Rulemaking 12-03-014
Exhibit No.: ISO-22
Witness:

2013 – 2015
Local Capacity Technical Analysis

Report and Study Results

DEVERS_1_QF	25634	BUCKWIND	115	1.20	QF	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25635	ALTWIND	115	1.06	Q2	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25635	ALTWIND	115	2.31	Q1	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25636	RENWIND	115	0.44	Q1	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25636	RENWIND	115	0.46	Q2	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25636	RENWIND	115	0.63	W1	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25637	TRANWIND	115	2.81	QF	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25639	SEAWIND	115	1.89	QF	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25640	PANAERO	115	2.10	QF	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25645	VENWIND	115	1.19	EU	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25645	VENWIND	115	1.36	Q1	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25645	VENWIND	115	1.79	Q2	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25646	SANWIND	115	0.21	Q2	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DEVERS_1_QF	25646	SANWIND	115	1.96	Q1	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
DMDVLY_1_UNITS	25425	ESRP P2	6.9	21.00		Eastern	Not modeled	QF/Selfgen
DREWS_6_PL1X4				36.00		Eastern	Not modeled	Market
DVLCYN_1_UNITS	25603	DVLCYN3G	13.8	64.86	3	Eastern		MUNI
DVLCYN_1_UNITS	25604	DVLCYN4G	13.8	64.86	4	Eastern		MUNI
DVLCYN_1_UNITS	25648	DVLCYN1G	13.8	48.64	1	Eastern		MUNI
DVLCYN_1_UNITS	25649	DVLCYN2G	13.8	48.64	2	Eastern		MUNI
ELLIS_2_QF	24197	ELLIS	66	0.29		Western, Ellis	Not modeled	QF/Selfgen
ELSEGN_7_UNIT 3	24047	ELSEG3 G	18	335.00	3	Western, El Nido		Market
ELSEGN_7_UNIT 4	24048	ELSEG4 G	18	335.00	4	Western, El Nido		Market
ETIWND_2_FONTNA	24055	ETIWANDA	66	0.61		Eastern	Not modeled	QF/Selfgen
ETIWND_2_QF	24055	ETIWANDA	66	17.66		Eastern	Not modeled	QF/Selfgen
ETIWND_6_GRPLND	28305	ETWPKGEN	13.8	42.53	1	Eastern		Market
ETIWND_6_MWDETI	25422	ETI MWDG	13.8	21.19	1	Eastern		Market
ETIWND_7_MIDVLY	24055	ETIWANDA	66	2.10		Eastern	Not modeled	QF/Selfgen
ETIWND_7_UNIT 3	24052	MTNVIST3	18	320.00	3	Eastern		Market
ETIWND_7_UNIT 4	24053	MTNVIST4	18	320.00	4	Eastern		Market
GARNET_1_UNITS	24815	GARNET	115	0.19	G2	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
GARNET_1_UNITS	24815	GARNET	115	0.19	PC	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
GARNET_1_UNITS	24815	GARNET	115	0.38	G3	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
GARNET_1_UNITS	24815	GARNET	115	0.53	G1	Eastern	Monthly NQC - used August for LCR	QF/Selfgen
GARNET_1_WIND	24815	GARNET	115	0.61	W2	Eastern	No NQC - historical data	Wind
GARNET_1_WIND	24815	GARNET	115	0.61	W3	Eastern	No NQC - historical data	Wind

