

## 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Peak**

### Thermal Overloads



ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
Sac-T-01	Dixon - Vaca 60 kV Line No. 1	Dixon - Vaca 60 kV Line No. 2	B	N-1	101%	N/A	N/A	Interim operating solution.
Sac-T-02	Vaca Dixon 115/60 kV Transformer No. 5	Vaca Dixon 115/60 kV Transformer No. 9	B	N-1	123%	N/A	N/A	Interim operating solution.
Sac-T-03	Rio Oso - West Sacramento 115 kV Line	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	151%	57%	57%	Interim operating solution.
Sac-T-04	Rio Oso - Woodland 115 kV No. 1	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	105%	38%	39%	Interim operating solution.
Sac-T-05	Rio Oso - Woodland 115 kV No. 2	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	107%	40%	40%	Interim operating solution.
Sac-T-06	Woodland - Davis 115 kV Line	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	155%	6%	9%	Interim operating solution.
Sac-T-07	Vaca Dixon 230/115 kV Transformer No. 3	VACA-DIX E 230 kV Bus 2 and VACA-DIX F 230 kV Bus 2 - CB 622 Failure	C2	Stuck Bkr	90%	119%	130%	Operating solution.
Sac-T-08	Vaca Dixon 230/115 kV Transformer No. 4	VACA-DIX E 230 kV Bus 1 and Bus 2 - CB 202 Failure - Vaca-Davis	C2	Stuck Bkr	90%	115%	125%	Operating solution.
Sac-T-09	Brighton - Davis 115 kV Line	Woodland - Davis 115 kV Line _West Sacramento - Davis 115 kV Line	C3	N-1-1	140%	30%	35%	Interim operating solution.
Sac-T-10	Brighton 230/115 kV Transformer No. 9	Woodland - Davis 115 kV Line _Brighton 230/115 kV Transformer No. 10	C3	N-1-1	105%	38%	39%	Interim operating solution.
Sac-T-11	Rio Oso - West Sacramento 115 kV Line	Rio Oso - Brighton 230 kV Line _Woodland - Davis 115 kV Line	C3	N-1-1	122%	60%	57%	Interim operating solution.
Sac-T-12	Vaca Dixon 115/60 kV Transformer No. 5	Dixon - Vaca 60 kV Line No. 2 _Vaca Dixon 115/60 kV Transformer No. 9	C3	N-1-1	126%	N/A	N/A	Interim operating solution.
Sac-T-13	Vaca Dixon 230/115 kV Transformer No. 2	Vaca Dixon 230/115 kV Transformer No. _Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	N/A	117%	129%	Operating solution.

## 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Peak**



### Thermal Overloads

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
Sac-T-14	Vaca Dixon 230/115 kV Transformer No. 3	Vaca Dixon 230/115 kV Transformer No. _Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	N/A	121%	132%	Operating solution.
Sac-T-15	Vaca Dixon 230/115 kV Transformer No. 4	Vaca Dixon 230/115 kV Transformer No. _Vaca Dixon 230/115 kV Transformer No. 3	C3	N-1-1	N/A	121%	132%	Operating solution.
Sac-T-16	Vaca Dixon 230/115 kV Transformer Nos. 2 & 2A	Vaca Dixon 230/115 kV Transformer No. _Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	167%	N/A	N/A	Interim operating solution.
Sac-T-17	West Sacramento - Davis 115 kV Line	Woodland - Davis 115 kV Line _Brighton - Davis 115 kV Line	C3	N-1-1	108%	27%	32%	Interim operating solution.
Sac-T-18	Woodland - Davis 115 kV Line	West Sacramento - Davis 115 kV Line _Brighton - Davis 115 kV Line	C3	N-1-1	152%	N/A	N/A	Interim operating solution.
Sac-T-19	Brighton - Davis 115 kV Line	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	140%	36%	37%	Interim operating solution.
Sac-T-20	Woodland - Davis 115 kV Line	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	119%	N/A	N/A	Interim operating solution.
Sac-T-21	Woodland - Davis 115 kV Line	Loss of Rio Oso 115 kV substation	D8	Loss of Substation	101%	N/A	N/A	Under Review
Sac-T-22	West Sacramento - Brighton 115 kV Line	Loss of Rio Oso 115 kV substation	D8	Loss of Substation	110%	45%	47%	Under Review
Sac-T-23	Brighton - Davis 115 kV Line	Loss of Rio Oso 115 kV substation	D8	Loss of Substation	135%	34%	34%	Under Review

**Thermal Overloads**

ID	Overloaded Facility	Worst Contingency	Category	Category Description	Loading (%)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	N/A	

No thermal overloads identified.

