$ 45.0	$ 10.8	$ 1.2	$ 3.9	**$ 60.9**
		State Product (2010 $ Mils)	$ 45.0	$ 14.9	$ 1.9	$ 7.3	**$ 69.1**
		Total Sales (2010 $ Mils)	$ 45.0	$ 27.4	$ 3.8	$ 12.6	**$ 88.8**

Table C12. Economic Impact of Line Construction by County
Scenario 3, New Mexico – West Route

County	Line Miles in County	Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
			Labor Expend.	Other Expend.			
Grant	**19**	Employment (# of Jobs)	59	34	6	20	**119**
		Labor Income (2010 $ Mils	$ 7.1	$ 1.4	$ 0.2	$ 0.6	**$ 9.4**
		State Product (2010 $ Mils)	$ 7.1	$ 2.0	$ 0.3	$ 1.1	**$ 10.6**
		Total Sales (2010 $ Mils)	$ 7.1	$ 3.5	$ 0.6	$ 1.9	**$ 13.2**
Hidalgo	**32**	Employment (# of Jobs)	104	50	6	17	**176**
		Labor Income (2010 $ Mils	$ 12.4	$ 1.6	$ 0.2	$ 0.4	**$ 14.5**
		State Product (2010 $ Mils)	$ 12.4	$ 2.0	$ 0.3	$ 0.9	**$ 15.6**
		Total Sales (2010 $ Mils)	$ 12.4	$ 3.7	$ 0.6	$ 1.5	**$ 18.3**
Lincoln	**15**	Employment (# of Jobs)	50	32	7	25	**115**
		Labor Income (2010 $ Mils	$ 6.0	$ 1.2	$ 0.2	$ 0.8	**$ 8.2**
		State Product (2010 $ Mils)	$ 6.0	$ 1.7	$ 0.4	$ 1.5	**$ 9.6**
		Total Sales (2010 $ Mils)	$ 6.0	$ 3.2	$ 0.7	$ 2.5	**$ 12.4**
Luna	**59**	Employment (# of Jobs)	194	135	15	48	**392**
		Labor Income (2010 $ Mils	$ 23.3	$ 4.8	$ 0.4	$ 1.4	**$ 29.9**
		State Product (2010 $ Mils)	$ 23.3	$ 6.7	$ 0.6	$ 2.7	**$ 33.3**
		Total Sales (2010 $ Mils)	$ 23.3	$ 12.4	$ 1.2	$ 4.4	**$ 41.3**
Sierra	**97**	Employment (# of Jobs)	371	167	24	106	**668**
		Labor Income (2010 $ Mils	$ 44.5	$ 5.5	$ 0.7	$ 3.0	**$ 53.7**
		State Product (2010 $ Mils)	$ 44.5	$ 7.1	$ 1.1	$ 5.8	**$ 58.5**
		Total Sales (2010 $ Mils)	$ 44.5	$ 14.3	$ 2.1	$ 10.0	**$ 70.8**
Socorro	**120**	Employment (# of Jobs)	418	227	25	141	**811**
		Labor Income (2010 $ Mils	$ 50.1	$ 8.9	$ 0.8	$ 3.9	**$ 63.7**
		State Product (2010 $ Mils)	$ 50.1	$ 11.3	$ 1.1	$ 7.7	**$ 70.2**
		Total Sales (2010 $ Mils)	$ 50.1	$ 21.8	$ 2.2	$ 13.4	**$ 87.6**

Table C13. Economic Impact of Substation Construction by County
Scenario 1, Arizona and New Mexico

County	State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
		Labor Expend.	Other Expend.			
	Arizona					
Graham	Employment (# of Jobs)	42	29	5	22	**98**
	Labor Income (2010 $Mil)	$ 6.3	$ 1.1	$ 0.2	$ 0.7	**$ 8.2**
	State Product (2010 $Mil)	$ 6.3	$ 1.6	$ 0.2	$ 1.2	**$ 9.3**
	Total Sales (2010 $Mil)	$ 6.3	$ 3.2	$ 0.4	$ 2.0	**$ 11.9**
Pinal	Employment (# of Jobs)	3	1	0	1	**6**
	Labor Income (2010 $Mil)	$ 0.4	$ 0.1	$ 0.0	$ 0.0	**$ 0.6**
	State Product (2010 $Mil)	$ 0.4	$ 0.1	$ 0.0	$ 0.1	**$ 0.6**
	Total Sales (2010 $Mil)	$ 0.4	$ 0.2	$ 0.0	$ 0.1	**$ 0.7**
	New Mexico					
Hidalgo	Employment (# of Jobs)	117	18	2	7	**145**
	Labor Income (2010 $Mil)	$ 14.0	$ 0.5	$ 0.1	$ 0.2	**$ 14.8**
	State Product (2010 $Mil)	$ 14.0	$ 0.7	$ 0.1	$ 0.4	**$ 15.2**
	Total Sales (2010 $Mil)	$ 14.0	$ 1.3	$ 0.2	$ 0.6	**$ 16.2**
Lincoln	Employment (# of Jobs)	59	34	9	26	**127**
	Labor Income (2010 $Mil)	$ 7.1	$ 1.3	$ 0.3	$ 0.8	**$ 9.4**
	State Product (2010 $Mil)	$ 7.1	$ 1.8	$ 0.4	$ 1.6	**$ 10.9**
	Total Sales (2010 $Mil)	$ 7.1	$ 3.7	$ 0.8	$ 2.5	**$ 14.2**
Luna	Employment (# of Jobs)	90	44	5	18	**156**
	Labor Income (2010 $Mil)	$ 10.8	$ 1.5	$ 0.1	$ 0.5	**$ 12.9**
	State Product (2010 $Mil)	$ 10.8	$ 2.2	$ 0.2	$ 1.0	**$ 14.1**
	Total Sales (2010 $Mil)	$ 10.8	$ 4.1	$ 0.4	$ 1.6	**$ 16.9**

Table C14. Economic Impact of Substation Construction by County
Scenario 2, Arizona and New Mexico

County	State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
		Labor Expend.	Other Expend.			
	Arizona					
Graham	Employment (# of Jobs)	53	37	7	29	**126**
	Labor Income (2010 $Mil)	$ 7.9	$ 1.4	$ 0.2	$ 0.9	**$ 10.5**
	State Product (2010 $Mil)	$ 7.9	$ 2.1	$ 0.3	$ 1.6	**$ 11.9**
	Total Sales (2010 $Mil)	$ 7.9	$ 4.2	$ 0.6	$ 2.6	**$ 15.2**
Pinal	Employment (# of Jobs)	8	4	0	3	**15**
	Labor Income (2010 $Mil)	$ 1.2	$ 0.2	$ 0.0	$ 0.1	**$ 1.5**
	State Product (2010 $Mil)	$ 1.2	$ 0.2	$ 0.0	$ 0.2	**$ 1.7**
	Total Sales (2010 $Mil)	$ 1.2	$ 0.4	$ 0.0	$ 0.3	**$ 2.0**
	New Mexico					
Hidalgo	Employment (# of Jobs)	143	24	3	9	**178**
	Labor Income (2010 $Mil)	$ 17.2	$ 0.7	$ 0.1	$ 0.2	**$ 18.2**
	State Product (2010 $Mil)	$ 17.2	$ 0.9	$ 0.1	$ 0.5	**$ 18.7**
	Total Sales (2010 $Mil)	$ 17.2	$ 1.7	$ 0.3	$ 0.8	**$ 20.0**
Lincoln	Employment (# of Jobs)	70	40	10	30	**151**
	Labor Income (2010 $Mil)	$ 8.4	$ 1.5	$ 0.3	$ 0.9	**$ 11.1**
	State Product (2010 $Mil)	$ 8.4	$ 2.1	$ 0.5	$ 1.8	**$ 12.9**
	Total Sales (2010 $Mil)	$ 8.4	$ 4.3	$ 1.0	$ 3.0	**$ 16.8**
Luna	Employment (# of Jobs)	107	54	6	21	**187**
	Labor Income (2010 $Mil)	$ 12.9	$ 1.9	$ 0.2	$ 0.6	**$ 15.5**
	State Product (2010 $Mil)	$ 12.9	$ 2.7	$ 0.2	$ 1.2	**$ 16.9**
	Total Sales (2010 $Mil)	$ 12.9	$ 5.0	$ 0.5	$ 1.9	**$ 20.3**

Table C15. Economic Impact of Substation Construction by County
Scenario 3, Arizona and New Mexico

County	State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
		Labor Expend.	Other Expend.			
	Arizona					
Graham	Employment (# of Jobs)	42	29	5	22	**98**
	Labor Income (2010 $Mil)	$ 6.3	$ 1.1	$ 0.2	$ 0.7	**$ 8.2**
	State Product (2010 $Mil)	$ 6.3	$ 1.6	$ 0.2	$ 1.2	**$ 9.3**
	Total Sales (2010 $Mil)	$ 6.3	$ 3.2	$ 0.4	$ 2.0	**$ 11.9**
Pinal	Employment (# of Jobs)	43	18	2	15	**78**
	Labor Income (2010 $Mil)	$ 6.4	$ 0.7	$ 0.1	$ 0.6	**$ 7.7**
	State Product (2010 $Mil)	$ 6.4	$ 1.0	$ 0.1	$ 1.1	**$ 8.6**
	Total Sales (2010 $Mil)	$ 6.4	$ 1.7	$ 0.2	$ 1.6	**$ 9.8**
	New Mexico					
Hidalgo	Employment (# of Jobs)	117	18	2	7	**145**
	Labor Income (2010 $Mil)	$ 14.0	$ 0.5	$ 0.1	$ 0.2	**$ 14.8**
	State Product (2010 $Mil)	$ 14.0	$ 0.7	$ 0.1	$ 0.4	**$ 15.2**
	Total Sales (2010 $Mil)	$ 14.0	$ 1.3	$ 0.2	$ 0.6	**$ 16.2**
Lincoln	Employment (# of Jobs)	119	51	12	46	**228**
	Labor Income (2010 $Mil)	$ 14.3	$ 1.8	$ 0.3	$ 1.4	**$ 17.8**
	State Product (2010 $Mil)	$ 14.3	$ 2.5	$ 0.6	$ 2.8	**$ 20.2**
	Total Sales (2010 $Mil)	$ 14.3	$ 5.1	$ 1.1	$ 4.6	**$ 25.1**
Luna	Employment (# of Jobs)	90	44	5	18	**156**
	Labor Income (2010 $Mil)	$ 10.8	$ 1.5	$ 0.1	$ 0.5	**$ 12.9**
	State Product (2010 $Mil)	$ 10.8	$ 2.2	$ 0.2	$ 1.0	**$ 14.1**
	Total Sales (2010 $Mil)	$ 10.8	$ 4.1	$ 0.4	$ 1.6	**$ 16.9**

Table C16. Economic Impact of Operations and Maintenance, by County Scenario 1, Arizona and New Mexico

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona - Allocated to Pima County					
Employment (# of Jobs)	7	3	1	8	**19**
Labor Income (2010 $ Mils)	$ 1.0	$ 0.2	$ 0.0	$ 0.4	**$ 1.6**
State Product (2010 $ Mils)	$ 1.0	$ 0.3	$ 0.1	$ 0.7	**$ 2.1**
Total Sales (2010 $ Mils)	$ 1.0	$ 0.5	$ 0.1	$ 1.1	**$ 2.8**
New Mexico - Allocated to Doña Ana County					
Employment (# of Jobs)	11	5	1	7	**25**
Labor Income (2010 $ Mils)	$ 1.0	$ 0.2	$ 0.0	$ 0.2	**$ 1.5**
State Product (2010 $ Mils)	$ 1.0	$ 0.4	$ 0.1	$ 0.4	**$ 1.9**
Total Sales (2010 $ Mils)	$ 1.0	$ 0.8	$ 0.1	$ 0.7	**$ 2.6**

Table C17. Economic Impact of Operations and Maintenance, by County Scenario 2, Arizona and New Mexico

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona - Allocated to Pima County					
Employment (# of Jobs)	11	5	2	12	**30**
Labor Income (2010 $ Mils)	$ 1.0	$ 0.2	$ 0.1	$ 0.5	**$ 1.8**
State Product (2010 $ Mils)	$ 1.0	$ 0.4	$ 0.1	$ 0.8	**$ 2.3**
Total Sales (2010 $ Mils)	$ 1.0	$ 0.8	$ 0.2	$ 1.2	**$ 3.2**
New Mexico - Allocated to Doña Ana County					
Employment (# of Jobs)	17	8	2	11	**39**
Labor Income (2010 $ Mils)	$ 1.5	$ 0.3	$ 0.1	$ 0.4	**$ 2.3**
State Product (2010 $ Mils)	$ 1.5	$ 0.6	$ 0.1	$ 0.7	**$ 2.9**
Total Sales (2010 $ Mils)	$ 1.5	$ 1.2	$ 0.2	$ 1.1	**$ 4.0**

Table C18. Economic Impact of Operations and Maintenance, by County Scenario 3, Arizona and New Mexico

State/ Impact Category	Direct Effect	Direct Effect	Indirect Effect	Induced Effect	Total Effect
	Labor Expend.	Other Expend.			
Arizona - Allocated to Pima County					
Employment (# of Jobs)	14	6	2	15	**37**
Labor Income (2010 $ Mils)	$ 1.3	$ 0.3	$ 0.1	$ 0.6	**$ 2.2**
State Product (2010 $ Mils)	$ 1.3	$ 0.5	$ 0.1	$ 1.0	**$ 2.9**
Total Sales (2010 $ Mils)	$ 1.3	$ 1.0	$ 0.3	$ 1.5	**$ 4.0**
New Mexico - Allocated to Doña Ana County					
Employment (# of Jobs)	21	10	2	14	**48**
Labor Income (2010 $ Mils)	$ 1.9	$ 0.4	$ 0.1	$ 0.4	**$ 2.8**
State Product (2010 $ Mils)	$ 1.9	$ 0.8	$ 0.1	$ 0.8	**$ 3.6**
Total Sales (2010 $ Mils)	$ 1.9	$ 1.4	$ 0.3	$ 1.4	**$ 4.9**

Appendix D.

Revenue Estimation Methodology: Effective Tax Rates

New Mexico Methodology

For each year and each tax, two quantities are needed to calculate an effective tax rate: (a) the amount of taxes collected and (b) Labor Income. Taxes collected in each category are reported by the U.S. Bureau of the Census reported in Table A1 while labor income consistent with the taxable income base must be estimated.

Using components of total personal income (TPI) as reported by the Bureau of Economic Analysis (BEA 2011) an adjusted personal income figure is computed that more closely represents the income which is taxable by the income tax and from which taxable sales are made. Adjusted personal income is defined to be equal to total personal income (TPI) minus most transfer payments and minus two components of dividends, interest and rent. Within transfer payments, retirement and disability insurance benefits and veterans benefits were not subtracted from TPI because these represent income that can be spent (and taxed) in the region. Most of the rest of transfer payments is comprised of medical payments. The two components of dividends, interest and rent that were subtracted off are the imputed rent (which consists of rent imputed on the value of owner-occupied housing) and imputed interest (which accrues but is typically not paid out to bondholders).

Revenue and income data used to compute New Mexico's effective tax rates are in Table D1. The calculation of the effective tax rates is shown in Table D2. The average effective tax rates from 2001 to 2009 are used throughout the report. For the purpose of estimating tax revenue, the important issue is the stability of the effective tax rates from year to year. Labor income based effective tax rates satisfy this criterion. The variability of the effective tax rates as measured by the standard deviation of each rate (Table D2) is low.

Table D1. New Mexico Revenue and Income

Calculation of New Mexico Effective Tax Rates						
NM Tax Revenue: 2001 to 2009						
Year	**GRT**	**PIT**	**CIT**	**All other**	**Total**	**Adjusted Income**
2001	$2,083,196	$830,006	$190,673	$898,371	$4,002,246	$38,314,863
2002	$1,822,878	$982,891	$124,327	$697,959	$3,628,055	$39,097,727
2003	$1,873,420	$923,113	$101,546	$709,077	$3,607,156	$40,651,774
2004	$2,038,440	$1,007,248	$138,196	$817,896	$4,001,780	$43,705,023
2005	$2,170,521	$1,086,015	$242,462	$979,323	$4,478,321	$46,875,653
2006	$2,387,718	$1,123,954	$377,185	$1,221,826	$5,110,683	$50,498,048
2007	$2,646,901	$1,177,918	$459,880	$1,242,518	$5,527,217	$53,618,936
2008	$2,663,292	$1,213,522	$354,588	$1,414,247	$5,645,649	$55,696,530
2009	$2,493,029	$932,442	$203,584	$1,222,634	$4,851,689	$54,413,239

GRT includes gross receipts and selective sales taxes.
PIT refers to personal income taxes.
CIT refers to corporate income taxes.
IMPLAN Labor Income calculated from Bureau of Economic Analysis data and includes wage and salary disbursements, supplements to wages and salaries, and proprietors income.

Table D2. Calculation of Effective Tax Rates

Year	GRT	PIT	CIT	All other	Total
2001	0.05437	0.02166	0.00498	0.02345	0.10446
2002	0.04662	0.02514	0.00318	0.01785	0.09279
2003	0.04608	0.02271	0.00250	0.01744	0.08873
2004	0.04664	0.02305	0.00316	0.01871	0.09156
2005	0.04630	0.02317	0.00517	0.02089	0.09554
2006	0.04728	0.02226	0.00747	0.02420	0.10121
2007	0.04937	0.02197	0.00858	0.02317	0.10308
2008	0.04782	0.02179	0.00637	0.02539	0.10136
2009	0.04582	0.01714	0.00374	0.02247	0.08916
Average	**0.04781**	**0.02210**	**0.00502**	**0.02151**	**0.09643**
Std. Dev.	**0.00253**	**0.00202**	**0.00198**	**0.00275**	**0.00583**

Arizona Methodology

Arizona followed the same method as New Mexico, in that effective tax rates were computed. Tax collections, by category, were divided by adjusted Arizona personal income (same adjustment used by New Mexico above). Because all the revenue dollar data is for fiscal years, fiscal year personal income was computed by averaging quarterly personal income across the appropriate quarters (quarterly personal income data is reported as seasonally adjusted at annual rates).

Ten years of effective tax rates were computed for Arizona's transaction privilege tax, individual income tax and corporate income tax. Arizona's transaction privilege (TP) tax is the state sales tax, which has a combined rate of 5.6 percent at the state level. Collections at the state level, as reported by the Arizona Department of Revenue (ADOR), include the following categories: distribution base, non-shared portion, use tax, education tax, temporary tax, undistributed estimated transaction tax, other state revenue, County and City collections, and for one year, collections from an amnesty program. Arizona shares some of its revenues with cities and counties and those dollars come from the distribution base. The non-shared portion is all retained by the state. The use tax is a tax on items imported into the state that would be taxable under the TP tax; the education tax is a 0.6 percent sales tax that is earmarked for education; County and City collections represent locally imposed sales taxes that are collected (administered) by the state.

Prior to calculating the effective tax rate, the following items were subtracted from total transaction privilege collections:

1. Amnesty collections since they were for 1 year only
2. County and city collections because they do not represent state revenues (these are locally-imposed taxes collected by the state on behalf of local governments)
3. Temporary tax, which is a 1 percent tax imposed June 1, 2010 for three years. Since construction is expected to begin in the middle of calendar year 2013, this tax should no longer exist.

The resulting TP fiscal year collections were divided by adjusted fiscal year personal income to estimate an effective tax rate for fiscal years ending in 2001 through 2010 (10 years of data). The effective tax rate for FY2001 was noticeably smaller than the others because the 0.6 percent education tax was imposed late in that fiscal year. Therefore, only nine years of data were used when computing the effective TP tax rate (as a percent of personal income). The effective TP tax rate ranged from 0.0273 to 0.0358 and averaged 0.0331, with a standard deviation of 0.003. The effective tax rate was the lowest in the most recent two periods because of the severe recession.

ADOR reports income tax collections from the following sources: withholdings, individual collections (these are net payments made by individuals on their tax returns), corporate tax collections and amnesty. The one year of collections from an amnesty program was subtracted prior to computing the effective tax rate. Withholdings and individual collections are paid by individuals and are added together before computing the individual income tax effective rate. Both the individual income tax and corporate income tax effective rates are computed for the 10-year period. The average effective individual tax rate is 0.0245 (the range was from 0.0211 to 0.0274, with a standard deviation of 0.0022) and the average effective corporate income tax rate is 0.0048 (with a range of 0.0036 to 0.0058 and standard deviation of 0.00082), where both are computed relative to adjusted personal income. Again, the lowest effective tax rates occurred for FY2009 and FY2010.

The determination of the proportion of state level Arizona revenues that are shared with local governments is complicated by Arizona's complex revenue sharing formulas. In addition to local governments (cities and counties) imposing local sales taxes, a portion of state sales taxes are shared to cities and counties. Only part of the tax is shared and the formulas are extremely complex because different portions of each of approximately 20 sales tax categories are deposited into the distribution base. Rather than applying the distribution formulas to each of the taxable sales categories, effective county and city shares were computed for the last nine years of data. Again, this is because the education tax was imposed during FY2001. These county and city effective shares are extremely stable. The average effective share of the TP going to counties is 0.1168 (with a range of 0.1157 to 0.1179 and a standard deviation of .005) and the average effective share going to cities is 0.0718 (with a range of 0.0697 to 0.0727, with a standard deviation of 0.0033).

Once the portion that is distributed to cities is determined, money is distributed to the cities within each impacted county according to their share of total incorporated population in the state. This allocation was done using 2010 census figures. State income tax revenues shared with cities is also shared according to relative incorporated population.

Appendix E.

Revenue Estimates, by County, by Category

Definitions of Revenue Sources:

Direct Sales Tax Revenues – Paid as a result of the construction of or the operation of the facilities

Direct State-Shared Sales Taxes – Direct sales taxes collected by the state and shared with cities and counties

Induced Local Sales Taxes – Locally imposed sales taxes paid when workers earn and spend money locally

Induced State-Shared Sales Taxes – State-shared sales taxes collected when workers earn and spend money in the state

Induced State-Shared Income Taxes – State income taxes shared (two fiscal years later) with incorporated cities and towns

In the following tables for Arizona, all of these sources are listed. The New Mexico tables contain only Direct Sales Tax Revenues and Induced Local Sales Taxes because the state government in New Mexico does not share state revenues with cities and counties.

Note that the estimated induced and shared revenues in the following tables do NOT add to the local revenue figures in the statewide tables in the body of the report. Economic impacts accrue outside the counties where construction occurs, so there are direct and indirect effects generated elsewhere in the states. In addition, Arizona revenues are shared with all cities and counties throughout the state, not just those listed.

Also note that all of the following estimated revenues are contained within the summary revenue tables in the body of the report. Thus, the following revenues cannot be added to the local revenues reported in the text.

Table E1. Summary of Arizona's Local Government Revenue (County and City), by County, due to Line Construction

	Direct Sales Tax	Direct State-Shared Sales Tax	Induced Local Sales Tax	Induced State-Shared Sales Tax	Induced State-Shared Income Tax	Total
			Transmission Lines (2010 $000s)			
Scenario 1 - Route A						
Cochise	$ -	$ 38.4	$ -	$ 6.8	$ 3.5	**$ 48.7**
Graham	$1,094.9	$ 9.2	$ 229.2	$ 1.9	$ 0.7	**$ 1,335.9**
Greenlee`	$ 18.3	$ 4.6	$ 3.4	$ 1.5	$ 0.2	**$ 28.0**
Pima	$ -	$ 305.3	$ -	$ 54.2	$ 27.6	**$ 387.2**
Pinal	$1,034.3	$ 85.6	$ 210.5	$ 13.5	$ 8.3	**$ 1,352.2**
Scenario 1 - Route B						
Cochise	$ 915.1	$ 46.4	$ 200.7	$ 8.4	$ 4.2	**$ 1,174.9**
Graham	$ 381.4	$ 11.1	$ 78.3	$ 2.3	$ 0.9	**$ 474.0**
Greenlee`	$ 18.3	$ 5.5	$ 3.4	$ 1.9	$ 0.2	**$ 29.4**
Pima	$ 180.7	$ 369.3	$ 46.0	$ 66.8	$ 33.6	**$ 696.4**
Pinal	$1,304.2	$ 103.5	$ 273.5	$ 16.7	$ 10.1	**$ 1,708.0**
Scenario 2 - Route A						
Cochise	$ -	$ 74.4	$ -	$ 13.3	$ 6.7	**$ 94.4**
Graham	$2,122.5	$ 17.8	$ 446.5	$ 3.7	$ 1.4	**$ 2,591.9**
Greenlee`	$ 35.7	$ 8.8	$ 6.6	$ 3.0	$ 0.3	**$ 54.4**
Pima	$ -	$ 592.0	$ -	$ 105.6	$ 53.5	**$ 751.1**
Pinal	$2,004.7	$ 165.9	$ 410.1	$ 26.4	$ 16.1	**$ 2,623.2**
Scenario 2 - Route B						
Cochise	$1,785.4	$ 90.2	$ 391.4	$ 16.3	$ 8.2	**$ 2,291.4**
Graham	$ 739.3	$ 21.5	$ 151.4	$ 4.5	$ 1.7	**$ 918.5**
Greenlee`	$ 35.7	$ 10.7	$ 6.6	$ 3.6	$ 0.4	**$ 57.1**
Pima	$ 350.3	$ 717.4	$ 89.1	$ 129.6	$ 65.2	**$ 1,351.5**
Pinal	$2,527.7	$ 201.1	$ 529.0	$ 32.3	$ 19.6	**$ 3,309.8**
Scenario 3 - Route A						
Cochise	$ -	$ 75.8	$ -	$ 14.4	$ 7.3	**$ 97.4**
Graham	$2,155.5	$ 18.1	$ 480.4	$ 4.0	$ 1.6	**$ 2,659.5**
Greenlee`	$ 35.4	$ 9.0	$ 6.9	$ 3.2	$ 0.4	**$ 54.8**
Pima	$ -	$ 602.5	$ -	$ 114.4	$ 58.0	**$ 775.0**
Pinal	$2,054.4	$ 168.9	$ 449.1	$ 28.6	$ 17.4	**$ 2,718.4**
Scenario 3 - Route B						
Cochise	$1,707.7	$ 90.1	$ 389.6	$ 17.2	$ 8.7	**$ 2,213.3**
Graham	$ 749.0	$ 21.5	$ 163.9	$ 4.8	$ 1.9	**$ 941.1**
Greenlee`	$ 35.4	$ 10.7	$ 6.9	$ 3.8	$ 0.4	**$ 57.3**
Pima	$ 356.3	$ 716.3	$ 96.0	$ 136.9	$ 69.1	**$ 1,374.6**
Pinal	$2,588.4	$ 200.8	$ 576.2	$ 34.2	$ 20.7	**$ 3,420.3**

Table E2. Summary of Arizona's Local Government Revenue (County and City), by County, due to Substation Construction

	Direct Sales Tax	Direct State-Shared Sales Tax	Induced Local Sales Tax	Induced State-Shared Sales Tax	Induced State-Shared Income Tax	Total
			Substations (2010 $000s)			
Scenario 1						
Cochise	$ -	$ 7.9	$ -	$ 1.1	$ 0.6	**$ 9.6**
Graham	$ 366.9	$ 1.9	$ 66.7	$ 0.3	$ 0.1	**$ 435.9**
Greenlee`	$ -	$ 0.9	$ -	$ 0.2	$ 0.0	**$ 1.2**
Pima	$ -	$ 63.1	$ -	$ 8.4	$ 4.7	**$ 76.2**
Pinal	$ 45.0	$ 17.7	$ 6.2	$ 2.1	$ 1.4	**$ 72.4**
Scenario 2						
Cochise	$ -	$ 11.6	$ -	$ 1.4	$ 0.8	**$ 13.8**
Graham	$ 502.6	$ 2.8	$ 85.8	$ 0.4	$ 0.2	**$ 591.7**
Greenlee`	$ -	$ 1.4	$ -	$ 0.3	$ 0.0	**$ 1.7**
Pima	$ -	$ 91.9	$ -	$ 11.5	$ 6.5	**$ 109.9**
Pinal	$ 110.3	$ 25.8	$ 16.4	$ 2.9	$ 1.9	**$ 157.3**
Scenario 3						
Cochise	$ -	$ 36.5	$ -	$ 6.2	$ 1.1	**$ 43.8**
Graham	$ 366.9	$ 8.7	$ 66.7	$ 1.9	$ 0.2	**$ 444.4**
Greenlee`	$ -	$ 4.3	$ -	$ 1.8	$ 0.1	**$ 6.2**
Pima	$ -	$ 290.2	$ -	$ 49.8	$ 8.4	**$ 348.4**
Pinal	$2,060.8	$ 81.4	$ 83.2	$ 11.5	$ 2.5	**$ 2,239.4**

Table E3. Summary of Arizona's Local Government Revenue (County and City), by County, due to Operations and Maintenance

	Direct Sales Tax	Direct State-Shared Sales Tax	Induced Local Sales Tax	Induced State-Shared Sales Tax	Induced State-Shared Income Tax	Total
			Operations & Maintenance (2010 $000s)			
Scenario 1						
Cochise	$ -	$ 0.3	$ -	$ 0.4	$ 0.2	**$ 0.9**
Graham	$ -	$ 0.1	$ -	$ 0.1	$ 0.0	**$ 0.2**
Greenlee`	$ -	$ 0.0	$ -	$ 0.1	$ 0.0	**$ 0.1**
Pima	$ 11.1	$ 2.2	$ 16.7	$ 3.2	$ 1.5	**$ 34.8**
Pinal	$ -	$ 0.6	$ -	$ 0.8	$ 0.5	**$ 1.9**
Scenario 2						
Cochise	$ -	$ 0.4	$ -	$ 0.6	$ 0.3	**$ 1.3**
Graham	$ -	$ 0.1	$ -	$ 0.2	$ 0.1	**$ 0.3**
Greenlee`	$ -	$ 0.1	$ -	$ 0.1	$ 0.0	**$ 0.2**
Pima	$ 18.3	$ 3.5	$ 25.7	$ 4.9	$ 2.3	**$ 54.7**
Pinal	$ -	$ 1.0	$ -	$ 1.2	$ 0.7	**$ 2.9**
Scenario 3						
Cochise	$ -	$ 0.5	$ -	$ 0.8	$ 0.4	**$ 1.7**
Graham	$ -	$ 0.1	$ -	$ 0.2	$ 0.1	**$ 0.4**
Greenlee`	$ -	$ 0.1	$ -	$ 0.2	$ 0.0	**$ 0.3**
Pima	$ 21.5	$ 4.0	$ 31.8	$ 6.6	$ 3.2	**$ 67.0**
Pinal	$ -	$ 1.1	$ -	$ 1.6	$ 0.9	**$ 3.7**

Table E4. Summary of New Mexico's Local Government Revenues (City and County), by County, due to Construction and Operations and Maintenance (2010 $000s)

Transmission Line Construction (2010 $000s)									
	Scenario 1 - East			Scenario 2 - East			Scenario 3 - East		
	Direct	Induced	Total	Direct	Induced	Total	Direct	Induced	Total
Dona Ana	$ 1,522.5	$ 241.3	**$ 1,763.8**	$ 2,966.8	$ 469.1	**$ 3,435.9**	$ 2,950.5	$ 542.0	**$ 3,492.5**
Grant	$ 413.3	$ 55.5	**$ 468.8**	$ 802.6	$ 107.2	**$ 909.8**	$ 751.7	$ 115.5	**$ 867.2**
Hidalgo	$ 634.3	$ 72.0	**$ 706.4**	$ 1,233.5	$ 139.2	**$ 1,372.8**	$ 1,137.0	$ 146.5	**$ 1,283.5**
Lincoln	$ 1,781.6	$ 256.6	**$ 2,038.2**	$ 3,473.2	$ 499.4	**$ 3,972.7**	$ 3,284.3	$ 516.2	**$ 3,800.5**
Luna	$ 1,562.0	$ 198.4	**$ 1,760.4**	$ 3,036.6	$ 383.8	**$ 3,420.4**	$ 2,910.6	$ 421.0	**$ 3,331.5**
Otero	$ 2,382.4	$ 360.7	**$ 2,743.1**	$ 4,639.2	$ 700.5	**$ 5,339.7**	$ 4,362.4	$ 738.7	**$ 5,101.1**
	Scenario 1 - West			Scenario 2 - West			Scenario 3 - West		
	Direct	Induced	Total	Direct	Induced	Total	Direct	Induced	Total
Grant	$ 413.3	$ 55.5	**$ 468.8**	$ 802.6	$ 107.2	**$ 909.8**	$ 751.7	$ 115.5	**$ 867.2**
Hidalgo	$ 634.3	$ 72.0	**$ 706.4**	$ 1,233.5	$ 139.2	**$ 1,372.8**	$ 1,137.0	$ 146.5	**$ 1,283.5**
Lincoln	$ 397.1	$ 52.6	**$ 449.7**	$ 772.4	$ 101.8	**$ 874.2**	$ 729.8	$ 108.4	**$ 838.2**
Luna	$ 1,427.0	$ 176.8	**$ 1,603.8**	$ 2,771.4	$ 341.2	**$ 3,112.7**	$ 2,726.1	$ 390.0	**$ 3,116.1**
Sierra	$ 1,757.5	$ 232.9	**$ 1,990.4**	$ 3,429.3	$ 453.6	**$ 3,882.9**	$ 3,222.7	$ 459.7	**$ 3,682.5**
Socorro	$ 2,543.8	$ 340.3	**$ 2,884.1**	$ 4,951.6	$ 660.1	**$ 5,611.7**	$ 4,649.2	$ 702.8	**$ 5,352.0**
Substation Construction (2010 $000s)									
	Scenario 1			Scenario 2			Scenario 3		
	Direct	Induced	Total	Direct	Induced	Total	Direct	Induced	Total
Hidalgo	$ 631.9	$ 134.6	**$ 766.6**	$ 776.2	$ 166.2	**$ 942.3**	$ 631.9	$ 134.6	**$ 766.6**
Lincoln	$ 1,532.5	$ 122.5	**$ 1,655.0**	$ 1,936.6	$ 145.3	**$ 2,081.8**	$ 18,518.2	$ 99.3	**$ 18,617.5**
Luna	$ 1,484.3	$ 160.1	**$ 1,644.4**	$ 2,009.1	$ 192.3	**$ 2,201.4**	$ 1,484.3	$ 160.1	**$ 1,644.4**
Total	$ 3,648.7	$ 417.2	**$ 4,066.0**	$ 4,721.9	$ 503.7	**$ 5,225.6**	$ 20,634.4	$ 394.1	**$ 21,028.5**
Operation and Maintenance (2010 $000s)									
	Scenario 1			Scenario 2			Scenario 3		
	Direct	Induced	Total	Direct	Induced	Total	Direct	Induced	Total
Dona Ana	$ 58.8	$ 30.9	**$ 89.6**	$ 90.8	$ 47.5	**$ 138.3**	$ 111.8	$ 58.8	**$ 170.6**

Appendix F.