GLNARM_7_UNIT 1	28005	PASADNA1	13.8	22.30	1	Western		MUNI
GLNARM_7_UNIT 2	28006	PASADNA2	13.8	22.30	1	Western		MUNI
GLNARM_7_UNIT 3	28005	PASADNA1	13.8	44.83		Western	Not modeled	MUNI
GLNARM_7_UNIT 4	28006	PASADNA2	13.8	42.42		Western	Not modeled	MUNI
HARBGN_7_UNITS	24062	HARBOR G	13.8	11.86	HP	Western		Market
HARBGN_7_UNITS	24062	HARBOR G	13.8	76.28	1	Western		Market
HARBGN_7_UNITS	25510	HARBORG4	4.16	11.86	LP	Western		Market
HINSON_6_CARBGN	24020	CARBOGEN	13.8	29.00	1	Western		Market
HINSON_6_LBECH1	24078	LBEACH1G	13.8	65.00	1	Western		Market
HINSON_6_LBECH2	24170	LBEACH2G	13.8	65.00	2	Western		Market
HINSON_6_LBECH3	24171	LBEACH3G	13.8	65.00	3	Western		Market
HINSON_6_LBECH4	24172	LBEACH4G	13.8	65.00	4	Western		Market
HINSON_6_SERRGN	24139	SERRFGEN	13.8	28.10	1	Western		QF/Selfgen
HNTGBH_7_UNIT 1	24066	HUNT1 G	13.8	225.75	1	Western, Ellis		Market
HNTGBH_7_UNIT 2	24067	HUNT2 G	13.8	225.80	2	Western, Ellis		Market
HNTGBH_7_UNIT 3	24167	HUNT3 G	13.8	225.00	3	Western, Ellis		Market
HNTGBH_7_UNIT 4	24168	HUNT4 G	13.8	227.00	4	Western, Ellis		Market
INDIGO_1_UNIT 1	28190	WINTECX2	13.8	42.00	1	Eastern		Market
INDIGO_1_UNIT 2	28191	WINTECX1	13.8	42.00	1	Eastern		Market
INDIGO_1_UNIT 3	28180	WINTEC8	13.8	42.00	1	Eastern		Market
INLDEM_5_UNIT 1	28041	IEEC-G1	19.5	335.00	1	Eastern		Market
INLDEM_5_UNIT 2	28042	IEEC-G2	19.5	335.00	1	Eastern	No NQC - Pmax	Market
JOHANN_6_QFA1	24072	JOHANNA	230	0.00		Western, Ellis	Not Modeled	QF/Selfgen
LACIEN_2_VENICE	24208	LCIENEGA	66	3.68		Western	Not modeled	QF/Selfgen
LAFRES_6_QF	24073	LA FRESA	66	3.28		Western, El Nido	Not modeled	QF/Selfgen
LAGBEL_6_QF	24075	LAGUBELL	66	10.92		Western	Not modeled	QF/Selfgen
LGHTHP_6_ICEGEN	24070	ICEGEN	13.8	48.09	1	Western		QF/Selfgen
LGHTHP_6_QF	24083	LITEHIPE	66	0.92		Western	Not modeled	QF/Selfgen
MESAS_2_QF	24209	MESA CAL	66	1.17		Western	Not modeled	QF/Selfgen
MIRLOM_2_CORONA				1.94		Eastern	Not modeled	QF/Selfgen
MIRLOM_2_TEMESC				2.18		Eastern	Not modeled	QF/Selfgen
MIRLOM_6_DELGEN	24030	DELGEN	13.8	39.68	1	Eastern		QF/Selfgen
MIRLOM_6_PEAKER	28307	MRLPKGEN	13.8	43.18	1	Eastern		Market
MIRLOM_7_MWDLKM	24210	MIRALOMA	66	4.30		Eastern	Not modeled	MUNI
MOJAVE_1_SIPHON	25657	MJVSPHN1	13.8	4.67	1	Eastern		Market
MOJAVE_1_SIPHON	25657	MJVSPHN1	13.8	4.67	2	Eastern		Market
MOJAVE_1_SIPHON	25657	MJVSPHN1	13.8	4.67	3	Eastern		Market
MTWIND_1_UNIT 1				5.35		Eastern	Not modeled - Monthly NQC - used August for LCR	Wind
MTWIND_1_UNIT 2				2.36		Eastern	Not modeled - Monthly NQC - used August for LCR	Wind
MTWIND_1_UNIT 3				2.64		Eastern	Not modeled - Monthly NQC - used August for LCR	Wind
OLINDA_2_COYCRK	24211	OLINDA	66	3.13		Western	Not modeled	QF/Selfgen
OLINDA_2_QF	24211	OLINDA	66	3.39	1	Western		QF/Selfgen
OLINDA_7_LNDFIL	24201	BARRE	66	4.90		Western	Not modeled	QF/Selfgen
PADUA_2_ONTARO	24111	PADUA	66	1.04		Eastern	Not modeled	QF/Selfgen
PADUA_6_MWDSDM	24111	PADUA	66	5.70		Eastern	Not modeled	MUNI
PADUA_6_QF	24111	PADUA	66	4.46		Eastern	Not modeled	QF/Selfgen
PADUA_7_SDIMAS	24111	PADUA	66	1.05		Eastern	Not modeled	QF/Selfgen