**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
Sac-DV-01	MOBILCHE 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-18%	-1%	-1%	Interim operating solution
Sac-DV-02	KNIGHTLD 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-14%	0%	0%	Interim operating solution
Sac-DV-03	WOODLD 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-18%	-1%	-1%	Interim operating solution
Sac-DV-04	ZAMORA 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-14%	0%	0%	Interim operating solution
Sac-DV-05	POST 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-27%	-4%	-4%	Interim operating solution
Sac-DV-06	W.SCRMNO 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-27%	-4%	-4%	Interim operating solution
Sac-DV-07	DEEPWATR 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-27%	-4%	-4%	Interim operating solution
Sac-DV-08	BRKR SLG 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-25%	-3%	-3%	Interim operating solution
Sac-DV-09	DAVIS 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-24%	-2%	-2%	Interim operating solution
Sac-DV-10	CAMPUS 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-24%	-2%	-2%	Interim operating solution
Sac-DV-11	WCRP 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	-27%	-4%	-4%	Interim operating solution
Sac-DV-12	POST 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	-13%	-4%	-5%	Interim operating solution
Sac-DV-13	W.SCRMNO 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	-13%	-4%	-5%	Interim operating solution
Sac-DV-14	DEEPWATR 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	-14%	-4%	-5%	Interim operating solution
Sac-DV-15	DAVIS 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	-10%	-2%	-2%	Interim operating solution

**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
Sac-DV-16	CAMPUS 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	-10%	-2%	-2%	Interim operating solution
Sac-DV-17	WCRP 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	-14%	-5%	-5%	Interim operating solution

**Voltage Deviations**

ID	Substation	Worst Contingency	Category	Category Description	Post Cont. Voltage Deviation %			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	N/A	

No voltage deviations identified.

# 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Peak**

**High/Low Voltage**



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
Sac-V-01	CORTINA 115 kV	Normal	A	N-0	1.06	1.06	1.07	Under review for possible exemption.
Sac-V-02	PLAINFLD 115 kV	Vaca Dixon 115/60 kV Transformer No. 9	B	N-1	0.87	N/A	N/A	Interim operating solution.
Sac-V-03	BRKR SLG 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.75	0.99	0.99	Interim operating solution.
Sac-V-04	CAMPUS 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.75	0.99	0.99	Interim operating solution.
Sac-V-05	DAVIS 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.75	0.99	0.99	Interim operating solution.
Sac-V-06	DEEPWATR 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.75	0.99	0.98	Interim operating solution.
Sac-V-07	KNIGHTLD 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.86	1.02	1.01	Interim operating solution.
Sac-V-08	MOBILCHE 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.81	1.00	1.00	Interim operating solution.
Sac-V-09	PLAINFLD 115 kV	BUS FAULT AT 30460 VACA-DIX Sec 1F 230.00	C1	Bus	0.89	1.00	1.00	Interim operating solution.
Sac-V-10	POST 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.75	0.99	0.99	Interim operating solution.
Sac-V-11	W.SCRMNO 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.75	0.99	0.99	Interim operating solution.
Sac-V-12	WCRP 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.75	0.99	0.99	Interim operating solution.
Sac-V-13	WOODLD 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.81	1.00	1.00	Interim operating solution.
Sac-V-14	ZAMORA 115 kV	BUS FAULT AT 31984 BRIGHTN 115.00	C1	Bus	0.85	1.01	1.01	Interim operating solution.
Sac-V-15	PLAINFLD 115 kV	VACA-DIX E 230 kV Bus 1 and Bus 2 - CB 202 Failure - Vaca-Davis	C2	Stuck Bkr	0.87	1.00	1.00	Interim operating solution.
Sac-V-16	ARBUCKLE 60 kV	Delevan - Cortina 230 kV Line _Cortina - Vaca 230 kV Line	C3	N-1-1	0.91	0.90	0.89	Cortina voltage support