Property Tax Estimates, by County, Tax Rates and Assumptions

Table F1. Property Tax Estimates for Arizona, Route A, Scenarios 1, 2, and 3

Arizona - Scenario 1, Route A - 171 miles (all amounts in 2010 $000's)

Scenario 1 - Single AC Line & 5 Substations		CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$198,314	$39,663	$118,988	$198,314					
Substations	$53,810	$10,762	$32,286	$53,810					
Construction Work in Progress	$252,123	$50,425	$151,274	$252,123					
Total Original Plant and Services					$ 252,123	$ 242,038	$ 231,953	$ 221,868	$ 211,784
Less Annual Depreciation					$ 10,085	$ 10,085	$ 10,085	$ 10,085	$ 10,085
Net Book Value					$ 242,038	$ 231,953	$ 221,868	$ 211,784	$ 201,699
Taxable Full Cash Value	20%	$10,085	$30,255	$50,425	$48,408	$46,391	$44,374	$42,357	$40,340
Assessed Value	20%	$2,017	$6,051	$10,085	$9,682	$9,278	$8,875	$8,471	$8,068
Estimated Property Tax Payable		**$209**	**$628**	**$1,047**	**$1,005**	**$963**	**$921**	**$879**	**$837**

Arizona - Scenario 2, Route A - 171 miles (all amounts in 2010 $000's)

Scenario 2 - Two AC Lines & 5 Substations		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$385,399	$39,663	$156,405	$310,565	$187,085					
Substations	$81,896	$10,762	$37,903	$70,661	$28,086					
Construction Work in Progress	$467,294	$50,425	$194,308	$381,226	$215,171					
Total Original Plant and Services					$ 252,123	$ 457,209	$ 438,518	$ 419,826	$ 401,134	$ 382,442
Less Annual Depreciation					$ 10,085	$ 18,692	$ 18,692	$ 18,692	$ 18,692	$ 18,692
Net Book Value					$ 242,038	$ 438,518	$ 419,826	$ 401,134	$ 382,442	$ 363,750
Taxable Full Cash Value	20%	$10,085	$38,862	$76,245	$91,442	$87,704	$83,965	$80,227	$76,488	$72,750
Assessed Value	20%	$2,017	$7,772	$15,249	$18,288	$17,541	$16,793	$16,045	$15,298	$14,550
Estimated Property Tax Payable		**$209**	**$809**	**$1,590**	**$1,910**	**$1,832**	**$1,754**	**$1,675**	**$1,597**	**$1,519**

Arizona - Scenario 3, Route A - 171 miles (all amounts in 2010 $000's)

Scenario 3 - One AC Line, One DC Line & 5 Substations		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$365,741	$39,663	$152,474	$298,770	$167,428					
Substations	$649,688	$10,762	$151,461	$411,336	$595,878					
Construction Work in Progress	$1,015,429	$50,425	$303,935	$710,107	$763,306					
Total Original Plant and Services					$ 252,123	$ 1,005,344	$ 964,727	$ 924,110	$ 883,493	$ 842,875
Less Annual Depreciation					$ 10,085	$ 40,617	$ 40,617	$ 40,617	$ 40,617	$ 40,617
Net Book Value					$ 242,038	$ 964,727	$ 924,110	$ 883,493	$ 842,875	$ 802,258
Taxable Full Cash Value	20%	$10,085	$60,787	$142,021	$201,069	$192,945	$184,822	$176,699	$168,575	$160,452
Assessed Value	20%	$2,017	$12,157	$28,404	$40,214	$38,589	$36,964	$35,340	$33,715	$32,090
Estimated Property Tax Payable		**$209**	**$1,358**	**$3,236**	**$4,654**	**$4,466**	**$4,278**	**$4,091**	**$3,903**	**$3,715**

Table F2. Property Tax Estimates for Arizona, Route B, Scenarios 1, 2, and 3

Arizona - Scenario 1, Route B - 201 miles

(all amounts in 2010 $000's)

Scenario 1 - Single AC Line & 5 Substations		CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$238,760	$47,752	$143,256	$238,760					
Substations	$53,810	$10,762	$32,286	$53,810					
Construction Work in Progress	$292,570	$58,514	$175,542	$292,570					
Total Original Plant and Services					$ 292,570	$ 280,867	$ 269,164	$ 257,461	$ 245,758
Less Annual Depreciation					$ 11,703	$ 11,703	$ 11,703	$ 11,703	$ 11,703
Net Book Value					$ 280,867	$ 269,164	$ 257,461	$ 245,758	$ 234,056
Taxable Full Cash Value	20%	$11,703	$35,108	$58,514	$56,173	$53,833	$51,492	$49,152	$46,811
Assessed Value	20%	$ 2,341	$ 7,022	$11,703	$11,235	$10,767	$10,298	$ 9,830	$ 9,362
Estimated Property Tax Payable		**$ 288**	**$ 865**	**$1,441**	**$1,383**	**$1,326**	**$1,268**	**$1,210**	**$1,153**

Arizona - Scenario 2, Route B - 201 miles

(all amounts in 2010 $000's)

Scenario 2 - Two AC Lines & 5 Substations		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$464,669	$47,752	$188,438	$374,305	$225,909					
Substations	$81,896	$10,762	$37,903	$70,661	$28,086					
Construction Work in Progress	$546,565	$58,514	$226,341	$444,967	$253,995					
Total Original Plant and Services					$ 292,570	$ 534,862	$ 512,999	$ 491,137	$ 469,274	$ 447,411
Less Annual Depreciation					$ 11,703	$ 21,863	$ 21,863	$ 21,863	$ 21,863	$ 21,863
Net Book Value					$ 280,867	$ 512,999	$ 491,137	$ 469,274	$ 447,411	$ 425,549
Taxable Full Cash Value	20%	$11,703	$45,268	$88,993	$106,972	$102,600	$98,227	$93,855	$89,482	$85,110
Assessed Value	20%	$2,341	$9,054	$17,799	$21,394	$20,520	$19,645	$18,771	$17,896	$17,022
Estimated Property Tax Payable		**$288**	**$1,121**	**$2,210**	**$2,665**	**$2,556**	**$2,447**	**$2,338**	**$2,229**	**$2,120**

Arizona - Scenario 3 , Route B - 201 miles

(all amounts in 2010 $000's)

Scenario 3 - One AC Line, One DC Line & 5 Substations		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$434,866	$47,752	$182,477	$356,424	$196,106					
Substations	$649,688	$10,762	$151,461	$411,336	$595,878					
Construction Work in Progress	$1,084,554	$58,514	$333,939	$767,760	$791,984					
Total Original Plant and Services					$292,570	$1,072,851	$1,029,469	$ 986,086	$ 942,704	$ 899,322
Less Annual Depreciation					$ 11,703	$ 43,382	$ 43,382	$ 43,382	$ 43,382	$ 43,382
Net Book Value					$280,867	$1,029,469	$ 986,086	$ 942,704	$ 899,322	$ 855,940
Taxable Full Cash Value	20%	$11,703	$66,788	$153,552	$214,570	$205,894	$197,217	$188,541	$179,864	$171,188
Assessed Value	20%	$2,341	$13,358	$30,710	$42,914	$41,179	$39,443	$37,708	$35,973	$34,238
Estimated Property Tax Payable		**$288**	**$1,655**	**$3,811**	**$5,333**	**$5,117**	**$4,902**	**$4,686**	**$4,471**	**$4,255**

Table F3. Property Tax Estimates for Arizona Counties, Scenario 1, Route A

Graham County - Scenario 1 , Route A - 93 miles

(all amounts in 2010 $000's)

Graham County Route A	93 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$22,196	$66,587	$110,979					
Substations		$9,732	$29,197	$48,662					
Construction Work in Progress		$31,928	$95,784	$159,641					
Total Original Plant and Services					$159,641	$153,255	$146,869	$140,484	$134,098
Less Annual Depreciation					$6,386	$6,386	$6,386	$6,386	$6,386
Net Book Value					$153,255	$146,869	$140,484	$134,098	$127,712
Taxable Full Cash Value	20.0%	$6,386	$19,157	$31,928	$30,651	$29,374	$28,097	$26,820	$25,542
Assessed Value	20.0%	$1,277	$3,831	$6,386	$6,130	$5,875	$5,619	$5,364	$5,108
Total Property Tax Rate	9.335								
Estimated Property Tax Payable		**$119**	**$358**	**$596**	**$572**	**$548**	**$525**	**$501**	**$477**

Greenlee County - Scenario 1 , Route A - 8 miles

(all amounts in 2010 $000's)

Greenlee County	8 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$1,985	$5,955	$9,925					
Substations		$0	$0	$0					
Construction Work in Progress		$1,985	$5,955	$9,925					
Total Original Plant and Services					$9,925	$9,528	$9,131	$8,734	$8,337
Less Annual Depreciation					$397	$397	$397	$397	$397
Net Book Value					$9,528	$9,131	$8,734	$8,337	$7,940
Taxable Full Cash Value	20.0%	$397	$1,191	$1,985	$1,906	$1,826	$1,747	$1,667	$1,588
Assessed Value	20.0%	$79	$238	$397	$381	$365	$349	$333	$318
Total Property Tax Rate	10.837								
Estimated Property Tax Payable		**$9**	**$26**	**$43**	**$41**	**$40**	**$38**	**$36**	**$34**

Pinal County - Scenario 1 , Route A - 70 miles

(all amounts in 2010 $000's)

Pinal County Route A	70 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$15,482	$46,446	$77,410					
Substations		$1,030	$3,089	$5,148					
Construction Work in Progress		$16,512	$49,535	$82,558					
Total Original Plant and Services					$82,558	$79,255	$75,953	$72,651	$69,349
Less Annual Depreciation					$3,302	$3,302	$3,302	$3,302	$3,302
Net Book Value					$79,255	$75,953	$72,651	$69,349	$66,046
Taxable Full Cash Value	20.0%	$3,302	$9,907	$16,512	$15,851	$15,191	$14,530	$13,870	$13,209
Assessed Value	20.0%	$660	$1,981	$3,302	$3,170	$3,038	$2,906	$2,774	$2,642
Total Property Tax Rate	12.337								
Estimated Property Tax Payable		**$81**	**$244**	**$407**	**$391**	**$375**	**$359**	**$342**	**$326**

Table F4. Property Tax Estimates for Arizona Counties, Scenario 1. Route B

Cochise County - Scenario 1 , Route B - 56 miles

(all amounts in 2010 $000's)

Cochise County Route B	56 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$14,918	$44,753	$74,589					
Substations		$0	$0	$0					
Construction Work in Progress		$14,918	$44,753	$74,589					
Total Original Plant and Services					$74,589	$71,605	$68,622	$65,638	$62,655
Less Annual Depreciation					$2,984	$2,984	$2,984	$2,984	$2,984
Net Book Value					$71,605	$68,622	$65,638	$62,655	$59,671
Taxable Full Cash Value	20.0%	$2,984	$8,951	$14,918	$14,321	$13,724	$13,128	$12,531	$11,934
Assessed Value	20.0%	$597	$1,790	$2,984	$2,864	$2,745	$2,626	$2,506	$2,387
Total Property Tax Rate	15.430								
Estimated Property Tax Payable		**$92**	**$276**	**$460**	**$442**	**$424**	**$405**	**$387**	**$368**

Graham County - Scenario 1 , Route B - 36 miles

(all amounts in 2010 $000's)

Graham County Route B	36 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$8,000	$23,999	$39,998					
Substations		$9,732	$29,197	$48,662					
Construction Work in Progress		$17,732	$53,196	$88,660					
Total Original Plant and Services					$88,660	$85,113	$81,567	$78,020	$74,474
Less Annual Depreciation					$3,546	$3,546	$3,546	$3,546	$3,546
Net Book Value					$85,113	$81,567	$78,020	$74,474	$70,928
Taxable Full Cash Value	20.0%	$3,546	$10,639	$17,732	$17,023	$16,313	$15,604	$14,895	$14,186
Assessed Value	20.0%	$709	$2,128	$3,546	$3,405	$3,263	$3,121	$2,979	$2,837
Total Property Tax Rate	9.335								
Estimated Property Tax Payable		**$66**	**$199**	**$331**	**$318**	**$305**	**$291**	**$278**	**$265**

Greenlee County - Scenario 1 , Route B - 8 miles

(all amounts in 2010 $000's)

Greenlee County	8 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$1,985	$5,955	$9,925					
Substations		$0	$0	$0					
Construction Work in Progress		$1,985	$5,955	$9,925					
Total Original Plant and Services					$9,925	$9,528	$9,131	$8,734	$8,337
Less Annual Depreciation					$397	$397	$397	$397	$397
Net Book Value					$9,528	$9,131	$8,734	$8,337	$7,940
Taxable Full Cash Value	20.0%	$397	$1,191	$1,985	$1,906	$1,826	$1,747	$1,667	$1,588
Assessed Value	20.0%	$79	$238	$397	$381	$365	$349	$333	$318
Total Property Tax Rate	10.837								
Estimated Property Tax Payable		**$9**	**$26**	**$43**	**$41**	**$40**	**$38**	**$36**	**$34**

Table F4. Property Tax Estimates for Arizona Counties, Scenario 1. Route B (Continued)

Pima County - Scenario 1 , Route B - 16 miles

(all amounts in 2010 $000's)

Pima County Route B	16 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$3,582	$10,746	$17,910					
Substations		$0	$0	$0					
Construction Work in Progress		$3,582	$10,746	$17,910					
Total Original Plant and Services					$17,910	$17,194	$16,477	$15,761	$15,044
Less Annual Depreciation					$716	$716	$716	$716	$716
Net Book Value					$17,194	$16,477	$15,761	$15,044	$14,328
Taxable Full Cash Value	20.0%	$716	$2,149	$3,582	$3,439	$3,295	$3,152	$3,009	$2,866
Assessed Value	20.0%	$143	$430	$716	$688	$659	$630	$602	$573
Total Property Tax Rate	14.757								
Estimated Property Tax Payable		**$21**	**$63**	**$106**	**$101**	**$97**	**$93**	**$89**	**$85**

Pinal County - Scenario 1 , Route B - 85 miles

(all amounts in 2010 $000's)

Pinal County Route B	85 miles	CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line		$19,268	$57,803	$96,338					
Substations		$1,030	$3,089	$5,148					
Construction Work in Progress		$20,297	$60,892	$101,486					
Total Original Plant and Services					$101,486	$97,427	$93,367	$89,308	$85,248
Less Annual Depreciation					$4,059	$4,059	$4,059	$4,059	$4,059
Net Book Value					$97,427	$93,367	$89,308	$85,248	$81,189
Taxable Full Cash Value	20.0%	$4,059	$12,178	$20,297	$19,485	$18,673	$17,862	$17,050	$16,238
Assessed Value	20.0%	$812	$2,436	$4,059	$3,897	$3,735	$3,572	$3,410	$3,248
Total Property Tax Rate	12.337								
Estimated Property Tax Payable		**$100**	**$300**	**$501**	**$481**	**$461**	**$441**	**$421**	**$401**

Table F5. Property Tax Estimates for Arizona Counties, Scenario 2. Route A

Graham County - Scenario 2 , Route A - 93 miles

(all amounts in 2010 $000's)

Graham County Route A	93 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$215,635	$22,196	$87,519	$173,773	$104,656					
Substations	$69,893	$9,732	$33,443	$61,400	$21,231					
Construction Work in Progress	$285,528	$31,928	$120,962	$235,173	$125,887					
Total Original Plant and Services					$159,641	$279,142	$267,721	$256,300	$244,879	$233,458
Less Annual Depreciation					$6,386	$11,421	$11,421	$11,421	$11,421	$11,421
Net Book Value					$153,255	$267,721	$256,300	$244,879	$233,458	$222,036
Taxable Full Cash Value	20.0%	$6,386	$24,192	$47,035	$55,828	$53,544	$51,260	$48,976	$46,692	$44,407
Assessed Value	20.0%	$1,277	$4,838	$9,407	$11,166	$10,709	$10,252	$9,795	$9,338	$8,881
Total Property Tax Rate	9.335									
Estimated Property Tax Payable		**$119**	**$452**	**$878**	**$1,042**	**$1,000**	**$957**	**$914**	**$872**	**$829**

Greenlee County - Scenario 2 , Route A - 8 miles

(all amounts in 2010 $000's)

Greenlee County	8 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$19,341	$1,985	$7,838	$15,575	$9,416					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$19,341	$1,985	$7,838	$15,575	$9,416					
Total Original Plant and Services					$9,925	$18,944	$18,170	$17,397	$16,623	$15,849
Less Annual Depreciation					$397	$774	$774	$774	$774	$774
Net Book Value					$9,528	$18,170	$17,397	$16,623	$15,849	$15,076
Taxable Full Cash Value	20.0%	$397	$1,568	$3,115	$3,789	$3,634	$3,479	$3,325	$3,170	$3,015
Assessed Value	20.0%	$79	$314	$623	$758	$727	$696	$665	$634	$603
Total Property Tax Rate	10.837									
Estimated Property Tax Payable		**$9**	**$34**	**$68**	**$82**	**$79**	**$75**	**$72**	**$69**	**$65**

Pinal County - Scenario 2 , Route A - 70 miles

(all amounts in 2010 $000's)

Pinal County Route A	70 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$150,423	$15,482	$61,048	$121,218	$73,013					
Substations	$12,003	$1,030	$4,460	$9,261	$6,855					
Construction Work in Progress	$162,426	$16,512	$65,508	$130,479	$79,868					
Total Original Plant and Services					$82,558	$159,123	$152,626	$146,129	$139,632	$133,135
Less Annual Depreciation					$3,302	$6,497	$6,497	$6,497	$6,497	$6,497
Net Book Value					$79,255	$152,626	$146,129	$139,632	$133,135	$126,638
Taxable Full Cash Value	20.0%	$3,302	$13,102	$26,096	$31,825	$30,525	$29,226	$27,926	$26,627	$25,328
Assessed Value	20.0%	$660	$2,620	$5,219	$6,365	$6,105	$5,845	$5,585	$5,325	$5,066
Total Property Tax Rate	12.337									
Estimated Property Tax Payable		**$81**	**$323**	**$644**	**$785**	**$753**	**$721**	**$689**	**$657**	**$625**

Table F6. Property Tax Estimates for Arizona Counties, Scenario 2. Route B

Cochise County - Scenario 2 , Route B - 56 miles

(all amounts in 2010 $000's)

Cochise County Route B	56 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$145,619	$14,918	$58,959	$117,207	$71,030					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$145,619	$14,918	$58,959	$117,207	$71,030					
Total Original Plant and Services					$74,589	$142,635	$136,811	$130,986	$125,161	$119,336
Less Annual Depreciation					$2,984	$5,825	$5,825	$5,825	$5,825	$5,825
Net Book Value					$71,605	$136,811	$130,986	$125,161	$119,336	$113,512
Taxable Full Cash Value	20.0%	$2,984	$11,792	$23,441	$28,527	$27,362	$26,197	$25,032	$23,867	$22,702
Assessed Value	20.0%	$597	$2,358	$4,688	$5,705	$5,472	$5,239	$5,006	$4,773	$4,540
Total Property Tax Rate	15.430									
Estimated Property Tax Payable		**$92**	**$364**	**$723**	**$880**	**$844**	**$808**	**$772**	**$737**	**$701**

Graham County - Scenario 2 , Route B - 36 miles

(all amounts in 2010 $000's)

Graham County Route B	36 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$77,725	$8,000	$31,544	$62,634	$37,727					
Substations	$69,893	$9,732	$33,443	$61,400	$21,231					
Construction Work in Progress	$147,618	$17,732	$64,987	$124,034	$58,958					
Total Original Plant and Services					$88,660	$144,071	$138,167	$132,262	$126,357	$120,452
Less Annual Depreciation					$3,546	$5,905	$5,905	$5,905	$5,905	$5,905
Net Book Value					$85,113	$138,167	$132,262	$126,357	$120,452	$114,548
Taxable Full Cash Value	20.0%	$3,546	$12,997	$24,807	$28,814	$27,633	$26,452	$25,271	$24,090	$22,910
Assessed Value	20.0%	$709	$2,599	$4,961	$5,763	$5,527	$5,290	$5,054	$4,818	$4,582
Total Property Tax Rate	9.335									
Estimated Property Tax Payable		**$66**	**$243**	**$463**	**$538**	**$516**	**$494**	**$472**	**$450**	**$428**

Greenlee County - Scenario 2 , Route B - 8 miles

(all amounts in 2010 $000's)

Greenlee County	8 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$19,341	$1,985	$7,838	$15,575	$9,416					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$19,341	$1,985	$7,838	$15,575	$9,416					
Total Original Plant and Services					$9,925	$18,944	$18,170	$17,397	$16,623	$15,849
Less Annual Depreciation					$397	$774	$774	$774	$774	$774
Net Book Value					$9,528	$18,170	$17,397	$16,623	$15,849	$15,076
Taxable Full Cash Value	20.0%	$397	$1,568	$3,115	$3,789	$3,634	$3,479	$3,325	$3,170	$3,015
Assessed Value	20.0%	$79	$314	$623	$758	$727	$696	$665	$634	$603
Total Property Tax Rate	10.837									
Estimated Property Tax Payable		**$9**	**$34**	**$68**	**$82**	**$79**	**$75**	**$72**	**$69**	**$65**

Table F6. Property Tax Estimates for Arizona Counties, Scenario 2. Route B(Continued)

Pima County - Scenario 2 , Route B - 16 miles **(all amounts in 2010 $000's)**

Pima County Route B	16 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$34,804	$3,582	$14,125	$28,046	$16,894					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$34,804	$3,582	$14,125	$28,046	$16,894					
Total Original Plant and Services					$17,910	$34,088	$32,695	$31,303	$29,911	$28,519
Less Annual Depreciation					$716	$1,392	$1,392	$1,392	$1,392	$1,392
Net Book Value					$17,194	$32,695	$31,303	$29,911	$28,519	$27,127
Taxable Full Cash Value	20.0%	$716	$2,825	$5,609	$6,818	$6,539	$6,261	$5,982	$5,704	$5,425
Assessed Value	20.0%	$143	$565	$1,122	$1,364	$1,308	$1,252	$1,196	$1,141	$1,085
Total Property Tax Rate	14.757									
Estimated Property Tax Payable		**$21**	**$83**	**$166**	**$201**	**$193**	**$185**	**$177**	**$168**	**$160**

Pinal County - Scenario 2 , Route B - 85 miles **(all amounts in 2010 $000's)**

Pinal County Route B	85 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$187,180	$19,268	$75,971	$150,843	$90,842					
Substations	$12,003	$1,030	$4,460	$9,261	$6,855					
Construction Work in Progress	$199,183	$20,297	$80,431	$160,104	$97,697					
Total Original Plant and Services					$101,486	$195,124	$187,156	$179,189	$171,222	$163,254
Less Annual Depreciation					$4,059	$7,967	$7,967	$7,967	$7,967	$7,967
Net Book Value					$97,427	$187,156	$179,189	$171,222	$163,254	$155,287
Taxable Full Cash Value	20.0%	$4,059	$16,086	$32,021	$39,025	$37,431	$35,838	$34,244	$32,651	$31,057
Assessed Value	20.0%	$812	$3,217	$6,404	$7,805	$7,486	$7,168	$6,849	$6,530	$6,211
Total Property Tax Rate	12.337									
Estimated Property Tax Payable		**$100**	**$397**	**$790**	**$963**	**$924**	**$884**	**$845**	**$806**	**$766**

Table F7. Property Tax Estimates for Arizona Counties, Scenario 3. Route A

Graham County - Scenario 3 , Route A -93 miles

(all amounts in 2010 $000's)

Graham County Route A	93 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$204,637	$22,196	$85,319	$167,174	$93,658					
Substations	$48,662	$9,732	$29,197	$48,662	$0					
Construction Work in Progress	$253,299	$31,928	$114,516	$215,835	$93,658					
Total Original Plant and Services					$159,641	$246,913	$236,781	$226,649	$216,517	$206,385
Less Annual Depreciation					$6,386	$10,132	$10,132	$10,132	$10,132	$10,132
Net Book Value					$153,255	$236,781	$226,649	$216,517	$206,385	$196,253
Taxable Full Cash Value	20.0%	$6,386	$22,903	$43,167	$49,383	$47,356	$45,330	$43,303	$41,277	$39,251
Assessed Value	20.0%	$1,277	$4,581	$8,633	$9,877	$9,471	$9,066	$8,661	$8,255	$7,850
Total Property Tax Rate	9.335									
Estimated Property Tax Payable		**$119**	**$428**	**$806**	**$922**	**$884**	**$846**	**$808**	**$771**	**$733**

Greenlee County - Scenario 3 , Route A -8 miles

(all amounts in 2010 $000's)

Greenlee County	8 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$18,096	$1,985	$7,589	$14,828	$8,171					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$18,096	$1,985	$7,589	$14,828	$8,171					
Total Original Plant and Services					$9,925	$17,699	$16,975	$16,251	$15,527	$14,804
Less Annual Depreciation					$397	$724	$724	$724	$724	$724
Net Book Value					$9,528	$16,975	$16,251	$15,527	$14,804	$14,080
Taxable Full Cash Value	20.0%	$397	$1,518	$2,966	$3,540	$3,395	$3,250	$3,105	$2,961	$2,816
Assessed Value	20.0%	$79	$304	$593	$708	$679	$650	$621	$592	$563
Total Property Tax Rate	10.837									
Estimated Property Tax Payable		**$9**	**$33**	**$64**	**$77**	**$74**	**$70**	**$67**	**$64**	**$61**

Pinal County - Scenario 3 , Route A -70 miles

(all amounts in 2010 $000's)

Pinal County Route A	70 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$143,009	$15,482	$59,566	$116,769	$65,599					
Substations	$601,026	$1,030	$122,264	$362,675	$595,878					
Construction Work in Progress	$744,035	$16,512	$181,830	$479,444	$661,477					
Total Original Plant and Services					$82,558	$740,732	$710,971	$681,209	$651,448	$621,687
Less Annual Depreciation					$3,302	$29,761	$29,761	$29,761	$29,761	$29,761
Net Book Value					$79,255	$710,971	$681,209	$651,448	$621,687	$591,925
Taxable Full Cash Value	20.0%	$3,302	$36,366	$95,889	$148,146	$142,194	$136,242	$130,290	$124,337	$118,385
Assessed Value	20.0%	$660	$7,273	$19,178	$29,629	$28,439	$27,248	$26,058	$24,867	$23,677
Total Property Tax Rate	12.337									
Estimated Property Tax Payable		**$81**	**$897**	**$2,366**	**$3,655**	**$3,509**	**$3,362**	**$3,215**	**$3,068**	**$2,921**

Table F8. Property Tax Estimates for Arizona Counties, Scenario 3. Route B

Cochise County - Scenario 3 , Route B -56 miles

(all amounts in 2010 $000's)

Cochise County Route B	56 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$132,378	$14,918	$56,311	$109,262	$57,789					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$132,378	$14,918	$56,311	$109,262	$57,789					
Total Original Plant and Services					$74,589	$129,394	$124,099	$118,804	$113,509	$108,214
Less Annual Depreciation					$2,984	$5,295	$5,295	$5,295	$5,295	$5,295
Net Book Value					$71,605	$124,099	$118,804	$113,509	$108,214	$102,919
Taxable Full Cash Value	20.0%	$2,984	$11,262	$21,852	$25,879	$24,820	$23,761	$22,702	$21,643	$20,584
Assessed Value	20.0%	$597	$2,252	$4,370	$5,176	$4,964	$4,752	$4,540	$4,329	$4,117
Total Property Tax Rate	15.430									
Estimated Property Tax Payable		**$92**	**$348**	**$674**	**$799**	**$766**	**$733**	**$701**	**$668**	**$635**

Graham County - Scenario 3 , Route B -36 miles

(all amounts in 2010 $000's)

Graham County Route B	36 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$73,149	$8,000	$30,629	$59,889	$33,151					
Substations	$48,662	$9,732	$29,197	$48,662	$0					
Construction Work in Progress	$121,811	$17,732	$59,826	$108,550	$33,151					
Total Original Plant and Services					$88,660	$118,264	$113,392	$108,519	$103,647	$98,775
Less Annual Depreciation					$3,546	$4,872	$4,872	$4,872	$4,872	$4,872
Net Book Value					$85,113	$113,392	$108,519	$103,647	$98,775	$93,902
Taxable Full Cash Value	20.0%	$3,546	$11,965	$21,710	$23,653	$22,678	$21,704	$20,729	$19,755	$18,780
Assessed Value	20.0%	$709	$2,393	$4,342	$4,731	$4,536	$4,341	$4,146	$3,951	$3,756
Total Property Tax Rate	9.335									
Estimated Property Tax Payable		**$66**	**$223**	**$405**	**$442**	**$423**	**$405**	**$387**	**$369**	**$351**

Greenlee County - Scenario 3 , Route B -8 miles

(all amounts in 2010 $000's)

Greenlee County	8 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$18,096	$1,985	$7,589	$14,828	$8,171					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$18,096	$1,985	$7,589	$14,828	$8,171					
Total Original Plant and Services					$9,925	$17,699	$16,975	$16,251	$15,527	$14,804
Less Annual Depreciation					$397	$724	$724	$724	$724	$724
Net Book Value					$9,528	$16,975	$16,251	$15,527	$14,804	$14,080
Taxable Full Cash Value	20.0%	$397	$1,518	$2,966	$3,540	$3,395	$3,250	$3,105	$2,961	$2,816
Assessed Value	20.0%	$79	$304	$593	$708	$679	$650	$621	$592	$563
Total Property Tax Rate	10.837									
Estimated Property Tax Payable		**$9**	**$33**	**$64**	**$77**	**$74**	**$70**	**$67**	**$64**	**$61**

Table F8. Property Tax Estimates for Arizona Counties, Scenario 3. Route B (Continued)

Pima County - Scenario 3 , Route B -16 miles (all amounts in 2010 $000's)

Pima County Route B	16 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$32,985	$3,582	$13,761	$26,955	$15,075					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$32,985	$3,582	$13,761	$26,955	$15,075					
Total Original Plant and Services					$17,910	$32,269	$30,949	$29,630	$28,310	$26,991
Less Annual Depreciation					$716	$1,319	$1,319	$1,319	$1,319	$1,319
Net Book Value					$17,194	$30,949	$29,630	$28,310	$26,991	$25,672
Taxable Full Cash Value	20.0%	$716	$2,752	$5,391	$6,454	$6,190	$5,926	$5,662	$5,398	$5,134
Assessed Value	20.0%	$143	$550	$1,078	$1,291	$1,238	$1,185	$1,132	$1,080	$1,027
Total Property Tax Rate	14.757									
Estimated Property Tax Payable		**$21**	**$81**	**$159**	**$190**	**$183**	**$175**	**$167**	**$159**	**$152**

Pinal County - Scenario 3 , Route B -85 miles (all amounts in 2010 $000's)

Pinal County Route B	85 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$178,258	$19,268	$74,187	$145,490	$81,920					
Substations	$601,026	$1,030	$122,264	$362,675	$595,878					
Construction Work in Progress	$779,284	$20,297	$196,451	$508,165	$677,798					
Total Original Plant and Services					$101,486	$775,225	$744,053	$712,882	$681,710	$650,539
Less Annual Depreciation					$4,059	$31,171	$31,171	$31,171	$31,171	$31,171
Net Book Value					$97,427	$744,053	$712,882	$681,710	$650,539	$619,368
Taxable Full Cash Value	20.0%	$4,059	$39,290	$101,633	$155,045	$148,811	$142,576	$136,342	$130,108	$123,874
Assessed Value	20.0%	$812	$7,858	$20,327	$31,009	$29,762	$28,515	$27,268	$26,022	$24,775
Total Property Tax Rate	12.337									
Estimated Property Tax Payable		**$100**	**$969**	**$2,508**	**$3,826**	**$3,672**	**$3,518**	**$3,364**	**$3,210**	**$3,056**

Table F9. Property Tax Estimates for New Mexico, East, Scenarios 1, 2, and 3

New Mexico - Route East - 345 miles (all amounts in 2010 $000's)

Scenario 1 - Single AC Line & 5 Substations		CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$408,807	$81,761	$245,284	$408,807					
Substations	$167,836	$33,567	$100,702	$167,836					
Construction Work in Progress (CWIP)	$576,643	$115,329	$345,986	$576,643					
Assessed Value of CWIP	50%	$57,664	$172,993	$288,322					
Book Value of Plant (as of 12/31)					$576,643	$553,577	$530,512	$507,446	$484,380
Less Annual Depreciation					$ 23,066	$ 23,066	$ 23,066	$ 23,066	$ 23,066
Net Book Value					$553,577	$530,512	$507,446	$484,380	$461,314
	Tax Ratio								
Total Taxable Value	3	$19,221	$57,664	$96,107	$184,526	$176,837	$169,149	$161,460	$153,771
Estimated Property Tax Payable		**$525**	**$1,574**	**$2,623**	**$5,036**	**$4,826**	**$4,616**	**$4,406**	**$4,197**

New Mexico - Route East - 345 miles (all amounts in 2010 $000's)

Scenario 2 - Two AC Lines & 5 Substations		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$795,855	$81,761	$322,694	$641,036	$387,048					
Substations	$217,374	$33,567	$110,609	$197,559	$49,538					
Construction Work in Progress (CWIP)	$1,013,229	$115,329	$433,303	$838,595	$436,586					
Assessed Value of CWIP	50%	$57,664	$216,652	$419,297	$218,293					
Book Value of Plant (as of 12/31)					$576,643	$990,163	$949,634	$909,105	$868,576	$828,047
Less Annual Depreciation					$23,066	$40,529	$40,529	$40,529	$40,529	$40,529
Net Book Value					$553,577	$949,634	$909,105	$868,576	$828,047	$787,517
	Tax Ratio									
Total Taxable Value	3	$19,221	$58,066	$96,107	$184,526	$176,837	$169,149	$161,460	$153,771	
Estimated Property Tax Payable		**$525**	**$1,976**	**$3,828**	**$7,045**	**$8,684**	**$8,313**	**$7,943**	**$7,572**	**$7,201**

New Mexico - Route East- 345 miles (all amounts in 2010 $000's)

Scenario 3 - One AC Line, One DC Line & 5 Subs		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$758,168	$81,761	$315,156	$618,424	$349,361					
Substations	$764,176	$33,567	$219,970	$525,640	$596,340					
Construction Work in Progress (CWIP)	$1,522,344	$115,329	$535,126	$1,144,064	$945,701					
Assessed Value of CWIP	50%	$57,664	$267,563	$572,032	$472,851					
Book Value of Plant (as of 12/31)					$576,643	$1,499,278	$1,438,385	$1,377,491	$1,316,597	$1,255,703
Less Annual Depreciation					$23,066	$60,894	$60,894	$60,894	$60,894	$60,894
Net Book Value					$553,577	$1,438,385	$1,377,491	$1,316,597	$1,255,703	$1,194,809
	Tax Ratio									
Total Taxable Value	3	$19,221	$89,188	$127,631	$216,049	$208,361	$200,672	$192,983	$185,295	$177,606
Estimated Property Tax Payable		**$525**	**$2,449**	**$5,248**	**$9,411**	**$13,225**	**$12,666**	**$12,106**	**$11,546**	**$10,986**

Table F10. Property Tax Estimates for New Mexico, West, Scenarios 1, 2, and 3

New Mexico - Route West - 342 miles (all amounts in 2010 $000's)

Scenario 1 - Single AC Line & 5 Substations		CONST WORK IN PROGRESS							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$406,095	$81,219	$243,657	$406,095					
Substations	$167,836	$33,567	$100,702	$167,836					
Construction Work in Progress (CWIP)	$573,931	$114,786	$344,359	$573,931					
Assessed Value of CWIP	50%	$57,393	$172,179	$286,966					
Book Value of Plant (as of 12/31)					$573,931	$550,974	$528,017	$505,059	$482,102
Less Annual Depreciation					$ 22,957	$ 22,957	$ 22,957	$ 22,957	$ 22,957
Net Book Value					$550,974	$528,017	$505,059	$482,102	$459,145
	Tax Ratio								
Total Taxable Value	3	$19,131	$57,393	$95,655	$183,658	$176,006	$168,353	$160,701	$153,048
Estimated Property Tax Payable		**$528**	**$1,584**	**$2,639**	**$5,067**	**$4,856**	**$4,645**	**$4,434**	**$4,223**

New Mexico - Route West - 342 miles (all amounts in 2010 $000's)

Scenario 2 - Two AC Lines & 5 Substations		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$791,762	$81,219	$320,790	$637,495	$385,667					
Substations	$216,166	$33,567	$110,368	$196,834	$48,330					
Construction Work in Progress (CWIP)	$1,007,928	$114,786	$431,158	$834,329	$433,997					
Assessed Value of CWIP	50%	$57,393	$215,579	$417,165	$216,999					
Book Value of Plant (as of 12/31)					$573,931	$984,971	$944,654	$904,337	$864,019	$823,702
Less Annual Depreciation					$22,957	$40,317	$40,317	$40,317	$40,317	$40,317
Net Book Value					$550,974	$944,654	$904,337	$864,019	$823,702	$783,385
	Tax Ratio									
Total Taxable Value	3	$19,131	$57,798	$96,870	$185,682	$179,892	$172,078	$164,263	$156,449	$148,635
Estimated Property Tax Payable		**$528**	**$1,988**	**$3,854**	**$7,092**	**$8,743**	**$8,370**	**$7,997**	**$7,623**	**$7,250**

New Mexico - Route West - 342 miles (all amounts in 2010 $000's)

Scenario 3 - One AC Line, One DC Line & 5 Sub		CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$747,012	$81,219	$311,840	$610,645	$340,917					
Substations	$764,176	$33,567	$219,970	$525,640	$596,340					
Construction Work in Progress (CWIP)	$1,511,188	$114,786	$531,810	$1,136,285	$937,257					
Assessed Value of CWIP	50%	$57,393	$265,905	$568,143	$468,629					
Book Value of Plant (as of 12/31)					$573,931	$1,488,231	$1,427,783	$1,367,336	$1,306,888	$1,246,441
Less Annual Depreciation					$22,957	$60,448	$60,448	$60,448	$60,448	$60,448
Net Book Value					$550,974	$1,427,783	$1,367,336	$1,306,888	$1,246,441	$1,185,993
	Tax Ratio									
Total Taxable Value	3	$19,131	$88,635	$189,381	$339,867	$475,928	$455,779	$435,629	$415,480	$395,331
Estimated Property Tax Payable		**$528**	**$2,454**	**$5,250**	**$9,419**	**$13,212**	**$12,653**	**$12,094**	**$11,534**	**$10,975**