							Monthly NQC - used August for LCR	
PWEST_1_UNIT				0.27		Western	Not modeled	Market
REDOND_7_UNIT 5	24121	REDON5 G	18	178.87	5	Western		Market
REDOND_7_UNIT 6	24122	REDON6 G	18	175.00	6	Western		Market
REDOND_7_UNIT 7	24123	REDON7 G	20	493.24	7	Western		Market
REDOND_7_UNIT 8	24124	REDON8 G	20	495.90	8	Western		Market
RHONDO_2_QF	24213	RIOHONDO	66	1.27		Western	Not modeled	QF/Selfgen
RHONDO_6_PUENTE	24213	RIOHONDO	66	4.00		Western	Not modeled	Market
RVSIDE_6_RERCU1	24242	RERC1G	13.8	48.35	1	Eastern		MUNI
RVSIDE_6_RERCU2	24243	RERC2G	13.8	48.50	1	Eastern		MUNI
RVSIDE_6_SPRING	24244	SPRINGEN	13.8	36.00	1	Eastern		Market
SANTGO_6_COYOTE	24133	SANTIAGO	66	9.99	1	Western, Ellis		Market
SBERDO_2_PSP3	24921	MNTV-CT1	18	129.71	1	Eastern		Market
SBERDO_2_PSP3	24922	MNTV-CT2	18	129.71	1	Eastern		Market
SBERDO_2_PSP3	24923	MNTV-ST1	18	225.08	1	Eastern		Market
SBERDO_2_PSP4	24924	MNTV-CT3	18	129.71	1	Eastern		Market
SBERDO_2_PSP4	24925	MNTV-CT4	18	129.71	1	Eastern		Market
SBERDO_2_PSP4	24926	MNTV-ST2	18	225.08	1	Eastern		Market
SBERDO_2_QF	24214	SANBRDNO	66	0.16		Eastern	Not modeled	QF/Selfgen
SBERDO_2_SNTANA	24214	SANBRDNO	66	0.73		Eastern	Not modeled	QF/Selfgen
SBERDO_6_MILLCK	24214	SANBRDNO	66	2.23		Eastern	Not modeled	QF/Selfgen
SONGS_7_UNIT 2	24129	S.ONOFR2	22	1122.00	2	Western		Nuclear
SONGS_7_UNIT 3	24130	S.ONOFR3	22	1124.00	3	Western		Nuclear
TIFFNY_1_DILLON				7.72		Western	Not modeled	Wind
VALLEY_2_QF	24160	VALLEYSC	115	4.71		Eastern	Not modeled	QF/Selfgen
VALLEY_5_PERRIS	24160	VALLEYSC	115	7.94		Eastern	Not modeled	QF/Selfgen
VALLEY_5_REDMTN	24160	VALLEYSC	115	3.00		Eastern	Not modeled	QF/Selfgen
VALLEY_7_BADLND	24160	VALLEYSC	115	1.30		Eastern	Not modeled	Market
VALLEY_7_UNITA1	24160	VALLEYSC	115	3.74		Eastern	Not modeled	Market
VERNON_6_GONZL1				5.75		Western	Not modeled	MUNI
VERNON_6_GONZL2				5.75		Western	Not modeled	MUNI
VERNON_6_MALBRG	24239	MALBRG1G	13.8	42.37	C1	Western		MUNI
VERNON_6_MALBRG	24240	MALBRG2G	13.8	42.37	C2	Western		MUNI
VERNON_6_MALBRG	24241	MALBRG3G	13.8	49.26	S3	Western		MUNI
VILLPK_2_VALLYV	24216	VILLA PK	66	4.10		Western	Not modeled	QF/Selfgen
VILLPK_6_MWDYOR	24216	VILLA PK	66	3.90		Western	Not modeled	MUNI
VISTA_6_QF	24902	VSTA	66	0.13	1	Eastern		QF/Selfgen
WALNUT_6_HILLGEN	24063	HILLGEN	13.8	47.00	1	Western		QF/Selfgen
WALNUT_7_WCOVCT	24157	WALNUT	66	1.96		Western	Not modeled	Market
WALNUT_7_WCOVST	24157	WALNUT	66	3.19		Western	Not modeled	Market
WHTWTR_1_WINDA1	28061	WHITEWTR	33	7.06	1	Eastern	Monthly NQC - used August for LCR	Wind
ARCOGN_2_UNITS	24018	BRIGEN	13.8	35.00	1	Western	No NQC - historical data	Market
HINSON_6_QF	24064	HINSON	66	0.00	1	Western	No NQC - historical data	QF/Selfgen
INLAND_6_UNIT	24071	INLAND	13.8	30.00	1	Eastern	No NQC - historical data	QF/Selfgen
MOBGEN_6_UNIT 1	24094	MOBGEN	13.8	45.00	1	Western, El Nido	No NQC - historical data	QF/Selfgen
NA	24027	COLDGEN	13.8	0.00	1	Western	No NQC - historical data	Market
NA	24060	GROWGEN	13.8	0.00	1	Western	No NQC - historical data	Market