# 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Peak**

**High/Low Voltage**



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
Sac-V-17	CAMPUS 115 kV	West Sacramento - Davis 115 kV Line _Brighton - Davis 115 kV Line	C3	N-1-1	0.82	0.99	0.99	Interim operating solution.
Sac-V-18	COLUSA 60 kV	Delevan - Cortina 230 kV Line _Cortina - Vaca 230 kV Line	C3	N-1-1	0.88	0.87	0.86	Cortina voltage support
Sac-V-19	CORT_D 115 kV	Delevan - Cortina 230 kV Line _Cortina - Vaca 230 kV Line	C3	N-1-1	0.89	0.88	0.88	Cortina voltage support
Sac-V-20	DAVIS 115 kV	West Sacramento - Davis 115 kV Line _Brighton - Davis 115 kV Line	C3	N-1-1	0.82	0.99	0.99	Interim operating solution.
Sac-V-21	DRAKE 60 kV	Delevan - Cortina 230 kV Line _Cortina - Vaca 230 kV Line	C3	N-1-1	0.90	0.89	0.88	Cortina voltage support
Sac-V-22	DUNNIGAN 60 kV	Delevan - Cortina 230 kV Line _Cortina - Vaca 230 kV Line	C3	N-1-1	0.89	0.87	0.86	Cortina voltage support
Sac-V-23	HARINTON 60 kV	Delevan - Cortina 230 kV Line _Cortina - Vaca 230 kV Line	C3	N-1-1	0.91	0.89	0.88	Cortina voltage support
Sac-V-24	MAXWELL 60 kV	Delevan - Cortina 230 kV Line _Cortina - Vaca 230 kV Line	C3	N-1-1	0.90	0.88	0.88	Cortina voltage support
Sac-V-25	MOBILCHE 115 kV	West Sacramento - Davis 115 kV Line _Brighton - Davis 115 kV Line	C3	N-1-1	0.87	1.00	1.00	Interim operating solution.
Sac-V-26	PLAINFLD 115 kV	Vaca Dixon 230/115 kV Transformer No. _Vaca Dixon 230/115 kV Transformer No. 4	C3	N-1-1	0.86	0.99	0.99	Interim operating solution.
Sac-V-27	POST 115 kV	West Sacramento - Brighton 115 kV Line_Brighton - Davis 115 kV Line	C3	N-1-1	0.87	1.02	1.01	Interim operating solution.
Sac-V-28	W.SCRMNO 115 kV	West Sacramento - Brighton 115 kV Line_Brighton - Davis 115 kV Line	C3	N-1-1	0.87	1.02	1.01	Interim operating solution.
Sac-V-29	WOODLD 115 kV	West Sacramento - Davis 115 kV Line _Brighton - Davis 115 kV Line	C3	N-1-1	0.86	1.00	1.00	Interim operating solution.
Sac-V-30	ZAMORA 115 kV	West Sacramento - Davis 115 kV Line _Brighton - Davis 115 kV Line	C3	N-1-1	0.90	1.01	1.01	Interim operating solution.



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	
Sac-V-31	CAMPUS 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	0.89	1.00	0.99	Interim operating solution.
Sac-V-32	DAVIS 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	0.89	1.00	0.99	Interim operating solution.
Sac-V-33	DEEPWATR 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	0.88	0.99	0.98	Interim operating solution.
Sac-V-34	PLAINFLD 115 kV	Lambie Sw Sta-Birds Landing Sw Sta 230 kV Line & Peabody-Birds Landing Sw Sta 23	C5	DCTL	0.90	1.01	1.00	Interim operating solution.
Sac-V-35	POST 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	0.89	0.99	0.98	Interim operating solution.
Sac-V-36	W.SCRMNO 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	0.89	0.99	0.98	Interim operating solution.
Sac-V-37	WCRP 115 kV	Rio Oso-West Sacramento 115 kV Line & West Sacramento-Brighton 115 kV Line	C5	DCTL	0.88	0.99	0.98	Interim operating solution.