Table F11. Property Tax Estimates for New Mexico Counties, Scenario 1. East

Dona Ana - Scenario 1 - Route East - 59 miles (all amounts in 2010 $000's)

Dona Ana County East	59 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$73,141	$14,628	$43,885	$73,141					
Substations	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$73,141	$14,628	$43,885	$73,141					
Assessed Value of CWIP	50%	$7,314	$21,942	$36,571					
Book Value of Plant (as of 12/31)					$73,141	$70,215	$67,290	$64,364	$61,438
Less Annual Depreciation					$2,926	$2,926	$2,926	$2,926	$2,926
Net Book Value					$70,215	$67,290	$64,364	$61,438	$58,513
	Tax Ratio								
Total Taxable Value	3	$2,438	$7,314	$12,190	$23,405	$22,430	$21,455	$20,479	$19,504
Average County Tax Rate	31.762								
Estimated Property Tax Payable		**$77**	**$232**	**$387**	**$743**	**$712**	**$681**	**$650**	**$619**

Grant - Scenario 1 - 19 miles (all amounts in 2010 $000's)

Grant County	19 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$20,613	$4,123	$12,368	$20,613					
Substations	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$20,613	$4,123	$12,368	$20,613					
Assessed Value of CWIP	50%	$2,061	$6,184	$10,307					
Book Value of Plant (as of 12/31)					$20,613	$19,788	$18,964	$18,139	$17,315
Less Annual Depreciation					$825	$825	$825	$825	$825
Net Book Value					$19,788	$18,964	$18,139	$17,315	$16,490
	Tax Ratio								
Total Taxable Value	3	$687	$2,061	$3,436	$6,596	$6,321	$6,046	$5,772	$5,497
Average County Tax Rate	21.834								
Estimated Property Tax Payable		**$15**	**$45**	**$75**	**$144**	**$138**	**$132**	**$126**	**$120**

Hidalgo - Scenario 1 - 32 miles (all amounts in 2010 $000's)

Hidalgo County	32 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$36,408	$7,282	$21,845	$36,408					
Substations	$35,686	$7,137	$21,412	$35,686					
Construction Work in Progress (CWIP)	$72,094	$14,419	$43,256	$72,094					
Assessed Value of CWIP	50%	$7,209	$21,628	$36,047					
Book Value of Plant (as of 12/31)					$72,094	$69,210	$66,326	$63,443	$60,559
Less Annual Depreciation					$2,884	$2,884	$2,884	$2,884	$2,884
Net Book Value					$69,210	$66,326	$63,443	$60,559	$57,675
	Tax Ratio								
Total Taxable Value	3	$2,403	$7,209	$12,016	$23,070	$22,109	$21,148	$20,186	$19,225
Average County Tax Rate	25.598								
Estimated Property Tax Payable		**$62**	**$185**	**$308**	**$591**	**$566**	**$541**	**$517**	**$492**

Table F11. Property Tax Estimates for New Mexico Counties, Scenario 1. East (Continued)

Lincoln - Scenario 1 - Route East - 63 miles **(all amounts in 2010 $000's)**

Lincoln County East	63 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$77,511	$15,502	$46,507	$77,511					
Substations	$65,774	$13,155	$39,464	$65,774					
Construction Work in Progress (CWIP)	$143,285	$28,657	$85,971	$143,285					
Assessed Value of CWIP	50%	$14,329	$42,986	$71,643					
Book Value of Plant (as of 12/31)					$143,285	$137,554	$131,822	$126,091	$120,359
Less Annual Depreciation					$5,731	$5,731	$5,731	$5,731	$5,731
Net Book Value					$137,554	$131,822	$126,091	$120,359	$114,628
	Tax Ratio								
Total Taxable Value	3	$4,776	$14,329	$23,881	$45,851	$43,941	$42,030	$40,120	$38,209
Average County Tax Rate	27.657								
Estimated Property Tax Payable		**$132**	**$396**	**$660**	**$1,268**	**$1,215**	**$1,162**	**$1,110**	**$1,057**

Luna - Scenario 1 - Route East - 63 miles **(all amounts in 2010 $000's)**

Luna County East	63 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$70,808	$14,162	$42,485	$70,808					
Substations	$66,376	$13,275	$39,826	$66,376					
Construction Work in Progress (CWIP)	$137,184	$27,437	$82,310	$137,184					
Assessed Value of CWIP	50%	$13,718	$41,155	$68,592					
Book Value of Plant (as of 12/31)					$137,184	$131,697	$126,209	$120,722	$115,235
Less Annual Depreciation					$5,487	$5,487	$5,487	$5,487	$5,487
Net Book Value					$131,697	$126,209	$120,722	$115,235	$109,747
	Tax Ratio								
Total Taxable Value	3	$4,573	$13,718	$22,864	$43,899	$42,070	$40,241	$38,412	$36,582
Average County Tax Rate	24.443								
Estimated Property Tax Payable		**$112**	**$335**	**$559**	**$1,073**	**$1,028**	**$984**	**$939**	**$894**

Otero - Scenario 1 - Route East - 109 miles **(all amounts in 2010 $000's)**

Otero County East	109 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$130,326	$26,065	$78,196	$130,326					
Substations	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$130,326	$26,065	$78,196	$130,326					
Assessed Value of CWIP	50%	$13,033	$39,098	$65,163					
Book Value of Plant (as of 12/31)					$130,326	$125,113	$119,900	$114,687	$109,474
Less Annual Depreciation					$5,213	$5,213	$5,213	$5,213	$5,213
Net Book Value					$125,113	$119,900	$114,687	$109,474	$104,261
	Tax Ratio								
Total Taxable Value	3	$4,344	$13,033	$21,721	$41,704	$39,967	$38,229	$36,491	$34,754
Average County Tax Rate	29.177								
Estimated Property Tax Payable		**$127**	**$380**	**$634**	**$1,217**	**$1,166**	**$1,115**	**$1,065**	**$1,014**

Table F12. Property Tax Estimates for New Mexico Counties, Scenario 1. West

Grant - Scenario 1 - 19 miles (all amounts in 2010 $000's)

Grant County	19 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$20,613	$4,123	$12,368	$20,613					
Substations	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$20,613	$4,123	$12,368	$20,613					
Assessed Value of CWIP	50%	$2,061	$6,184	$10,307					
Book Value of Plant (as of 12/31)					$20,613	$19,788	$18,964	$18,139	$17,315
Less Annual Depreciation					$825	$825	$825	$825	$825
Net Book Value					$19,788	$18,964	$18,139	$17,315	$16,490
	Tax Ratio								
Total Taxable Value	3	$687	$2,061	$3,436	$6,596	$6,321	$6,046	$5,772	$5,497
Average County Tax Rate	21.834								
Estimated Property Tax Payable		**$15**	**$45**	**$75**	**$144**	**$138**	**$132**	**$126**	**$120**

Hidalgo - Scenario 1 - 32 miles (all amounts in 2010 $000's)

Hidalgo County	32 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$36,408	$7,282	$21,845	$36,408					
Substations	$35,686	$7,137	$21,412	$35,686					
Construction Work in Progress (CWIP)	$72,094	$14,419	$43,256	$72,094					
Assessed Value of CWIP	50%	$7,209	$21,628	$36,047					
Book Value of Plant (as of 12/31)					$72,094	$69,210	$66,326	$63,443	$60,559
Less Annual Depreciation					$2,884	$2,884	$2,884	$2,884	$2,884
Net Book Value					$69,210	$66,326	$63,443	$60,559	$57,675
	Tax Ratio								
Total Taxable Value	3	$2,403	$7,209	$12,016	$23,070	$22,109	$21,148	$20,186	$19,225
Average County Tax Rate	25.598								
Estimated Property Tax Payable		**$62**	**$185**	**$308**	**$591**	**$566**	**$541**	**$517**	**$492**

Lincoln - Scenario 1 - Route West - 15 miles (all amounts in 2010 $000's)

Lincoln County West	15 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$17,271	$3,454	$10,363	$17,271					
Substations	$65,774	$13,155	$39,464	$65,774					
Construction Work in Progress (CWIP)	$83,045	$16,609	$49,827	$83,045					
Assessed Value of CWIP	50%	$8,305	$24,914	$41,523					
Book Value of Plant (as of 12/31)					$83,045	$79,723	$76,401	$73,080	$69,758
Less Annual Depreciation					$3,322	$3,322	$3,322	$3,322	$3,322
Net Book Value					$79,723	$76,401	$73,080	$69,758	$66,436
	Tax Ratio								
Total Taxable Value	3	$2,768	$8,305	$13,841	$26,574	$25,467	$24,360	$23,253	$22,145
Average County Tax Rate	27.657								
Estimated Property Tax Payable		**$77**	**$230**	**$383**	**$735**	**$704**	**$674**	**$643**	**$612**

Table F12. Property Tax Estimates for New Mexico Counties, Scenario 1. West (Continued)

Luna - Scenario 1 - Route West - 59 miles (all amounts in 2010 $000's)

Luna County West	59 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$64,689	$12,938	$38,813	$64,689					
Substations	$66,376	$13,275	$39,826	$66,376					
Construction Work in Progress (CWIP)	$131,065	$26,213	$78,639	$131,065					
Assessed Value of CWIP	50%	$13,107	$39,320	$65,533					
Book Value of Plant (as of 12/31)					$131,065	$125,822	$120,580	$115,337	$110,095
Less Annual Depreciation					$5,243	$5,243	$5,243	$5,243	$5,243
Net Book Value					$125,822	$120,580	$115,337	$110,095	$104,852
	Tax Ratio								
Total Taxable Value	3	$4,369	$13,107	$21,844	$41,941	$40,193	$38,446	$36,698	$34,951
Average County Tax Rate	24.443								
Estimated Property Tax Payable		**$107**	**$320**	**$534**	**$1,025**	**$982**	**$940**	**$897**	**$854**

Sierra - Scenario 1 - Route West - 97 miles (all amounts in 2010 $000's)

Sierra County West	97 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$120,704	$24,141	$72,422	$120,704					
Substations	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$120,704	$24,141	$72,422	$120,704					
Assessed Value of CWIP	50%	$12,070	$36,211	$60,352					
Book Value of Plant (as of 12/31)					$120,704	$115,876	$111,048	$106,220	$101,391
Less Annual Depreciation					$4,828	$4,828	$4,828	$4,828	$4,828
Net Book Value					$115,876	$111,048	$106,220	$101,391	$96,563
	Tax Ratio								
Total Taxable Value	3	$4,023	$12,070	$20,117	$38,625	$37,016	$35,407	$33,797	$32,188
Average County Tax Rate	25.649								
Estimated Property Tax Payable		**$103**	**$310**	**$516**	**$991**	**$949**	**$908**	**$867**	**$826**

Soccoro - Scenario 1 - Route West - 120 miles (all amounts in 2010 $000's)

Socorro County West	120 miles	**CONST WORK IN PROGRESS**							
		C1	C2	C3	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020
Transmission Line	$146,410	$29,282	$87,846	$146,410					
Substations	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$146,410	$29,282	$87,846	$146,410					
Assessed Value of CWIP	50%	$14,641	$43,923	$73,205					
Book Value of Plant (as of 12/31)					$146,410	$140,554	$134,697	$128,841	$122,984
Less Annual Depreciation					$5,856	$5,856	$5,856	$5,856	$5,856
Net Book Value					$140,554	$134,697	$128,841	$122,984	$117,128
	Tax Ratio								
Total Taxable Value	3	$4,880	$14,641	$24,402	$46,851	$44,899	$42,947	$40,995	$39,043
Average County Tax Rate	33.763								
Estimated Property Tax Payable		**$165**	**$494**	**$824**	**$1,582**	**$1,516**	**$1,450**	**$1,384**	**$1,318**

Table F13. Property Tax Estimates for New Mexico Counties, Scenario 2. East

Dona Ana - Scenario 2 - Route East- 59 miles (all amounts in 2010 $000's)

Dona Ana County East	59 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$142,522	$14,628	$57,761	$114,770	$69,381					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$142,522	$14,628	$57,761	$114,770	$69,381					
Assessed Value of CWIP	50%	$7,314	$28,880	$57,385	$34,691					
Book Value of Plant (as of 12/31)					$73,141	$139,596	$133,895	$128,195	$122,494	$116,793
Less Annual Depreciation					$2,926	$5,701	$5,701	$5,701	$5,701	$5,701
Net Book Value					$70,215	$133,895	$128,195	$122,494	$116,793	$111,092
	Tax Ratio									
Total Taxable Value	3	$2,438	$9,627	$19,128	$34,969	$44,632	$42,732	$40,831	$38,931	$37,031
Average County Tax Rate	31.762									
Estimated Property Tax Payable		**$77**	**$306**	**$608**	**$1,111**	**$1,418**	**$1,357**	**$1,297**	**$1,237**	**$1,176**

Grant - Scenario 2 - 19 miles (all amounts in 2010 $000's)

Grant County	19 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$40,030	$4,123	$16,251	$32,263	$19,417					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$40,030	$4,123	$16,251	$32,263	$19,417					
Assessed Value of CWIP	50%	$7,314	$8,126	$16,132	$9,709					
Book Value of Plant (as of 12/31)					$20,613	$39,205	$37,604	$36,003	$34,402	$32,801
Less Annual Depreciation					$825	$1,601	$1,601	$1,601	$1,601	$1,601
Net Book Value					$19,788	$37,604	$36,003	$34,402	$32,801	$31,199
	Tax Ratio									
Total Taxable Value	3	$687	$2,709	$5,377	$9,832	$12,535	$12,001	$11,467	$10,934	$10,400
Average County Tax Rate	21.834									
Estimated Property Tax Payable		**$15**	**$59**	**$117**	**$215**	**$274**	**$262**	**$250**	**$239**	**$227**

Hidalgo - Scenario 2 - 32 miles (all amounts in 2010 $000's)

Hidalgo County	32 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$70,797	$7,282	$28,723	$57,041	$34,389					
Substations	$44,006	$7,137	$23,076	$40,678	$8,320					
Construction Work in Progress (CWIP)	$114,803	$14,419	$51,798	$97,719	$42,709					
Assessed Value of CWIP	50%	$7,209	$25,899	$48,860	$21,355					
Book Value of Plant (as of 12/31)					$72,094	$111,919	$107,327	$102,735	$98,143	$93,551
Less Annual Depreciation					$2,884	$4,592	$4,592	$4,592	$4,592	$4,592
Net Book Value					$69,210	$107,327	$102,735	$98,143	$93,551	$88,959
	Tax Ratio									
Total Taxable Value	3	$2,403	$8,633	$16,287	$30,188	$35,776	$34,245	$32,714	$31,184	$29,653
Average County Tax Rate	25.598									
Estimated Property Tax Payable		**$62**	**$221**	**$417**	**$773**	**$916**	**$877**	**$837**	**$798**	**$759**

Table F13. Property Tax Estimates for New Mexico Counties,

Scenario 2. East (Continued)

Lincoln - Scenario 2 - East Route - 63 miles (all amounts in 2010 $000's)

Lincoln County East	63 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$151,104	$15,502	$61,225	$121,667	$73,593					
Substations	$83,303	$13,155	$42,970	$76,291	$17,529					
Construction Work in Progress	$234,407	$28,657	$104,195	$197,958	$91,122					
Assessed Value of CWIP	50%	$14,329	$52,098	$98,979	$45,561					
Book Value of Plant (as of 12/31)					$143,285	$228,676	$219,299	$209,923	$200,547	$191,170
Less Annual Depreciation					$5,731	$9,376	$9,376	$9,376	$9,376	$9,376
Net Book Value					$137,554	$219,299	$209,923	$200,547	$191,170	$181,794
	Tax Ratio									
Total Taxable Value	3	$4,776	$17,366	$32,993	$61,038	$73,100	$69,974	$66,849	$63,723	$60,598
Average County Tax Rate	27.657									
Estimated Property Tax Payable		**$132**	**$480**	**$912**	**$1,688**	**$2,022**	**$1,935**	**$1,849**	**$1,762**	**$1,676**

Luna - Scenario 2 - East Route - 63 miles (all amounts in 2010 $000's)

Luna County East	63 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$137,648	$14,162	$55,853	$110,912	$66,840					
Substations	$90,065	$13,275	$44,563	$80,589	$23,689					
Construction Work in Progress	$227,713	$27,437	$100,416	$191,501	$90,529					
Assessed Value of CWIP	50%	$13,718	$50,208	$95,751	$45,265					
Book Value of Plant (as of 12/31)					$137,184	$222,226	$213,117	$204,009	$194,900	$185,792
Less Annual Depreciation					$5,487	$9,109	$9,109	$9,109	$9,109	$9,109
Net Book Value					$131,697	$213,117	$204,009	$194,900	$185,792	$176,683
	Tax Ratio									
Total Taxable Value	3	$4,573	$16,736	$31,917	$58,987	$71,039	$68,003	$64,967	$61,931	$58,894
Average County Tax Rate	24.443									
Estimated Property Tax Payable		**$112**	**$409**	**$780**	**$1,442**	**$1,736**	**$1,662**	**$1,588**	**$1,514**	**$1,440**

Otero - Scenario 2 - East Route - 109 miles (all amounts in 2010 $000's)

Otero County East	109 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$253,754	$26,065	$102,881	$204,383	$123,428					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$253,754	$26,065	$102,881	$204,383	$123,428					
Assessed Value of CWIP	50%	$13,718	$51,441	$102,191	$61,714					
Book Value of Plant (as of 12/31)					$130,326	$248,541	$238,391	$228,241	$218,090	$207,940
Less Annual Depreciation					$5,213	$10,150	$10,150	$10,150	$10,150	$10,150
Net Book Value					$125,113	$238,391	$228,241	$218,090	$207,940	$197,790
	Tax Ratio									
Total Taxable Value	3	$4,344	$17,147	$34,064	$62,276	$79,464	$76,080	$72,697	$69,313	$65,930
Average County Tax Rate	29.177									
Estimated Property Tax Payable		**$127**	**$500**	**$994**	**$1,817**	**$2,319**	**$2,220**	**$2,121**	**$2,022**	**$1,924**

Table F14. Property Tax Estimates for New Mexico Counties, Scenario 2. West

Grant - Scenario 2 - 19 miles (all amounts in 2010 $000's)

Grant County	19 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$40,030	$4,123	$16,251	$32,263	$19,417					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$40,030	$4,123	$16,251	$32,263	$19,417					
Assessed Value of CWIP	50%	$7,314	$8,126	$16,132	$9,709					
Book Value of Plant (as of 12/31)					$20,613	$39,205	$37,604	$36,003	$34,402	$32,801
Less Annual Depreciation					$825	$1,601	$1,601	$1,601	$1,601	$1,601
Net Book Value					$19,788	$37,604	$36,003	$34,402	$32,801	$31,199
	Tax Ratio									
Total Taxable Value	3	$687	$2,709	$5,377	$9,832	$12,535	$12,001	$11,467	$10,934	$10,400
Average County Tax Rate	21.834									
Estimated Property Tax Payable		**$15**	**$59**	**$117**	**$215**	**$274**	**$262**	**$250**	**$239**	**$227**

Hidalgo - Scenario 2 - 32 miles (all amounts in 2010 $000's)

Hidalgo County	32 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$70,797	$7,282	$28,723	$57,041	$34,389					
Substations	$44,006	$7,137	$23,076	$40,678	$8,320					
Construction Work in Progress (CWIP)	$114,803	$14,419	$51,798	$97,719	$42,709					
Assessed Value of CWIP	50%	$7,209	$25,899	$48,860	$21,355					
Book Value of Plant (as of 12/31)					$72,094	$111,919	$107,327	$102,735	$98,143	$93,551
Less Annual Depreciation					$2,884	$4,592	$4,592	$4,592	$4,592	$4,592
Net Book Value					$69,210	$107,327	$102,735	$98,143	$93,551	$88,959
	Tax Ratio									
Total Taxable Value	3	$2,403	$8,633	$16,287	$30,188	$35,776	$34,245	$32,714	$31,184	$29,653
Average County Tax Rate	25.598									
Estimated Property Tax Payable		**$62**	**$221**	**$417**	**$773**	**$916**	**$877**	**$837**	**$798**	**$759**

Lincoln - Scenario 2 - West Route - 15 miles (all amounts in 2010 $000's)

Lincoln County West	15 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$34,800	$3,454	$13,868	$27,788	$17,529					
Substations	$82,095	$13,155	$42,729	$75,567	$16,321					
Construction Work in Progress	$116,895	$16,609	$56,597	$103,355	$33,850					
Assessed Value of CWIP	50%	$8,305	$28,299	$51,678	$16,925					
Book Value of Plant (as of 12/31)					$83,045	$113,573	$108,897	$104,222	$99,546	$94,870
Less Annual Depreciation					$3,322	$4,676	$4,676	$4,676	$4,676	$4,676
Net Book Value					$79,723	$108,897	$104,222	$99,546	$94,870	$90,194
	Tax Ratio									
Total Taxable Value	3	$2,768	$9,433	$17,226	$32,216	$36,299	$34,741	$33,182	$31,623	$30,065
Average County Tax Rate	27.657									
Estimated Property Tax Payable		**$77**	**$261**	**$476**	**$891**	**$1,004**	**$961**	**$918**	**$875**	**$832**

Table F14. Property Tax Estimates for New Mexico Counties, Scenario 2. West (Continued)

Luna - Scenario 2 - West Route - 59 miles (all amounts in 2010 $000's)

Luna County West	59 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$125,631	$12,938	$51,002	$101,254	$60,942					
Substations	$90,065	$13,275	$44,563	$80,589	$23,689					
Construction Work in Progress	$215,696	$26,213	$95,565	$181,844	$84,631					
Assessed Value of CWIP	50%	$13,107	$47,783	$90,922	$42,316					
Book Value of Plant (as of 12/31)					$131,065	$210,453	$201,826	$193,198	$184,570	$175,942
Less Annual Depreciation					$5,243	$8,628	$8,628	$8,628	$8,628	$8,628
Net Book Value					$125,822	$201,826	$193,198	$184,570	$175,942	$167,314
	Tax Ratio									
Total Taxable Value	3	$4,369	$15,928	$30,307	$56,046	$67,275	$64,399	$61,523	$58,647	$55,771
Average County Tax Rate	24.443									
Estimated Property Tax Payable		**$107**	**$389**	**$741**	**$1,370**	**$1,644**	**$1,574**	**$1,504**	**$1,434**	**$1,363**

Sierra - Scenario 2 - West Route - 97 miles (all amounts in 2010 $000's)

Sierra County West	97 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$235,515	$24,141	$95,385	$189,591	$114,811					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$235,515	$24,141	$95,385	$189,591	$114,811					
Assessed Value of CWIP	50%	$12,070	$47,692	$94,795	$57,406					
Book Value of Plant (as of 12/31)					$120,704	$230,687	$221,266	$211,846	$202,425	$193,004
Less Annual Depreciation					$4,828	$9,421	$9,421	$9,421	$9,421	$9,421
Net Book Value					$115,876	$221,266	$211,846	$202,425	$193,004	$183,584
	Tax Ratio									
Total Taxable Value	3	$4,023	$15,897	$31,598	$57,760	$73,755	$70,615	$67,475	$64,335	$61,195
Average County Tax Rate	25.649									
Estimated Property Tax Payable		**$103**	**$408**	**$810**	**$1,481**	**$1,892**	**$1,811**	**$1,731**	**$1,650**	**$1,570**

Socorro - Scenario 2 - West Route - 120 miles (all amounts in 2010 $000's)

Socorro County West	120 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$284,989	$29,282	$115,562	$229,557	$138,579					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$284,989	$29,282	$115,562	$229,557	$138,579					
Assessed Value of CWIP	50%	$14,641	$57,781	$114,779	$69,290					
Book Value of Plant (as of 12/31)					$146,410	$279,133	$267,733	$256,333	$244,934	$233,534
Less Annual Depreciation					$5,856	$11,400	$11,400	$11,400	$11,400	$11,400
Net Book Value					$140,554	$267,733	$256,333	$244,934	$233,534	$222,135
	Tax Ratio									
Total Taxable Value	3	$4,880	$19,260	$38,260	$69,948	$89,244	$85,444	$81,645	$77,845	$74,045
Average County Tax Rate	33.763									
Estimated Property Tax Payable		**$165**	**$650**	**$1,292**	**$2,362**	**$3,013**	**$2,885**	**$2,757**	**$2,628**	**$2,500**

Table F15. Property Tax Estimates for New Mexico Counties, Scenario 3. East

Dona Ana - Scenario 3 - East Route - 59 miles (all amounts in 2010 $000's)

Dona Ana County East	59 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$141,940	$14,628	$57,644	$114,420	$68,799					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$141,940	$14,628	$57,761	$114,770	$69,381					
Assessed Value of CWIP	50%	$7,314	$28,822	$57,210	$34,400					
Book Value of Plant (as of 12/31)					$73,141	$139,014	$133,337	$127,659	$121,982	$116,304
Less Annual Depreciation					$2,926	$5,678	$5,678	$5,678	$5,678	$5,678
Net Book Value					$70,215	$133,337	$127,659	$121,982	$116,304	$110,626
	Tax Ratio									
Total Taxable Value	3	$2,438	$9,607	$19,070	$34,872	$44,446	$42,553	$40,661	$38,768	$36,875
Average County Tax Rate	31.762									
Estimated Property Tax Payable		**$77**	**$305**	**$606**	**$1,108**	**$1,412**	**$1,352**	**$1,291**	**$1,231**	**$1,171**

Grant - Scenario 3 - 19 miles (all amounts in 2010 $000's)

Grant County	19 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$37,496	$4,123	$15,744	$30,743	$16,883					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$37,496	$4,123	$15,744	$30,743	$16,883					
Assessed Value of CWIP	50%	$7,314	$7,872	$15,371	$8,442					
Book Value of Plant (as of 12/31)					$20,613	$36,671	$35,172	$33,672	$32,172	$30,672
Less Annual Depreciation					$825	$1,500	$1,500	$1,500	$1,500	$1,500
Net Book Value					$19,788	$35,172	$33,672	$32,172	$30,672	$29,172
	Tax Ratio									
Total Taxable Value	3	$687	$2,624	$5,124	$9,410	$11,724	$11,224	$10,724	$10,224	$9,724
Average County Tax Rate	21.834									
Estimated Property Tax Payable		**$15**	**$57**	**$112**	**$205**	**$256**	**$245**	**$234**	**$223**	**$212**

Hidalgo - Scenario 3 - 32 miles (all amounts in 2010 $000's)

Hidalgo County	32 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$65,261	$7,282	$27,615	$53,720	$28,853					
Substations	$35,686	$7,137	$21,412	$35,686	$0					
Construction Work in Progress (CWIP)	$100,947	$14,419	$49,027	$89,406	$28,853					
Assessed Value of CWIP	50%	$7,209	$24,514	$44,703	$14,427					
Book Value of Plant (as of 12/31)					$72,094	$98,063	$94,025	$89,987	$85,950	$81,912
Less Annual Depreciation					$2,884	$4,038	$4,038	$4,038	$4,038	$4,038
Net Book Value					$69,210	$94,025	$89,987	$85,950	$81,912	$77,874
	Tax Ratio									
Total Taxable Value	3	$2,403	$8,171	$14,901	$27,879	$31,342	$29,996	$28,650	$27,304	$25,958
Average County Tax Rate	25.598									
Estimated Property Tax Payable		**$62**	**$209**	**$381**	**$714**	**$802**	**$768**	**$733**	**$699**	**$664**

Table F15. Property Tax Estimates for New Mexico Counties, Scenario 3. East (Continued)

Lincoln - Scenario 3 - East Route - 63 miles (all amounts in 2010 $000's)

Lincoln County East	63 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$142,888	$15,502	$59,582	$121,667	$73,593					
Substations	$662,114	$13,155	$42,970	$76,291	$17,529					
Construction Work in Progress	$805,002	$28,657	$102,552	$197,958	$91,122					
Assessed Value of CWIP	50%	$14,329	$109,157	$270,158	$330,859					
Book Value of Plant (as of 12/31)					$143,285	$799,271	$767,071	$734,870	$702,670	$670,470
Less Annual Depreciation					$5,731	$32,200	$32,200	$32,200	$32,200	$32,200
Net Book Value					$137,554	$767,071	$734,870	$702,670	$670,470	$638,270
	Tax Ratio									
Total Taxable Value	3	$4,776	$36,386	$90,053	$156,137	$255,690	$244,957	$234,223	$223,490	$212,757
Average County Tax Rate	27.657									
Estimated Property Tax Payable		**$132**	**$1,006**	**$2,491**	**$4,318**	**$7,072**	**$6,775**	**$6,478**	**$6,181**	**$5,884**

Luna - Scenario 3 - East Route - 63 miles (all amounts in 2010 $000's)

Luna County East	63 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$131,942	$14,162	$54,712	$107,488	$61,134					
Substations	$66,376	$13,275	$39,826	$66,376	$0					
Construction Work in Progress	$198,318	$27,437	$94,537	$173,864	$61,134					
Assessed Value of CWIP	50%	$13,718	$47,269	$86,932	$30,567					
Book Value of Plant (as of 12/31)					$137,184	$192,831	$184,898	$176,965	$169,032	$161,100
Less Annual Depreciation					$5,487	$7,933	$7,933	$7,933	$7,933	$7,933
Net Book Value					$131,697	$184,898	$176,965	$169,032	$161,100	$153,167
	Tax Ratio									
Total Taxable Value	3	$4,573	$15,756	$28,977	$54,088	$61,633	$58,988	$56,344	$53,700	$51,056
Average County Tax Rate	24.443									
Estimated Property Tax Payable		**$112**	**$385**	**$708**	**$1,322**	**$1,506**	**$1,442**	**$1,377**	**$1,313**	**$1,248**

Otero - Scenario 3 - East Route - 109 miles (all amounts in 2010 $000's)

Otero County East	109 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$238,641	$26,065	$99,859	$195,315	$108,315					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$238,641	$26,065	$99,859	$195,315	$108,315					
Assessed Value of CWIP	50%	$13,718	$49,929	$97,658	$54,158					
Book Value of Plant (as of 12/31)					$130,326	$233,428	$223,882	$214,337	$204,791	$195,245
Less Annual Depreciation					$5,213	$9,546	$9,546	$9,546	$9,546	$9,546
Net Book Value					$125,113	$223,882	$214,337	$204,791	$195,245	$185,700
	Tax Ratio									
Total Taxable Value	3	$4,344	$16,643	$32,553	$59,757	$74,627	$71,446	$68,264	$65,082	$61,900
Average County Tax Rate	29.177									
Estimated Property Tax Payable		**$127**	**$486**	**$950**	**$1,744**	**$2,177**	**$2,085**	**$1,992**	**$1,899**	**$1,806**

Table F16. Property Tax Estimates for New Mexico Counties, Scenario 3. West

Grant - Scenario 3 - 19 miles (all amounts in 2010 $000's)

Grant County	19 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$37,496	$4,123	$15,744	$30,743	$16,883					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress (CWIP)	$37,496	$4,123	$15,744	$30,743	$16,883					
Assessed Value of CWIP	50%	$7,314	$7,872	$15,371	$8,442					
Book Value of Plant (as of 12/31)					$20,613	$36,671	$35,172	$33,672	$32,172	$30,672
Less Annual Depreciation					$825	$1,500	$1,500	$1,500	$1,500	$1,500
Net Book Value					$19,788	$35,172	$33,672	$32,172	$30,672	$29,172
	Tax Ratio									
Total Taxable Value	3	$687	$2,624	$5,124	$9,410	$11,724	$11,224	$10,724	$10,224	$9,724
Average County Tax Rate	21.834									
Estimated Property Tax Payable		**$15**	**$57**	**$112**	**$205**	**$256**	**$245**	**$234**	**$223**	**$212**

Hidalgo - Scenario 3 - 32 miles (all amounts in 2010 $000's)

Hidalgo County	32 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$65,261	$7,282	$27,615	$53,720	$28,853					
Substations	$35,686	$7,137	$21,412	$35,686	$0					
Construction Work in Progress (CWIP)	$100,947	$14,419	$49,027	$89,406	$28,853					
Assessed Value of CWIP	50%	$7,209	$24,514	$44,703	$14,427					
Book Value of Plant (as of 12/31)					$72,094	$98,063	$94,025	$89,987	$85,950	$81,912
Less Annual Depreciation					$2,884	$4,038	$4,038	$4,038	$4,038	$4,038
Net Book Value					$69,210	$94,025	$89,987	$85,950	$81,912	$77,874
	Tax Ratio									
Total Taxable Value	3	$2,403	$8,171	$14,901	$27,879	$31,342	$29,996	$28,650	$27,304	$25,958
Average County Tax Rate	25.598									
Estimated Property Tax Payable		**$62**	**$209**	**$381**	**$714**	**$802**	**$768**	**$733**	**$699**	**$664**

Lincoln - Scenario 3 - West Route - 15 miles (all amounts in 2010 $000's)

Lincoln County West	15 miles	CONST WORK IN PROGRESS								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$31,739	$3,454	$13,256	$25,952	$14,468					
Substations	$662,114	$13,155	$158,732	$423,578	$596,340					
Construction Work in Progress	$693,853	$16,609	$171,989	$449,530	$610,808					
Assessed Value of CWIP	50%	$8,305	$85,994	$224,765	$305,404					
Book Value of Plant (as of 12/31)					$83,045	$690,531	$662,777	$635,023	$607,269	$579,515
Less Annual Depreciation					$3,322	$27,754	$27,754	$27,754	$27,754	$27,754
Net Book Value					$79,723	$662,777	$635,023	$607,269	$579,515	$551,761
	Tax Ratio									
Total Taxable Value	3	$2,768	$28,665	$74,922	$128,376	$220,926	$211,674	$202,423	$193,172	$183,920
Average County Tax Rate	27.657									
Estimated Property Tax Payable		**$77**	**$793**	**$2,072**	**$3,550**	**$6,110**	**$5,854**	**$5,598**	**$5,343**	**$5,087**

Table F16. Property Tax Estimates for New Mexico Counties,

Scenario 3. West (Continued)

Luna - Scenario 3 - West Route - 59 miles **(all amounts in 2010 $000's)**

Luna County West	59 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$123,580	$12,938	$50,592	$100,024	$58,891					
Substations	$66,376	$13,275	$39,826	$66,376	$0					
Construction Work in Progress	$189,956	$26,213	$90,417	$166,400	$58,891					
Assessed Value of CWIP	50%	$13,107	$45,209	$83,200	$29,446					
Book Value of Plant (as of 12/31)					$131,065	$184,713	$177,115	$169,517	$161,919	$154,320
Less Annual Depreciation					$5,243	$7,598	$7,598	$7,598	$7,598	$7,598
Net Book Value					$125,822	$177,115	$169,517	$161,919	$154,320	$146,722
	Tax Ratio									
Total Taxable Value	3	$4,369	$15,070	$27,733	$51,756	$59,038	$56,506	$53,973	$51,440	$48,907
Average County Tax Rate	24.443									
Estimated Property Tax Payable		**$107**	**$368**	**$678**	**$1,265**	**$1,443**	**$1,381**	**$1,319**	**$1,257**	**$1,195**

Sierra - Scenario 3 - West Route - 97 miles **(all amounts in 2010 $000's)**

Sierra County West	97 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$221,337	$24,141	$92,549	$181,084	$100,633					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$221,337	$24,141	$92,549	$181,084	$100,633					
Assessed Value of CWIP	50%	$12,070	$46,275	$90,542	$50,317					
Book Value of Plant (as of 12/31)					$120,704	$216,509	$207,655	$198,802	$189,948	$181,095
Less Annual Depreciation					$4,828	$8,853	$8,853	$8,853	$8,853	$8,853
Net Book Value					$115,876	$207,655	$198,802	$189,948	$181,095	$172,241
	Tax Ratio									
Total Taxable Value	3	$4,023	$15,425	$30,181	$55,397	$69,218	$66,267	$63,316	$60,365	$57,414
Average County Tax Rate	25.649									
Estimated Property Tax Payable		**$103**	**$396**	**$774**	**$1,421**	**$1,775**	**$1,700**	**$1,624**	**$1,548**	**$1,473**

