

Attachments

Attachment 1

Central Arizona Transmission Study (CATS) Phase II Study Plan

1. Introduction

Phase I of the CATS study focused on assessing the system performance and the system impact of the several proposed transmission alternatives on the existing Arizona transmission system. Phase I identified transmission alternatives which warranted further study, based on their performance. Phase II will focus on the results of Phase I and study these transmission alternatives to facilitate the development of a transmission configuration which will meet the needs of all the study participants.

2. Objective

Assess the impact of the transmission Alternatives Identified in Phase I and develop a transmission configuration which will meet the needs of all the study participants.

3. Scope

The scope of the study is described below.

Study Time Frame – A 2005/2006 to 2012-study time frame is proposed. This time frame can be adjusted based on availability of base cases either within the WSCC Data Bank or through a study participant.

Generation Sites – The Generation sites have been grouped into three (3) separate generation groups. A complete list of new Generation modeled in the CATs base case is listed in Appendix A.

A. Generation at or near the Palo Verde Site

1. Red Hawk
2. Mesquite
3. Arlington
4. Gila Bend
5. Panda Gila Bend

B. Generation at or near Saguaro and Coolidge area

1. Saguaro Generation

2. Sundance Generation
3. Toltec Generation
4. Montezuma
5. Desert Basin
6. Signal Peak

C. Generation at or near Tucson, Springerville and Mexico

1. Tucson Generation
2. Springerville Generation
3. Mexico Generation
4. Bowie Generation
5. Apache Generation

Load Areas – The following major load centers will be studied.

- A. Phoenix Area: APS/SRP valley load on a 45%/55% split.
- B. Central Arizona
- C. Tucson Area Load
- D. Southern Arizona Area (This will include 1000MW of deliveries to Mexico)
- E. Southern California

Phoenix Imports - The following imports into Phoenix will be studied.

- A. North to South
- B. South to North
- C. Deliveries to California

Sensitivities:

- A. North to South with Heavy deliveries to California
- B. North to South with Light deliveries to California
- C. South to North with Heavy deliveries to California
- D. South to North with Light deliveries to California

Transmission Alternatives Phase II:

Base Case: Alternatives

- Palo Verde To Jojoba 500kV Line
- Palo Verde To Gila Bend 500kV Line
- Gila Bend To Watermelon 500kV Line
- Watermelon To Mobile 500kV Line
- Jojoba To Mobile 500kV Line
- Mobile To Southeast Station 500kV Line
- Mobile To Saguaro 500kV Line
- Southeast Station Loop into Silver King/Browning 500kV Line
- Southeast Station To Winchester 500kV Line
- Saguaro To South 345kV Line
- Winchester To South 345kV Line

SRP Alternatives

Alternative 1: (SRP_ALT_1)

Loop-in the Cholla to Saguaro 500kV Line into Silver King.

Alternative 2: (SRP_ALT_2)

Loop-in the Cholla to Saguaro 500kV Line into Southeast Station.

Alternative 3: (SRP_ALT_3)

Loop-in the Cholla to Saguaro 500kV line into both, Silver King and Southeast Station.

APS Alternatives

Alternative 4: (APS_ALT_1)

Two 500kV lines from Jojoba to Mobile.

WAPA Alternatives

Alternative 5: (WAPA_ALT_1)

Southwest Station to Mobile 500kV Line
Liberty to Signal Peak 500kV Line
Signal Peak to Coolidge 500kV Line
Southwest Valley to Coolidge 500kV Line
Two Coolidge to Browning 500kV Lines
Two Browning to Rogers 500kV Lines
Coolidge to Winchester 500kV Line
Coolidge to Oracle 500kV Line

Alternative 6: (WAPA_ALT_2)

Palo Verde to Freedom 500kV Line
Freedom to Southwest Valley 500kV Line
Freedom to Westwing 500kV Line
Southwest Valley to Mobile 500kV Line
Southwest Valley to Coolidge 500kV Line
Liberty to Signal Peak 500kV Line
Signal Peak to Coolidge 500kV Line
Two Coolidge to Browning 500kV Lines
Two Browning to Rogers 500kV Lines
Coolidge to Winchester 500kV Line
Coolidge to Oracle 500kV Line
Two Rogers to Pinnacle Peak 500kV Lines
Two Westwing to Pinnacle Peak 500kV Lines

PNM Alternatives

Alternative 7: (PNM_ALT_1)

Two Jojoba to Mobile 345kV Lines
Two Mobile to Saguaro 345kV Lines
Two Saguaro to South 345kV Lines

TEP/SWTC Alternatives

Alternative 8: (TEP_ALT_1)

Saguaro – Winchester 500 kV line in place of the Southeast Station – Winchester 500 kV line.