NA	24324	SANIGEN	13.8	8.00	D1	Eastern	No NQC - Pmax	QF/Selfgen
NA	24325	ORCOGEN	13.8	12.00	1	Western, Ellis	No NQC - Pmax	QF/Selfgen
NA	24327	THUMSGEN	13.8	49.00	1	Western	No NQC - Pmax	QF/Selfgen
NA	24330	OUTFALL1	13.8	17.00	1	Western, El Nido	No NQC - Pmax	QF/Selfgen
NA	24331	OUTFALL2	13.8	17.00	1	Western, El Nido	No NQC - Pmax	QF/Selfgen
NA	24332	PALOGEN	13.8	13.00	D1	Western, El Nido	No NQC - Pmax	QF/Selfgen
NA	24337	VENICE	13.8	10.10	1	Western, El Nido	No NQC - Pmax	QF/Selfgen
NA	24341	COYGEN	13.8	20.00	1	Western, Ellis	No NQC - Pmax	QF/Selfgen
NA	24342	FEDGEN	13.8	24.70	1	Western	No NQC - Pmax	QF/Selfgen
NA	25301	CLTNDREW	13.8	47.20	1	Eastern	No NQC - Pmax	QF/Selfgen
NA	25302	CLTNCTRY	13.8	47.20	1	Eastern	No NQC - Pmax	QF/Selfgen
NA	25303	CLTNAGUA	13.8	47.20	1	Eastern	No NQC - Pmax	QF/Selfgen
NA	28020	WINTEC6	115	0.00	1	Eastern	No NQC - historical data	Wind
NA	28023	WINTEC4	12	0.00	1	Eastern	No NQC - historical data	Wind
NA	28060	SEAWEST	115	0.00	S1	Eastern	No NQC - historical data	Wind
NA	28060	SEAWEST	115	0.00	S2	Eastern	No NQC - historical data	Wind
NA	28060	SEAWEST	115	0.00	S3	Eastern	No NQC - historical data	Wind
NA	28260	ALTAMSA4	115	0.00	1	Eastern	No NQC - historical data	Wind
NA	28951	REFUSE	13.8	12.00	1	Western	No NQC - Pmax	QF/Selfgen
NA	28953	SIGGEN	13.8	29.00	1	Western	No NQC - Pmax	QF/Selfgen
NA	29338	CLEARGEN	13.8	32.00	1	Eastern	No NQC - Pmax	QF/Selfgen
NA	29339	DELGEN	13.8	42.00	1	Eastern	No NQC - Pmax	QF/Selfgen
PULPGN_6_UNIT	24120	PULPGEN	13.8	35.00	1	Western	No NQC - historical data	Market
RVSIDE_2_RERCU3	24299	RERC2G3	13.8	50.00	1	Eastern	No NQC - Pmax	MUNI
RVSIDE_2_RERCU4	24299	RERC2G4	13.8	50.00	1	Eastern	No NQC - Pmax	MUNI

Major new projects modeled:

1. Colorado River-Devers #2 500 kV line
2. Tehachapi Transmission Project (phased in)
3. Vincent-Mira Loma 500 kV (part of Tehachapi Upgrade) – 2015 only

Critical Contingency Analysis Summary

LA Basin overall:

For 2013, the most critical contingency is the loss of the Palo Verde–Colorado River 500 kV line with SONGS #3 already out of service, with potential overload on South of Lugo. This limiting contingency establishes a local capacity need of about 11,304 MW

(includes 1258 MW of QF and wind, 897 MW of Muni and 2246 MW of nuclear generation) as the minimum capacity necessary for reliable load serving capability within this area.