Socorro - Scenario 3 - West Route - 120 miles **(all amounts in 2010 $000's)**

Socorro County West	120 miles	**CONST WORK IN PROGRESS**								
		C1	C2	C3	C4	1	2	3	4	5
Improvements		2013	2014	2015	2016	2017	2018	2019	2020	2021
Transmission Line	$284,989	$29,282	$112,084	$219,123	$121,189					
Substations	$0	$0	$0	$0	$0					
Construction Work in Progress	$284,989	$29,282	$112,084	$219,123	$121,189					
Assessed Value of CWIP	50%	$14,641	$56,042	$109,562	$60,595					
Book Value of Plant (as of 12/31)					$146,410	$261,743	$251,039	$240,335	$229,631	$218,927
Less Annual Depreciation					$5,856	$10,704	$10,704	$10,704	$10,704	$10,704
Net Book Value					$140,554	$251,039	$240,335	$229,631	$218,927	$208,223
	Tax Ratio									
Total Taxable Value	3	$4,880	$18,681	$36,521	$67,049	$83,680	$80,112	$76,544	$72,976	$69,408
Average County Tax Rate	33.763									
Estimated Property Tax Payable		**$165**	**$631**	**$1,233**	**$2,264**	**$2,825**	**$2,705**	**$2,584**	**$2,464**	**$2,343**

Table F17. Property Tax Rates for Arizona and New Mexico

Arizona

Combined Schedule of Property Taxes for certain Counties in Arizona
Tax Year 2010
Rates expressed in mils/$1000 valuation

COUNTY	COUNTY OPERATIONS	OTHER COUNTY	SCHOOLS	VOCATIONAL EDUCATION	FIRE	OTHER	TOTAL
Cochise	2.628	0.484	7.056	2.005	1.256	2.001	**15.430**
Graham	1.813	0.498	3.951	2.187	0.886		**9.335**
Greenlee	0.769	0.621	8.233	0.050	0.004	1.160	**10.837**
Pima	3.313	1.735	6.324	1.135	2.150	0.100	**14.757**
Pinal	3.578	1.600	5.424	1.635	0.000	0.100	**12.337**

New Mexico

Average Property Tax Rates for certain Counties in New Mexico
Tax Year 2010
Rates expressed in $ per $1000 valuation

COUNTY	DISTRICT	AVERAGE RATE
Dona Ana	2 OUT NR	**31.762**
Grant	2 OUT NR	**21.834**
Hidalgo	1 OUT NR	**25.598**
Lincoln	13 OUT NR	**27.657**
Luna	1 OUT NR	**24.443**
Otero	1 OUT NR	**29.177**
Sierra	6 OUT NR	**25.649**
Socorro	1 OUT NR	**33.763**

Table F18. Property Tax Assumptions for Arizona

Definitions of Cases mentioned below:
Case 1 is the construction of one AC line and related substations
Case 2A is the construction of a 2nd AC line and additional substation construction
Case 2B is the construction of a 2nd DC line and additional substation construction
In terms of Scenarios,
Scenario 1= Case 1
Scenario 2 = Case 1 + Case 2A
Scenario 3 = Case 1 + Case 2B

1	Data source for the cost of transmission improvements is either SunZia-EIA-Spreadsheet-Line-Case 1-11-1019, dated 1/19/2011 or SunZia-EIA-Spreadsheet-Line-Case 2A-11-1019, dated 1/19/2011 or SunZia-EIA-Spreadsheet-Line-Case 2B-11-1019, dated 1/19/2011.
2	Data source for the cost of substation improvements is either SunZia-EIA-Spreadsheet-Sub-Case 1-11-1019, dated 1/19/2011 or SunZIa-EIA-Spreadsheet-Sub-Case 2A-11-1019, dated 1/19/2011 or SunZia-EIA-Spreadsheet-Sub-Case 2B-11-1019, dated 1/19/2011.
3	Data source for line mileage in each county is EIA alignment Mileage+Land Use 8.6.2010
4	We assume construction begins mid-2013 (Case 1) and mid-2014 (Cases 2A and 2B) and ends 2.5 yrs later.
5	We assume construction is complete as above based upon financial statement on final cost. The valuation method is then reclassified from Construction Work in Progress as of Jan 1 of the following year
6	Depreciation does not begin until improvements are in use and is based on 25 yr straight line (§42-14154(G2)
7	The assessment ratio for all transmission property uses equals 20%
8	During construction, the assessment ratio is 50% of the reported costs (§42-14154C)
9	During operations, the assessment ratio is 20% and is based on the depreciated cost (less accumulated depreciation) of the 'renewable enegy equipment (§42-14155)
10	The assessment ratio for land is 20%.
11	The value of land acquired is provided by SunZia and represents the actual cost. No allowance is given for appreciation unless additional land is acquired and is shown at cost of acquisition.
12	The construction costs of transmission improvements are based upon PDS Consultants and Power Engineers estimates dated January 19, 2011
13	This analysis is based upon the proposed improvements being located in the referenced County only.
14	The estimated annual increase in the value of land is zero (0.0%). Land is valued at cost and is not adjusted.
15	All terms and applications shall be interpreted according to the Federal Energy Regulatory Commission uniform system of accounts…effective 1/1/89.
16	The floor value of real property improvements shall not reduce the value of the cost of the real property improvements below 10.0% (§AB42-14156(5))
17	It is assumed that the project will be used predominately for the transmission of 'renewable energy'.
18	If any land is revalued, it is done so at cost as determined by the AZ Dept. of Revenue.
19	The value of improvements is the total cost as determined from the records of the owner as of Dec 31
20	It is assumed that construction is complete during Q4 of 2015 or 2016 (as applicable) and as a result the improvements are reclassifed as of Jan 1, of the following year
21	ARS §42-14155 expires in 2040. The valuation methodology allowed therein does not stipulate what level of renewable energy other than one hundred percent (100%) generated and/or transmitted is required to satisfy this statute.
22	The estimated property tax payment equals the assessed value times the tax rate ($ per $1000 valuation)

Table F19. Property Tax Assumptions for New Mexico (1/2)

Definitions of Cases mentioned below:
Case 1 is the construction of one AC line and related substations
Case 2A is the construction of a 2nd AC line and additional substation construction
Case 2B is the construction of a 2nd DC line and additional substation construction
In terms of Scenarios,
Scenario 1= Case 1
Scenario 2 = Case 1 + Case 2A
Scenario 3 = Case 1 + Case 2B

1	All cost data and line mileage estimates used in the analysis are provided by SunZia.
2	Data source for the cost of transmission improvements is either SunZia-EIA-Spreadsheet-Line-Case 1-11-1019, dated 1/19/2011 or SunZia-EIA-Spreadsheet-Line-Case 2A-11-1019, dated 1/19/2011 or SunZia-EIA-Spreadsheet-Line-Case 2B-11-1019, dated 1/19/2011.
3	Data source for the cost of substation improvements is either SunZia-EIA-Spreadsheet-Sub-Case 1-11-1019, dated 1/19/2011 or SunZIa-EIA-Spreadsheet-Sub-Case 2A-11-1019, dated 1/19/2011 or SunZia-EIA-Spreadsheet-Sub-Case 2B-11-1019, dated 1/19/2011.
4	Data source for line mileage in each county is EIA alignment Mileage+Land Use 8.6.2010
5	Construction is assumed to begin mid-2013 (Case 1) and mid-2014 (Cases 2A and 2B) and ends 2.5 years later, per sunZia.
6	Estimated date of closing land purchase/leases is the first half of 2013 (Case 1) or first half of 2014 (Cases 2A and 2B) before construction commences.
7	School District boundaries provided by County Assessor Office and confirmed by SunZia.
8	Depreciation begins Jan 1, 2016 (Case 1) or Jan 1, 2017 (Cases 2A and 2B), upon completition of real property improvements and is based upon 25-year straight line schedule (NM Regulation §3.6.5.36B1)
9	Actual cost of Improvements established annually (as of Dec 31) from owner's annual financial statements, which are due not later than the last day of February after the reporting period.
10	Construction Work in Progress (CWIP) is calculated using owner's year end audited financial statements as provided to the State office as of Dec 31. (NMSA 7-36-29B)
11	Construction Work in Progress (CWIP) means the work started but not complete by the last day of the reporting calendar year. Information is presented in the owner's annual audited financial statements and engineers (NMSA 7-36-29B.3).
12	The Assessment ratio of CWIP is fifty (50%) percent as shown on the owners annual audited financial statements.
13	The Assessment ratio after a property is reclassified from CWIP to Total Taxable Vaue is one third of the Net Book Value.
14	The Assessment ratio on non-CWIP improvements is one-third of the book value of the improvements.
15	General buildings and improvements means buildings of the nature of offices, residential housing, warehouses, shops and associated improvements in general use by the owner, and not directly associated with generation, transmission or distribution of electrical power or energy (NMSA 7-36-29B4).
16	The value of materials and supplies shall be the tangible property cost for such property as of Dec 31 of the preceding year, and includes sales, use and excise taxes, transportation costs to the point of delivery in the state, less purchases and trade discounts (NMS7-36-29A5).
17	Annual reports are due before the last day of February of the year following the report years.
18	Net book value is determined from owner's audited annual financial statements and the floor value of the depreciated assets and shall not be reduced below 20% of the initial cost plus additional improvements constructed during the life of the project. Cost is determined from year-end annual audited financial statements.
19	Land cost may be adjusted annually. Generally the policy of the Bureau is to use one of three methods of appraisal. If there are no comparable sales in the County in which the project is located the Bureau will use comparable sales in other Counties, and if none are available, other states.
20	The Useful life of real property improvements for purposes of assessment is estimated at 25 years (§167 IRS code (26usc§167)).
21	Depreciation does not begin until the improvements are completed and removed from the CWIP status.
22	Not included in the analysis are those improvements not described in the attached schedules prepared for SunZia as improvements in the nature of offices, shops and associated improvements in general use not directly involved in the transmission of renewable energy.
23	Estimated annual increase in the value of land is shown at zero (0%) percent per annum.
24	Tax rates in NM means the rate expressed in dollars/thousand (milrate) of the net taxable value of the property.
25	"Tax Ratio" means "the percentage established under the Property Tax Code that is applied to the value of property determined for property taxation purposes in order to derive "taxable value" (NMSA §7-35-20 Definitions).

Table F19. Property Tax Assumptions for New Mexico (2/2)

26	All terms and applications shall be interpreted according to the Federal Energy Regulatory Commission uniform system of accounts…effective 1/1/89.
27	All centrally assessed property costs remain fixed unless there is a change in the statute.
28	The tax rate used is based upon local tax rates provided by the specific county Treasurer's office for each taxing authority with the county jurisidiction and are averaged based upon the estimated miles the transmission lines are located on private land.
29	The taxes payable for this analysis begin with the close of escrow on the land and during the period of CWIP and continue thereafter for a total of 25 years.
30	The value of Existing Plant and Services are shown as zero until the improvements are completed.
31	Any calculation as to value by the State, 'in these uncertain times' is subject to changes in the Law.
32	Leasehold estates are not subject to separate valuation. Improvements to leasehold estates are subject to tax as personal proprerty as the owner of the fee simple estate. Personal project is valued in the same manner as real property, except that personal property is subject to a shorter depreciation sechedule as provided by statue.
33	Real Property tax rates are the same as Personal Property tax rates, (Reg §3.6.5.36) Special method of valuation: Property used for the generation, transmission or distribution of electrical power or energy.
34	Easements/rights of way are not subject to taxation, however the improvements thereon are part of the real property and are therefor subject to tax as an improvement to the fee simple.
35	The State only assesses fixed improvements. The transformers and considered personal property and are taxes as such. The transformers shown in the project description are included in the analysis because personal property and real property are taxed at the same rate. Only foundations, buildings, etc., are assessed as real property. Personal property is subject to a different depreciation schedule.
36	Gross Receipts Tax (i.e. Sales Tax) is not calculated as part of this analysis.
37	The owner reports annually by the last day of February on the nature of the real and personal property. Upon the receipt of such report the state evaluates the information and makes its determination of the value as of Dec. 31 of the previous year.
38	**SPECIAL METHOD OF VALUATION - PROPERTY USED FOR THE GENERATION, TRANSMISSION OR DISTRIBUTION OF ELECTRICAL POWER OR ENERGY (NMR 3.6.5.36)**
	A. ELECTRIC POWER PLANT - PROPERTY TO BE VALUED: Property to be valued as property "used for the generation, transmission or distribution of electrical power or energy" includes property which is used in the conduct of a public utility business and property that is "an electricity generating plant, whether or not owned by a public utility, if all or part of the electricity is generated for ultimate sale to the consuming public".
	B. ELECTRIC POWER PLANT - DEPRECIATION:
	(1) For calculating depreciation or related accumulated provision for depreciation, straight line depreciation over the useful life of the item of property, as determined by federal or state regulatory agencies having jurisdiction, shall be used.
	(2) If the property does not fall under federal or state regulatory agency authority, the division establishes the useful life of the property in accordance with its class life under Section 167 of the Internal Revenue Code and regulations thereunder. The land portion of the tangible property costs of the plant is the total actual costs of acquisition of the land as of January 1 of the tax year in which the property is valued.
	C. ELECTRIC POWER PLANT - CONSTRUCTION WORK IN PROGRESS: "Construction work in progress" as that phrase is defined in Paragraph (3) of Subsection B of Section 7-36-29 NMSA 1978 is valued in accordance with the valuation method stated in Subsection D of Section 7-36-29 NMSA 1978. Those persons who maintain their records in accordance with a uniform system of accounts approved by state or federal regulatory agencies may use the amount entered on those accounts as construction work in progress as of December 31 of the preceding calendar year as the value of construction work in progress, provided that account is limited to work orders for "electric plant" as defined in Paragraph (2) of Subsection B of Section 7-36-29 NMSA 1978 and Section 3.6.5.36 NMAC.

Appendix G.

Economic and Revenue Impacts, by Year, by County

In the following tables, the economic and revenue impacts are summarized by year, by county, for both Arizona and New Mexico. All dollar figures are in millions of $2010. Zero dollar revenue impacts are written as a "-." When a revenue impact appears as 0.00, it means that there are revenue impacts but they are not observable when written as millions. For readers who may be interested in these 0.00 estimates, the revenue estimates provided above in Appendix C are in thousands.

Note that in Arizona, both direct sales taxes and induced (sales and income) taxes accrue to all counties and cities in the state because of state-shared revenue formulas. The total accruing to all cities and counties in the state are reported in the summary state tables contained in the body of the report. In the following tables, only the revenues accruing to the five impacted counties (Cochise, Graham, Greenlee, Pima and Pinal) are reported. In some cases, revenue accrues to a county that has zero economic impacts because of revenue sharing.

Table G1. Summary of Impacts, by County, by Year, Arizona, Scenario 1, Route A

Arizona County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 1 - Route A									
Cochise	Other Taxes (2010 $Mil)	$ 11.65	$ 23.30	$ 23.30	$ 0.87	$ 0.87	$ 0.87	$ 0.87	$ 0.87
Graham	Employment (# of jobs)	91	182	182	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 6.77	$ 13.54	$ 13.54	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 7.87	$ 15.73	$ 15.73	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 10.37	$ 20.75	$ 20.75	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.12	$ 0.36	$ 0.60	$ 0.57	$ 0.55	$ 0.52	$ 0.50	$ 0.48
	Other Taxes (2010 $Mil)	$ 0.35	$ 0.71	$ 0.71	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Greenlee	Employment (# of jobs)	5	10	10	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.45	$ 0.89	$ 0.89	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 0.50	$ 1.00	$ 1.00	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 0.61	$ 1.23	$ 1.23	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.01	$ 0.03	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.03
	Other Taxes (2010 $Mil)	$ 0.01	$ 0.01	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Pima	Employment (# of jobs)	-	-	-	19	19	19	19	19
	Labor Income (2010 $Mil)	$ -	$ -	$ -	$ 1.64	$ 1.64	$ 1.64	$ 1.64	$ 1.64
	State Product (2010 $Mil)	$ -	$ -	$ -	$ 2.11	$ 2.11	$ 2.11	$ 2.11	$ 2.11
	Total Sales (2010 $Mil)	$ -	$ -	$ -	$ 2.81	$ 2.81	$ 2.81	$ 2.81	$ 2.81
	Property Taxes (2010 $Mil)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.19	$ 0.19	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03
Pinal	Employment (# of jobs)	45	89	89	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.63	$ 7.27	$ 7.27	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.19	$ 8.38	$ 8.38	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.22	$ 10.44	$ 10.44	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.24	$ 0.41	$ 0.39	$ 0.37	$ 0.36	$ 0.34	$ 0.33
	Other Taxes (2010 $Mil)	$ 0.28	$ 0.57	$ 0.57	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00

Table G2. Summary of Impacts, by County, by Year, Arizona, Scenario 1, Route B

Arizona County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 1 - Route B									
Cochise	Employment (# of jobs)	50	101	101	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.72	$ 7.44	$ 7.44	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.36	$ 8.72	$ 8.72	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.67	$ 11.34	$ 11.34	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.09	$ 0.28	$ 0.46	$ 0.44	$ 0.42	$ 0.41	$ 0.39	$ 0.37
	Other Taxes (2010 $Mil)	$ 0.24	$ 0.47	$ 0.47	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Graham	Employment (# of jobs)	44	89	89	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.46	$ 6.92	$ 6.92	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 3.95	$ 7.91	$ 7.91	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.08	$ 10.15	$ 10.15	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.07	$ 0.20	$ 0.33	$ 0.32	$ 0.30	$ 0.29	$ 0.28	$ 0.26
	Other Taxes (2010 $Mil)	$ 0.18	$ 0.36	$ 0.36	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Greenlee	Employment (# of jobs)	5	10	10	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.45	$ 0.89	$ 0.89	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 0.50	$ 1.00	$ 1.00	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 0.61	$ 1.23	$ 1.23	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.01	$ 0.03	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.04	$ 0.03
	Other Taxes (2010 $Mil)	$ 0.01	$ 0.01	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Pima	Employment (# of jobs)	13	27	27	19	19	19	19	19
	Labor Income (2010 $Mil)	$ 0.95	$ 1.89	$ 1.89	$ 1.64	$ 1.64	$ 1.64	$ 1.64	$ 1.64
	State Product (2010 $Mil)	$ 1.14	$ 2.28	$ 2.28	$ 2.11	$ 2.11	$ 2.11	$ 2.11	$ 2.11
	Total Sales (2010 $Mil)	$ 1.51	$ 3.01	$ 3.01	$ 2.81	$ 2.81	$ 2.81	$ 2.81	$ 2.81
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.06	$ 0.11	$ 0.10	$ 0.10	$ 0.09	$ 0.09	$ 0.08
	Other Taxes (2010 $Mil)	$ 0.15	$ 0.31	$ 0.31	$ 0.03	$ 0.03	$ 0.03	$ 0.03	$ 0.03
Pinal	Employment (# of jobs)	56	112	112	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.52	$ 9.04	$ 9.04	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.25	$ 10.49	$ 10.49	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 6.63	$ 13.26	$ 13.26	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.10	$ 0.30	$ 0.50	$ 0.48	$ 0.46	$ 0.44	$ 0.42	$ 0.40
	Other Taxes (2010 $Mil)	$ 0.36	$ 0.71	$ 0.71	$ 0.00	$ 0.00	$ 0.00	$ 0.00	$ 0.00

Table G3. Summary of Impacts, by County, by Year, Arizona, Scenario 2, Route A

Arizona County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 2- Route A									
Cochise	Other Taxes (2010 $Mil)	$ 0.01	$ 0.03	$ 0.04	$ 0.02	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Graham	Employment (# of jobs)	91	255	327	145	-	-	-	-
	Labor Income (2010 $Mil)	$ 6.77	$ 18.76	$ 23.99	$ 10.45	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 7.87	$ 21.85	$ 27.97	$ 12.24	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 10.37	$ 28.89	$ 37.03	$ 16.28	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.12	$ 0.45	$ 0.88	$ 1.04	$ 1.00	$ 0.96	$ 0.91	$ 0.87
	Other Taxes (2010 $Mil)	$ 0.35	$ 0.99	$ 1.27	$ 0.56	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Greenlee	Employment (# of jobs)	5	15	19	9	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.45	$ 1.32	$ 1.74	$ 0.84	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 0.50	$ 1.47	$ 1.94	$ 0.94	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 0.61	$ 1.81	$ 2.38	$ 1.16	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.01	$ 0.03	$ 0.07	$ 0.08	$ 0.08	$ 0.08	$ 0.07	$ 0.07
	Other Taxes (2010 $Mil)	$ 0.01	$ 0.02	$ 0.02	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Pima	Employment (# of jobs)	-	-	-	19	30	30	30	30
	Labor Income (2010 $Mil)	$ -	$ -	$ -	$ 1.64	$ 1.77	$ 1.77	$ 1.77	$ 1.77
	State Product (2010 $Mil)	$ -	$ -	$ -	$ 2.11	$ 2.34	$ 2.34	$ 2.34	$ 2.34
	Total Sales (2010 $Mil)	$ -	$ -	$ -	$ 2.81	$ 3.21	$ 3.21	$ 3.21	$ 3.21
	Property Taxes (2010 $Mil)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.26	$ 0.34	$ 0.19	$ 0.05	$ 0.05	$ 0.05	$ 0.05
Pinal	Employment (# of jobs)	45	132	174	85	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.63	$ 10.73	$ 14.20	$ 6.93	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.19	$ 12.37	$ 16.37	$ 7.99	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.22	$ 15.43	$ 20.42	$ 9.98	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.32	$ 0.64	$ 0.79	$ 0.75	$ 0.72	$ 0.69	$ 0.66
	Other Taxes (2010 $Mil)	$ 0.28	$ 0.84	$ 1.11	$ 0.54	$ 0.00	$ 0.00	$ 0.00	$ 0.00

Table G4. Summary of Impacts, by County, by Year, Arizona, Scenario 2, Route B

Arizona County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 2- Route B									
Cochise	Employment (# of jobs)	50	149	197	96	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.72	$ 10.97	$ 14.50	$ 7.06	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.36	$ 12.85	$ 16.99	$ 8.27	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.67	$ 16.73	$ 22.12	$ 10.78	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.09	$ 0.36	$ 0.72	$ 0.88	$ 0.84	$ 0.81	$ 0.77	$ 0.74
	Other Taxes (2010 $Mil)	$ 0.24	$ 0.70	$ 0.92	$ 0.45	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Graham	Employment (# of jobs)	44	117	146	57	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.46	$ 9.07	$ 11.21	$ 4.29	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 3.95	$ 10.37	$ 12.84	$ 4.93	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.08	$ 13.33	$ 16.51	$ 6.36	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.07	$ 0.24	$ 0.46	$ 0.54	$ 0.52	$ 0.49	$ 0.47	$ 0.45
	Other Taxes (2010 $Mil)	$ 0.18	$ 0.48	$ 0.60	$ 0.24	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Greenlee	Employment (# of jobs)	5	15	19	9	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.45	$ 1.32	$ 1.74	$ 0.84	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 0.50	$ 1.47	$ 1.94	$ 0.94	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 0.61	$ 1.81	$ 2.38	$ 1.16	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.01	$ 0.03	$ 0.07	$ 0.08	$ 0.08	$ 0.08	$ 0.07	$ 0.07
	Other Taxes (2010 $Mil)	$ 0.01	$ 0.02	$ 0.02	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Pima	Employment (# of jobs)	13	40	52	44	30	30	30	30
	Labor Income (2010 $Mil)	$ 0.95	$ 2.77	$ 3.66	$ 3.41	$ 1.77	$ 1.77	$ 1.77	$ 1.77
	State Product (2010 $Mil)	$ 1.14	$ 3.34	$ 4.41	$ 4.24	$ 2.34	$ 2.34	$ 2.34	$ 2.34
	Total Sales (2010 $Mil)	$ 1.51	$ 4.42	$ 5.83	$ 5.64	$ 3.21	$ 3.21	$ 3.21	$ 3.21
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.08	$ 0.17	$ 0.20	$ 0.19	$ 0.18	$ 0.18	$ 0.17
	Other Taxes (2010 $Mil)	$ 0.15	$ 0.45	$ 0.58	$ 0.31	$ 0.05	$ 0.05	$ 0.05	$ 0.05
Pinal	Employment (# of jobs)	56	165	218	106	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.52	$ 13.33	$ 17.62	$ 8.58	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.25	$ 15.47	$ 20.46	$ 9.97	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 6.63	$ 19.57	$ 25.88	$ 12.62	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.10	$ 0.40	$ 0.79	$ 0.96	$ 0.92	$ 0.88	$ 0.84	$ 0.81
	Other Taxes (2010 $Mil)	$ 0.36	$ 1.05	$ 1.39	$ 0.68	$ 0.00	$ 0.00	$ 0.00	$ 0.00

Table G5. Summary of Impacts, by County, by Year, Arizona, Scenario 3, Route A

Arizona County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 3- Route A									
Cochise	Other Taxes (2010 $Mil)	$ 0.01	$ 0.04	$ 0.06	$ 0.03	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Graham	Employment (# of jobs)	91	261	339	157	-	-	-	-
	Labor Income (2010 $Mil)	$ 6.77	$ 19.30	$ 25.07	$ 11.53	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 7.87	$ 22.39	$ 29.05	$ 13.32	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 10.37	$ 29.36	$ 37.97	$ 17.23	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.12	$ 0.43	$ 0.81	$ 0.92	$ 0.88	$ 0.85	$ 0.81	$ 0.77
	Other Taxes (2010 $Mil)	$ 0.35	$ 0.98	$ 1.24	$ 0.53	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Greenlee	Employment (# of jobs)	5	15	20	10	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.45	$ 1.37	$ 1.84	$ 0.94	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 0.50	$ 1.52	$ 2.05	$ 1.05	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 0.61	$ 1.85	$ 2.48	$ 1.25	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.09	$ 0.35	$ 0.67	$ 0.80	$ 0.77	$ 0.73	$ 0.70	$ 0.67
	Other Taxes (2010 $Mil)	$ 0.01	$ 0.02	$ 0.02	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Pima	Employment (# of jobs)	-	-	-	19	37	37	37	37
	Labor Income (2010 $Mil)	$ -	$ -	$ -	$ 1.64	$ 2.19	$ 2.19	$ 2.19	$ 2.19
	State Product (2010 $Mil)	$ -	$ -	$ -	$ 2.11	$ 2.90	$ 2.90	$ 2.90	$ 2.90
	Total Sales (2010 $Mil)	$ -	$ -	$ -	$ 2.81	$ 3.96	$ 3.96	$ 3.96	$ 3.96
	Property Taxes (2010 $Mil)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.32	$ 0.45	$ 0.30	$ 0.07	$ 0.07	$ 0.07	$ 0.07
Pinal	Employment (# of jobs)	45	153	217	127	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.63	$ 12.77	$ 18.27	$ 11.00	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.19	$ 14.61	$ 20.84	$ 12.46	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.22	$ 17.93	$ 25.42	$ 14.98	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.90	$ 2.37	$ 3.66	$ 3.51	$ 3.36	$ 3.21	$ 3.07
	Other Taxes (2010 $Mil)	$ 0.28	$ 1.28	$ 1.98	$ 1.42	$ 0.00	$ 0.00	$ 0.00	$ 0.00

Table G6. Summary of Impacts, by County, by Year, Arizona, Scenario 3, Route B

Arizona County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 3- Route B									
Cochise	Employment (# of jobs)	50	197	293	192	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.72	$ 14.59	$ 21.73	$ 14.29	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.36	$ 17.04	$ 25.36	$ 16.64	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.67	$ 22.04	$ 32.73	$ 21.40	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.09	$ 0.35	$ 0.67	$ 0.80	$ 0.77	$ 0.73	$ 0.70	$ 0.67
	Other Taxes (2010 $Mil)	$ 0.24	$ 0.69	$ 0.90	$ 0.43	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Graham	Employment (# of jobs)	44	144	200	111	-	-	-	-
	Labor Income (2010 $Mil)	$ 3.46	$ 11.12	$ 15.31	$ 8.39	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 3.95	$ 12.71	$ 17.51	$ 9.60	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.08	$ 16.27	$ 22.39	$ 12.24	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.07	$ 0.22	$ 0.41	$ 0.44	$ 0.42	$ 0.41	$ 0.39	$ 0.37
	Other Taxes (2010 $Mil)	$ 0.18	$ 0.46	$ 0.55	$ 0.19	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Greenlee	Employment (# of jobs)	5	20	30	20	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.45	$ 1.79	$ 2.68	$ 1.79	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 0.50	$ 1.99	$ 2.99	$ 1.99	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 0.61	$ 2.43	$ 3.64	$ 2.41	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.09	$ 0.35	$ 0.67	$ 0.80	$ 0.77	$ 0.73	$ 0.70	$ 0.67
	Other Taxes (2010 $Mil)	$ 0.01	$ 0.02	$ 0.03	$ 0.01	$ 0.00	$ 0.00	$ 0.00	$ 0.00
Pima	Employment (# of jobs)	13	54	82	74	37	37	37	37
	Labor Income (2010 $Mil)	$ 0.95	$ 3.83	$ 5.77	$ 5.52	$ 2.19	$ 2.19	$ 2.19	$ 2.19
	State Product (2010 $Mil)	$ 1.14	$ 4.61	$ 6.93	$ 6.77	$ 2.90	$ 2.90	$ 2.90	$ 2.90
	Total Sales (2010 $Mil)	$ 1.51	$ 6.06	$ 9.10	$ 8.90	$ 3.96	$ 3.96	$ 3.96	$ 3.96
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.08	$ 0.17	$ 0.20	$ 0.19	$ 0.18	$ 0.18	$ 0.17
	Other Taxes (2010 $Mil)	$ 0.15	$ 0.50	$ 0.69	$ 0.41	$ 0.07	$ 0.07	$ 0.07	$ 0.07
Pinal	Employment (# of jobs)	56	241	371	259	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.52	$ 19.83	$ 30.62	$ 21.58	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.25	$ 22.88	$ 35.26	$ 24.77	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 6.63	$ 28.57	$ 43.88	$ 30.62	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.10	$ 0.97	$ 2.51	$ 3.83	$ 3.67	$ 3.52	$ 3.36	$ 3.21
	Other Taxes (2010 $Mil)	$ 0.36	$ 1.49	$ 2.26	$ 1.55	$ 0.00	$ 0.00	$ 0.00	$ 0.00

Table G7. Summary of Impacts, by County, by Year, New Mexico, Scenario 1, East

New Mexico County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 1 - East									
Dona Ana	Employment (# of jobs)	52	104	104	25	25	25	25	25
	Labor Income (2010 $Mil)	$ 3.58	$ 7.16	$ 7.16	$ 1.47	$ 1.47	$ 1.47	$ 1.47	$ 1.47
	State Product (2010 $Mil)	$ 4.23	$ 8.45	$ 8.45	$ 1.91	$ 1.91	$ 1.91	$ 1.91	$ 1.91
	Total Sales (2010 $Mil)	$ 5.65	$ 11.30	$ 11.30	$ 2.60	$ 2.60	$ 2.60	$ 2.60	$ 2.60
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.23	$ 0.39	$ 0.74	$ 0.71	$ 0.68	$ 0.65	$ 0.62
	Other Taxes (2010 $Mil)	$ 0.35	$ 0.71	$ 0.71	$ 0.09	$ 0.09	$ 0.09	$ 0.09	$ 0.09
Grant	Employment (# of jobs)	11	23	23	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.88	$ 1.77	$ 1.77	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 1.01	$ 2.02	$ 2.02	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 1.27	$ 2.53	$ 2.53	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.05	$ 0.08	$ 0.14	$ 0.14	$ 0.13	$ 0.13	$ 0.12
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.19	$ 0.19	$ -	$ -	$ -	$ -	$ -
Hidalgo	Employment (# of jobs)	46	92	92	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.37	$ 8.74	$ 8.74	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.57	$ 9.13	$ 9.13	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.03	$ 10.07	$ 10.07	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.06	$ 0.18	$ 0.31	$ 0.59	$ 0.57	$ 0.54	$ 0.52	$ 0.49
	Other Taxes (2010 $Mil)	$ 0.29	$ 0.59	$ 0.59	$ -	$ -	$ -	$ -	$ -
Lincoln	Employment (# of jobs)	80	160	160	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.69	$ 11.37	$ 11.37	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.67	$ 13.33	$ 13.33	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.70	$ 17.40	$ 17.40	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.13	$ 0.40	$ 0.66	$ 1.27	$ 1.22	$ 1.16	$ 1.11	$ 1.06
	Other Taxes (2010 $Mil)	$ 0.74	$ 1.48	$ 1.48	$ -	$ -	$ -	$ -	$ -
Luna	Employment (# of jobs)	71	142	142	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.59	$ 11.18	$ 11.18	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.18	$ 12.35	$ 12.35	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.60	$ 15.19	$ 15.19	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.11	$ 0.34	$ 0.56	$ 1.07	$ 1.03	$ 0.98	$ 0.94	$ 0.89
	Other Taxes (2010 $Mil)	$ 0.68	$ 1.36	$ 1.36	$ -	$ -	$ -	$ -	$ -
Otero	Employment (# of jobs)	79	158	158	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.89	$ 11.78	$ 11.78	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.71	$ 13.42	$ 13.42	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.69	$ 17.37	$ 17.37	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.13	$ 0.38	$ 0.63	$ 1.22	$ 1.17	$ 1.12	$ 1.06	$ 1.01
	Other Taxes (2010 $Mil)	$ 0.55	$ 1.10	$ 1.10	$ -	$ -	$ -	$ -	$ -

Table G8. Summary of Impacts, by County, by Year, New Mexico, Scenario 1, West

New Mexico County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 1 - West									
Dona Ana	Employment (# of jobs)	-	-	-	25	25	25	25	25
	Labor Income (2010 $Mil)	$ -	$ -	$ -	$ 1.47	$ 1.47	$ 1.47	$ 1.47	$ 1.47
	State Product (2010 $Mil)	$ -	$ -	$ -	$ 1.91	$ 1.91	$ 1.91	$ 1.91	$ 1.91
	Total Sales (2010 $Mil)	$ -	$ -	$ -	$ 2.60	$ 2.60	$ 2.60	$ 2.60	$ 2.60
	Property Taxes (2010 $Mil)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Other Taxes (2010 $Mil)	$ -	$ -	$ -	$ 0.09	$ 0.09	$ 0.09	$ 0.09	$ 0.09
Grant	Employment (# of jobs)	11	23	23	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.88	$ 1.77	$ 1.77	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 1.01	$ 2.02	$ 2.02	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 1.27	$ 2.53	$ 2.53	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.06	$ 0.12	$ 0.21	$ 0.27	$ 0.26	$ 0.25	$ 0.24
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.19	$ 0.19	$ -	$ -	$ -	$ -	$ -
Hidalgo	Employment (# of jobs)	46	92	92	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.37	$ 8.74	$ 8.74	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.57	$ 9.13	$ 9.13	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.03	$ 10.07	$ 10.07	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.06	$ 0.18	$ 0.31	$ 0.59	$ 0.57	$ 0.54	$ 0.52	$ 0.49
	Other Taxes (2010 $Mil)	$ 0.14	$ 0.28	$ 0.28	$ -	$ -	$ -	$ -	$ -
Lincoln	Employment (# of jobs)	37	73	73	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 2.66	$ 5.31	$ 5.31	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 3.10	$ 6.19	$ 6.19	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 4.04	$ 8.08	$ 8.08	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.23	$ 0.38	$ 0.73	$ 0.70	$ 0.67	$ 0.64	$ 0.61
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.18	$ 0.18	$ -	$ -	$ -	$ -	$ -
Luna	Employment (# of jobs)	67	134	134	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.25	$ 10.51	$ 10.51	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.81	$ 11.61	$ 11.61	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.14	$ 14.28	$ 14.28	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.11	$ 0.32	$ 0.53	$ 1.03	$ 0.98	$ 0.94	$ 0.90	$ 0.85
	Other Taxes (2010 $Mil)	$ 0.32	$ 0.64	$ 0.64	$ -	$ -	$ -	$ -	$ -
Sierra	Employment (# of jobs)	68	135	135	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.41	$ 10.82	$ 10.82	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.89	$ 11.78	$ 11.78	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.16	$ 14.32	$ 14.32	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.10	$ 0.31	$ 0.52	$ 0.99	$ 0.95	$ 0.91	$ 0.87	$ 0.83
	Other Taxes (2010 $Mil)	$ 0.40	$ 0.80	$ 0.80	$ -	$ -	$ -	$ -	$ -
Socorro	Employment (# of jobs)	79	157	157	-	-	-	-	-
	Labor Income (2010 $Mil)	$ 6.07	$ 12.15	$ 12.15	$ -	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.71	$ 13.42	$ 13.42	$ -	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.48	$ 16.97	$ 16.97	$ -	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.16	$ 0.49	$ 0.82	$ 1.58	$ 1.52	$ 1.45	$ 1.38	$ 1.32
	Other Taxes (2010 $Mil)	$ 0.58	$ 1.15	$ 1.15	$ -	$ -	$ -	$ -	$ -