Alternative 9: (TEP_ALT_2)

Removal of the Mobile – Saguaro 500 kV line.

Alternative 10: (TEP_ALT_3)

Removal of Saguaro – South 345 kV line.

Alternative 11: (TEP_ALT_4)

Removal of Saguaro – South 345 kV and Vail – South #2 345 kV lines.

Alternative 12: (TEP_ALT_5)

Combination of Alternatives 1 and 3.

Alternative 13: (TEP_ALT_6)

Combination of Alternatives 1 and 4.

Alternative 14: (TEP_ALT_7)

Southeast Station – Winchester replaced with Southeast Station Carpas, Carpas – Winchester, Carpas – Saguaro “Y” connection.

Alternative 15: (TEP_ALT_9)

Alternative 7 plus the tie-in of the Cholla – Saguaro 500 kV line at Silver King substation.

Study Matrix:

A study-matrix has been developed to define what Generation/Load/Alternative combinations will be studied. The Matrix defines the Generation source, the load center, and the alternatives, which will be studied for various Generation/Load scenarios. The Study Matrix is located in Appendix B.

Base Cases – Base cases used for this study will come from either the WSCC Data Bank or from the study participants and will be in GE PSLF format. The study participants will all take an active role in the selection and development of these cases to represent the study period being evaluated. Since the study will be

concentrating on the Central Arizona area of the WSCC system. It has been recommended that a reduced version of the chosen WSCC base case should be used. The WSCC 2002 Light Summer base case has been selected for development for this study. The load will be grown and the facilities added to represent the Central Arizona area for the 2005 summer peak. Load will be grown to 90% of the 2005 summer peak projected load. All alternatives will be modeled in the case with their status set to the status off position.

Arizona is predominately a summer peaking system and, as such, represents the period of time when Arizona's transmission system is under the most stress. The need to evaluate other seasons can be assessed at any time.

Analysis Requirements – Study analysis for the second phase of this study will include power flow only, using the WSCC standard GE PSLF program to facilitate the communication of information between the study participants. The need to perform short circuit and Stability analysis will be assessed on a case-by-case basis.

Study Guidelines/Criteria - Study guidelines and criteria will be based on WSCC Reliability Criteria and individual utility criteria, where applicable. All study participants will be required to provide system representation and rating information for their facilities.

Methodology – It is recognized that developing base cases beyond six to seven years has become much more difficult to manage over the last several years. It is suggested that studies be performed over two time periods, short term and long term. The short-term analysis will be the 2005/06 time frames and will focus on assessing the system performance and the system impact of the proposed transmission alternatives on the existing Arizona transmission system. It is expected that the majority of study time will be spent in this time frame. The long-term analysis will be based on the short-term results and will focus on system performance to help facilitate the development of an “ultimate” transmission configuration to meet the needs of all the study participants.