For 2015, due to the addition of the Vincent-Mira Loma 500 kV line and the Colorado River-Devers #2 500 kV line the imports into the LA Basin local area have increased considerably. Given that the Maximum Import Capacity is maintained fixed (see current import allocation process) the CAISO can only dispatch units outside this area and within SCE/SDG&E territory (path 26 has been maximized). The study has run out of generation in the "other SCE/SG&E areas" without being able to reach a limit in the LA Basin local area. It is estimated that about 10,800 MW of the LA Basin capacity is needed to serve load and reserves in the southern system will reach its zonal limits before reaching the local area limits. Further detailed analysis will be done at a later date part of the CAISO grid expansion process and will greatly depend on the new path ratings established after these new projects become operational as well as the location of future generation within SCE/SDG&E territory.

Effectiveness factors:

The following table has units that have at least 5% effectiveness to the above-mentioned South of Lugo constraint within the LA Basin area in 2012 case:

Gen Bus	Gen Name	Gen ID	Eff Factor (%)
24052	MTNVIST3	3	35
24053	MTNVIST4	4	35
25422	ETI MWDG	1	33
28305	ETWPKGEN	1	33
24071	INLAND	1	32
24921	MNTV-CT1	1	28
24922	MNTV-CT2	1	28
24923	MNTV-ST1	1	28
24924	MNTV-CT3	1	28
24925	MNTV-CT4	1	28
24926	MNTV-ST2	1	28
24905	RVCANAL1	R1	27
24906	RVCANAL2	R2	27
24907	RVCANAL3	R3	27
24908	RVCANAL4	R4	27
24242	RERC1G	1	27
24243	RERC2G	1	27

24244	SPRINGEN	1	27
28041	IEEC-G1	1	27
28042	IEEC-G2	2	27
25303	CLTNAGUA	1	27
25301	CLTNDREW	1	27
25302	CLTNCTRY	1	27
24299	RERC2G3	1	27
24300	RERC2G4	1	27
29339	DELGEN	1	27
29338	CLEARGEN	1	27
24324	SANIGEN	1	27
25657	MJVSPHN1	1	27
25657	MJVSPHN1	2	27
25657	MJVSPHN1	3	27
25648	DVLCYN1G	1	26
25649	DVLCYN2G	2	26
25603	DVLCYN3G	3	26
25604	DVLCYN4G	4	26
25632	TERAWND	QF	26
28021	WINTEC6	1	26
25634	BUCKWND	QF	26
25635	ALTWIND	Q1	26
25635	ALTWIND	Q2	26
25637	TRANWND	QF	26
25645	VENWIND	EU	26
25645	VENWIND	Q2	26
25645	VENWIND	Q1	26
25646	SANWIND	Q2	26
28190	WINTECX2	1	26
28191	WINTECX1	1	26
28180	WINTEC8	1	26
24815	GARNET	QF	26
24815	GARNET	W3	26
24815	GARNET	W2	26
28023	WINTEC4	1	26
28060	SEAWEST	S1	26
28060	SEAWEST	S3	26
28060	SEAWEST	S2	26
28061	WHITEWTR	1	26
28280	CABAZON	1	26
25633	CAPWIND	QF	25
25639	SEAWIND	QF	25
25640	PANAERO	QF	25
28260	ALTAMSA4	1	25
25203	ANAHEIMG	1	22
24026	CIMGEN	1	21
24030	DELGEN	1	21
24140	SIMPSON	1	21
28307	MRLPKGEN	1	19
28309	BARPKGEN	1	19