Table G9. Summary of Impacts, by County, by Year, New Mexico, Scenario 2, East

New Mexico County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 2- East									
Dona Ana	Employment (# of jobs)	52	153	202	123	39	39	39	39
	Labor Income (2010 $Mil)	$ 3.58	$ 10.54	$ 13.91	$ 8.22	$ 2.26	$ 2.26	$ 2.26	$ 2.26
	State Product (2010 $Mil)	$ 4.23	$ 12.44	$ 16.43	$ 9.88	$ 2.92	$ 2.92	$ 2.92	$ 2.92
	Total Sales (2010 $Mil)	$ 5.65	$ 16.64	$ 21.99	$ 13.29	$ 4.01	$ 4.01	$ 4.01	$ 4.01
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.31	$ 0.61	$ 1.11	$ 1.42	$ 1.36	$ 1.30	$ 1.24
	Other Taxes (2010 $Mil)	$ 0.35	$ 1.04	$ 1.37	$ 0.76	$ 0.14	$ 0.14	$ 0.14	$ 0.14
Grant	Employment (# of jobs)	11	33	44	21	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.88	$ 2.59	$ 3.41	$ 1.64	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 1.01	$ 2.96	$ 3.90	$ 1.88	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 1.27	$ 3.71	$ 4.89	$ 2.36	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.06	$ 0.12	$ 0.21	$ 0.27	$ 0.26	$ 0.25	$ 0.24
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.28	$ 0.36	$ 0.18	$ -	$ -	$ -	$ -
Hidalgo	Employment (# of jobs)	46	109	125	32	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.37	$ 10.06	$ 11.37	$ 2.64	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.57	$ 10.55	$ 11.97	$ 2.84	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.03	$ 11.74	$ 13.42	$ 3.35	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.06	$ 0.22	$ 0.42	$ 0.77	$ 0.92	$ 0.88	$ 0.84	$ 0.80
	Other Taxes (2010 $Mil)	$ 0.29	$ 0.76	$ 0.93	$ 0.34	$ -	$ -	$ -	$ -
Lincoln	Employment (# of jobs)	80	231	303	143	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.69	$ 16.65	$ 21.93	$ 10.56	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.67	$ 19.45	$ 25.56	$ 12.23	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.70	$ 25.13	$ 32.86	$ 15.47	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.13	$ 0.48	$ 0.91	$ 1.69	$ 2.02	$ 1.94	$ 1.85	$ 1.76
	Other Taxes (2010 $Mil)	$ 0.74	$ 1.95	$ 2.42	$ 0.94	$ -	$ -	$ -	$ -
Luna	Employment (# of jobs)	71	180	217	75	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.59	$ 13.98	$ 16.78	$ 5.60	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.18	$ 15.48	$ 18.61	$ 6.26	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.60	$ 19.13	$ 23.07	$ 7.88	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.11	$ 0.41	$ 0.78	$ 1.44	$ 1.74	$ 1.66	$ 1.59	$ 1.51
	Other Taxes (2010 $Mil)	$ 0.68	$ 1.81	$ 2.25	$ 0.89	$ -	$ -	$ -	$ -
Otero	Employment (# of jobs)	79	233	308	149	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.89	$ 17.31	$ 22.85	$ 11.07	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.71	$ 19.74	$ 26.05	$ 12.63	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.69	$ 25.57	$ 33.77	$ 16.40	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.13	$ 0.50	$ 0.99	$ 1.82	$ 2.32	$ 2.22	$ 2.12	$ 2.02
	Other Taxes (2010 $Mil)	$ 0.55	$ 1.62	$ 2.14	$ 1.04	$ -	$ -	$ -	$ -

Table G10. Summary of Impacts, by County, by Year, New Mexico, Scenario 2, West

New Mexico County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 2 - West									
Dona Ana	Employment (# of jobs)	-	-	-	25	39	39	39	39
	Labor Income (2010 $Mil)	$ -	$ -	$ -	$ 1.47	$ 2.26	$ 2.26	$ 2.26	$ 2.26
	State Product (2010 $Mil)	$ -	$ -	$ -	$ 1.91	$ 2.92	$ 2.92	$ 2.92	$ 2.92
	Total Sales (2010 $Mil)	$ -	$ -	$ -	$ 2.60	$ 4.01	$ 4.01	$ 4.01	$ 4.01
	Property Taxes (2010 $Mil)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Other Taxes (2010 $Mil)	$ -	$ -	$ -	$ 0.09	$ 0.14	$ 0.14	$ 0.14	$ 0.14
Grant	Employment (# of jobs)	11	33	44	21	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.88	$ 2.59	$ 3.41	$ 1.64	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 1.01	$ 2.96	$ 3.90	$ 1.88	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 1.27	$ 3.71	$ 4.89	$ 2.36	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.06	$ 0.12	$ 0.21	$ 0.27	$ 0.26	$ 0.25	$ 0.24
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.28	$ 0.36	$ 0.18	$ -	$ -	$ -	$ -
Hidalgo	Employment (# of jobs)	46	109	125	32	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.37	$ 10.06	$ 11.37	$ 2.64	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.57	$ 10.55	$ 11.97	$ 2.84	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.03	$ 11.74	$ 13.42	$ 3.35	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.06	$ 0.22	$ 0.42	$ 0.77	$ 0.92	$ 0.88	$ 0.84	$ 0.80
	Other Taxes (2010 $Mil)	$ 0.14	$ 0.45	$ 0.62	$ 0.34	$ -	$ -	$ -	$ -
Lincoln	Employment (# of jobs)	37	104	134	61	-	-	-	-
	Labor Income (2010 $Mil)	$ 2.66	$ 7.72	$ 10.13	$ 4.81	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 3.10	$ 8.92	$ 11.64	$ 5.45	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 4.04	$ 11.38	$ 14.69	$ 6.61	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.26	$ 0.48	$ 0.89	$ 1.00	$ 0.96	$ 0.92	$ 0.87
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.35	$ 0.52	$ 0.34	$ -	$ -	$ -	$ -
Luna	Employment (# of jobs)	67	167	200	66	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.25	$ 12.98	$ 15.45	$ 4.94	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.81	$ 14.38	$ 17.14	$ 5.53	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.14	$ 17.78	$ 21.27	$ 7.00	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.11	$ 0.39	$ 0.74	$ 1.37	$ 1.64	$ 1.57	$ 1.50	$ 1.43
	Other Taxes (2010 $Mil)	$ 0.32	$ 1.05	$ 1.47	$ 0.83	$ -	$ -	$ -	$ -
Sierra	Employment (# of jobs)	68	199	263	128	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.41	$ 15.94	$ 21.07	$ 10.25	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.89	$ 17.37	$ 22.95	$ 11.17	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.16	$ 21.11	$ 27.91	$ 13.59	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.10	$ 0.41	$ 0.81	$ 1.48	$ 1.89	$ 1.81	$ 1.73	$ 1.65
	Other Taxes (2010 $Mil)	$ 0.40	$ 1.17	$ 1.55	$ 0.76	$ -	$ -	$ -	$ -
Socorro	Employment (# of jobs)	79	231	305	148	-	-	-	-
	Labor Income (2010 $Mil)	$ 6.07	$ 17.84	$ 23.53	$ 11.39	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.71	$ 19.72	$ 26.02	$ 12.59	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.48	$ 24.95	$ 32.94	$ 15.97	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.16	$ 0.65	$ 1.29	$ 2.36	$ 3.01	$ 2.88	$ 2.76	$ 2.63
	Other Taxes (2010 $Mil)	$ 0.58	$ 1.70	$ 2.24	$ 1.09	$ -	$ -	$ -	$ -

Table G11. Summary of Impacts, by County, by Year, New Mexico, Scenario 3, East

New Mexico County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 3- East									
Dona Ana	Employment (# of jobs)	52	169	233	154	48	48	48	48
	Labor Income (2010 $Mil)	$ 3.58	$ 11.44	$ 15.73	$ 10.03	$ 2.80	$ 2.80	$ 2.80	$ 2.80
	State Product (2010 $Mil)	$ 4.23	$ 13.58	$ 18.70	$ 12.16	$ 3.62	$ 3.62	$ 3.62	$ 3.62
	Total Sales (2010 $Mil)	$ 5.65	$ 18.34	$ 25.38	$ 16.68	$ 4.95	$ 4.95	$ 4.95	$ 4.95
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.31	$ 0.61	$ 1.11	$ 1.41	$ 1.35	$ 1.29	$ 1.23
	Other Taxes (2010 $Mil)	$ 0.35	$ 1.05	$ 1.40	$ 0.78	$ 0.17	$ 0.17	$ 0.17	$ 0.17
Grant	Employment (# of jobs)	11	35	48	25	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.88	$ 2.75	$ 3.74	$ 1.97	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 1.01	$ 3.13	$ 4.24	$ 2.23	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 1.27	$ 3.90	$ 5.26	$ 2.73	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.06	$ 0.11	$ 0.21	$ 0.26	$ 0.25	$ 0.23	$ 0.22
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.27	$ 0.35	$ 0.16	$ -	$ -	$ -	$ -
Hidalgo	Employment (# of jobs)	46	110	128	36	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.37	$ 10.23	$ 11.72	$ 2.99	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.57	$ 10.74	$ 12.34	$ 3.21	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.03	$ 11.93	$ 13.79	$ 3.72	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.06	$ 0.21	$ 0.38	$ 0.71	$ 0.80	$ 0.77	$ 0.73	$ 0.70
	Other Taxes (2010 $Mil)	$ 0.29	$ 0.70	$ 0.82	$ 0.23	$ -	$ -	$ -	$ -
Lincoln	Employment (# of jobs)	80	235	309	150	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.69	$ 16.98	$ 22.58	$ 11.21	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.67	$ 19.80	$ 26.26	$ 12.92	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.70	$ 25.48	$ 33.57	$ 16.17	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.13	$ 1.01	$ 2.49	$ 4.32	$ 7.07	$ 6.77	$ 6.48	$ 6.18
	Other Taxes (2010 $Mil)	$ 0.74	$ 5.22	$ 8.97	$ 7.49	$ -	$ -	$ -	$ -
Luna	Employment (# of jobs)	71	187	231	89	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.59	$ 14.65	$ 18.11	$ 6.94	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.18	$ 16.19	$ 20.03	$ 7.67	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.60	$ 19.90	$ 24.60	$ 9.41	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.11	$ 0.39	$ 0.71	$ 1.32	$ 1.51	$ 1.44	$ 1.38	$ 1.31
	Other Taxes (2010 $Mil)	$ 0.68	$ 1.68	$ 1.99	$ 0.63	$ -	$ -	$ -	$ -
Otero	Employment (# of jobs)	79	241	324	166	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.89	$ 18.06	$ 24.35	$ 12.57	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.71	$ 20.54	$ 27.65	$ 14.23	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.69	$ 26.44	$ 35.51	$ 18.14	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.13	$ 0.49	$ 0.95	$ 1.74	$ 2.18	$ 2.08	$ 1.99	$ 1.90
	Other Taxes (2010 $Mil)	$ 0.55	$ 1.57	$ 2.04	$ 0.94	$ -	$ -	$ -	$ -

Table G12. Summary of Impacts, by County, by Year, New Mexico, Scenario 3, West

New Mexico County		2013	2014	2015	2016	2017	2018	2019	2020
Scenario 3 - West									
Dona Ana	Employment (# of jobs)	-	-	-	25	48	48	48	48
	Labor Income (2010 $Mil)	$ -	$ -	$ -	$ 1.47	$ 2.80	$ 2.80	$ 2.80	$ 2.80
	State Product (2010 $Mil)	$ -	$ -	$ -	$ 1.91	$ 3.62	$ 3.62	$ 3.62	$ 3.62
	Total Sales (2010 $Mil)	$ -	$ -	$ -	$ 2.60	$ 4.95	$ 4.95	$ 4.95	$ 4.95
	Property Taxes (2010 $Mil)	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
	Other Taxes (2010 $Mil)	$ -	$ -	$ -	$ 0.09	$ 0.17	$ 0.17	$ 0.17	$ 0.17
Grant	Employment (# of jobs)	11	35	48	25	-	-	-	-
	Labor Income (2010 $Mil)	$ 0.88	$ 2.75	$ 3.74	$ 1.97	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 1.01	$ 3.13	$ 4.24	$ 2.23	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 1.27	$ 3.90	$ 5.26	$ 2.73	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.02	$ 0.06	$ 0.11	$ 0.21	$ 0.26	$ 0.25	$ 0.23	$ 0.22
	Other Taxes (2010 $Mil)	$ 0.09	$ 0.27	$ 0.35	$ 0.16	$ -	$ -	$ -	$ -
Hidalgo	Employment (# of jobs)	46	110	128	36	-	-	-	-
	Labor Income (2010 $Mil)	$ 4.37	$ 10.23	$ 11.72	$ 2.99	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 4.57	$ 10.74	$ 12.34	$ 3.21	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 5.03	$ 11.93	$ 13.79	$ 3.72	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.06	$ 0.21	$ 0.38	$ 0.71	$ 0.80	$ 0.77	$ 0.73	$ 0.70
	Other Taxes (2010 $Mil)	$ 0.14	$ 0.40	$ 0.51	$ 0.23	$ -	$ -	$ -	$ -
Lincoln	Employment (# of jobs)	37	105	137	64	-	-	-	-
	Labor Income (2010 $Mil)	$ 2.66	$ 7.84	$ 10.37	$ 5.05	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 3.10	$ 9.05	$ 11.91	$ 5.71	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 4.04	$ 11.52	$ 14.97	$ 6.90	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.08	$ 0.79	$ 2.07	$ 3.55	$ 6.11	$ 5.85	$ 5.60	$ 5.34
	Other Taxes (2010 $Mil)	$ 0.09	$ 3.65	$ 7.12	$ 6.94	$ -	$ -	$ -	$ -
Luna	Employment (# of jobs)	67	176	219	85	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.25	$ 13.82	$ 17.14	$ 6.64	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.81	$ 15.28	$ 18.96	$ 7.35	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.14	$ 18.79	$ 23.30	$ 9.02	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.11	$ 0.37	$ 0.68	$ 1.27	$ 1.44	$ 1.38	$ 1.32	$ 1.26
	Other Taxes (2010 $Mil)	$ 0.32	$ 0.94	$ 1.25	$ 0.60	$ -	$ -	$ -	$ -
Sierra	Employment (# of jobs)	68	201	267	132	-	-	-	-
	Labor Income (2010 $Mil)	$ 5.41	$ 16.15	$ 21.48	$ 10.66	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 5.89	$ 17.58	$ 23.38	$ 11.60	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 7.16	$ 21.31	$ 28.31	$ 13.99	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.10	$ 0.40	$ 0.77	$ 1.42	$ 1.78	$ 1.70	$ 1.62	$ 1.55
	Other Taxes (2010 $Mil)	$ 0.40	$ 1.13	$ 1.47	$ 0.68	$ -	$ -	$ -	$ -
Socorro	Employment (# of jobs)	79	241	325	167	-	-	-	-
	Labor Income (2010 $Mil)	$ 6.07	$ 18.81	$ 25.47	$ 13.32	$ -	$ -	$ -	$ -
	State Product (2010 $Mil)	$ 6.71	$ 20.75	$ 28.08	$ 14.66	$ -	$ -	$ -	$ -
	Total Sales (2010 $Mil)	$ 8.48	$ 26.01	$ 35.05	$ 18.09	$ -	$ -	$ -	$ -
	Property Taxes (2010 $Mil)	$ 0.16	$ 0.63	$ 1.23	$ 2.26	$ 2.83	$ 2.70	$ 2.58	$ 2.46
	Other Taxes (2010 $Mil)	$ 0.58	$ 1.65	$ 2.14	$ 0.99	$ -	$ -	$ -	$ -

APPENDIX G2 – SOCIAL AND ECONOMIC CONDITIONS

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APPENDIX G2 – SOCIAL AND ECONOMIC CONDITIONS

ECONOMIC IMPACTS

Introduction

The following sections and tables are adapted from the findings of the Economic Impact Assessment (EIA) contained in Appendix G1. For clarification, the following information will be helpful to the reader in trying to compare this Appendix with G1 and in trying to relate it to the rest of the DEIS:

Options in the EIS vs. Scenarios in the EIA:

In the EIA, three Scenarios were analyzed (see p.17 of the EIA). Not all three of these scenarios are considered in the EIS. Instead, only Scenario 2 and 3 are considered and are referred to as Options A and Option B throughout this Appendix. This is summarized below:

Scenario 1 in the EIA. A single AC transmission line would be built (option not considered in the EIS)

Scenario 2 in the EIA. Two AC transmission lines would be built (Option A in the EIS)

Scenario 3 in the EIA. One AC and one DC transmission lines would be built (Option B in the EIS)

Construction Duration:

In the EIA, it was assumed that construction of each of the two transmission lines would take 30 months each (2.5 years) with the start data of the second line beginning 6 months after the start of the first line. It was assumed that construction of the first line would begin mid-2013 and the second line would begin at the beginning of 2014. Both lines would be under construction during 2014 and 2015 with the first line completed by the end of 2015. The 2nd line would be completed by mid-2016.

Impacts in the EIA vs. this Appendix:

The impacts presented in this Appendix are organized into Route Groups and Subroutes. These Route Groups and Subroutes are described in Chapter 2 of the EIS, in particular, Table 2-2. The impacts computed in the EIA were computed for two hypothetical routes in New Mexico (East and West) and two in Arizona (Route A and Route B). Although those impacts were computed by county, they were not disaggregated into Route Groups or Subroutes. Therefore, the tables in this Appendix are based on the findings of the EIA statement but they differ because the Route Groups and Subgroups identified in the DEIS and analyzed in Appendix G2 have different

mileages than the routes assumed in the EIA statement. The following two sets of mileages will assist the reader in understanding the impacts in this Appendix.

Employment and Income

Route Group 1: SunZia East Substation to Midpoint Substation

Transmission Line Construction

Subroute 1A – North River Crossing

Subroute 1A2 is the longest Subroute in Route Group 1. The construction of Subroutes 1A, 1A1, or 1A2 is expected to create between 1,420 and 1,567 direct and indirect jobs, and between $112 million and $123 million in labor income. Approximately half of all jobs created would be directly related to the construction of the transmission line(s). Construction of the line(s) would create the most jobs in Socorro and Sierra counties, which contain more than 80 percent of the total route mileage within Subroute 1A, 1A1, or 1A2. Direct and indirect employment opportunities would be the greatest in communities nearest to the routes and would be similar across all subroutes in Route Group 1. Communities such as Carrizozo in Lincoln County; Socorro and the unincorporated community of San Antonio in Socorro County; Elephant Butte, Truth or Consequences, and Williamsburg in Sierra County; and Deming in Luna County could expect an increase in local economic activity during construction. Indirect industries across small unincorporated rural communities would also experience an increase in economic activity as workers spend money locally.

Subroute 1B – San Antonio Crossing

Subroute 1B1 is slightly shorter than Subroute 1A2, and is expected to create a slightly smaller number of jobs and labor income than Subroute 1A. The overall economic impacts would be similar to those for Subroute 1A.

Subroutes 1B2 and 1B3 are expected to create a slightly lower number of jobs and wages than either Subroute 1A or Subroute 1B1. Table G1-1 represents the average number of jobs and labor income for all Route Group 1 subroutes.

Table G2-1. Route Group 1 – Employment and Wages for Transmission Line Construction (New Mexico)

New Mexico County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
Lincoln	Employment (number of jobs)	50	35	33	**119**	55	35	35	**126**

Table G2-1. Route Group 1 – Employment and Wages for Transmission Line Construction (New Mexico)									
New Mexico County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
	Labor Income (2010 $Mil)	6	1	1	**8.50**	7	1	1	**9.16**
Luna	Employment (number of jobs)	60	47	21	**127**	72	50	23	**145**
	Labor Income (2010 $Mil)	7	2	1	**9.59**	9	2	1	**10.90**
Sierra	Employment (number of jobs)	251	117	90	**458**	258	116	90	**464**
	Labor Income (2010 $Mil)	30	4	3	**37.10**	31	4	3	**37.78**
Socorro	Employment (number of jobs)	334	201	140	**675**	370	201	147	**717.5**
	Labor Income (2010 $Mil)	40	9	4	**53**	45	7	4	**56.3**
Torrance	Employment (number of jobs)	67	40	28	**136**	74	40	29	**144.3**
	Labor Income (2010 $Mil)	8	2	1	**11**	8	1	1	**10.0**
County Sum	**Employment (number of jobs)**	762	441	312	**1515**	829	443	325	**1597**
	Labor Income (2010 $Mil)	92	17	9	**119**	99	16	10	**124**
New Mexico Total	**Employment (number of jobs)**	700	512	896	**2108**	763	512	931	**2206**
	Labor Income (2010 $Mil)	83	28	33	**144**	92	28	33	**153**

Source: University of Arizona and New Mexico State University, 2011a
Note: Totals are the average of all subroutes in Route Group 1.

Route Group 3: Midpoint Substation to Willow-500 kV Substation

Transmission Line Construction

Subroute 3A – North and Subroute 3B – South

Subroutes 3A and 3B cross Luna, Hidalgo, and Grant counties in New Mexico. A range of 480 to 530 jobs would be created in New Mexico, resulting from the construction of either subroute. Table G2-2 represents the average number of jobs and labor income for subroutes 3A and 3B. Many of these jobs would be created in Luna and Hidalgo counties. Approximately $38 million to $41 million in labor income would be paid out to workers. In the communities of Deming in Luna County; Lordsburg in Hidalgo County; and Hanover, Hurley, and Silver City in Grant County, direct and indirect employment would likely result. Job creation during construction along the New Mexico-Arizona border may result in positive economic benefits to some Arizona communities, if workers were to decide to commute or temporarily relocate there.

Table G2-2. Route Group 3 – Employment and Wages for Transmission Line Construction (Subroutes 3A and 3B – New Mexico)

New Mexico County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
Grant	Employment (number of jobs)	54	34	26	**114**	61	35	27	**122**
	Labor Income (2010 $Mil)	6	2	1	**8.78**	7	1	1	**9.36**
Hidalgo	Employment (number of jobs)	95	48	22	**165**	102	49	23	**174**
	Labor Income (2010 $Mil)	11	2	1	**13.56**	12	2	1	**14.51**
Luna	Employment (number of jobs)	96	75	33	**204**	115	80	37	**233**
	Labor Income (2010 $Mil)	12	3	1	**15.40**	14	3	1	**17.50**
County Sum	**Employment (number of jobs)**	245	157	81	**483**	278	164	87	**529**
	Labor Income (2010 $Mil)	29	6	2	**38**	33	6	2	**41**
New Mexico Total	**Employment (number of jobs)**	275	201	353	**829**	300	201	367	**868**
	Labor Income (2010 $Mil)	33	11	13	**56.78**	36	11	13	**60.22**

Source: University of Arizona and New Mexico State University, 2011a
Note: Totals are the average of subroutes in Route Group 3, New Mexico

Anticipated job creation and labor income in Arizona for Subroute 3A and Subroute 3B varies, primarily due to the fact that Subroute 3B crosses a greater distance than Subroute 3A. Subroute 3A (Table G2-3) is expected to create approximately 240 to 255 jobs in Cochise and Greenlee counties, while Subroute 3B (Table G2-4) is projected to create approximately 350 to 360 jobs in Cochise and Graham counties. Consequently, Subroute 3B would result in up to $27 million in labor income, as compared to approximately $19 million for Subroute 3A. In addition to construction employment, economic opportunities for communities crossed by both subroutes in Arizona would likely benefit Bowie, Willcox, and Safford, as well as small unincorporated rural communities in the vicinity.

Table G2-3. Route Group 3 – Employment and Wages for Transmission Line Construction (Subroute 3A – Arizona)

Arizona County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
Graham	Employment (number of jobs)	77	53	48	178	87	55	52	193
	Labor Income (2010 $Mil)	9.15	2.42	1.61	13.18	10.49	2.42	1.61	14.53
Greenlee	Employment (number of jobs)	32	20	6	59	35	20	6	61
	Labor Income (2010 $Mil)	3.94	1.06	0.29	5.28	4.22	0.10	0.29	4.61
County Sum	**Employment (number of jobs)**	109	73	54	**237**	121	76	58	**255**
	Labor Income (2010 $Mil)	13.1	3.5	1.9	**18.5**	14.7	2.5	1.9	**19.13**
Arizona Total	**Employment (number of jobs)**	104	96	226	**426**	119	99	240	**458**
	Labor Income (2010 $Mil)	12.41	5.48	9.86	**27.74**	14.24	5.48	10.59	**30.30**

Source: University of Arizona and New Mexico State University, 2011a

Table G2-4. Route Group 3– Employment and Wages for Transmission Line Construction (Subroute 3B – Arizona)									
		Option A				Option B			
Arizona County	Impact Category	Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
Cochise	Employment (number of jobs)	96	81	58	235	100	78	57	235
	Labor Income (2010 $Mil)	11.48	3.74	2.14	17.36	12.02	3.47	2.14	18
Graham	Employment (number of jobs)	50	35	31	116	57	36	34	127
	Labor Income (2010 $Mil)	5.98	1.58	1.06	8.62	6.86	1.58	1.06	9.50
County Sum	**Employment (number of jobs)**	146	116	89	**351**	156	114	91	**361**
	Labor Income (2010 $Mil)	17.5	5.3	3.2	**26.0**	18.9	5.1	3.2	**27.13**
Arizona Total	**Employment (number of jobs)**	126	117	274	**517**	144	120	291	**556**
	Labor Income (2010 $Mil)	15.06	6.65	11.96	**33.67**	17.28	6.65	12.85	**36.77**
Source: University of Arizona and New Mexico State University, 2011a									

Route Group 4: Midpoint Substation to Willow-500 kV Substation

Transmission Line Construction

Subroute 4A – North of Mount Graham and Subroute 4B – Sulphur Springs Valley

Subroute 4A is expected to create slightly more jobs in Graham County than in Pinal County. Overall, approximately 850 to 930 jobs, and $67 million to $73 million in labor income would be paid to direct and indirect employees. Communities that would likely benefit from direct and indirect job creation attributed to Subroute 4A include Safford in Graham County; San Manuel, Mammoth, Oracle, and Casa Grande in Pinal County; and portions of north Pima County.

Employment and labor income for Subroute 4B is similar to Subroute 4A in Graham and Pinal counties.

Table G2-5 represents the average number of jobs and labor income for subroutes 4A and 4B in Arizona.

Table G2-5. Route Group 4 – Employment and Wages for Transmission Line Construction (Subroutes 4A and 4B – Arizona)

Arizona County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
Graham	Employment (number of jobs)	184	126	114	424	207	132	123	462
	Labor Income (2010 $Mil)	21.83	5.78	3.85	31.46	25.04	5.78	3.85	34.67
Pinal	Employment (number of jobs)	192	133	104	429	221	139	111	471
	Labor Income (2010 $Mil)	23.36	7.56	4.12	35.04	26.79	7.56	4.1	38.47
County Sum	**Employment (number of jobs)**	376	259	218	**853**	428	270	234	**932**
	Labor Income (2010 $Mil)	45.2	13.3	8.0	**66.5**	51.8	13.3	8.0	**73.14**
Arizona Total	**Employment (number of jobs)**	379	350	823	**1,551**	433	359	874	**1667**
	Labor Income (2010 $Mil)	45.19	19.94	35.88	**101.00**	51.83	19.94	38.54	**110.31**

Subroute 4C

The construction of Subroute 4C1 would create direct and indirect employment in Cochise, Graham, and Pinal counties. Cochise and Pinal counties could experience the largest number of direct and indirect job creation, ranging from 430 up to 515 jobs and $32 million to $42 million of labor income (Table G2-6). In all, between 1,000 and 1,050 jobs and $76 million and $83 million in labor income could result during the construction phase of Subroute 4C1.

Subroutes 4C2 and 4C3 cross Cochise, Graham, Pima, and Pinal counties in Arizona; however, Subroute 4C2 only crosses a small portion of northeast Pima County. During construction, approximately 745 to 930 direct jobs and approximately 270 to 320 additional indirect jobs would result (Table G2-6). Total labor income across the four counties would range between $78 million and $97 million, if Subroute 4C2 were constructed.

If Subroute 4C3 were constructed, impacts to jobs and labor income during the construction phase would be the greatest in Pima and Cochise counties (Table G2-6). Overall, Subroute 4C3

has the potential to create the most jobs and greatest amount of labor income across Route Group 4.

Table G2-6. Route Group 4 – Employment and Wages for Transmission Line Construction: Subroute 4C – Arizona

Arizona County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
Subroute 4C1									
Cochise	Employment (number of jobs)	178	150	107	435	185	145	105	435
	Labor Income (2010 $Mil)	21.29	6.93	3.96	32.18	22.28	6.44	3.96	33
Graham	Employment (number of jobs)	40	28	25	93	45	29	27	101
	Labor Income (2010 $Mil)	4.79	1.27	0.85	6.91	5.50	1.27	0.85	7.61
Pinal	Employment (number of jobs)	211	146	114	470	243	152	121	516
	Labor Income (2010 $Mil)	25.64	8.29	4.52	38.45	29.41	8.29	4.5	42.22
County Sum	**Employment (number of jobs)**	429	324	246	**999**	473	326	254	**1053**
	Labor Income (2010 $Mil)	51.7	16.5	9.3	**77.5**	57.2	16.0	9.3	**82.51**
Arizona Total	**Employment (number of jobs)**	425	378	883	**1,686**	473	378	917	**1768**
	Labor Income (2010 $Mil)	51.43	20.85	38.92	**111.20**	56.99	19.46	40.31	**116.76**
Subroute 4C2									
Cochise	Employment (number of jobs)	173	147	104	425	180	142	103	425
	Labor Income (2010 $Mil)	20.77	6.76	3.86	31.40	21.74	6.28	3.86	32

Table G2-6. Route Group 4 – Employment and Wages for Transmission Line Construction: Subroute 4C – Arizona									
		Option A				Option B			
Arizona County	Impact Category	Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
Graham	Employment (number of jobs)	17	11	10	38	19	12	11	42
	Labor Income (2010 $Mil)	1.97	0.52	0.35	2.84	2.26	0.52	0.35	3.13
Pima	Employment (number of jobs)	47	32	53	132	53	33	56	142
	Labor Income (2010 $Mil)	5.67	1.46	2.11	9.23	6.32	1.62	2.3	10.21
Pinal	Employment (number of jobs)	228	157	123	509	262	165	131	558
	Labor Income (2010 $Mil)	27.71	8.97	4.89	41.57	31.79	8.97	4.9	45.64
County Sum	**Employment (number of jobs)**	465	348	290	**1,103**	514	351	301	**1166**
	Labor Income (2010 $Mil)	56.1	17.7	11.2	**85.0**	62.1	17.4	11.4	**90.86**
Arizona Total	**Employment (number of jobs)**	465	413	964	**1,841**	516	413	1002	**1931**
	Labor Income (2010 $Mil)	56.17	22.77	42.50	**121.44**	62.24	21.25	44.02	**127.51**
Subroute 4C2a									
Cochise	Employment (number of jobs)	173	147	104	425	180	142	103	425
	Labor Income (2010 $Mil)	20.77	6.76	3.86	31.40	21.74	6.28	3.86	32
Graham	Employment (number of jobs)	17	11	10	38	19	12	11	42
	Labor Income (2010 $Mil)	1.97	0.52	0.35	2.84	2.26	0.52	0.35	3.13
Pima	Employment (number of jobs)	47	32	53	132	53	33	56	142

Table G2-6. Route Group 4 – Employment and Wages for Transmission Line Construction: Subroute 4C – Arizona									
Arizona County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
	Labor Income (2010 $Mil)	5.67	1.46	2.11	9.23	6.32	1.62	2.3	10.21
Pinal	Employment (number of jobs)	189	130	102	421	217	136	109	462
	Labor Income (2010 $Mil)	22.95	7.43	4.05	34.43	26.33	7.43	4.1	37.80
County Sum	**Employment (number of jobs)**	426	321	269	**1,016**	469	323	278	**1070**
	Labor Income (2010 $Mil)	51.4	16.2	10.4	**77.9**	56.6	15.8	10.5	**83.02**
Arizona Total	**Employment (number of jobs)**	422	375	875	**1,672**	469	375	909	**1753**
	Labor Income (2010 $Mil)	50.99	20.67	38.58	**110.24**	56.50	19.29	39.96	**115.75**
Subroute 4C2b									
Cochise	Employment (number of jobs)	207	175	125	507	215	169	123	507
	Labor Income (2010 $Mil)	24.81	8.08	4.62	37.51	25.97	7.50	4.62	38
Graham	Employment (number of jobs)	17	11	10	38	19	12	11	42
	Labor Income (2010 $Mil)	1.97	0.52	0.35	2.84	2.26	0.52	0.35	3.13
Pima	Employment (number of jobs)	47	32	53	132	53	33	56	142
	Labor Income (2010 $Mil)	5.67	1.46	2.11	9.23	6.32	1.62	2.3	10.21
Pinal	Employment (number of jobs)	189	130	102	421	217	136	109	462

Table G2-6. Route Group 4 – Employment and Wages for Transmission Line Construction: Subroute 4C – Arizona									
Arizona County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
	Labor Income (2010 $Mil)	22.95	7.43	4.05	34.43	26.33	7.43	4.1	37.80
County Sum	**Employment (number of jobs)**	459	350	290	**1,098**	504	351	298	**1153**
	Labor Income (2010 $Mil)	55.4	17.5	11.1	**84.0**	60.9	17.1	11.3	**89.22**
Arizona Total	**Employment (number of jobs)**	450	400	935	**1,786**	500	400	972	**1872**
	Labor Income (2010 $Mil)	54.46	22.08	41.22	**117.76**	60.35	20.61	42.69	**123.65**
Subroute 4C2c									
Cochise	Employment (number of jobs)	207	175	125	507	215	169	123	507
	Labor Income (2010 $Mil)	24.81	8.08	4.62	38	25.97	7.50	4.62	38
Graham	Employment (number of jobs)	17	11	10	38	19	12	11	42
	Labor Income (2010 $Mil)	1.97	0.52	0.35	2.84	2.26	0.52	0.35	3.13
Pima	Employment (number of jobs)	47	32	53	132	53	33	56	142
	Labor Income (2010 $Mil)	5.67	1.46	2.11	9.23	6.32	1.62	2.3	10.21
Pinal	Employment (number of jobs)	189	157	123	469	262	165	131	558
	Labor Income (2010 $Mil)	22.95	8.97	4.89	36.81	31.79	8.97	4.9	45.64
County Sum	**Employment (number of jobs)**	459	377	311	**1,147**	549	379	321	**1249**

Table G2-6. Route Group 4 – Employment and Wages for Transmission Line Construction: Subroute 4C – Arizona									
Arizona County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
	Labor Income (2010 $Mil)	55.4	19.0	12.0	**86.4**	66.3	18.6	12.1	**97.06**
Arizona Total	**Employment (number of jobs)**	493	438	1024	**1,955**	548	438	1064	**2050**
	Labor Income (2010 $Mil)	59.64	24.18	45.14	**128.96**	66.09	22.57	46.75	**135.41**
Subroute 4C3									
Cochise	Employment (number of jobs)	185	157	111	453	192	151	110	453
	Labor Income (2010 $Mil)	22.15	7.21	4.12	33.48	23.18	6.70	4.12	34
Graham	Employment (number of jobs)	17	11	10	38	19	12	11	42
	Labor Income (2010 $Mil)	1.97	0.52	0.35	2.84	2.26	0.52	0.35	3.13
Pima	Employment (number of jobs)	204	141	230	575	230	146	243	619
	Labor Income (2010 $Mil)	24.75	6.36	9.19	40.30	27.57	7.07	9.9	44.54
Pinal	Employment (number of jobs)	126	87	68	280	145	91	72	308
	Labor Income (2010 $Mil)	15.27	4.94	2.69	22.90	17.51	4.94	2.7	25.14
County Sum	**Employment (number of jobs)**	531	396	419	**1,346**	585	399	436	**1421**

Table G2-6. Route Group 4 – Employment and Wages for Transmission Line Construction: Subroute 4C – Arizona									
Arizona County	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
	Labor Income (2010 $Mil)	64.1	19.0	16.4	**99.5**	70.5	19.2	17.1	**106.81**
Arizona Total	**Employment (number of jobs)**	529	470	1098	**2,097**	588	470	1141	**2199**
	Labor Income (2010 $Mil)	63.97	25.94	48.41	**138.32**	70.89	24.21	50.14	**145.24**
Source: University of Arizona and New Mexico State University, 2011a									

Substation Construction (New Mexico and Arizona)

Three substations could be constructed in New Mexico in Lincoln, Hidalgo, and Luna counties: SunZia East, Lordsburg, and Midpoint substations, respectively. Two substations could be constructed in Arizona in Graham and Pinal counties: Willow-500 kV and Pinal Central substations, respectively. Table G2-7 represents the potential economic impacts by state across each development option. The cost of the development for the construction of all five substations or expansions is estimated to be $299.3 million (Option A) and $1.4 billion (Option B). The communities of Deming (Luna County), Carrizozo (Lincoln County), and Lordsburg (Hidalgo County) in New Mexico, as well as smaller rural communities, would benefit from increased job creation and labor income spent locally.