APPENDIX A

Table of Generation

GEN NAME	BUS	ID	STATUS	PGEN	QMAX	QMIN	PMAX	
AGUAFR 1		15901		1	66	113	64	-9
AGUAFR 2		15902		1	66	113	64	-9
AGUAFR 3		15903		1	139	174	40	-38
AGUAFR 4		15904		0	0	72	37	-8
AGUAFR 5		15905		0	0	70	32	-10
AGUAFR 6		15906		0	0	70	32	-10
APACHCT1		17024		1	10	10	7	-5
APACHCT2		17025		1	14	18	20.9	-8
APACHCT3		17026		1	65	65	30	-26
APACHCT4		17027		0	0	40	37.5	-25
APACHCT5		17105		0	0	180	90	-10
APACHST1		17028		1	71	75	40	-30
APACHST2		17029		1	175	175	100	-70
APACHST3		17030		1	175	175	100	-70
ARL-CT1		15145	PROPOSED	0	0	200	122.3	-65
ARL-CT2		15146	PROPOSED	0	0	200	122.3	-65
ARL-ST1		15147	PROPOSED	0	0	320	197.3	-100
BCG-CT1		19092	PROPOSED	1	84	102	54	-32
BCG-CT2		19094	PROPOSED	1	83	102	54	-32
BCG-CT3		19096	PROPOSED	1	84	102	54	-32
BCG-CT4		19098	PROPOSED	1	83	102	54	-32
BIGSAND1		19501	PROPOSED	1	150	204	107	-89
BIGSAND2		19502	PROPOSED	1	150	192	101	-84
BIGSAND3		19503	PROPOSED	1	150	192	101	-84
BIGSAND4		19504	PROPOSED	1	150	204	107	-89
BIGSAND5		19505	PROPOSED	1	150	192	101	-84
BOWIE 1		16831	PROPOSED	0	150	155	130	-50
BOWIE 2		16832	PROPOSED	0	150	155	130	-50
BOWIE 3		16833	PROPOSED	0	180	230	230	-50
BOWIE 4		16834	PROPOSED	0	150	155	130	-50
BOWIE 5		16835	PROPOSED	0	150	155	130	-50
BOWIE 6		16836	PROPOSED	0	180	230	230	-50
CHOLLA		14900		1	110	110	70	-42
CHOLLA2		14901		1	245	245	140	-100
CHOLLA3		14902		1	260	260	140	-100
CHOLLA4		65327		1	390	390	200	-142
COL230G1		19701	PROPOSED	0	150	204	107	-89
COL230G2		19702	PROPOSED	0	150	192	101	-84

**APPENDIX A
(Continued)**

Table of Generation

GEN NAME	BUS ID	STATUS	PGEN	PMAX	QMAX	QMIN	
COL230G3	19703	PROPOSED	0	150	192	101	-84
COL230G4	19704	PROPOSED	0	150	204	107	-89
COL230G5	19705	PROPOSED	0	150	192	101	-84
COL500G1	19601	PROPOSED	0	150	204	107	-89
COL500G2	19602	PROPOSED	0	150	192	101	-84
COL500G3	19603	PROPOSED	0	150	192	101	-84
COL500G4	19604	PROPOSED	0	150	204	107	-89
COL500G5	19605	PROPOSED	0	150	192	101	-84
CORONAD1	15971		1	366	366	190	-50
CORONAD2	15972		1	370	370	190	-50
DAVISG1	19001		1	50	52.4	15	-15
DAVISG2	19002		1	50	52.4	15	-15
DAVISG3	19003		1	50	52.4	15	-15
DAVISG4	19004		1	50	52.4	15	-15
DAVISG5	19005		1	50	52.4	15	-15
DBG-CT1	14501		1	165	187	116	-84
DBG-CT2	14502		1	165	187	116	-84
DBG-ST1	14503		1	180	272	169	-115
DMPCC#1	16514		1	75	75	57	-15
FCNGEN 1	14911		1	170	170	84	-60
FCNGEN 2	14912		1	170	170	84	-60
FCNGEN 3	14913		1	220	220	112	-80
FCNGN4CC	14914		1	750	750	395	-280
FCNGN5CC	14915		1	750	750	395	-280
GATEWAY	16108	CFE	1	500	500	75	-75
GBPP-CT1	79704	PROPOSED	0	117.3	170.3	56.8	-35
GBPP-CT2	79705	PROPOSED	0	117.3	170.3	56.8	-35
GBPP-CT3	79706	PROPOSED	0	117.3	170.3	56.8	-35
GBPP-ST1	79701	PROPOSED	0	390	390	200	-142
GILRVCT1	91001	PROPOSED	0	170	170	300	-300
GILRVCT2	91003	PROPOSED	0	170	170	300	-300
GILRVST1	91004	PROPOSED	0	180	180	300	-300
GLENC1-2	79150		1	0	165	62	-58
GLENC1-2	79150		1	0	165	62	-58
GLENC3-4	79151		1	100	165	62	-58
GLENC3-4	79151		1	100	165	62	-58
GLENC5-6	79152		1	100	165	62	-58
GLENC5-6	79152		1	100	165	62	-58
GLENC7-8	79153		1	100	157	62	-58