# 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Light Load & Summer Off-Peak**

**High/Low Voltage**



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	N/A	
Sac-OP-V-01	CRTNA M 230 kV	Normal	A	N-0	1.03	1.05		Under review for possible exemption.
Sac-OP-V-02	FLTN JT2 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-03	FLTN JCT 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-04	CORTINA 115 kV	Normal	A	N-0	1.06	1.06		Under review for possible exemption.
Sac-OP-V-05	CORT_D 115 kV	Normal	A	N-0	1.05	1.08		Under review for possible exemption.
Sac-OP-V-06	PUTH CRK 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-07	AMEGTAP 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-08	PUTHCRK1 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-09	AMERIGAS 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-10	CORDELIA 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-11	MADISON 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-12	HALE 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-13	HALE J1 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-14	SCHMLBCH 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-15	VACA-DIX 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.

# 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Light Load & Summer Off-Peak**

**High/Low Voltage**



ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	N/A	
Sac-OP-V-16	PUTHCRK2 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-17	VACA-CB 115 kV	Normal	A	N-0	1.07	N/A		Under review for possible exemption.
Sac-OP-V-18	VACAVLL1 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-19	VACAVLL2 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-20	VCVLE2J 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-21	VCVLE1J 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-22	SUISUN 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-23	JAMESN-A 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-24	JAMESON 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-25	WEC 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-26	HALE J2 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-27	HALE2 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-28	JMSN JCT 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-29	VACA-DXN 60 kV	Normal	A	N-0	1.07	N/A		Under review for possible exemption.
Sac-OP-V-30	WINTERS 60 kV	Normal	A	N-0	1.06	N/A		Under review for possible exemption.

## 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Light Load & Summer Off-Peak**

**High/Low Voltage**

ID	Substation	Worst Contingency	Category	Category Description	Voltage (PU)			Potential Mitigation Solutions
					2014 Summer Light Load	2017 Summer Off-Peak	N/A	
Sac-OP-V-31	VACA-JT2 115 kV	Normal	A	N-0	1.07	1.04		Under review for possible exemption.
Sac-OP-V-32	VACA-JT1 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-33	DIXON 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-34	DIXON-J2 60 kV	Normal	A	N-0	1.06	N/A		Under review for possible exemption.
Sac-OP-V-35	DIXON-J1 60 kV	Normal	A	N-0	1.06	N/A		Under review for possible exemption.
Sac-OP-V-36	DIXONCAN 115 kV	Normal	A	N-0	1.06	1.04		Under review for possible exemption.
Sac-OP-V-37	CACHSTAP 60 kV	Normal	A	N-0	1.07	N/A		Under review for possible exemption.
Sac-OP-V-38	CACHSLJ1 60 kV	Normal	A	N-0	1.06	N/A		Under review for possible exemption.
Sac-OP-V-39	CACHSLJ2 60 kV	Normal	A	N-0	1.07	N/A		Under review for possible exemption.
Sac-OP-V-40	MAINE-PR 60 kV	Normal	A	N-0	1.07	N/A		Under review for possible exemption.
Sac-OP-V-41	BTAV-JCT 60 kV	Normal	A	N-0	1.07	N/A		Under review for possible exemption.
Sac-OP-V-42	BRIGHTON 230 kV	Rio Oso - Brighton 230 kV Line Brighton - Bellota 230 kV Line	C3	N-1-1	1.10	1.01		Under review for possible exemption.

## 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento**



### Single Contingency Load Drop

ID	Worst Contingency	Category	Category Description	Amount of Load Drop (MW)			Potential Mitigation Solutions
				2014 Summer Peak	2017 Summer Peak	2022 Summer Peak	

No single contingency resulted in total load drop of more than 250 MW.

## 2012/2013 ISO Reliability Assessment - Preliminary Study Results

Study Area: **PG&E Central Valley Sacramento - Summer Peak**

**Single Source Substation with more than 100 MW Load**



ID	Substation	Load Served (MW)			Potential Mitigation Solutions
		2014 Summer Peak	2017 Summer Peak	2022	
Sac-LS-1	Vacaville 115 kV	101	106	114	Upgrade 115 kV lines to be able to normally close the bus sectionalizing breaker