Between 220 and 270 new jobs and $12 million to $21 million in labor income would result from the development of options A and B, respectively. Unemployed construction workers in Safford, Bowie, Willcox, Eloy, Coolidge, Florence, Casa Grande, and the Tucson region could potentially benefit from new job opportunities.

Table G2-7. New Mexico and Arizona – Employment and Wages for Substation Construction									
State	Impact Category	Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
		Labor	Other			Labor	Other		
New Mexico	Employment (number of jobs)	321	147	220	688	326	140	220	686

Table G2-7. New Mexico and Arizona – Employment and Wages for Substation Construction									
		Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
State	Impact Category	Labor	Other			Labor	Other		
	Labor Income (2010 $Mil)	38.5	6.8	7.9	53.2	39.1	6.2	8	53.3
Arizona	Employment (number of jobs)	61	47	111	219	85	52	136	273
	Labor Income (2010 $Mil)	9.1	2.1	4.9	16.1	12.7	2.2	5.9	20.8
Total	**Employment (number of jobs)**	**382**	**194**	**331**	**907**	**411**	**192**	**356**	**959**
	Labor Income (2010 $Mil)	**47.6**	**8.9**	**12.8**	**69.3**	**51.8**	**8.4**	**13.9**	**74.1**
Source: University of Arizona and New Mexico State University, 2011a									

Operations (New Mexico and Arizona)

Operations employment associated with the Project is expected to take place each year, following the completion of the Project. Table G2-8 represents employment and income impacts expected to result for the life of the Project (estimated to be at least 50) on a yearly basis across New Mexico and Arizona. New Mexico operations would be largely based in Doña Ana County near Las Cruces. Approximately 41 to 50 jobs could result across the state.

In Arizona, Pima County (Tucson metropolitan area) is expected to house maintenance employment near the transmission line(s), while Maricopa County (Phoenix metropolitan area) would likely be home to the central management of the transmission line(s) and substations. For this reason, a smaller portion of this statewide employment would be located in Pima County; approximately one-third of all operations-related permanent jobs in Arizona. The total number of operations jobs would range between 85 and 100 jobs. Across both states, a total of approximately 125 to 150 jobs and $8 million to $10 million in labor income could result.

Table G2-8. New Mexico and Arizona – Employment and Wages for Project Operations									
		Option A				Option B			
		Direct Employment Effects		Indirect Employment Effects	Total Effects	Direct Employment Effects		Indirect Employment Effects	Total Effects
State	Impact Category	Labor	Other			Labor	Other		
New Mexico	Employment (number of jobs)	17	8	16	41	21	10	19	50
	Labor Income (2010 $Mil)	1.5	0.3	0.5	2.3	1.9	0.4	0.6	2.9
Arizona	Employment (number of jobs)	28	13	45	86	33	14	53	100
	Labor Income (2010 $Mil)	3.2	0.4	1.9	5.5	3.8	0.5	2.3	6.6
Total	**Employment (number of jobs)**	**45**	**21**	**61**	**127**	**54**	**24**	**72**	**150**
	Labor Income (2010 $Mil)	**4.7**	**0.7**	**2.4**	**7.8**	**5.7**	**0.9**	**2.9**	**9.5**
Source: University of Arizona and New Mexico State University, 2011a									

State and Local Sales and Income Tax Revenue

Route Group 1: SunZia East Substation to Midpoint Substation

Transmission Line Construction

Subroute 1A – North River Crossing

Subroute 1A2 is the longest Subroute in Route Group 1. Subroutes 1A, 1A1, or 1A2 are expected to generate between $8.9 million and $10.1 million in direct and induced tax revenues across Lincoln, Luna, Sierra, Socorro, and Torrance counties. The communities in Socorro and Sierra counties that would benefit the most from job creation and labor income increases would also see the greatest tax benefits. Socorro and Sierra counties could expect to receive up to approximately $5.4 million and $2.8 million during the construction of Subroute 1A, 1A1, or 1A2, respectively. Lincoln County could receive $890,000 to $1 million, Luna County could receive approximately $1.1 million, and Torrance County could receive approximately $1 million in revenues. All numbers presented for subroutes 1A and 1B were calculated based on average multipliers unique to each subroute (Charney et. al. 2011).

Subroute 1B – San Antonio Crossing

Subroute 1B1 is slightly shorter that Subroute 1A2, and is expected to generate a slightly smaller amount of tax revenue than Subroute 1A, 1A1, or 1A2. The overall economic impacts would be similar to those mentioned for Subroute 1A.

Subroutes 1B2 and 1B3 are expected to generate slightly lower tax revenue than subroutes 1A and 1B1. Table G2-9 illustrates the average tax revenue across all Route Group 1 subroutes. Overall, these numbers are representative of tax revenue that could be expected to result from the construction of any subroute within this route group.

Table G2-9. Route Group 1 –Tax Revenue Estimates for Transmission Line(s) Construction ($1,000s in 2010 dollars)

New Mexico County	Option A			Option B		
	Direct Sales Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Lincoln	858	111	969	810	118	928
Luna	1,021	126	1,146	1,004	144	1,148
Sierra	2,385	309	2,694	2,241	313	2,555
Socorro	4,387	596	4,983	4,119	635	4,754
Torrance	882	118	1,000	828	125	953
County Sum[1]	9,532	1,260	**10,792**	9,003	1,335	**9,385**
New Mexico Total	**22,834**	**10,273**	**33,107**	**21,583**	**10,856**	**32,439**

[1]Totals may not sum, due to rounding.

Route Group 3: Midpoint Substation to Willow-500 kV Substation

Transmission Line Construction

Subroute 3A and Subroute 3B

Subroutes 3A and 3B cross Luna, Hidalgo, and Grant counties in New Mexico. Approximately $4.0 million to $4.1 million in tax revenue could be generated, with the greatest amount of tax revenue generated in Luna and Hidalgo counties ($1.9 million and $1.4 million, respectively). Tax revenue resulting from the construction of the transmission line(s) would be distributed across each New Mexico county that is crossed, including the communities of Deming in Luna County; Lordsburg in Hidalgo County; and Hanover, Hurley, and Silver City in Grant County. Table G2-10 summarizes the average tax revenue impacts for subroutes 3A and 3B in New Mexico.

Table G2-10. Route Group 3 – Tax Revenue Estimates for Transmission Line(s) Construction ($1,000s in 2010 dollars)						
	Option A			Option B		
New Mexico County	Direct Sales Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Grant	824	110	942	771	119	890
Hidalgo	1,216	137	1,353	1,120	144	1,265
Luna	1,644	202	1,846	1,617	231	1,849
County Sum[1]	3,779	461	**4,141**	3,598	506	**4,003**
New Mexico Total	**8,967**	**4,034**	**13,001**	**8,475**	**4,263**	**12,738**

[1]Totals may not sum, due to rounding.

Anticipated tax revenue in Arizona for subroutes 3A and 3B vary from one another, primarily due to the fact that Subroute 3B crosses a greater distance than Subroute 3A. Subroute 3A (Table G2-11) is expected to produce approximately $710,000 in Graham County and approximately $69,000 in Greenlee County. Subroute 3B (Table G2-12) is projected to generate approximately $1.1 million in Cochise County, and approximately $460,000 in Graham County. Subroutes 3A and 3B in Arizona are expected to financially benefit Bowie, Willcox, and Safford, as well as small, unincorporated rural communities in the vicinity of the Project.

Table G2-11. Subroute 3A– Tax Revenue Estimates for Transmission Line(s) Construction ($1,000s in 2010 dollars)[1]						
	Option A			Option B		
Arizona County	Direct Sales Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Graham	574	119	693	581	129	710
Greenlee	56	13	68	55	13	69
County Sum	629	132	761	636	142	778
Arizona Total	**2,817**	**1,091**	**3,908**	**2,841**	**1,182**	**4,023**

[1]Table does not include state-shared revenue generated for Arizona counties and communities not crossed by the Subroute. Tax revenue benefits are expected to be shared across all 15 Arizona counties.
Source: University of Arizona and New Mexico State University, 2011a

Table G2-12. Subroute 3B– Tax Revenue Estimates for Transmission Line(s) Construction ($1,000s in 2010 dollars)[1]						
	Option A			Option B		
Arizona County	Direct Sales Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Cochise	894	198	1,093	857	198	1,055
Graham	372	77	449	377	83	460
County Sum	1,266	275	1,542	1,234	282	1,515
Arizona Total	**3,391**	**1,313**	**4,704**	**3,420**	**1,423**	**4,843**

[1]Table does not include state-shared revenue generated for Arizona counties and communities not crossed by the Subroute. Tax revenue benefits are expected to be shared across all 15 Arizona counties.
Source: University of Arizona and New Mexico State University, 2011a

Route Group 4: Midpoint Substation to Willow-500 kV Substation

Transmission Line(s) Construction

Subroute 4A – North of Mount Graham

Subroute 4A is expected to generate approximately $1.7 million in tax revenues in Graham County and approximately $2.8 million in Pinal County. Communities that would likely benefit from direct and induced tax revenue include Safford in Graham County; San Manuel, Mammoth, Oracle, and Casa Grande in Pinal County; and portions of north Pima County.

Subroute 4B – Sulphur Springs Valley

Tax revenue for state and local governments from the construction of Subroute 4B would be similar to Subroute 4A, because each crosses the same distance of land in proximity to the same communities (Table G2-13).

Table G2-13. Subroutes 4A and 4B – Tax Revenue Estimates for Transmission Line Construction($1,000s in 2010 dollars)[1]

Arizona County	Option A			Option B		
	Direct Sales Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Subroute 4A – North of Mount Graham[1]						
Graham	1,357	281	1,638	1,374	304	1,678
Pinal	2,206	470	2,675	2,254	510	2,764
County Sum	3,562	751	4,313	3,628	814	4,443
Arizona Total	**10,174**	**3,939**	**14,113**	**10,259**	**4,270**	**14,529**
Subroute 4B – Sulphur Springs Valley						
Graham	1,359	281	1,640	1,376	305	1,681
Pinal	2,206	301	2,506	2,254	510	2,764
County Sum	3,564	582	4,147	3,631	815	4,445
Arizona Total	**10,182**	**3,942**	**14,124**	**10,267**	**4,273**	**14,540**

[1] Table does not include state-shared revenue generated for Arizona counties and communities not crossed by the Subroute. Tax revenue benefits are expected to be shared across all 15 Arizona counties.
Source: University of Arizona and New Mexico State University, 2011a

Subroute 4C

The construction of subroutes 4C1, 4C2, and 4C3 presents varying levels of tax revenue generation across southern and eastern Arizona (Table G2-14). Tax revenue generation is directly tied to the length of each alternative (approximately 139 miles, 151 miles, and 173 miles,

respectively). The expected tax revenue impacts of Subroute 4C1 are similar to those presented for subroutes 4A and 4B, and may generate between $4.4 million and $5.3 million.

Subroute 4C2 crosses only 16 miles in Pima County, but is expected to contribute approximately $1.4 million in tax revenues for the county. Most of these impacts would result from state-shared revenue allocated to the county based on its large population size. Tax revenue impacts resulting from the construction of Subroute 4C2 could reach $6.6 million.

Subroute 4C3 has the potential to create the largest tax revenue impact among all alternative subroutes presented in Route Group 4, due in part to the length of the line relative to other subroutes; and because counties with large populations are able to keep more dollars circulating in the local economy (Charney et. al. 2011). Pima County would be expected to generate the largest amount of direct and induced tax revenue. Despite only 41 percent of Subroute 4C3 crossing Pima County, the county expects to generate approximately 47 percent and 60 percent of all tax revenue for options A and B, respectively.

Table G2-14. Subroutes 4C1, 4C2, 4C3 – Tax Revenue Estimates for Transmission Line Construction ($1,000s in 2010 dollars)[1]

Arizona County	Option A			Option B		
	Direct Sales Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Subroute 4C1 – San Pedro Valley						
Cochise	1,658	368	2,026	850	189	1,038
Graham	298	62	360	302	67	369
Pinal	2,421	515	2,936	2,474	560	3,034
County Sum	4,376	945	5,321	3,626	815	4,441
Arizona Total	**11,243**	**4,999**	**16,242**	**9,129**	**5,287**	**14,416**
Subroute 4C2 – San Pedro Valley						
Cochise	1,775	394	2,169	1,701	393	2,095
Graham	123	25	148	124	27	152
Pima	972	529	1,502	1,086	306	1,392
Pinal	2,210	447	2,657	2,445	527	2,972
County Sum	5,081	1,395	6,475	5,356	1,254	6,610
Arizona Total	**12,092**	**5,377**	**17,469**	**9,818**	**5,687**	**15,505**
Subroute 4C3 – Tucson						
Cochise	1,725	382	2,107	1,653	382	2,035
Graham	123	25	148	124	27	152
Pima	2,305	1,254	3,560	4,740	1,334	6,074
Pinal	1,441	307	1,748	1,473	333	1,807
County Sum	5,594	1,969	7,563	7,990	2,077	10,068

Table G2-14. Subroutes 4C1, 4C2, 4C3 – Tax Revenue Estimates for Transmission Line Construction ($1,000s in 2010 dollars)[1]						
	Option A			Option B		
Arizona County	Direct Sales Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Arizona Total	**13,985**	**6,218**	**20,203**	**11,355**	**6,577**	**17,932**

[1]Table does not include state-shared revenue generated for Arizona counties and communities not crossed by the subroute. Tax revenue benefits are expected to be shared across all 15 Arizona counties.
Source: University of Arizona and New Mexico State University 2011a

Substation Construction in New Mexico

Table G2-15 illustrates that between $5.2 million and $21 million could be generated for Hidalgo, Lincoln, and Luna counties from the construction of three substations.

Table G2-15. New Mexico – Tax Revenue Estimates for Substation Construction ($1,000s in 2010 dollars)						
	Option A			Option B		
New Mexico County	Direct Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
Hidalgo	776.2	166.2	942.4	631.9	134.6	766.5
Lincoln	1,936.6	145.3	2,081.9	18,518.2	99.3	18,617.5
Luna	2,009.1	192.3	2,201.4	1,484.3	160.1	1,644.4
County Sum	**4,721.9**	**503.8**	**5,225.7**	**20,634.4**	**394.0**	**21,028.4**
New Mexico Total	**10,474.8**	**3,378.8**	**13,853.6**	**45,035.3**	**3,370.0**	**48,405.3**

Source: University of Arizona and New Mexico State University 2011a

Substation Construction in Arizona

Approximately $590,000 or $2.2 million could be generated for Pinal and Graham counties from the construction of two substations (Table G2-16). Cochise, Graham, and Greenlee counties would also receive tax revenues. As with Subroute 4C3, Pima County would receive a large portion of state-shared revenue for each development option.

Table G2-16. Arizona – Tax Revenue Estimates for Substation Construction ($1,000s in 2010 dollars)						
	Option A			Option B		
Arizona County	Direct Tax	Induced Tax	Total	Direct Sale Tax	Induced Tax	Total
Cochise	11.6	2.2	13.8	36.5	7.3	43.8
Graham	505.4	86.4	591.8	375.6	68.8	444.4

Table G2-16. Arizona – Tax Revenue Estimates for Substation Construction ($1,000s in 2010 dollars)						
	Option A			Option B		
Arizona County	Direct Tax	Induced Tax	Total	Direct Sale Tax	Induced Tax	Total
Greenlee	1.4	0.3	1.7	4.3	1.9	6.2
Pima	91.9	18.0	109.9	290.2	58.2	348.4
Pinal	136.1	21.2	157.3	2,142.2	97.2	2,239.4
County Sum	**746.4**	**128.1**	**874.5**	**2,848.8**	**233.4**	**3,082.2**
Arizona Total	**1,999.3**	**1,150.4**	**3,149.7**	**6,804.9**	**1,715.5**	**8,520.4**
Source: University of Arizona and New Mexico State University, 2011a.						

Substation Operations in New Mexico

The operations phase for the proposed Project is expected to yield between $340,000 and $410,000 of direct and induced tax revenue per year across the state of New Mexico (Table G2-17). Most of these benefits are expected to impact Doña Ana County, where workers for transmission line and substation maintenance would be based. Based on the EIA, if the Project is operated for its expected life span, between $17 million and $20 million (in 2010 dollars, not including depreciation) in tax revenue could be generated in New Mexico (Charney et al. 2011).

Substation Operations in Arizona

Tax revenue benefits in Arizona are expected to be much greater than those in New Mexico, because the centralized operations functions of the transmission line(s) would be based in the Phoenix area in Maricopa County; maintenance of the line would be based in Pima County. The total yearly direct and induced tax revenues are expected to range between $520,000 and $690,000, depending on which development option is chosen (Table G2-18). According to the EIA for the Project, if the Project is operated for its expected life span, between $26 million and $35 million (in 2010 dollars, not including depreciation) in tax revenue could be generated in Arizona (Charney et al. 2011). Table G2-17 represents the average income tax revenue by state for Project operations.

Table G2-17. Tax Revenue Estimates by State for Substation Operations ($1,000s in 2010 dollars)[1]						
	Option A			Option B		
State	Direct Tax	Induced Tax	Total	Direct Sales Tax	Induced Tax	Total
New Mexico	210	130	**340**	250	160	**410**
Arizona	60	460	**520**	70	620	**690**

[1] Table includes state-shared revenue generated for only Arizona counties that are crossed by a Project subroute; however, tax revenue is expected to be shared across all 15 Arizona counties.
Source: University of Arizona and New Mexico State University, 2011a

Property Tax Revenues

Route Group 1: SunZia East Substation to Midpoint Substation

Construction of Transmission Lines and Substations

Similar to employment, income, and tax revenues previously presented for Route Group 1, there is little to no variance in expected property tax revenue across subroutes 1A and 1B. Over the 2- to 3-year construction period, between $9.4 million and $13.7 million could be generated across Lincoln, Luna, Sierra, and Socorro counties (Table G2-18). Socorro County would expect the greatest property tax revenue, because most construction would take place within its boundaries.

Operations

During the first 5 years of operations, all four counties could expect to receive $26.3 million to $49.8 million in property tax revenues (Table G2-18).

Table G2-18. Route Group 1 – Average Property Tax Revenues during Construction and Operations ($1,000s in 2010 dollars)				
	Option A		Option B	
New Mexico County	Construction (2013 to 2016)	Operations (2017 to 2021)	Construction (2013 to 2016)	Operations (2017 to 2021)
Lincoln [1]	1,778	4,896	6,512	29,858
Luna [1]	1,611	2,765	1,424	2,426
Sierra	1,892	5,844	1,819	5,483
Socorro	4,147	12,789	3,984	11,990
Total	**9,428**	**26,295**	**13,738**	**49,756**

[1]County includes property tax revenues expected from construction and operations associated with the substations.
Source: University of Arizona and New Mexico State University, 2011a

Route Group 3: Midpoint Substation to Willow-500 kV Substation

Construction of Transmission Lines and Substations in New Mexico

Table G2-19 presents the expected average property tax revenues generated for Grant, Hidalgo, and Luna counties from subroutes 3A and 3B. Over the 2- to 3-year construction period, between $3.6 million and $3.9 million could be generated as a result of the construction of Subroute 3A. Subroute 3B would generate similar tax revenues, estimated to be between $3.5 million and $3.8 million.

Operations in New Mexico

During the first 5 years of operations, subroutes 3A and 3B present similar property tax revenue estimates. Subroute 3A presents an opportunity for the collection of $8.8 million to $9.9 million across Grant, Hidalgo, and Luna counties; while Subroute 3B would create revenue ranging between $8.6 million and $9.7 million.

Table G2-19. Route Group 3 (New Mexico) – Property Tax Revenues during Construction and Operations ($1,000s in 2010 dollars)[1]

County	Option A		Option B	
	Construction (2013 to 2016)	Operations (2017 to 2021)	Construction (2013 to 2016)	Operations (2017 to 2021)
Subroute 3A–North				
Grant	430	1,324	412	1,238
Hidalgo [1]	1,476	4,200	1,369	3,677
Luna [1]	1,958	4,422	1,770	3,879
Total	**3,864**	**9,947**	**3,550**	**8,794**
Subroute 3B – South				
Grant	387	1,193	371	1,115
Hidalgo [1]	1,434	4,004	1,327	3,506
Luna [1]	1,979	4,524	1,792	3,968
Total	**3,799**	**9,721**	**3,490**	**8,588**

[1]County includes property tax revenues expected from construction and operations associated with the substations.
Source: University of Arizona and New Mexico State University, 2011a

Construction of Transmission Lines and Substations in Arizona

As with employment, income, and tax revenues previously presented for Route Group 3 in Arizona, the difference in property tax revenue is directly related to the difference in length between subroutes 3A and 3B. Table G2-20 presents the expected property tax revenues for Cochise, Graham, and Greenlee counties. Subroute 3A is expected to create between $1.2 million and $1.6 million of property tax revenue in Graham and Greenlee counties; while Subroute 3B is expected to create between $2.0 million and $2.3 million in Cochise and Graham counties.

Operations in Arizona

During the first 5 years of operations, subroutes 3A and 3B are expected to create $1.6 million to $1.8 million and $2.4 million to $2.7 million in property tax revenues, respectively (Table G2-20).

Table G2-20. Route Group 3 (Arizona) – Property Tax Revenues during Construction and Operations ($1,000s in 2010 dollars)

County	Option A		Option B	
	Construction (2013 to 2016)	Operations (2017 to 2021)	Construction (2013 to 2016)	Operations (2017 to 2021)
Subroute 3A–North				
Graham[1]	979	1,322	1,419	1,169
Greenlee	232	432	220	403
Total	**1,211**	**1,754**	**1,639**	**1,572**
Subroute 3B – South				
Cochise	982	1,841	912	1,670
Graham[1]	977	865	1,417	765
Total	**1,958**	**2,707**	**2,329**	**2,435**

[1]County includes property tax revenues expected from construction and operations associated with the substations.
Source: University of Arizona and New Mexico State University, 2011a

Route Group 4: Midpoint Substation to Willow-500 kV Substation

Construction of Transmission Lines and Substations

Subroute 4A – North of Mount Graham

Subroute 4A is expected to generate between $3.3 million and $8.8 million in tax revenue in Graham and Pinal counties in Arizona (Table G2-21). The greatest property tax revenue would be gathered from construction in Pinal County. The development of a new substation would be required if the development of Option B were chosen, because a DC converter station would be required. Options A would only require an expansion of the approved Pinal Central Substation, and would cover approximately 75 fewer acres than Option B.

Subroute 4B – Sulphur Springs Valley

Property tax revenue resulting from the construction of Subroute 4B would be similar to Subroute 4A, because each crosses the same distance of land in proximity to the same communities.

Table G2-21. Route Group 4 (Subroutes 4A and 4B) – Property Tax Revenues during Construction and Operations ($1,000s in 2010 dollars)				
	Option A		Option B	
Arizona County	Construction (2013 to 2016)	Operations (2017 to 2021)	Construction (2013 to 2016)	Operations (2017 to 2021)
Subroute 4A – North of Mount Graham				
Graham[1]	1,473	3,156	1,902	2,790
Pinal [1]	1,832	3,410	6,953	15,744
Total	**3,305**	**6,566**	**8,855**	**18,534**
Subroute 4B – Sulphur Springs Valley				
Graham[1]	1,473	3,156	1,902	2,790
Pinal [1]	1,832	3,410	6,953	15,744
Total	**3,305**	**6,566**	**8,855**	**18,534**

[1]County includes property tax revenue expected from construction and operations associated with the substations.
Source: University of Arizona and New Mexico State University, 2011a

Subroute 4C – San Pedro Valley and Tucson

Property tax revenue associated with the construction of subroutes 4C1, 4C2, or 4C3 are similar to one another. Construction of the Project would create between $4.6 million and $11 million in revenue over 2 to 3 years (Table G2-22). Subroutes 4C2 and 4C3 would result in property tax revenues for four counties, including Pima, while Subroute 4C1 would result in revenues for Cochise, Graham, and Pinal. Overall, Pinal County would experience the largest amount of tax revenue during construction, although it would represent a maximum of less than 1 percent of the county's yearly operating budget of $429.8 million (Pinal County 2011).

Table G2-22. Route Group 4 (Subroute 4C) – Average Property Tax Revenues during Construction and Operations ($1,000s in 2010 dollars)				
	Option A		Option B	
Arizona County	Construction (2013 to 2016)	Operations (2017 to 2021)	Construction (2013 to 2016)	Operations (2017 to 2021)
Subroute 4C1 San Pedro Valley				
Cochise	1,824	3,421	1,694	3,103
Graham[1]	808	688	1,252	608
Pinal [1]	2,000	3,743	7,174	17,281
Total	**4,632**	**7,852**	**10,120**	**20,992**
Subroute 4C2 San Pedro Valley				
Cochise	1,761	3,303	1,636	2,996
Graham[1]	698	280	1,145	248
Pima	477	894	457	846
Pinal [1]	2,155	4,051	7,378	18,704
Total	**5,091**	**8,529**	**10,616**	**22,795**
Subroute 4C3 San Pedro Valley – I-10 (South Tucson)				
Cochise	1,897	3,559	1,763	3,228
Graham[1]	698	280	1,145	248

Table G2-22. Route Group 4 (Subroute 4C) – Average Property Tax Revenues during Construction and Operations ($1,000s in 2010 dollars)				
	Option A		Option B	
Arizona County	Construction (2013 to 2016)	Operations (2017 to 2021)	Construction (2013 to 2016)	Operations (2017 to 2021)
Pima	2,081	3,902	1,993	3,694
Pinal [1]	1,241	2,232	6,172	10,305
Total	**5,917**	**9,972**	**11,073**	**17,474**

[1]County includes property tax revenue expected from construction and operations associated with the substations.
Source: University of Arizona and New Mexico State University, 2011a

Operations

Subroute 4A – North of Mount Graham

Subroute 4A is expected to generate between approximately $6.6 million and $18.5 million in property tax revenues in Graham and Pinal counties over the first 5 years of the operations phase. Similar to the construction phase, the operation associated with Option B would generate the largest amount of property tax revenue, because it would require the construction of a larger substation facility in Pinal County.

Subroute 4B – Sulphur Springs Valley

Property tax revenue resulting from the operations phase of Subroute 4B would be similar to Subroute 4A, because each crosses the same distance of land in proximity to the same communities.

Subroute 4C – San Pedro Valley and Tucson

Similar to property tax revenues expected from the construction of subroutes within the San Pedro Valley, the operations of a DC substation would create a larger property tax impact in Pinal County if Option B were to be developed. The range of total tax revenue resulting from operations across Subroute 4C ranges between $10 million and $11 million, and $17 million and $23 million over the first 5 years of Project operations. When divided by 5 years, the overall impacts to property tax revenues for each county would be even less; approximately $2 million per year.

APPENDIX H – IMPACT LEVELS

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Table H-1. Impact Levels for Earth Resources – Geologic Hazards

Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	215.4	3.6	0.5	—	—	• Flood hazard associated with the tributaries of the Rio Grande, specifically on the west side • Quaternary faults on either side of the Rio Grande
	Subroute 1A1 –	228.8	1813	1238	224.3	3.7	0.8	—	—	• Flood hazard associated with the tributaries of the Rio Grande, specifically on the west side • Quaternary faults on either side of the Rio Grande
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	225.8	3.7	0.8	—	—	• Flood hazard associated with the tributaries of the Rio Grande, specifically on the west side • Quaternary faults on either side of the Rio Grande
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	219.1	3.4	1.1	—	—	• Flood hazard associated with the tributaries of the Rio Grande, specifically on the west side • Quaternary faults on either side of the Rio Grande
	Subroute 1B2	209.2	1657	1121	204.7	3.4	1.1	—	—	• Flood hazard associated with the tributaries of the Rio Grande, specifically on the west side • Quaternary faults on either side of the Rio Grande
	Subroute 1B3	206.3	1635	1106	201.8	3.4	1.1	—	—	• Flood hazard associated with the tributaries of the Rio Grande, specifically on the west side • Quaternary faults on either side of the Rio Grande
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	21.7	—	—	—	—	• No known geological hazards
	E82-E83-E84	33.5	345	99	33.5	—	—	—	—	• No known geological hazards
	E85	7.2	74	24	7.2	—	—	—	—	• No known geological hazards

Table H-1. Impact Levels for Earth Resources – Geologic Hazards										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Local Alternative Links for 1A, 1B1, 1B2, 1B3**									
	A161b	18.6	147	109	18.6	—	—	—	—	• No known geological hazards
	A260	28.4	225	153	28.4	—	—	—	—	• 3 faults within 1 mile
	A361-A430-A481	48	380	264	44.5	2	1.5	—	—	• Link A430 crosses one fault • Links A430 and A481 cross 100-year floodplains
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	7.7	—	—	—	—	• No known geological hazards
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	116.2	3.6	3.6	—	—	• Crosses only one Quaternary fault: the Gold Hill Fault Zone located along Link B120b • Crosses numerous washes and channels that contain 100-year floodplains; most of these are associated with the Mimbres and San Simon rivers, but numerous smaller ephemeral streams and washes have areas within 100-year floodplains • No FEMA data for Hidalgo County
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	116.5	4.1	3.3	—	—	• Crosses only one Quaternary fault: the Gold Hill Fault Zone located along Link B120b • Crosses numerous washes and channels that contain 100-year floodplains; most of these are associated with the Mimbres and San Simon rivers, but numerous smaller ephemeral streams and washes have areas within 100-year floodplains • No FEMA data for Hidalgo County
	Subroute 3B – South	128.6	1019	638	122.7	3.3	2.6	—	—	• Does not cross any Quaternary fault • The two crossover links, B111 and B140, also do not cross any Quaternary fault • Crosses fewer 100-year floodplains than Subroute 3A
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	6.9	—	—	—	—	• No known geological hazards

Table H-1. Impact Levels for Earth Resources – Geologic Hazards										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
	B140	8.3	66	46	8.3	—	—	—	—	• No known geological hazards
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	127.9	4.2	0.8	—	—	• Crosses two Quaternary faults: the Safford Fault Zone along Link B153a, and the Whitlock Wash Fault at Link C173 located east of Mammoth on the eastern side of the San Pedro River Valley • Crosses three fissures located along Link C850 • Crosses numerous areas with 100-year floodplains; a majority of these areas is associated with the San Simon and San Pedro rivers and their tributaries
	Subroute 4B – Sulphur Springs Valley	133	1054	793	129.8	1.5	1.7	—	—	• Geological hazards are similar to those along Subroute 4A • Crosses numerous areas with 100-year floodplains; a majority of these areas is associated with Sulphur Spring Valley, Aravaipa Canyon, and San Pedro River and its tributaries
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	130.5	5.1	0.4	—	—	• Crosses one Quaternary fault; the Whitlock Wash Fault at Link C510, located on the eastern side of the San Pedro River Valley • Crosses 3 fissures located along Link C850 • Crosses numerous areas with 100-year floodplains; a majority of these areas is associated with the San Pedro River and its tributaries
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	144.2	7.2	0.4	—	—	• Crosses three fissures located along Link C850 • Crosses a similar amount of 100-year floodplains as Subroute 4C1
	Subroute 4C2c – West of San Pedro River – BLM Preferred Alternative	161.2	1277	928	152.1	8.7	0.4	—	—	• Crosses three fissures located along Link C850 • Crosses similar mileages of 100-year floodplains as other Route Group 4 subroutes, except Subroute 4C3

Table H-1. Impact Levels for Earth Resources – Geologic Hazards										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C3 – Tucson**	172.9	1370	892	149.6	22.9	0.4	—	—	• Crosses three fissures located along Link C850 • Crosses more areas with 100-year floodplains than subroutes 4C1 or 4C2, which is due to crossing the Santa Cruz River for a large portion of its length
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	8.1	0.7	—	—	—	• Potential flooding along washes
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	6.2	0.3	0.4	—	—	• Fissures present • Potential flooding along washes
	C870	0.2	2	1	0.2	—	—	—	—	• Fissures present
	C890	2.8	22	11	2.6	0.2	—	—	—	• Fissures may be present
	Local Alternative Links for 4C1									
	C692	4.8	38	25	4.8	—	—	—	—	• No known geological hazards
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	30.9	0.1	—	—	—	• Potential flooding near the San Pedro River
	C680	26.1	207	139	25.5	0.6	—	—	—	• Potential flooding near the Big Wash
	C815	0.9	7	4	0.9	—	—	—	—	• No known geological hazards
	C814	1	8	5	1	—	—	—	—	• No known geological hazards
	C816	0.1	1	1	0.1	—	—	—	—	• No known geological hazards
	C812	3.3	26	17	3.3	—	—	—	—	• No known geological hazards
	C813	0.5	4	3	0.5	—	—	—	—	• No known geological hazards
	C810	2	16	10	2	—	—	—	—	• No known geological hazards
	C810a	1.7	14	9	1.7	—	—	—	—	• No known geological hazards
	C817	1.8	14	9	1.8	—	—	—	—	• No known geological hazards
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	9.7	1.4	—	—	—	• Link F40b crosses flooding areas along Agua Verde Creek • Link F51 crosses flooding areas along Pantano Wash

Table H-1. Impact Levels for Earth Resources – Geologic Hazards										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
	F81a-F81b	32.2	255	136	7.6	24.6	—	—	—	• Links cross flooding areas along the Pantano Wash and Rillito Creek
	C812	3.3	26	17	3.3	—	—	—	—	• No known geological hazards
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4C1, 4C2, 4C3**									
	C72-C90-C121-C211	24.5	194	130	18	5.9	0.6	—	—	• Flooding potential in Sulphur Springs Valley
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	5.1	—	—	—	—	• Slight flooding potential in one wash
	C501	4.8	38	32	4.7	—	0.1	—	—	• Link crosses the Whitlock Wash fault
	C502	3.9	31	25	3.6	0.3	—	—	—	• Flooding potential in two washes
	C174	3.1	25	22	3.1	—	—	—	—	• No known geological hazards
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	7.8	0.1	—	—	—	• Slight flooding potential in one wash

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	124	94.9	0.6	—	—	• 4 active mines located within the study corridor of Subroute 1A, with none crossed by the centerline • 4 active mining claims in the study corridor for Subroute 1A1, with 1.6 mile of active mining claims crossed by the centerline • Does not cross any oil or gas leases
	Subroute 1A1	228.8	1813	1238	154.5	74.3	—	—	—	• 4 active mining claims located within the study corridor of Subroute 1A1, with none crossed by the centerline • 4 active mining claims within study corridor for Subroute 1A1, with 1.6 miles of active mining claims crossed by the centerline • Does not cross any oil or gas leases
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	147.3	83.0	—	—	—	• 4 active mines located within the study corridor of Subroute 1A2, with none crossed by the centerline • 4 active mining claims within the study corridor of Subroute 1A2, with none crossed by the centerline • Does not cross any oil or gas leases
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	128.8	92.8	2.0	—	—	• 2 mines located within the study corridor of Subroute 1B1, with none crossed by the subroute centerline • 5 active mining claims located within the study corridor for Subroute 1B1, with 0.1 mile of active mining claims crossed by the centerline • 2 coal resource areas located in the study corridor in the Jornada del Muerto and Carthage coal fields

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1B2**	209.2	1657	1121	121.4	82.8	5.0	—	—	• 2 mines located within the study corridor of Subroute 1B2, with none crossed by the subroute centerline • 5 active mining claims located within the study corridor of Subroute 1B2, with 2.1 miles of active mining claims crossed by the centerline • 3 oil and gas leases located within the study corridor for Subroute 1B2 northeast of the WSMR and southwest of Nutt, with 6.7 miles of oil and gas leases crossed by the centerline • 1 coal resource area located in the study corridor in the Carthage coal field
	Subroute 1B3	206.3	1635	1106	118	81.3	7.0	—	—	• 3 mines located within the study corridor of Subroute 1B3, with none crossed by the subroute centerline • 5 mines containing locatable mineral resources are located in the Tecolote Hills (iron) and Hot Springs (manganese, copper, and silver) mining districts • 27 mines containing salable mineral resources (sand and gravel) are located in the Chupadero Mountains mining district • 1 oil and gas lease located within the study corridor of Subroute 1B3 southwest of Nutt, with 6.3 miles of oil and gas lease crossed by the centerline • 1 coal resource area located within the study corridor for Subroute 1B3 in the Carthage coal field
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	4.6	17.1	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to below moderate levels

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**E82-E83-E84**	33.5	345	99	20.6	12.9	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerlines of this link • All impacts may be mitigated to below moderate levels
	E85	7.2	74	24	2.4	4.8	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to below moderate levels
	Local Alternative Links for 1A, 1B1, 1B2, 1B3									
	A161b	18.6	147	109	3	15.6	—	—	—	• Primary impact of concern is to mining claims • 1 mine along the link centerline • All impacts may be mitigated to below moderate levels
	A260	28.4	225	153	21.1	7.3	—	—	—	• Primary impact of concern is to mining claims • 7 mines located along the Link A260 centerline • All impacts may be mitigated to below moderate levels
	A361-A430-A481	48	380	264	18.5	29.5	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to below moderate levels
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	2	5.7	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to below moderate levels