APPENDIX A
(Continued)

Table of Generation

GEN NAME	BUS ID	STATUS	PGEN	PMAX	QMAX	QMIN	
GLENC7-8	79153		1	100	157	62	-58
GMS G9	50503		1	100	300	100	-100
GR_CT2-1	91002	PROPOSED	0	170	170	300	-300
GR_CT2-2	91005	PROPOSED	0	170	170	300	-300
GR_CT3-1	91007	PROPOSED	0	170	170	300	-300
GR_CT3-2	91008	PROPOSED	0	170	170	300	-300
GR_CT4-1	91010	PROPOSED	0	170	170	300	-300
GR_CT4-2	91011	PROPOSED	0	170	170	300	-300
GR_ST2-1	91006	PROPOSED	0	180	180	300	-300
GR_ST3-1	91009	PROPOSED	0	180	180	300	-300
GR_ST4-1	91012	PROPOSED	0	180	180	300	-300
GRIFFTH1	19311		1	220	300	145	-98
GRIFFTH2	19312		1	150	160	77	-52
GRIFFTH3	19313		1	150	160	77	-52
HAVASU12	19076		0	-49	50	24	-15
HAVASU12	19076		0	-49	50	24	-15
HAVASU34	19077		0	0	50	24	-15
HAVASU34	19077		0	0	50	24	-15
HAVASU56	19078		0	0	50	24	-15
HAVASU56	19078		0	0	50	24	-15
HEADGAT1	19305		0	6.5	7	3	-3
HEADGAT2	19306		0	6.5	7	3	-3
HEADGAT3	19307		0	6.5	7	3	-3
HGC-CT1	15157	PROPOSED	0	0	254	130	-110
HGC-CT2	15159	PROPOSED	0	0	254	130	-110
HGC-CT3	15161	PROPOSED	0	0	254	130	-110
HGC-ST1	15158	PROPOSED	0	0	134	65.5	-58
HGC-ST2	15160	PROPOSED	0	0	134	65.5	-58
HGC-ST3	15162	PROPOSED	0	0	134	65.5	-58
HOOVERA3	19023		1	71.47	130	30	-30
HOOVERA4	19024		1	113.6	130	30	-30
HOOVERA5	19025		1	100	127	30	-30
HOOVERA6	19026		1	100	130	30	-30
HOOVERA7	19027		1	100	130	30	-30
HOVRA1A2	19028		1	0	150	30	-30
HOVRA1A2	19028		1	88	130	30	-30
HOVRA8A9	19031		1	0	70	30	-30
HOVRA8A9	19031		1	0	75	30	-30
HOVRN1N2	19032		1	100	150	30	-30

APPENDIX A
(Continued)

Table of Generation

GEN NAME	BUS ID	STATUS	PGEN	PMAX	QMAX	QMIN	
HOVRN1N2	19032		1	100	130	30	-30
HOVRN3N4	19033		1	100	150	30	-30
HOVRN3N4	19033		1	100	130	30	-30
HOVRN5N6	19034		1	100	150	30	-30
HOVRN5N6	19034		1	100	130	30	-30
HOVRN7N8	19035		1	100	135	30	-30
HOVRN7N8	19035		1	100	153	30	-30
HRSMS123	15931		1	9.5	9.8	1.5	1.5
HRSMS123	15931		1	9.5	9.8	1.5	1.5
HRSMS123	15931		1	9.5	9.8	1.5	1.5
HRSMS4	15934		1	95	96	20	20
IRVNTCT	16504		1	25	30	15	-10
IRVNTCT	16504		1	25	30	15	-10
IRVTGE1	16507		1	80	81	80	-15
IRVTGE2	16508		1	80	81	80	-15
IRVTGE3	16509		1	104	104	70	-15
IRVTGE4	16503		1	110	156	110	-30
KYRENE	15911		0	0	34	22	-11
KYRENE 2	15912		0	0	72	50	-21
KYRENE 4	15914		0	0	57	27	-19
KYRENE 5	15915		0	0	51	29	-14
KYRENE 6	15916		0	0	50	29	-14
KYRPGEN1	15918		1	250	250	70	-68
KYRPGEN2	15919		0	0	0	0	0
MES-CT1	15164	PROPOSED	0	0	185	115	-61
MES-CT2	15165	PROPOSED	0	0	185	115	-61
MES-CT3	15167	PROPOSED	0	0	185	115	-61
MES-CT4	15168	PROPOSED	0	0	185	115	-61
MES-ST1	15166	PROPOSED	0	0	321	200	-100
MES-ST2	15169	PROPOSED	0	0	321	200	-100
MRMFLT12	15941		1	41.5	41.5	15	-15
MRMFLT12	15941		1	9	9	1	-1
NAVAJO 1	15981		1	805	805	350	-140
NAVAJO 2	15982		1	805	805	350	-140
NAVAJO 3	15983		1	803.66	805	350	-140
NLOOPCT	16510		0	20	20	10	-10
NLOOPCT	16510		1	25	30	15	-10
NLOOPCT	16510		1	25	30	15	-10
NLOOPCT	16510		0	25	30	15	-10