24066	HUNT1 G	1	18
24067	HUNT2 G	2	18
24167	HUNT3 G	3	18
24168	HUNT4 G	4	18
24005	ALAMT5 G	5	17
24161	ALAMT6 G	6	17
24001	ALAMT1 G	1	16
24002	ALAMT2 G	2	16
24003	ALAMT3 G	3	16
24004	ALAMT4 G	4	16
24162	ALAMT7 G	R7	16
24063	HILLGEN	1	16
24129	S.ONOFR2	2	16
24130	S.ONOFR3	3	16
24018	BRIGEN	1	14
28308	CTRPKGEN	1	14
28953	SIGGEN	1	14
24011	ARCO 1G	1	13
24012	ARCO 2G	2	13
24013	ARCO 3G	3	13
24014	ARCO 4G	4	13
24163	ARCO 5G	5	13
24164	ARCO 6G	6	13
24020	CARBOGEN	1	13
24045	ELSEG1 G	R1	13
24046	ELSEG2 G	R2	13
24064	HINSON	1	13
24070	ICEGEN	1	13
24078	LBEACH1G	1	13
24170	LBEACH2G	2	13
24171	LBEACH3G	3	13
24172	LBEACH4G	4	13
24173	LBEACH5G	5	13
24174	LBEACH6G	6	13
24079	LBEACH7G	7	13
24080	LBEACH8G	8	13
24081	LBEACH9G	9	13
24094	MOBGEN	1	13
24139	SERRFGEN	1	13
24062	HARBOR G	1	13
25510	HARBORG4	LP	13
24062	HARBOR G	HP	13
24047	ELSEG3 G	3	12
24048	ELSEG4 G	4	12
24121	REDON5 G	5	12
24122	REDON6 G	6	12
24123	REDON7 G	7	12
24124	REDON8 G	8	12
24241	MALBRG3G	S3	11
24240	MALBRG2G	C2	11

24239	MALBRG1G	C1	11
24027	COLDGEN	1	11
24060	GROWGEN	1	11
24120	PULPGEN	1	11
28951	REFUSE	1	11
28005	PASADNA1	1	9
28006	PASADNA2	1	9
28007	BRODWYSC	1	9

Western LA Basin Sub-area:

For 2013, the most critical contingency is the loss of one of the Serrano – Villa Park 230 kV line followed by the loss of the Serrano – Lewis 230 kV line, which would result in thermal overload of the remaining Serrano – Villa Park 230 kV line This limiting contingency establishes a local capacity need of 6090 MW (includes 836 MW of QF and wind, 392 of Muni and 2246 MW of nuclear generation) as the minimum capacity necessary for reliable load serving capability within this sub-area.

Due to the numerous transmission projects modeled, in 2015 timeframe, the Western LA Basin sub-area will become the most stringent and binding local area constraint. At that time it is envisioned that the LA Basin local area will be eliminated and the Western LA Basin local area will become a new local area.

For 2015, the most critical single contingency is the loss of the Sylmar-Gould 230 kV line with SONGS #3 unit out of service, which would result in thermal overload of the Sylmar-Eagle Rock 230 kV line. This limiting contingency establishes a local capacity need of about 5988 MW (includes 836 MW of QF and wind, 392 of Muni and 2246 MW of nuclear generation) as the minimum capacity necessary for reliable load serving capability within this area.

Effectiveness factors:

There are numerous other combinations of contingencies in the area that could overload a significant number of 230 kV lines in this sub-area/area and have slightly less LCR need. As such, anyone of them (combination of contingencies) could become

binding for any given set of procured resources. As a result, effectiveness factors are not given since they would most likely not facilitate more informed procurement.

Ellis sub-area:

The most critical contingency is the loss of Barre–Ellis 230 kV line followed by the loss of Double Circuit Tower Line (DCTL) S.Onofre-Santiago #1 and #2 230 kV, which would result in voltage collapse. This limiting contingency establishes a local capacity need of 500 MW in 2013 and 2015 (includes 32 MW of QF generation) as the minimum capacity necessary for reliable load serving capability within this sub-area.

El Nido sub-area:

The most critical contingency could be the loss of La Fresa – Redondo 230 kV lines, which would result in the overload on Hinson – La Fresa 230 kV line. This limiting contingency establishes a local capacity need of 620 MW in 2013 and 2015 (includes 109 MW of QF generation) as the minimum capacity necessary for reliable load serving capability within this sub-area.