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	54.4	69.0	—	—	—	• 6 active mines located within the study corridor of Subroute 3A, with none crossed by the subroute centerline • 7 active mining claims within the study corridor for Subroute 3A, with 3.9 miles of active mining claims crossed by the centerline • 1 oil and gas lease is located within the study corridor for Subroute 3A, with 4 miles of oil and gas lease being crossed by the centerline
	Subroute 3A2 – BLM Preferred	123.9	979	673	55.4	68.5	—	—	—	• 8 mines located within the study corridor of Subroute 3A2, with none crossed by the centerline • 1 oil and gas lease is located within the study corridor for Subroute 3A2, with 4 miles of oil and gas lease being crossed by the centerline
	Subroute 3B – South	128.6	1019	638	82.0	45.6	1.0	—	—	• 17 active mines located within the study corridor of Subroute 3B, with none crossed by the subroute centerline • 5 active mining claims within the study corridor for Subroute 3B, with none crossed by the centerline • No oil and gas leases crossed by this alternative
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	6.9	—	—	—	—	• No impacts to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to low levels
	B140	8.3	66	46	—	8.3	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	55.4	69.5	8.0	—	—	• 2 active mines located within the study corridor of Subroute 4A, with 0.2 mile of active mines crossed by the centerline 7 active mining claims within the study corridor for Subroute 4A, with 19.4 miles of active mining claim crossed by the centerline
	Subroute 4B – Sulphur Springs Valley	133	1054	793	44.1	80.9	8.0	—	—	• Mineral resources are similar to those along Subroute 4A
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	57.2	80.8	1.0	—	—	• 2 active mines located within the study corridor of Subroute 4C1, with 0.2 mile of active mines crossed by the subroute centerline • 3 active mining claims are located within the study corridor for Subroute 4C1, with 10.1 miles of active mining claims crossed by the centerline
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	69.2	81.6	1	—	—	• 1 active mine located within the study corridor of Subroute 4C2, with 0.1 mile of active mines crossed by the subroute centerline. • 2 active mining claims are located with the study corridor for study corridor for Subroute 4C2, with 16.4 miles of active mining claims crossed by the centerline
	Subroute 4C2c – West San Pedro River – BLM Preferred Alternative	161.2	1277	928	86.7	74.5	—	—	—	• 1 active mine located within the study corridor of Subroute 4C2, with 0.1 mile of active mines crossed by the subroute centerline. • 2 active mining claims are located with the study corridor for study corridor for Subroute 4C2, with 16.4 miles of active mining claims crossed by the centerline

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C3 – Tucson**	172.9	1370	892	104.7	67.8	0.4	—	—	• 5 active mines located within the study corridor for Subroute 4C3, with 0.2 mile of active mines crossed by the centerline • 1 active mining claim is located within the study corridor, with 13.5 miles of active mining claims crossed by the centerline
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	3.1	5.7	—	—	—	• Primary impact of concern is to mining claims • All impacts may be mitigated to below moderate levels
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	3.9	3	—	—	—	• Primary impact of concern is to mining claims • All impacts may be mitigated to moderate levels or below
	C870	0.2	2	0.9	0.2	—	—	—	—	• Primary impact of concern is to mining claims • No mining claims directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C890	2.8	22	11	2.8	—	—	—	—	• Primary impact of concern is to mining claims. • No mining claims directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	Local Alternative Links for 4C1									
	C692	4.8	38	25	4	0.8	—	—	—	• Primary impact of concern is to mining claims • All impacts may be mitigated to less than moderate levels

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4C2 – Winchester and Tortolita Substations**									
	C260-C261-C201	31	246	205	4.5	26.5	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C680	26.1	207	139	23.2	2.9	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C815	0.9	7	4	0.9	—	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C814	1	8	5	1	—	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C816	0.1	1	1	0.1	—	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C812	3.3	26	17	2.4	0.9	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link All impacts may be mitigated to less than moderate levels
	C813	0.5	4	3	0.5	—	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C810**	2	16	10	2	—	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C810a	1.7	14	9	1.3	0.4	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C817	1.8	14	9	1.8	—	—	—	—	• Primary impact of concern along Link C817 is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	6.1	5	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	F81a-F81b	32.2	255	136	30.8	1.4	—	—	—	• Primary impact of concern is to mining claims • 5 mines located within along the centerline of links F81a-F81b • All impacts may be mitigated to less than moderate levels
	C812	3.3	26	17	2.4	0.9	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels

Table H-2. Impact Levels for Earth Resources – Mineral										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4C1, 4C2, 4C3**									
	C72-C90-C121-C211	24.5	194	130	13.7	5.7	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to below moderate levels
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	0.4	4.7	—	—	—	• Primary impact of concern along Link C500 is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C501	4.8	38	32	1.8	3	—	—	—	• Primary impact of concern along Link C501 is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C502	3.9	31	25	1.9	2	—	—	—	• Primary impact of concern along Link C502 is to mining claims • 1 mine is directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels
	C174	3.1	25	22	1	1.3	1.8	—	—	• Primary impact of concern along Link C174 is to mining claims • 1 mine is along the centerline of this link • All impacts may be mitigated to moderate or lower levels
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	5.4	2.5	—	—	—	• Primary impact of concern is to mining claims • No mines directly crossed by the centerline of this link • All impacts may be mitigated to less than moderate levels

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	153.5	66	—	—	—	• Lowest residual impact levels for soil resources (0 vs. 0.2 and 2.2 miles) • Crosses less water erosion susceptible soils than the other Route Group 1 subroutes
	Subroute 1A1	228.8	1813	1238	162	66.6	0.2	—	—	•
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	156.5	71.6	2.2	—	—	• Impact of concern for soil resources is soils that are highly susceptible to water erosion along links E86a and E86b • Highest residual impact levels for soil resources of the 1A subroutes
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	149.3	74.2	0.1	—	—	• Impact of concern for soil resources is soils that are highly susceptible to wind erosion • Most of these soils are in the Jornada del Muerto
	Subroute 1B2	209.2	1657	1121	140	69.1	0.1	—	—	• Impact of concern for soil resources is soils that are highly susceptible to wind erosion • Most of these soils are in the Jornada del Muerto • Mileage for soils that are susceptible to water erosion are nearly equal to those that are susceptible to water erosion
	Subroute 1B3	206.3	1635	1106	142.2	64	0.1	—	—	• Impact of concern for soil resources is soils that are highly susceptible to wind erosion • Most of these soils are in the Jornada del Muerto
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	4.7	16.2	0.8	—	—	• Impact of concern for soil resources is soils that are susceptible to water erosion
	E82-E83-E84	33.5	345	99	14.6	18.9	—	—	—	• Impact of concern for soil resources is soils that are susceptible to water erosion
	E85	7.2	74	24	1.3	5.7	0.2	—	—	• Impact of concern for soil resources is soils that are susceptible to water erosion

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation o Midpoint Substation	**Local Alternative Links for 1A, 1B1, 1B2, 1B3**									
	A161b	18.6	147	109	11.4	7.2	—	—	—	• Soils that are highly and moderately susceptible to water and wind erosion are the dominant concern.
	A260	28.4	225	153	23.9	4.5	—	—	—	• Soils that are highly and moderately susceptible to water and wind erosion are the dominant concern
	A361-A430-A481	48	380	264	24.2	23.8	—	—	—	• Soils that are highly and moderately susceptible to water and wind erosion are the dominant concern
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	2	5.7	—	—	—	• Soils that are moderately susceptible to water erosion are the dominant concern
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	56.7	66.7	—	—	—	• Soils that are highly susceptible to wind erosion (20 miles) are the dominant concern for this subroute followed by designated Prime or Unique Farmland soils (14 miles)
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	60	58.5	5.4	—	—	• Soils that are highly susceptible to wind erosion (21 miles) are the dominant concern for this subroute followed by Prime or Unique Farmland soils (14 miles)
	Subroute 3B – South	128.6	1019	638	59	69.6	—	—	—	• Designated Prime or Unique Farmland soils are the dominant concern (28 miles), mainly associated with the Mimbres and Animas rivers • Crosses 94 miles of soils moderately susceptible to water erosion

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Local Alternative and Crossover Links for Route Group 3**									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	6.9	—	—	—	—	• Soils that are highly susceptible to wind erosion are roughly equal between link B111 and B140
	B140	8.3	66	46	—	8.3	—	—	—	• Soils that are highly susceptible to water erosion in the Animas Valley are the dominant concern • Soils that are highly susceptible to wind erosion are roughly equal between links B111 and B140.
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	93.5	39.3	0.1	—	—	• Designated Prime or Unique Farmland soils are the dominant concern • These soils are unique to this subroute in the Gila and San Pedro river valleys and shared with the other Route Group 4 subroutes in the vicinity of the Pinal Central Substation • Impacts can be nearly eliminated by appropriate mitigation measures
	Subroute 4B – Sulphur Springs Valley	133	1054	793	75.8	53.8	3.4	—	—	• Designated Prime or Unique Farmland soils are the dominant concern (27 miles) • These soils are unique to this subroute in the Sulphur Springs Valley and shared with the other Route Group 4 subroutes in the vicinity of the Pinal Central Substation • Impacts can be nearly eliminated by appropriate mitigation measures

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C**									
	Subroute 4C1 – San Pedro Valley	139	1101	802	91.6	45.8	1.6	—	—	• Designated Prime or Unique Farmland soils are the dominant concern (13 miles) • These soils are unique to this subroute in the San Pedro river valley and shared with the other Route Group 4 subroutes in the vicinity of the Pinal Central Substation • Impacts can be nearly eliminated by appropriate mitigation measures
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	98.7	51.7	1.4	—	—	• Designated Prime or Unique Farmland soils are the dominant concern (13 miles) • These soils are unique to this subroute in the San Pedro river valley and shared with the other Route Group 4 subroutes in the vicinity of the Pinal Central Substation • Impacts can be nearly eliminated by appropriate mitigation measures
	Subroute 4C2c – West of San Pedro River – BLM Preferred Alternative	161.2	1277	928	109.6	50.2	1.4	—	—	• See Chapter 4 for a description of impacts to BLM preferred alternative.
	Subroute 4C3 – Tucson	172.9	1370	892	105.4	67	0.5	—	—	• Designated Prime or Unique Farmland soils are the dominant concern (27 miles • These soils are unique to this subroute in the Sulphur Springs Valley and shared with the other Route Group 4 subroutes in the vicinity of the Pinal Central Substation • Impacts can be nearly eliminated by appropriate mitigation measures

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative and Crossover Links for Route Group 4**									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	6.2	2.6	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant • Impacts can be mitigated below the moderate level
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	2.2	4.7	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant • Impacts can be mitigated below the moderate level
	C870	0.2	2	1	—	0.2	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant • Impacts can be mitigated below the moderate level
	C890	2.8	22	11	—	2.8	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant Impacts can be mitigated below the moderate level
	Local Alternative Links for 4C1									
	C692	4.8	38	25	4	0.8	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant • Impacts can be mitigated below the moderate level

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4C2 – Winchester and Tortolita Substations**									
	C260-C261-C201	31	246	205	25.7	4.8	0.5	—	—	• Soils that are highly susceptible to wind erosion are dominant • Impacts can be mitigated to the moderate level
	C680	26.1	207	139	22.4	3.7	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant • Impacts can be mitigated below the moderate level
	C815	0.9	7	4	0.9	—	—	—	—	• Soils that are moderately susceptible to wind erosion are dominant • Impacts can be mitigated below the moderate level
	C814	1	8	5	1	—	—	—	—	• Soils that are moderately susceptible to wind erosion are dominant • Impacts can be mitigated below the moderate level
	C816	0.1	1	1	0.1	—	—	—	—	• Soils that are moderately susceptible to wind erosion are dominant • Impacts can be mitigated below the moderate level
	C812	3.3	26	17	1	2.3	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	C813	0.5	4	3	0.5	—	—	—	—	• Soils that are moderately susceptible to wind erosion are dominant along this link but impacts can be mitigated below the moderate level.

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C810**	2	16	10	0.1	1.9	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant • Impacts can be mitigated below the moderate level
	C810a	1.7	14	9	—	1.7	—	—	—	• Soils that are moderately susceptible to water and wind erosion are equally dominant • Impacts can be mitigated below the moderate level
	C817	1.8	14	9	1.8	—	—	—	—	• Soils that are moderately susceptible to wind erosion are dominant • Impacts can be mitigated below the moderate level
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	10.6	0.5	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	F81a-F81b	32.2	255	136	24.6	7.6	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	C812	3.3	26	17	1	2.3	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	Local Alternative Links for 4C1, 4C2, 4C3									
	C72-C90-C121-C211	24.5	194	130	12	12.5	—	—	—	• Soils that are designated as Prime or Unique Farmland are dominant • Impacts can be mitigated below the moderate level

Table H-3. Impact Levels for Earth Resource – Soils										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Crossover Links for 4A, 4B, 4C1**									
	C500	5.1	40	38	1	4.1	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	C501	4.8	38	32	3	1.8	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	C502	3.9	31	25	3.9	—	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	C174	3.1	25	22	0.6	2.2	0.3	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	5	2.9	—	—	—	• Soils that are moderately susceptible to water erosion are dominant • Impacts can be mitigated below the moderate level

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-4. Impact Levels for Earth Resources – Paleontological										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	113.5	106	—	—	—	• 18 fossil localities within 1 mile of the centerline, including 2 Permian localities in the Abo Formation along Link E101b, which have produced fossil invertebrates, plants, and vertebrate tracks; the Abo Formation has a PFYC of 2 • 2 localities are in the Blancan Sierra Ladrones Formation along Links E151 and E180, containing a fossil proboscidean tusk, horse teeth, horse postcrania, and a camel phalanx; the Sierra Ladrones Formation has a PFYC of 4 • 14 localities are in the Blancan Palomas Formation along Link E180, and contain numerous fossil horse teeth and postcrania, an antilocaprid metatarsal, and a llama metatarsal; the Palomas Formation has a PFYC of 4
	Subroute 1A1-	228.8	1813	1238	117.6	111.2	—	—	—	• 18 fossil localities within 1 mile of the centerline, including 2 Permian localities in the Abo Formation along Link E101b, which have produced fossil invertebrates, plants, and vertebrate tracks; the Abo Formation has a PFYC of 2 • 2 localities are in the Blancan Sierra Ladrones Formation along Links E151 and E180, containing a fossil proboscidean tusk, horse teeth, horse postcrania, and a camel phalanx; the Sierra Ladrones Formation has a PFYC of 4 • 14 localities are in the Blancan Palomas Formation along Link E180, and contain numerous fossil horse teeth and postcrania, an antilocaprid metatarsal, and a llama metatarsal; the Palomas Formation has a PFYC of 4

Table H-4. Impact Levels for Earth Resources – Paleontological										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A2-BLM Preferred Alternative**	230.3	1819	1270	119.1	111.2	—	—	—	• 18 fossil localities within 1 mile of the centerline, including 2 Permian localities in the Abo Formation along Link E101b, which have produced fossil invertebrates, plants, and vertebrate tracks; the Abo Formation has a PFYC of 2 • 2 localities are in the Blancan Sierra Ladrones Formation along Links E151 and E180, containing a fossil proboscidean tusk, horse teeth, horse postcrania, and a camel phalanx; the Sierra Ladrones Formation has a PFYC of 4 • 14 localities are in the Blancan Palomas Formation along Link E180, and contain numerous fossil horse teeth and postcrania, an antilocaprid metatarsal, and a llama metatarsal; the Palomas Formation has a PFYC of 4
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	125.8	97.8	—	—	—	• 9 fossil localities within 1 mile of the centerline along Links A111 and A112 • 8 of these fossil localities are Mesozoic in age and are located within close proximity to Link A111 • 2 of these localities are within the Moenkopi Formation of Triassic age and contain fossil capitosaurids • 2other localities are within the Chinle Group of Triassic age and contain archosaur and reptile fossils • 4 other localities are within the Mancos Shale and Greenhorn Limestone of Cretaceous age • 9 localities located along Link A112 in the Sierra Ladrones Formation of Pleistocene age and contains fossil turkey, horse, and camel
	Subroute 1B2	209.2	1657	1121	111.4	97.8	—	—	—	• Same as Subroute 1B1
	Subroute 1B3	206.3	1635	1106	111	95.3	—	—	—	• Same as Subroute 1B1

Table H-4. Impact Levels for Earth Resources – Paleontological										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Local Alternative and Crossover Links for Route Group 1**									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	21.7	—	—	—	—	• No fossil localities within 1 mile of centerline, and low PFYC
	E82-E83-E84	33.5	345	99	33.5	—	—	—	—	• No fossil localities within 1 mile of centerline and low PFYC
	E85	7.2	74	24	7.2	—	—	—	—	• No fossil localities within 1 mile of centerline and low PFYC
	Local Alternative Links for 1A, 1B1, 1B2, 1B3									
	A161b	18.6	147	109	4.3	14.3	—	—	—	• No fossil localities within 1 mile of centerline and low and high PFYC
	A260	28.4	225	153	1.9	26.5	—	—	—	• No fossil localities within 1 mile of centerline and low and high PFYC
	A361-A430-A481	48	380	264	36.2	11.8	—	—	—	• No fossil localities within 1 mile of centerline and low and high PFYC
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	7.7	—	—	—	—	• No fossil localities within 1 mile of centerline and low PFYC
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	96.4	27	—	—	—	• Gila Conglomerate, including the 111 Ranch Beds containing fossil land mammals
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	94.1	29.8	—	—	—	• Gila Conglomerate, including the 111 Ranch Beds containing fossil land mammals
	Subroute 3B – South	128.6	1019	638	119	9.6	—	—	—	• Crosses less Gila Conglomerate than Subroute 3A
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	5.2	1.7	—	—	—	• No fossil localities within 1 mile of centerline and low and high PFYC
	B140	8.3	66	46	8.3	—	—	—	—	• No fossil localities within 1 mile of centerline and low PFYC

Table H-4. Impact Levels for Earth Resources – Paleontological										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	107.4	25.5	—	—	—	• Gila Conglomerate, including the 111 Ranch Beds containing fossil land mammals
	Subroute 4B – Sulphur Springs Valley	133	1054	793	98.1	34.9	—	—	—	• Crosses state map unit Tsy, which is likely Gila Group in southeastern Arizona • The Gila Group includes fossiliferous units including the 111 Ranch Beds, Quiburis Formation, and St. Davids Formation • Given its location, this subroute likely crosses the Quiburis or St. Davids Formation
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	87.2	51.8	—	—	—	• Crosses the length of the San Pedro River Valley that includes the Quiburis and St. Davids formations. Numerous fossil localities are known in the San Pedro River Valley
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	104.2	47.6	—	—	—	• Crosses the length of the San Pedro River Valley that includes the Quiburis and St. Davids formations. Numerous fossil localities are known in the San Pedro River Valley.
	Subroute 4C2c – West San Pedro River – BLM Preferred Alternative	161.2	1277	928	115.6	45.6	—	—	—	• Crosses the length of the San Pedro River Valley that includes the Quiburis and St. Davids formations. Numerous fossil localities are known in the San Pedro River Valley.
	Subroute 4C3 – Tucson	172.9	1370	892	158.1	14.8	—	—	—	• The least paleontological sensitive subroute of Route Group 4 • Crosses the fossiliferous deposits of the San Pedro river valley perpendicularly rather than paralleling the river like 4C1 and 4C2; this limits the amount of Tertiary deposits 4C3 crosses • The little known, but fossil-producing Mineta Formation is crossed by this subroute; fossils occur rarely in the Quaternary deposits of the Tucson Basin

Table H-4. Impact Levels for Earth Resources – Paleontological										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative and Crossover Links for Route Group 4**									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	8.8	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	6.9	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	C870	0.2	2	1	0.2	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	C890	2.8	22	11	2.8	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	Local Alternative Links for 4C1									
	C692	4.8	38	25	—	4.8	—	—	—	• No fossil localities within 1 mile of centerline and high PFYC
	Local Alternative Links for 4C2 – Winchester and Tortolita substations									
	C260-C261-C201	31	246	205	26.8	4.2	—	—	—	• One fossil locality along Link C201 and low to high PFYC
	C680	26.1	207	139	13	13.1	—	—	—	• No fossil localities within 1 mile of centerline and low to high PFYC
	C815	0.9	7	4	0.9	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	C814	1	8	5	1	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	C816	0.1	1	1	0.1	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	C812	3.3	26	17	3.3	—	—	—	—	• No fossil localities within 1 mile of centerline and low to moderate PFYC
	C813	0.5	4	3	0.5	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	C810	2	16	10	2	—	—	—	—	• No fossil localities within 1 mile of centerline and low to moderate PFYC
	C810a	1.7	14	9	1.7	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC

Table H-4. Impact Levels for Earth Resources – Paleontological										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C817**	1.8	14	9	1.8	—	—	—	—	• No fossil localities within 1 mile of centerline and moderate PFYC
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	11.1	—	—	—	—	• No fossil localities within 1 mile of centerline and low to moderate PFYC
	F81a-F81b	32.2	255	136	32.2	—	—	—	—	• No fossil localities within 1 mile of centerline and low to moderate PFYC
	C812	3.3	26	17	3.3	—	—	—	—	• No fossil localities within 1 mile of centerline and low to moderate PFYC
	Local Alternative Links for 4C1, 4C2, 4C3									
	C72-C90-C121-C211	24.5	194	130	19.5	5	—	—	—	• No fossil localities within 1 mile of centerline and low to high PFYC
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	0.1	5	—	—	—	• No fossil localities within 1 mile of centerline and low and high PFYC
	C501	4.8	38	32	—	4.8	—	—	—	• No fossil localities within 1 mile of centerline and high PFYC
	C502	3.9	31	25	—	3.9	—	—	—	• No fossil localities within 1 mile of centerline and high PFYC
	C174	3.1	25	22	—	3.1	—	—	—	• No fossil localities within 1 mile of centerline and high PFYC
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	7.9	—	—	—	—	• No fossil localities within 1 mile of centerline and low to moderate PFYC

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-5. Impact Levels for Earth Resources – Water										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	219.4	0.1	—	—	—	• Crosses 0 perennial streams and 412 intermittent and ephemeral drainages • Most of these streams are located within the Rio Grande Watershed
	Subroute 1A1 –	228.8	1813	1238	228.7	0.1	—	—	—	• Crosses 0 perennial streams and 453 intermittent and ephemeral drainages • Most of these streams are located within the Rio Grande Watershed
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	230.2	0.1	—	—	—	• Crosses 0 perennial streams and 462 intermittent and ephemeral drainages • Most of these streams are located within the Rio Grande Watershed
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	223.5	0.1	—	—	—	• Crosses 0perennial streams and 391 intermittent and ephemeral drainages • 1 spring is located within the study corridor along Link A90
	Subroute 1B2	209.2	1657	1121	209.1	0.1	—	—	—	• Similar to Subroute 1B1 for most of its length • Crosses 19 perennial streams and 362 intermittent and ephemeral drainages
	Subroute 1B3	206.3	1635	1106	206.2	0.1	—	—	—	• Similar to Subroute 1B1 for most of its length • Crosses 0 perennial streams and 370 intermittent and ephemeral drainages • 2wells are located within the study corridor along Link A80
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	21.2	0.5	—	—	—	• 1.8 miles of intermittent streams
	E82-E83-E84	33.5	345	99	32.8	0.7	—	—	—	• 1.7 miles of intermittent streams • 0.3 mile of perennial streams
	E85	7.2	74	2	6.8	0.4	—	—	—	• 1.4 miles of intermittent streams

Table H-5. Impact Levels for Earth Resources – Water										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Local Alternative Links for 1A, 1B1, 1B2, 1B3**									
	A161b	18.6	147	109	16.8	1.8	—	—	—	• 0.4 mile of perennial • 5.2 miles of intermittent streams
	A260	28.4	225	153	24.9	3.5	—	—	—	• 1.2 miles of perennial • 9.3 miles of intermittent streams
	A361-A430-A481	48.1	380	264	48	0.1	—	—	—	No perennial or intermittent streams
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	7.6	0.1	—	—	—	• 8 intermittent streams
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	120.7	2.7	—	—	—	• Crosses 0perennial streams and 213 intermittent and ephemeral drainages • 3 wells are located within the study corridor along Link B160b
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	123.8	0.1	—	—	—	• Crosses 0 perennial streams and 213 intermittent and ephemeral drainages
	Subroute 3B – South	128.6	1019	638	124.4	4.2	—	—	—	• Crosses 0 perennial streams and 198 intermittent and ephemeral drainages • 8 wells are located within the study corridor along links B110a, B112, and B150b
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	6.5	0.4	—	—	—	• 0.4 mile of perennial streams • 3.2 miles of intermittent streams
	B140	8.3	66	46	8.3	—	—	—	—	• 0.4 mile of intermittent streams

Table H-5. Impact Levels for Earth Resources – Water										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	109.5	23.4	—	—	—	• Crosses Aravaipa Creek at Link C170 and the San Pedro River at Link C592 • Crosses 2 perennial streams and 231intermittent and ephemeral drainages • 17 wells and 2 springs located within the study corridor along links B153a, B153b, C170, C178, C173, C620, C780, and C880a • Crosses 21.1 miles of the Santa Cruz Sole Source Aquifer
	Subroute 4B – Sulphur Springs Valley	133	1054	793	106.7	26.3	—	—	—	• Similar to Subroute 4A for most of its length Crosses 1 perennial streams and 232 intermittent and ephemeral drainages
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	108	31	—	—	—	• This route crosses 13 perennial streams and 221 intermittent and ephemeral drainages • 28 wells located within the study corridor along links C110, C470, C660, C690, C880, and C880a • Crosses 25.4 miles of the Santa Cruz Sole Source Aquifer
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	96.4	55.4	—	—	—	• Crosses 0 perennial streams and 254 intermittent and ephemeral drainages • 25 wells located within the study corridor along links C110, 266, C450 and C680 • Crosses 42 miles of the Santa Cruz Sole Source Aquifer
	Subroute 4C2c – West San Pedro River – BLM Preferred Alternative	161.2	1277	928	103.3	57.9	—	—	—	• Crosses 1 perennial streams and 323 intermittent and ephemeral drainages

Table H-5. Impact Levels for Earth Resources – Water										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C3 – Tucson**	172.9	1370	892	113.4	59.5	—	—	—	• Crosses many more streams than the other subroutes in this route group • Crosses 2 large rivers • Crosses 0perennial streams and 400 intermittent and ephemeral drainages • 169 wells located within the study corridor along links C110, F40a, F600, F111, F112, and F510 • Crosses 87.6 miles of the Santa Cruz Sole Source Aquifer
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	8.8	—	—	—	—	• Crosses 3.3 miles of sole source aquifer • 12 intermittent streams
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	6.9	—	—	—	—	• 0.2 mile of perennial streams • 2.1 miles of intermittent streams
	C870	0.2	2	1	0.2	—	—	—	—	• 0.1 mile of intermittent streams
	C890	2.8	22	11	2.8	—	—	—	—	• 0.1 mile of intermittent streams
	Local Alternative Links for 4C1									
	C692	4.8	38	25	—	4.8	—	—	—	• 4.8 miles of sole source aquifer • 0.1 mile of perennial streams • 0.7 mile of intermittent streams
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	24.1	6.9	—	—	—	• 1.5 miles of perennial streams • 9.9 miles of intermittent streams
	C680	26.1	207	139	5.5	20.6	—	—	—	• 0.1 mile of perennial streams • 5.3 miles of intermittent streams • 22.1 miles of sole source aquifer
	C815	0.9	7	4	0.8	0.1	—	—	—	• 0.2 mile of intermittent streams • 0.9 mile of sole source aquifer
	C814	1	8	5	—	1	—	—	—	• 0.2 mile of intermittent streams • 1 mile of sole source aquifer

Table H-5. Impact Levels for Earth Resources – Water										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C816**	0.1	1	1	—	0.1	—	—	—	• 0.1 mile of sole source aquifer
	C812	3.3	26	17	0.5	2.8	—	—	—	• 0.4 mile of intermittent streams • 3.3 miles of sole source aquifer
	C813	0.5	4	3	0.5	—	—	—	—	• 0.1 mile of intermittent streams • 0.5 mile of sole source aquifer
	C810	2	16	10	0.2	1.8	—	—	—	• 0.9 mile of intermittent streams • 0.1 mile of perennial streams • 2 miles of sole source aquifer • 0.1 mile of waterbodies
	C810a	1.7	14	9	—	1.7	—	—	—	• 0.2 mile of intermittent streams • 1.7 miles of sole source aquifer
	C817	1.8	14	9	—	1.8	—	—	—	• 0.7 mile of intermittent streams • 1.8 miles of sole source aquifer
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	4.5	6.6	—	—	—	• 5 miles of intermittent streams • 0.2 mile of perennial streams • 7.1 miles of sole source aquifer
	F81a-F81b	32.2	255	135	26.2	6	—	—	—	• 4.1 miles of intermittent streams • 21.1 miles of perennial streams • 32.2 miles of sole source aquifer
	C812	3.3	26	17	0.5	2.8	—	—	—	• Crosses 3.3 miles of sole source aquifer and 0.4 mile of intermittent streams
	Local Alternative Links for 4C1, 4C2, 4C3									
	C72-C90-C121-C211	24.5	194	130	22.2	2.3	—	—	—	• 2.8 miles of perennial streams
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	4.1	1	—	—	—	• 1 mile of intermittent streams
	C501	4.8	38	32	4.2	0.6	—	—	—	• 0.8 mile of intermittent streams
	C502	3.9	31	25	3.5	0.4	—	—	—	• 0.7 mile of intermittent streams
	C174	3.1	25	22	2.7	0.4	—	—	—	• 0.5 mile of intermittent streams
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	7.3	0.6	—	—	—	• 1 mile of intermittent streams • 0.1 mile of wetlands

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-6. Impact Levels for Vegetation Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate? High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	48.2	110.9	56.4	4	—	• Some cottonwoods would have to be removed at Rio Grande crossing • High moderate impacts to riparian vegetation would be mitigated to moderate
	Subroute 1A1	228.8	1813	1238	56	125	45.5	2.3	—	• Lower impacts than 1A to juniper savanna on Chupadera Mesa • Remaining impacts would be similar to 1A
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	55.7	121.2	51.1	2.3	—	• Impacts would be similar to 1A1
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	68.4	96.1	52.8	6.3	—	• Some cottonwoods would have to be removed at Rio Grande crossing • High impacts to riparian vegetation would be mitigated to high-moderate
	Subroute 1B2	209.2	1657	1121	60.2	92.6	50.1	6.3	—	• Some cottonwoods would have to be removed at Rio Grande crossing • High impacts to riparian vegetation would be mitigated to high-moderate
	Subroute 1B3	206.3	1635	1106	59.7	92.5	47.8	6.3	—	• Some cottonwoods would have to be removed at Rio Grande crossing • High impacts to riparian vegetation would be mitigated to high-moderate
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	0.2	14.7	7	—	—	
	E82-E83-E84	33.5	345	99	0.5	30.2	2.8	—	—	• Existing access along pipeline could result in a wide corridor of cleared vegetation
	E85	7.2			—	6.7	0.5	—	—	• Lowest impact to Chupadera Mesa

Table H-6. Impact Levels for Vegetation Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate? High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Local Alternative Links for 1A, 1B1, 1B2, 1B3**									
	A161b	**18.6**	**147**	**109**	**—**	**3**	**18.8**	**—**	**—**	
	A260	28.4	225	153	17.7	5.1	7.2	0.7	—	• Crosses areas with lower slopes
	A361-A430-A481	48	380	264	1.6	15.6	28.8	0.6	—	
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	5	99	—	—	—	
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	10.3	54.4	58.2	0.5	—	• Avoids sensitive plant species in Lordsburg Playa
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	6.2	54.4	62.8	0.5	—	• Identical impacts to 3A.
	Subroute 3B – South	128.6	1019	638	31.8	58.9	37.2	0.7	—	Use of disturbed areas in the San Simon Valley reduces vegetation impacts compared to 3A
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35		6.9	—	—	—	• Use of 3B and B111 allows avoidance of Lordsburg Playa
	B140	8.3	66	46		4.8	3.5	—	—	• Use of 3B and B140 allows avoidance of Lordsburg Playa
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	34.6	32.4	56.9	9	—	• May impact Acuña cactus • Impact to riparian vegetation in Aravaipa watershed—mitigated to moderate impacts
	Subroute 4B – Sulphur Springs Valley	133	1054	793	34.6	22.4	66.6	9.4	—	• Large, intact grassland • Riparian impacts at Aravaipa Creek, San Pedro River mitigated to moderate impacts
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	40.2	28.7	55.6	14.5	—	• Riparian impacts at San Pedro River mitigated to moderate impacts

Table H-6. Impact Levels for Vegetation Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate? High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C2 – San Pedro Valley**	151.8	1203	870	45.6	39.8	58	8.4	—	• Riparian habitat crossing San Pedro River similar to 4C1 (impacts mitigated to moderate), but 4C2 lacks disturbance associated with mine and planned transmission line
	Subroute 4C2c – West of San Pedro River – BLM Preferred Alternative	161.2	1277	928	46.5	39.9	67.6	7.2	—	• Riparian impacts at San Pedro River mitigated to moderate impacts. • Other impacts similar to 4C2
	Subroute 4C3 – Tucson	172.9	1370	892	91.6	28.9	47.6	4.8	—	• Riparian impacts at San Pedro River and Cienega Creek mitigated to moderate impacts
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	7.2	—	2.6	—	—	• Slightly higher ground disturbance
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	3.9	3	—	—	—	
	C870	0.2	2	1	0.2	—	—	—	—	
	C890	2.8	22	11	2.8	—	—	—	—	
	Local Alternative Links for 4C1									
	C692	4.8	38	25	3.2	0.8	0.8	—	—	• Lower total ground disturbance
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	1.4	2.3	24.3	3.7	0.1	• Driest of the four river crossings • Increase in ground disturbance outweighs benefits
	C680	26.1	207	139	7.4	14.8	4	—	—	• Increased total ground disturbance
	C815	0.9	7	4	0.9	—	—	—	—	
	C814	1	8	5	1	—	—	—	—	
	C816	0.1	1	1	0.1	—	—	—	—	
	C812	3.3	26	17	2.4	—	12.9	—	—	
	C813	0.5	4	3	0.5	—	—	—	—	

Table H-6. Impact Levels for Vegetation Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate? High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C810**	2	16	10	2	—	—	—	—	
	C810a	1.7	14	9	1.3	0.6	—	—	—	
	C817	1.8	14	9	1.8	—	—	—	—	
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	—	6.1	3.3	1.2	0.5	• Increased erosion potential on steeper slopes near Cienega Creek
	F81a-F81b	32.2	255	136	13.8	1.4	1.3	—	—	
	C812	3.3	26	17	2.4		0.9	—	—	
	Local Alternative Links for 4C1, 4C2, 4C3									
	C72-C90-C121-C211	24.5	194	130	0.3	16.2	8.2	—	—	
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	—	—	0.4	4.7	—	• San Manuel crossing of San Pedro River is preferred to Mammoth crossing
	C501	4.8	38	32	0.8	0.5	1	2.3	—	
	C502	3.9	31	25	0.4	0.8	0.8	1.9	—	
	C174	3.1	25	22	—	0.3	1	1.8	—	• This subroute could be used with 4A or 4B to allow use of San Manuel crossing of San Pedro River instead of Mammoth crossing
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	1.2	3.1	3.1	0.5	—	• May add impacts to Acuña cactus

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-7. Impact Levels for Biological Resources – Threatened and Endangered Species										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	146.8	8.7	64	—	—	• Crosses Bighorn Sheep movement corridor, although avoids ACEC • Crosses Southwestern Willow Flycatcher and Rio Grande Silvery Minnow critical habitat, riparian woodland • Impacts to waterfowl at Rio Grande crossing probably similar to San Antonio
	Subroute 1A1	228.8	1813	1238	156	9	63.8	—	—	• Impacts would be similar to 1A, but with a lower impact to Chupadera Mesa Bird Habitat Conservation Area
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	51.7	9	63.8	—	—	• Impacts would be similar to 1A1
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	164.6	8.1	50.4	0.5	—	• Crosses Southwestern Willow Flycatcher and Rio Grande Silvery Minnow critical habitat, higher-quality riparian woodland than at North Crossing • All 1B subroutes avoid Fugate's blue-star ACEC but likely cross habitat for species • Highest impact of 1B group due to greater ground disturbance
	Subroute 1B2	209.2	1657	1121	150.2	8.1	50.4	0.5	—	• Lowest impact to Chupadera Mesa Bird Habitat Conservation Area with existing access, narrower crossing
	Subroute 1B3	206.3	1635	1106	147.3	8.1	50.4	0.5	—	• Similar to 1B2, except as noted above
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	21.7	—	—	—	—	• Impact similar to E80c
	E82-E83-E84	33.5	345	99	33.5	—	—	—	—	• Lowest impact when compared to E81 or E80c