APPENDIX A
(Continued)

Table of Generation

GEN NAME	BUS ID		STATUS	PGEN	PMAX	QMAX	QMIN
OCOTGT1	14921		1	55.9	55.9	33	-20
OCOTGT2	14922		1	55.9	55.9	33	-20
OCOTST1	14925		1	114.9	114.9	70	-42
OCOTST2	14924		1	114.9	114.9	70	-42
PALOVRD1	14931		1	1352	1352	710	-310
PALOVRD2	14932		1	1352	1352	710	-310
PALOVRD3	14933		1	1352	1352	710	-310
PARKERG1	19006		1	22.5	26	10	-8
PARKERG2	19007		1	22.5	26	10	-8
PARKERG3	19008		1	22.5	26	10	-8
PARKERG4	19009		1	22.4	26	10	-8
RDHWKCT1	81001	PROPOSED	1	155	170	300	-300
RDHWKCT2	81003	PROPOSED	1	155	170	300	-300
RDHWKST1	81004	PROPOSED	1	170	180	300	-300
RH_CT2-1	81002	PROPOSED	0	170	170	300	-300
RH_CT2-2	81005	PROPOSED	0	170	170	300	-300
RH_CT3-1	81007	PROPOSED	0	170	170	300	-300
RH_CT3-2	81008	PROPOSED	0	170	170	300	-300
RH_CT4-1	81010	PROPOSED	0	170	170	300	-300
RH_CT4-2	81011	PROPOSED	0	170	170	300	-300
RH_ST2-1	81006	PROPOSED	0	180	180	300	-300
RH_ST3-1	81009	PROPOSED	0	180	180	300	-300
RH_ST4-1	81012	PROPOSED	0	180	180	300	-300
RSVLTGEN	15951		1	34	34	4	4
SAG. CT1	14944		1	4	54.5	33	-20
SAG. CT2	14943		1	0	54.5	33	-20
SAG-CT3	79707	PROPOSED	0	90	90	20	20
SAGUARO1	14941		1	73.4	110	62	-39
SAGUARO2	14942		1	54.4	99	62	-39
SANPGEN1	15926	PROPOSED	1	240	240	70	-68
SANPGEN2	15927	PROPOSED	1	162	162	120	-100
SANPGEN2	15927	PROPOSED	1	162	162	120	-100
SANPGEN2	15927	PROPOSED	1	162	162	120	-100
SANTAN 1	15921		1	67	76	70	-28
SANTAN 2	15922		1	67	74	70	-28
SANTAN 3	15923		0	0	80	70	-28
SANTAN 4	15924		1	67	77	70	-28
SOPOINT1	19317		1	170	170	82	-56
SOPOINT2	19318		1	175	175	82	-56

APPENDIX A
(Continued)