Changes compared to last year's results:

Overall the load forecast went up by 593 MW and 576 MW respectively or about 2%. The LCR increase between 2012 and 2013 is mainly due to the load growth. The LCR increase between 2013 and 2015 for the Western LA Basin is mainly due to the load of the Pardee – Eagle Rock 230 kV line (taken out in 2014 in order to make room for the new Vincent – Mira Loma 500 kV line). The Vincent – Mira Loma 500 kV line, modeled in the 2015 base case, is the main cause for the LA Basin LCR decrease and potential elimination of the LA Basin LCR area and creation of the Western LA Basin area.

LA Basin Overall Requirements:

	QF/Wind (MW)	Muni (MW)	Nuclear (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	1258	897	2246	8136	12537

2013	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Requirement
Category B (Single)[19]	11304	0	11304
Category C (Multiple)[20]	11304	0	11304

Western LA Basin Requirements:

	QF/Wind (MW)	Muni (MW)	Nuclear (MW)	Market (MW)	Max. Qualifying Capacity (MW)
Available generation	836	392	2246	5497	8971

2015	Existing Generation Capacity Needed (MW)	Deficiency (MW)	Total MW Requirement
Category B (Single) [18]	5988	0	5988
Category C (Multiple) [19]	5988	0	5988

9. Big Creek/Ventura Area

Area Definition

For 2013, the transmission tie lines into the Big Creek/Ventura Area are:

1) Antelope #1 500/230 kV Transformer
2) Antelope #2 500/230 kV Transformer
3) Sylmar-Pardee 230 kV #1 and #2 Lines
4) Eagle Rock – Pardee 230 kV line
5) Vincent-Pardee 230 kV #1 Line
6) Vincent-Santa Clara 230 kV Line

The substations that delineate the Big Creek/Ventura Area are:

1) Antelope 500 kV is out Antelope 230 kV is in
2) Antelope 500 kV is out Antelope 230 kV is in
3) Eagle Rock is out Pardee is in
4) Sylmar is out Pardee is in
5) Vincent is out Pardee is in
6) Vincent is out Santa Clara is in

For 2015, the transmission tie lines into the Big Creek/Ventura Area are:

1) Antelope #1 500/230 kV Transformer

[19] A single contingency means that the system will be able the survive the loss of a single element, however the operators will not have any means (other then load drop) in order to bring the system within a safe operating zone and get prepared for the next contingency as required by MORC.
[20] Multiple contingencies means that the system will be able the survive the loss of a single element, and the operators will have enough generation (other operating procedures) in order to bring the system within a safe operating zone and get prepared for the next contingency as required by MORC.

2) Antelope #2 500/230 kV Transformer
3) Sylmar-Pardee 230 kV #1 and #2 Lines
4) Vincent-Pardee 230 kV #1 Line
5) Vincent-Santa Clara 230 kV Line

The substations that delineate the Big Creek/Ventura Area are:

1) Antelope 500 kV is out Antelope 230 kV is in
2) Antelope 500 kV is out Antelope 230 kV is in
3) Sylmar is out Pardee is in
4) Vincent is out Pardee is in
5) Vincent is out Santa Clara is in

Total 2013 busload within the defined area is 4,780 MW with 112 MW of losses and 300 MW of pumps resulting in total load + losses + pumps of 5192 MW. Total 2015 busload within the defined area is 4921MW with 103 MW of losses and 300 MW of pumps resulting in total load + losses + pumps of 5324 MW.

Total units and qualifying capacity available in the Big Creek/Ventura area:

MKT/SCHED RESOURCE ID	BUS #	BUS NAME	kV	NQC	UNIT ID	LCR SUB-AREA NAME	NQC Comments	CAISO Tag
ALAMO_6_UNIT	25653	ALAMO SC	13.8	16.00	1	Big Creek		Market
ANTLPE_2_QF	24457	ARBWIND	66	3.13	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	24458	ENCANWND	66	16.20	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	24459	FLOWIND	66	5.86	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	24460	DUTCHWND	66	2.01	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	24465	MORWIND	66	8.04	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	24491	OAKWIND	66	2.58	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	28501	MIDWIND	12	2.58	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	28502	SOUTHWND	12	0.95	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	28503	NORTHWND	12	2.78	1	Big Creek	Monthly NQC - used August for LCR	Wind
ANTLPE_2_QF	28504	ZONDWND1	12	1.89	1	Big Creek	Monthly NQC - used August for LCR	Wind