Table H-7. Impact Levels for Biological Resources – Threatened and Endangered Species										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**E85**	7.2	74	24	7.2	—	—	—	—	
	Local Alternative Links for 1A, 1B1, 1B2, 1B3									
	A161b	18.6	147	109	18.6	—	—	—	—	• Crosses portion of Bighorn Sheep movement corridor • Not preferred
	A260	28.4	225	153	22.8	.3	5.3	—	—	• Slightly preferable to A270
	A361-A430-A481	48	380	264	33.2	2.3	12.5	—	—	May create additional collision hazard for Sandhill Cranes in Uvas Valley
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	7.7	—	—	—	—	• Use of 1B2 and A70 crossover may be most preferable route biologically
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	45.1	8.2	70.1	—	—	• Avoids sensitive plant and invertebrate habitat in Lordsburg Playa • Avoids collision risk to wintering migratory birds at Lordsburg Playa
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	42.1	7.9	70.9	—	—	• Identical impacts to 3A
	Subroute 3B – South	128.6	1019	638	62.3	42	24.3	—	—	• Use of disturbed habitat in San Simon Valley reduces new ground disturbance compared to 3A • Collision risk for migratory birds would be increased at Lordsburg Playa
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35		0.3	6.6	—	—	• No preference; eastern portion of 3A-3B would have similar impacts
	B140	8.3	66	46	8.3	—	—	—	—	• Preferable to continuing on with 3B • Allows avoidance of Lordsburg Playa

Table H-7. Impact Levels for Biological Resources – Threatened and Endangered Species										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	32.1	57.6	42.3	0.9	—	• Preferable to 4B; avoids impacts to Sulphur Springs Valley • 4C subroutes are generally preferable to 4A and 4B to avoid Aravaipa Creek watershed and unfragmented habitat in Galiuro Mountains
	Subroute 4B – Sulphur Springs Valley	133	1054	793	53.7	45.9	32.5	0.9	—	• Impacts large, unfragmented grassland in Sulphur Springs Valley • Temporary disturbance would affect intensively managed Pronghorn population • Impacts habitat for Arizona Striped Whiptail
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	43.9	53.6	39.7	1.8	—	• Crosses critical habitat for several fish species, although streams can be spanned • Crosses much Desert Tortoise habitat, including long-term monitoring plot • Crosses San Pedro River parallel to planned transmission line, which decreases bird collision risk
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	36.5	75	38.7	1.6	—	• Preferable to 4C1, as it avoids fish critical habitat and uses more existing access; other impacts are similar • River crossing is lower quality riparian habitat, but lacks existing or planned transmission lines
	Subroute 4C2c – West of San Pedro River – BLM Preferred Alternative	161.2	1277	928	34.4	79.3	45.1	2.4	—	• Would be located near existing lines crossing the San Pedro River • Other impacts are similar to 4C2

Table H-7. Impact Levels for Biological Resources – Threatened and Endangered Species										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C3 – Tucson**	172.9	1370	892	35.6	95.2	36	6.1	—	• Preferable. Crosses Gila Chub critical habitat in Cienega Creek, although it can be spanned • May cross Pima pineapple cactus habitat, although largely in disturbed areas • Extensive urbanization has eliminated much natural habitat when compared to 4C1 and 4C2
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	5.5	0.7	2.6	—	—	• No preference
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	0.6	3.3	3	—	—	• C860-C890 maximizes distance from waterfowl habitat at Picacho Reservoir
	C870	0.2	2	1	—	0.2	—	—	—	• Beneficial if used to bypass Link C880
	C890	2.8	22	11	—	2.8	—	—	—	• See above
	Local Alternative Links for 4C1									
	C692	4.8	38	25	—	4	0.8	—	—	• Increases ground disturbance with no other benefit
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	—	8.2	22.8	—	—	• Not preferred • River crossing is lowest sensitivity on San Pedro River, but would require much additional ground disturbance
	C680	26.1	207	139	3.1	19.7	3.3	—	—	• Probably not preferred, as ground disturbance would be increased • Tucson Shovel-nosed Snake habitat would be impacted
	C815	0.9	7	4	0.8	0.1	—	—	—	• No clear preference for any of links 810-818
	C814	1	8	5	—	1	—	—	—	

Table H-7. Impact Levels for Biological Resources – Threatened and Endangered Species										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C816**	0.1	1	1	—	0.1	—	—	—	
	C812	3.3	26	17	—	2.4	0.9	—	—	
	C813	0.5	4	3	—	0.5	—	—	—	
	C810	2	16	10	—	2	—	—	—	
	C810a	1.7	14	9	—	1.4	0.3	—	—	
	C817	1.8	14	9	—	1.8	—	—	—	
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	—	5.8	5.3	—	—	• Higher biological impact than Link F600 • More extensive impacts to Cienega Creek as well as Agua Verde Creek
	F81a-F81b	32.2	255	136	3	23.2	4.7	1.3	—	• Preferable to F80-F111-F112, as it avoids waterfowl habitat near Roger Road wastewater treatment plant
	C812	3.3	26	17	—	2.4	0.9	—	—	
	Local Alternative Links for 4C1, 4C2, 4C3									
	C72-C90-C121-C211	24.5	194	130	4	7.1	0.2	—	—	• Link C110 is preferable, as it avoids Arizona Striped Whiptail habitat
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	—	0.4	4.7	—	—	• No clear preference for any of these crossover links • San Manuel River crossing is preferred to Mammoth crossing
	C501	4.8	38	32	—	1.6	3.2	—	—	
	C502	3.9	31	25	—	2	1.9	—	—	
	C174	3.1	25	22	—	1.3	1.8	—	—	
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	—	3.6	4.3	—	—	• Not preferred • This link would increase total disturbance, and possibly add impacts to Acuña cactus that would not otherwise be present in the 4C subroute group

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-8. Impact Levels for Cultural Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	0.7	0.1	21.8	0.9	0.3	• Crosses El Camino Real, Butterfield, Gila, and Crooke trails • Impacts habitation site LA45162
	Subroute 1A1	228.8	1813	1238	0.7	0.4	21.6	0.9	0.3	• Crosses El Camino Real, Butterfield, Gila, and Crooke trails • Impacts habitation sites LA45163 and LA50766
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	1	0.4	21.6	0.9	0.3	• See Chapter 4 for a description of impacts to BLM preferred alternative. Impacts are similar to Subroute 1A1.
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	0.7	—	18.8	0.6	0.4	• Crosses El Camino Real, Butterfield, Gila and Crooke trails • Impacts habitation site LA45162
	Subroute 1B2	209.2	1657	1121	0.7	0.7	18.6	0.6	0.4	• Crosses El Camino Real, Butterfield, Gila and Crooke trails • Impacts habitation site LA45162 • ***Visual Cultural Impact*:** Less than 1 mile from Playas Pueblo Arch District
	Subroute 1B3	206.3	1635	1106	0.8	0.7	18.2	2.8	0.4	• Worst of Route Group 1 • Crosses El Camino Real, Butterfield, Gila and Crooke (twice) trails • Impacts Mockingbird Gap Arch District
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	—	—	—	—	—	• ***Visual Cultural Impact:*** Less than 1.5 miles from Gran Quivira
	E82-E83-E84	33.5	345	99	—	—	—	—	—	• ***Visual Cultural Impact:*** Less than 1.5 miles from Gran Quivira
	E85	7.2	74	24	—	—	—	—	—	• ***Visual Cultural Impact:*** Less than 1 mile from Seco Ruins

Table H-8. Impact Levels for Cultural Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Local Alternative Links for 1A, 1B1, 1B2, 1B3**									
	A161b	18.6	147	109	—	—	0.3	—	—	• Low impacts (moderate density site impacted)
	A260	28.4	225	153	—	0.3	—	—	—	• Low impacts (low density site impacted)
	A361-A430-A481	48	380	264	—	0.1	0.1	0.1	—	• Crosses Gila, Butterfield and Crooke's trails
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	—	—	—	—	—	• No impacts
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	0.4	0.1	2	0.4	0.7	• Crosses Gila, Butterfield, Janos Copper, and CDNST trails
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	0.6	0.2	1.2	0.2	0.7	• See Chapter 4 for a description of impacts to BLM preferred alternative. Impacts similar to Subroute 3A.
	Subroute 3B – South	128.6	1019	638	0.5	0.3	3.2	0.3	—	• Worst of Route Group 3 • Crosses Crooke, Janos Copper, CDNST, Gila (3 times) and Butterfield trails
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	—	—	0.1	0.1	—	• Crosses Butterfield, Gila, and CDNST trails
	B140	8.3	66	46	—	0.3	—	0.1	—	• Crosses Butterfield Trail

Table H-8. Impact Levels for Cultural Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	0.5	0.2	4	1.1	0.1	• Crosses Southern Pacific Mail Line, Butterfield and Zuniga trails • ***Visual Cultural Impact:*** Less than 1.5 miles from Oak Draw Arch District and Marijilda Canyon Arch District
	Subroute 4B – Sulphur Springs Valley	133	1054	793	0.2	—	3	0.8	—	• Crosses Southern Pacific Mail Line, Butterfield, and Zuniga trails
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	0.6	0.6	3.9	0.3	0.3	• Crosses Southern Pacific Mail Line, Butterfield, and Zuniga trails • Impacts habitation site AZ BB:6:2(ASM)
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	0.4	0.3	4.5	0.2	0.1	• Crosses Southern Pacific Mail Line, Butterfield, and Zuniga trails • ***Visual Cultural Impact:*** Less than 0.25 mile from McClellan Wash Arch District
	Subroute 4C2c – West of San Pedro River – BLM Preferred Alternative	161.2	1277	928	0.4	0.5	3.8	0.2	0.1	• See Chapter 4 for a description of impacts to BLM preferred alternative.
	Subroute 4C3 – Tucson	172.9	1370	892	0.8	2.2	16.1	1.9	1.6	• Worst of Route Group 4 • Crosses Butterfield (7), Gila (3), Crooke (5), Zuniga (3), De Anza (4), and Southern Mail (1) trails • Impacts habitation sites AZ BB:13:17(ASM), AZ EE:2:44(ASM), AZ AA:12:46(ASM), AZ AA:12:246(ASM) • Impacts Silverbell Nominated site • ***Visual Cultural Impact:*** Less than 0.25 mile from McClellan Wash Arch District
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	4	—	0.1	—	—	• Low to moderate impacts

Table H-8. Impact Levels for Cultural Resources										
			*Ground Disturbance (acres)		Impact Level (miles)					
Route Group	Alternative Subroute	Length (miles)	Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	Comments
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3**									
	C860	6.9	55	36	0.2	—	—	0.4	—	• Crosses the Southern Pacific Mail Route
	C870	0.2	2	1	—	—	—	—	—	• No impacts
	C890	2.8	22	11	—	—	—	—	—	• No impacts
	Local Alternative Links for 4C1									
	C692	4.8	38	25	—	—	—	—	0.6	• Impacts to habitation site AZ AA:8:21 (ASM)
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	—	0.2	0.3	—	—	• Low impacts (low density site impacted)
	C680	26.1	207	139	0.4	0.1	0.5	0.1	—	• Low to moderate impacts (impacts several low and moderate sites)
	C815	0.9	7	4	—	—	—	—	—	• No impacts
	C814	1	8	5	—	—	—	—	—	• No impacts
	C816	0.1	1	1	—	—	—	—	—	• No impacts
	C812	3.3	26	17	—	—	—	—	—	• No impacts
	C813	0.5	4	3	—	—	—	—	—	• No impacts
	C810	2	16	10	—	—	—	—	—	• No impacts
	C810a	1.7	14	9	—	—	0.1	—	—	• Low impacts
	C817	1.8	14	9	—	—	0.1	—	—	• No impacts
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	—	—	0.9	0.1	—	• Crosses Butterfield Trail • ***Visual Cultural Impact:*** Less than 1 mile from Colossal Cave Mt. Park
	F81a-F81b	32.2	255	136	0.1	0.2	3.7	0.8	0.6	• Crosses Butterfield (2), De Anza, Zuniga, and Crooke trails • Impacts Ft Lowell Multiple Property District and Rillito Race Track District • Impacts Prudence, Nominated site
	C812	3.3	26	17	—	—	—	—	—	• No impacts

Table H-8. Impact Levels for Cultural Resources										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Level (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4C1, 4C2, 4C3**									
	C72-C90-C121-C211	24.5	194	130	—	—	—	—	—	• No impacts
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	—	—	—	—	—	• No impacts
	C501	4.8	38	32	—	—	—	—	—	• No impacts
	C502	3.9	31	25	—	—	—	—	—	• No impacts
	C174	3.1	25	22	—	—	—	—	—	• No impacts
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	—	—	—	—	—	• No impacts

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	35.8	55.6	102.6	25.5	—	• The majority of this route crosses Class B scenery • E180: Crosses Class A scenery associated with the Rio Grande; this is the only Class A scenery crossed by this route group • Southern half of route (Link A330a south, to Midpoint Substation) would parallel existing transmission lines crossing Class B scenery (Rio Grande Valley) and Class C scenery (valley plains)
	Subroute 1A1 –	228.8	1813	1238	35.8	75.4	95.9	21.7	—	• Where this subroute diverges from 1A (links E85, E84b, E84a, E82) this route crosses Class B scenery, including juniper mountains • Impacts are mostly low /moderate or moderate •
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	35.8	75.4	87.7	31.4	—	• Where this subroute diverges from 1A (links E) this route crosses Class B scenery including juniper mountains • Impacts are primarily low/moderate to moderate.
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	31	69.8	103	19.8	—	• Where routes diverge north of White Sands Missile Range, Subroute 1B1 crosses more Class C scenery (valley plains) • Most of Link E90 parallels an existing road
	Subroute 1B2	209.2	1657	1121	31	68.1	91.3	18.8	—	• Where this subroute diverges from 1B1 (links A30, A50, and A60), it crosses similar Class B and C scenery • Crosses less Class B scenery than 1B1; however, the landscape appears more natural with less cultural modifications such as roads

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1B3**	206.3	1635	1106	31	62.9	91.4	21	—	• Where this subroute diverges from 1B2 (links A40, A41, and A80), it crosses similar Class B and C scenery for approximately the same amount of distance/mileage • Link A41 parallels an existing road through Class B scenery associated with rolling savanna plains. Portions of links A50 and A60 (in Subroute 1B2) through similar Class B scenery do not parallel existing roads
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	—	—	19.8	1.9	—	
	E82-E83-E84b-E84a	33.5	345	99	—	—	33.5	—	—	• The portions of links E82 and E83 crossing Class B scenery associated with rolling juniper-savanna would parallel and existing pipeline route. • Juniper stands have already been cleared and created existing contrast within the landscape
	E85	7.2	74	24	—	—	5.6	1.6	—	
	Local Alternative Links for 1A, 1B1, 1B2, 1B3									
	A161b	18.6	147	109	—	—	15.3	3.3	—	• Very limited opportunities to use existing access in Class B scenery including the Rio Grande Valley, bajadas and foothills of the Magdalena Mountains • The majority of the link would require new access
	A260	28.4	225	153	—	19.8	7.9	0.7	—	• Parallels an existing 115 kV transmission line for a majority of the link • Approximately 9.4 miles is located within the DOE West Wide Corridor

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
			*Ground Disturbance (acres)		Impact Levels (miles)					
Route Group	Alternative Subroute	Length (miles)	Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	Comments
Route Group 1: SunZia East Substation to Midpoint Substation	**A361-A430-A481**	48	380	264	—	36.3	8.9	2.8	—	• Crosses mostly Class C scenery associated with desert valley plains • These links do not parallel existing transmission lines or major transportation routes like subroutes 1A and 1B
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	—	1.7	5.4	0.6	—	• Similar to Subroute 1B2
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	39.2	81.1	2.5	0.6	—	• Majority of route crosses Class C scenery associated with valley plains • Impacts are mostly low-moderate and low • Approximately 1/3 of the route parallels existing transmission lines • Only Class B scenery crossed is associated with low rolling bajadas and the foothills of the Peloncillo Mountains (Link 160a)
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	39.2	81.6	2.5	0.6	—	• Majority of route crosses Class C scenery associated with valley plains. • Impacts are mostly low-moderate and low. • Class B scenery crossed is associated with low rolling bajadas and the foothills of the Peloncillo Mountains (Link B160a).
	Subroute 3B – South	128.6	1019	638	1.7	119.5	5.3	2.1	—	• Crosses slightly more Class B scenery (associated with foothills of the Pyramid and Peloncillo Mountains) than Subroute 3A • Where this route crosses Class B scenery it is paralleling an existing pipeline route (Peloncillo foothills) or the landscape setting has been modified by mining operations, pipeline routes (which would cross Link B112) and other development associated with Lordsburg • Parallels a portion of the DOE West Wide Corridor

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Local Alternative and Crossover Links for Route Group 3**									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	6.9	—	—	—	—	• Parallels an existing 115 kV transmission line within Class C scenery associated with valley plains • This link has lower overall impacts than Link B140
	B140	8.3	66	46	—	—	8.3	—	—	• Crosses Class C scenery associated with valley plains but it does not parallel existing utilities
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	11.9	23.1	56.6	41.2	—	• Crosses mostly high quality Class B scenery (Sky Island Transitional Foothills, San Pedro River Valley, and Sonoran Palo Verde Valley) • Only Class A scenery crossed by this subroute is associated with the San Pedro River and Riparian area • Only a small portion of the subroute parallels or is crossed by existing utilities (typically in Class C scenery at the far east and west ends of the route (B153a, C880)
	Subroute 4B – Sulphur Springs Valley	133	1054	793	5.7	34.3	47.3	45.6	—	• Crosses similar Class C scenery to 4A, however, where this subroute diverges from 4A, it does not parallel existing utilities
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	16.9	21.6	63.1	35.2	2.1	• Crosses mostly Class B scenery, including the San Pedro River Valley (east side of the valley) • Crosses Class A scenery associated with Desert Canyons, and the San Pedro River and Riparian • There is more evidence of cultural modification within the San Pedro River/Riparian where this route would cross than the 4A crossing • In addition, this route crossing would be adjacent to the San Manuel Copper Mine Complex • A good portion of this subroute east and west of the San Pedro Valley parallels existing utilities (transmission lines and pipelines)

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
										• It does not parallel existing utilities within the San Pedro River Valley and there is limited existing access
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C2 – San Pedro Valley**	151.8	1203	870	31	37.4	52.8	30.5	—	• Crosses the west side of the San Pedro River Valley, where it would parallel an existing pipeline along Link C450 • There is more existing access along the west side than 4C1 • Crosses Class A scenery associated with the San Pedro River and Riparian • Crosses similar Class B and C scenery to Subroute 4C1 • Link C680 parallels existing transmission line(s) through Class B scenery, where Subroute 4C1 parallels a pipeline
	Subroute 4C2c – West San Pedro River – BLM Preferred Alternative	161.2	1277	928	39.6	41.8	51.1	28.7	—	• See Chapter 4 for a description of impacts to BLM preferred alternative.
	Subroute 4C3 – Tucson	172.9	1370	892	62.7	48.1	29.4	5.6	—	• From where it diverges from Subroute 4C1, south of the San Pedro River Valley and Rincon Mountains, this route would parallel existing transmission lines through primarily Class B scenery • Crosses Class A scenery associated with the San Pedro River/Riparian and the Cienega Creek Preserve • There are existing transmission lines at the San Pedro River crossing and existing cultural modifications (pipeline, railroad, road, and trails) at the Cienega Creek Crossing

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative and Crossover Links for Route Group 4**									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	—	4.4	4.4	—	—	• Similar impacts as Subroute 4A
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	—	6	0.8	—	—	• Crosses similar Class C scenery with similar impacts to Subroute 4C1
	C870	0.2	2	1	—	0.2	—	—	—	• Crosses Class C scenery adjacent to agricultural lands
	C890	2.8	22	11	0.9	0.3	1.6	—	—	• Crosses Class B scenery associated with agricultural lands • A portion of the link parallels an existing pipeline, roadway, and 500 kV transmission line
	Local Alternative Links for 4C1									
	C692	4.8	38	25	—	—	4.8	—	—	• Does not parallel existing pipeline(s) like Link C691 of Subroute 4C1
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	8.5	7.8	3.3	11.4	—	• Impacts along Links C260 and C261 are identical to impacts along Subroute 4C3 • There is no existing access along Link C201 where it crosses steeper terrain associated with the Rincon Mountains
	C680	26.1	207	139	14.1	9.8	1.8	0.4	—	• Almost the entire link parallels existing transmission lines (500 kV and 115 kV) through Class B scenery
	C815	0.9	7	4	—	—	0.9	—	—	• Similar impacts as Subroute 4C2
	C814	1	8	5	1	—	—	—	—	• Similar impacts as Subroute 4C2
	C816	0.1	1	1	—	—	0.1	—	—	• Impacts are identical to impacts anticipated along Subroute 4C3
	C812	3.3	26	17	—	1.5	1.4	—	—	• Impacts are identical to impacts anticipated along Subroute 4C3
	C813	0.5	4	3	—	—	0.5	—	—	• Impacts are identical to impacts anticipated along Subroute 4C3

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
			*Ground Disturbance (acres)		Impact Levels (miles)					
Route Group	Alternative Subroute	Length (miles)	Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	Comments
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C810**	2	16	10	1.9	—	—	—	—	• Impacts are identical to impacts anticipated along Subroute 4C3 • Parallels existing transmission lines (500 kV and 115 kV)
	C810a	1.7	14	9	1.7	—	—	—	—	• Impacts are identical to impacts anticipated along Subroute 4C3
	C817	1.8	14	9	—	—	1.8	—	—	• Crosses Class B scenery and does not parallel any linear utilities
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	5.2	2.9	1.8	0.7	—	• Link F40B parallels two 345 kV transmission lines • F51 crosses Class A scenery associated with the Cienega Creek Preserve • Although more Class A would be crossed by this subroute overall impacts are anticipated to be lower than Subroute 4C3 due to the presence of two existing 345 kV transmission lines located to the north of the proposed route
	F81a-F81b	32.2	255	136	5.4	3.5	0.6	—	—	• Parallels an existing transmission line and is adjacent to development associated with the Tucson Metropolitan Area
	C812	3.3	26	17	—	1.5	1.4	—	—	• Crosses Class B and C scenery • Anticipated to have higher impacts than Link C810 of Subroute 4C3
	Local Alternative Links for 4C1, 4C2, 4C3									
	C72-C90-C121-C211	24.5	194	130	3	13.1	5.8	2.6	—	• Crosses similar Class B and C scenery as Subroute 4C1, 2, and 3 • Links C90 and C121 do not parallel existing transmission lines (like Link C110 in the 4C1, 2, and 3) • Link C72 and C211 parallel two existing 345 kV transmission lines in Class B scenery
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	—	—	0.4	4.7	—	• Crosses Class B scenery associated with the San Pedro River Valley and has similar impacts as Subroute 4C1

Table H-9. Impact Levels for Visual – Scenic Quality Resource										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**C501**	4.8	38	32	—	—	2	2.8	—	• Crosses Class B scenery associated with the San Pedro River Valley and has similar impacts as Subroute 4C1
	C502	3.9	31	25	—	—	1.9	2	—	• Crosses Class B scenery associated with the San Pedro River Valley and has similar impacts as Subroute 4C1
	C174	3.1	25	22	—	—	1.3	1.8	—	• Crosses Class B scenery associated with the San Pedro River Valley and has similar impacts as Subroute 4C1
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	—	—	5.6	2.3	—	• Located near Tiger Mine

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-10. Impact Levels for Visual Resources – Sensitive Viewers (Composite)										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	50.2	84.2	37.6	23.7	23.8	• Residential viewers north of Socorro (E180) • Recreational viewers north of Socorro (E101b, E133, E180)
	Subroute 1A1	228.8	1813	1238	46.7	94.8	42.1	28.6	16.6	• Residential viewers north of Socorro (E180) • Recreation viewers north of Socorro (E101b, E133, E180) • Recreation viewers associated with Gran Quivira (E84b, E85)
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	38.7	95.5	46.8	33	16.3	• Residential viewers north of Socorro (E180) • Recreation viewers north of Socorro (E101b, E133, E180) • Recreation viewers associated with Gran Quivira
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	48.3	109.1	37.1	16.3	12.8	• Residential viewers north of San Antonio (A140)
	Subroute 1B2	209.2	1657	1121	26.7	109.1	42.8	17.7	12.9	
	Subroute 1B3	206.3	1635	1106	39.9	93.9	40.7	17.7	14.1	• Residential viewers near Bingham (A41)
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	6.7	10.8	1.6	2.6	—	
	E82-E83-E84b-E84a	33.5	345	99	1.7	23.5	2.9	3.4	2	• Salt Missions Scenic Byway crossings (E84b, E83)
	E85	7.2	74	24	7.2	—	—	—	—	
	Local Alternative Links for 1A, 1B1, 1B2, 1B3									
	A161b	18.6	147	109	—	2.3	11	4.3	1	• Dispersed residential viewers
	A260	28.4	225	153	2.2	13	5.8	6.3	1.1	
	A361-A430-A481	48	380	264	17.7	20.9	5.9	2.4	1.1	• Residential viewers (A430)
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	—	6.5	0.8	—	0.4	• Residential viewers near Bingham

Table H-11. Impact Levels for Existing Land Use and Special Management Areas										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	76.1	75.7	—	—	—	• Crosses agricultural and residential properties (Link C110) Crosses Pima County-managed Preserved Lands (Six Bar Ranch-Link A450 and A7 Ranch-links C276 and C441)
	Subroute 4C2c – West of San Pedro River – BLM Preferred Alternative	161.2	1277	928	79	82.2	—	—	—	• Crosses agricultural and residential properties (Link C110) • Crosses Pima County-managed Preserved Lands (Six Bar Ranch-Link A450 and A7 Ranch-links C441)
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C3 – Tucson**	172.9	1370	892	95.2	69.2	5.8	0.1	2.6	• Crosses agricultural and residential properties (Link C110) • Crosses Residential Properties (F111)
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	6.2	2.6	—	—	—	• No significant impacts
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	3.9	3	—	—	—	• No significant impacts
	C870	0.2	2	1	0.2	—	—	—	—	• No significant impacts
	C890	2.8	22	11	0.3	2.5	—	—	—	• No significant impacts
	Local Alternative Links for 4C1									
	C692	4.8	38	25	4	0.8	—	—	—	• No significant impacts
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	4.5	26.5	—	—	0.2	• No significant impacts
	C680	26.1	207	139	23.2	2.9	—	—	—	• No significant impacts
	C815	0.9	7	4	0.9	—	—	—	—	• No significant impacts
	C814	1	8	5	1	—	—	—	—	• No significant impacts
	C816	0.1	1	1	0.1	—	—	—	—	• No significant impacts
	C812	3.3	26	17	2.4	0.9	—	—	—	• No significant impacts
	C813	0.5	4	3	0.5	—	—	—	—	• No significant impacts
	C810	2	16	10	2	—	—	—	—	• No significant impacts

Table H-11. Impact Levels for Existing Land Use and Special Management Areas										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
	C810a	1.7	14	9	1.3	0.4	—	—	—	• No significant impacts
	C817	1.8	14	9	1.8	—	—	—	—	• No significant impacts
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	5.2	4.3	—	—	1.6	• Crosses Pima County Managed Land
	F81a-F81b	32.2	255	136	18.8	2	6.2	—	5.2	• Crosses Pima County Managed Land
	C812	3.3	26	17	2.4	0.9	—	—	—	• No significant impacts (DUPLICATE)
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4C1, 4C2, 4C3**									
	C72-C90-C121-C211	24.5	194	130	10.3	13.1	1.1	—	—	• Crosses center pivot agricultural land and residential property (Link C121)
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	0.4	4.7	—	—	—	• No significant impacts
	C501	4.8	38	32	1.8	3	—	—	—	• No significant impacts
	C502	3.9	31	25	1.9	2	—	—	—	• No significant impacts
	C174	3.1	25	22	1.3	1.8	—	—	—	• No significant impacts
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	5.4	2.5	—	—	—	• No significant impacts

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

Table H-12. Impact Levels for Future Land Use										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
Route Group 1: SunZia East Substation to Midpoint Substation	**Subroute 1A – North River Crossing**	219.5	1739	1196	207.1	12.4	—	—	—	• Crosses four BLM ROW avoidance areas – two south of the Sevilleta National Wildlife Refuge, one west of Socorro, and one north of Deming: links E101b, E133, E211, A440, and A530
	Subroute 1A1	228.8	1813	1238	216.4	12.4	—	—	—	• Crosses four BLM ROW avoidance areas – two south of the Sevilleta National Wildlife Refuge, one west of Socorro, and one north of Deming: links E101b, E133, E211, A440, and A530
	Subroute 1A2 – BLM Preferred Alternative	230.3	1819	1270	217.9	12.4	—	—	—	• Crosses four BLM ROW avoidance areas – two south of the Sevilleta National Wildlife Refuge, one west of Socorro, and one north of Deming: links E101b, E133, E211, A440, and A530
	Subroute 1B – San Antonio Crossing									
	Subroute 1B1	223.6	1772	1189	210.5	13.1	—	—	—	• Crosses four BLM ROW avoidance areas - three east and west of San Antonio (links A111, A112, A140, A160, and A161); and one north of Deming (links A440 and A530)
	Subroute 1B2	209.2	1657	1121	196.1	13.1	—	—	—	• Crosses four BLM ROW avoidance areas - three east and west of San Antonio (links A111, A112, A140, A160, and A161); and one north of Deming (links A440 and A530)
	Subroute 1B3	206.3	1635	1106	193.2	13.1	—	—	—	• Crosses four BLM ROW avoidance areas - three east and west of San Antonio (links A111, A112, A140, A160, and A161); and one north of Deming (links A440 and A530) • Link A80 passes through a 1-mile wide corridor through a BLM ROW exclusion area east of San Antonio along US Route 380
	Local Alternative and Crossover Links for Route Group 1									
	Local Alternative Links for 1A and 1B1 (Gran Quivira)									
	E81	21.7	172	120	21.7	—	—	—	—	• No significant impacts

Table H-12. Impact Levels for Future Land Use										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
	E82-E83-E84	33.5	345	99	33.5	—	—	—	—	• No significant impacts
	E85	7.2	74	24	7.2	—	—	—	—	• No significant impacts
	Local Alternative Links for 1A, 1B1, 1B2, 1B3									
	A161b	18.6	147	109	18.6	—	—	—	—	• Crosses one BLM ROW Avoidance Area
	A260	28.4	225	153	28.4	—	—	—	—	• Crosses one BLM ROW Avoidance Area
	A361-A430-A481	48	380	264	47.8	0.2	—	—	—	• No significant impacts
	Crossover Link s 1B2, 1B3									
	A70	7.7	61	42	7.7	—	—	—	—	• No significant impacts
Route Group 3: Midpoint Substation to Willow-500 kV Substation	**Subroute 3A – North**	123.4	978	665	122.6	0.8	—	—	—	• Crosses one BLM ROW Avoidance Area (Link B120b) • Crosses one Recreation Area (Link B160b)
	Subroute 3A2 – BLM Preferred Alternative	123.9	979	673	123.1	0.8	—	—	—	• Crosses one BLM ROW Avoidance Area (Link B120b)
	Subroute 3B – South	128.6	1019.	638	128.1	0.5	—	—	—	• Crosses three BLM ROW avoidance areas (Links B110a, B110b, and B112)
	Local Alternative and Crossover Links for Route Group 3									
	Crossover Links 3A, 3B									
	B111	6.9	55	35	5.2	1.7	—	—	—	• Crosses one Pending Solar Application Site
	B140	8.3	66	46	8.3	—	—	—	—	• Crosses one BLM ROW Avoidance Area (Link B140)
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4A – North of Mt. Graham**	132.9	1053	778	128.1	4.8	—	—	—	• No significant impacts
	Subroute 4B – Sulphur Springs Valley	133	1054	793	128.2	4.8	—	—	—	• No significant impacts
	Subroute 4C									
	Subroute 4C1 – San Pedro Valley	139	1101	802	127.3	8.7	2.5	0.5	—	• Crosses agricultural and residential properties (Link C110) • Crosses the Muleshoe EMA-ROW

Table H-12. Impact Levels for Future Land Use										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
										Avoidance (links C331 and C361) • Crosses Swamp Springs/Hot Springs ACEC (Link C331)
	Subroute 4C2 – San Pedro Valley	151.8	1203	870	141.5	10.3	—	—	—	• Crosses agricultural and residential properties (Link C110)
	Subroute 4C2c – West of San Pedro River – BLM Preferred Alternative	161.2	1277	928	150.9	10.3	—	—	—	• Crosses agricultural and residential properties (Link C110)
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Subroute 4C3 – Tucson**	172.9	1370	892	150.1	15.6	6.9	0.3	—	• Crosses agricultural and residential properties (Link C110) • Crosses residential properties (F111)
	Local Alternative and Crossover Links for Route Group 4									
	Local Alternative Link for 4A, 4B, 4C1									
	C790	8.8	70	40	8.8	—	—	—	—	• No significant impacts
	Local Alternative Links for 4A, 4B, 4C1, 4C2, 4C3									
	C860	6.9	55	36	6.9	—	—	—	—	• No significant impacts
	C870	0.2	2	1	0.2	—	—	—	—	• No significant impacts
	C890	2.8	22	11	0.3	2.5	—	—	—	• No significant impacts
	Local Alternative Links for 4C1									
	C692	4.8	38	25	4.8	—	—	—	—	• No significant impacts
	Local Alternative Links for 4C2 – Winchester and Tortolita Substations									
	C260-C261-C201	31	246	205	31	—	—	—	—	• No significant impacts
	C680	26.1	207	139	25.1	1	—	—	—	• No significant impacts (THIS IS PART OF 4C2)
	C815	0.9	7	4	0.9	—	—	—	—	• No significant impacts
	C814	1	8	5	1	—	—	—	—	• No significant impacts
	C816	0.1	1	1	0.1	—	—	—	—	• No significant impacts
	C812	3.3	26	17	3.3	—	—	—	—	• No significant impacts
	C813	0.5	4	3	0.5	—	—	—	—	• No significant impacts

Table H-12. Impact Levels for Future Land Use										
Route Group	Alternative Subroute	Length (miles)	*Ground Disturbance (acres)		Impact Levels (miles)					Comments
			Temporary Disturbance	Permanent Disturbance	Low	Moderate/ Low	Moderate	Moderate/ High	High	
	C810	2	16	10	2	—	—	—	—	• No significant impacts
	C810a	1.7	14	9	1.3	0.4	—	—	—	• No significant impacts
	C817	1.8	14	9	1.8	—	—	—	—	• No significant impacts
	Local Alternative Links for 4C3									
	F40b-F51-F60a	11.1	88	63	10.1	—	0.1	0.9	—	• Crosses Pima County Managed Land
	F81a-F81b	32.2	255	136	18.9	2.6	10.6	—	—	• Crosses Pima County Managed Land
	C812	3.3	26	17	3.3	—	—	—	—	• No significant impacts (DUPLICATE)
Route Group 4: Willow-500 kV Substation to Pinal Central Substation	**Local Alternative Links for 4C1, 4C2, 4C3**									
	C72-C90-C121-C211	24.5	194	130	19.1	4.3	1.1	—	—	• Crosses center pivot agricultural land and residential property (Link C121)
	Crossover Links for 4A, 4B, 4C1									
	C500	5.1	40	38	5.1	—	—	—	—	• No significant impacts
	C501	4.8	38	32	4.8	—	—	—	—	• No significant impacts
	C502	3.9	31	25	3.9	—	—	—	—	• No significant impacts
	C174	3.1	25	22	3.1	—	—	—	—	• No significant impacts
	Crossover Links for 4A, 4B, 4C1, 4C2									
	C671	7.9	63	48	7.9	—	—	—	—	• No significant impacts

*The ground disturbance is the estimated amount of potential temporary and permanent disturbance for the Project's two proposed 500 kV transmission lines and associated facilities.

APPENDIX I – ANALYSIS OF ACCESS CONDITIONS AND POTENTIAL GROUND DISTURBANCE

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SUNZIA SOUTHWEST TRANSMISSION PROJECT

ANALYSIS OF ACCESS CONDITIONS AND POTENTIAL GROUND DISTURBANCE

Prepared by
Environmental Planning Group, LLC

February 2013

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ATTACHMENTS

Access Conditions – East Panel, West Panel
Potential Ground Disturbance – East Panel, West Panel

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