Table of Generation

GEN NAME	BUS ID	STATUS	PGEN	PMAX	QMAX	QMIN	
SOPOINT3	19319		1	175	175	82	-56
SPG-CT1	80133	PROPOSED	0	162	162	90	-10
SPG-CT2	80134	PROPOSED	0	162	162	116	-84
SPG-CT3	80137	PROPOSED	0	162	162	116	-84
SPG-CT4	80138	PROPOSED	0	162	162	116	-84
SPG-ST1	80135	PROPOSED	0	256	256	169	-115
SPG-ST2	80139	PROPOSED	0	256	256	169	-115
SPR GEN1	16500		1	380	380	100	-100
SPR GEN2	16501		1	380	380	100	-100
SPR GEN3	16518	PROPOSED	0	380	380	100	-100
SPR GEN4	16519	PROPOSED	0	380	380	100	-100
STEWMTN	15961		1	13	13	5	-5
SUN G1	19411	PROPOSED	0	44.5	60	30	-20
SUN G10	19420	PROPOSED	0	44.5	60	30	-20
SUN G2	19412	PROPOSED	0	44.5	60	30	-20
SUN G3	19413	PROPOSED	0	44.5	60	30	-20
SUN G4	19414	PROPOSED	0	44.5	60	30	-20
SUN G5	19415	PROPOSED	0	44.5	60	30	-20
SUN G6	19416	PROPOSED	0	44.5	60	30	-20
SUN G7	19417	PROPOSED	0	44.5	60	30	-20
SUN G8	19418	PROPOSED	0	44.5	60	30	-20
SUN G9	19419	PROPOSED	0	44.5	60	30	-20
SUNARIZ1	19431	PROPOSED	0	0	300	145	-98
SUNARIZ2	19432	PROPOSED	0	0	160	77	-52
SUNARIZ3	19433	PROPOSED	0	0	160	77	-52
TOLT-CT1	16802	PROPOSED	0	150	155	130	-50
TOLT-CT2	16803	PROPOSED	0	150	155	130	-50
TOLT-CT3	16805	PROPOSED	0	150	155	130	-50
TOLT-CT4	16806	PROPOSED	0	150	155	130	-50
TOLT-CT5	16808	PROPOSED	0	150	155	130	-50
TOLT-CT6	16809	PROPOSED	0	150	155	130	-50
TOLT-ST1	16804	PROPOSED	0	300	300	197.3	-100
TOLT-ST2	16807	PROPOSED	0	300	300	197.3	-100
TOLT-ST3	16810	PROPOSED	0	300	300	197.3	-100
VAILCT#1	16517		1	75	75	57	-15
VAILCT#2	16520		0	75	75	57	-15
WADDEL23	19300		1	7.5	11.5	4	-3
WADDEL23	19300		1	7.5	11.5	4	-3
WADDEL67	19301		1	7.8	11.5	4	-3

**APPENDIX A
(Continued)**

Table of Generation

GEN NAME	BUS ID	STATUS	PGEN	PMAX	QMAX	QMIN	
WADDEL67	19301		1	7.5	11.5	4	-3
WINCH 1	16850	PROPOSED	0	160	160	100	-25
WINCH 2	16851	PROPOSED	0	160	160	100	-25
WINCH 3	16852	PROPOSED	0	180	180	110	-40
WPGEN1	14966		1	155	175	90	-10
WPGEN2	14967		1	155	175	90	-10
WPGEN3	14968		1	155	175	90	-30
WPHX CC1	14951		1	74	85	64	-35
WPHX CC2	14952		1	85	85	64	-35
WPHX CC3	14953		1	85	85	64	-35
WPHX GT1	14954		0	0	0	33	-20
WPHX GT2	14957		0	0	0	33	-20
WPHXNCC	14958		1	68.5	125	64	-35
YUCCACT1	14961		0	0	19.1	12	-7
YUCCACT2	14962		0	0	19.1	12	-7
YUCCACT3	14963		0	0	55	32	-18
YUCCACT4	14964		0	0	54	32	-18
YUCCAGEN	14965		1	75	75	54	-32
YUMA EQ.	14406		0	0	0	33	-18

**APPENDIX B
(Continued)
Central Arizona Transmission Study
Phase II
Study Matrix**

Objective	Transmission Alternative	Generation Area	Load Area	Responsible Party
Schedule Generation from Generation area A into the Phoenix Area	SRP_ALT_1 SRP_ALT_2 SRP_ALT_3	Palo Verde Area Generation (Group A. GEN)	Phoenix Area	SRP
Schedule Generation from Generation Area B into the Phoenix Area	SRP_ALT_1 SRP_ALT_2 SRP_ALT_3	Saguaro Area Generation (Group B GEN)	Phoenix Area	SRP
Schedule Generation from Generation Area C1 into the Phoenix Area	SRP_ALT_1 SRP_ALT_2 SRP_ALT_3	Springerville Area Generation (Group C1 GEN)	Phoenix Area	SRP
Schedule Generation from Generation Area C2 into the Phoenix Area	SRP_ALT_1 SRP_ALT_2 SRP_ALT_3	South Tucson Area Generation (Group C2. Gen.)	Phoenix Area	SRP
Schedule Generation from Generation area A into the Tucson Area.	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6 TEP/SWTC_ALT_7 TEP/SWTC_ALT_9	Palo Verde Area Generation (Group A. GEN)	Tucson / SWTC Area	TEP

**APPENDIX B
(Continued)
Central Arizona Transmission Study
Phase II
Study Matrix**

Schedule Bowie Generation from Generation Area C1 into the Phoenix Area	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6	Bowie Generation (Group C1 GEN)	Phoenix Area	TEP
Schedule Bowie Generation from Generation Area C1 into the Tucson Area	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6	Bowie Generation (Group C1 GEN)	Tucson / SWTC Area	TEP
Schedule Bowie, Winchester, and Springerville Expansion Generation from Generation Area C1 into the Phoenix Area	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6	Bowie, Winchester, Springerville Generation (Group C1 GEN)	Phoenix Area	TEP
Schedule Bowie, Winchester, and Springerville Expansion Generation from Generation Area C1 into the Tucson Area	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6	Bowie, Winchester, Springerville Generation (Group C1 GEN)	Tucson / SWTC Area	TEP
Schedule Bowie, Winchester, and Springerville Expansion Generation from Generation Area C1 into the Tucson & Phoenix areas	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6	Bowie, Winchester, Springerville Generation (Group C1 GEN)	Phoenix Area (50%) Tucson / SWTC Area (50%)	TEP

**APPENDIX B
(Continued)
Central Arizona Transmission Study
Phase II
Study Matrix**

Schedule Toltec Generation from Generation Area B into the Phoenix Area	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6	Toltec Generation (Group B GEN)	Phoenix Area	TEP
Schedule Toltec Generation from Generation Area B into the Tucson Area	TEP/SWTC_ALT_1 TEP/SWTC_ALT_2 TEP/SWTC_ALT_3 TEP/SWTC_ALT_4 TEP/SWTC_ALT_5 TEP/SWTC_ALT_6	Toltec Generation (Group B GEN)	Tucson / SWTC Area	TEP
Schedule Generation from Gen Group A into the Phoenix Area	PNM_ALT_1	Palo Verde Area Generation (Group A. GEN)	Phoenix Area	PNM
Schedule Generation from Generation Group A and B into the Phoenix, Tucson area and to Mexico.	PNM_ALT_1 PNM_ALT_1_S1	Palo Verde and Saguaro Area Generation (Group A and B GEN)	Phoenix Area Tucson Area Mexico	PNM
Schedule Generation from Generation Group A into the Tucson Area and to Mexico	PNM_ALT_1 PNM_ALT_1_S1	Palo Verde Area Generation (Group A GEN)	Phoenix Area Tucson Area Mexico	PNM

**APPENDIX B
(Continued)
Central Arizona Transmission Study
Phase II
Study Matrix**

Objective	Transmission Alternative	Generation Area	Load Area	Responsible Party
Schedule Generation from Generation area A into the Phoenix Area	APS_ALT_1	Palo Verde Area Generation (Group A. GEN)	Phoenix Area	APS
Schedule Generation from Generation Area B into the Phoenix Area	APS_ALT_1	Saguaro Area Generation (Group B GEN)	Phoenix Area	APS
Schedule Generation from Generation Area C1 into the Phoenix Area	APS_ALT_1	Springerville Area Generation (Group C1 GEN)	Phoenix Area	APS