

CPUC TRANSMISSION AND GENERATION INTERCONNECTION PROJECTS STATUS REPORT -- PG&E TERRITORY -- Present to 2021

NO.	PROJECT NAME	LOCATION	PROJECT DESCRIPTION	RATING	ID	APPROVAL STATUS			CONSTRUCTION STATUS**	DATE IN SERVICE	Confidential COST*** \$MM	General COST*** \$MM	PURPOSE & BENEFIT
						UTILITY*	ISO	CPUC					
1	Green Ridge Wind Power Project	Contra Costa County	Green Ridge Power, LLC is proposing to repower the Jackson Substation via Green Ridge Wind Power Generation Interconnection Project. This project will interconnect 75.1 MW (net output) wind power-based generation facility to the PG&E transmission system. Jackson Substation is currently interconnected onto PG&E's Lone Tree-Cayetano 230 kV Line.	230 kV		Yes	Yes	NOC Effective	Operational	Dec-12	\$2.30	\$1-\$5	Tariff Compliance: Repower existing generation
2	Helm-McCall 230 kV Reconducting	Fresno	The Helm-McCall 230 kV Line will be reconducted to be capable of carrying 1893 amps under normal and emergency conditions. Upgrades to terminal equipment at McCall and Helm substations should be performed as necessary to accommodate the higher ratings.	230 kV	T1286	Yes	2010	NOC Effective	Operational	Feb-13	\$37.60	Redacted	Reliability: Increase grid reliability and capacity
3	Cottle 230 kV Ring Bus and MPAC Project	Stanislaus	Build a four-breaker 230 kV ring bus arrangement at Cottle Substation and loop the substation onto the Bellota - Melones 230 kV Line. Reconfigure the Bellota - Melones 230 kV Line to loop in and out of the new Cottle 230 kV Ring Bus and, if necessary, upgrade associated substation equipment.	230 kV		Yes	N/A	Exempt	Operational	Mar-13	\$17.30	\$10-\$20	Reliability: Increase grid reliability
4	Midway-Morro Bay 230 kV Reconducting	Carrizo Plains	Reconductor the Midway-Morro Bay 230 kV lines with higher capacity conductors to enable renewable resources to be delivered to the grid.	230 kV	T1093A	Yes	Yes	NOC Effective	Operational	Mar-13	Redacted	Redacted	Reliability: Increase grid reliability and capacity
5	Gold Hill - Horseshoe 115 kV Line Reconnector	Sierra	Reconductor the Placer - Gold Hill 115 kV Line between Gold Hill and Horseshoe with larger capacity conductors.	115 kV	T444D	Yes	2009	NOC Effective	Operational	Mar-13	\$8	Redacted	Reliability: Increase grid reliability and capacity
6	Corcoran 115/70 kV Transformer	Fresno	Replace Corcoran 115/70 kV Transformer with a transformer rated for 200 MVA or higher.	Redacted	T089	Yes	2010	Exempt	Operational	Mar-13	\$16.70	\$10-\$20	Reliability: Increase grid reliability and capacity
7	Lagunitas - Anzar Jct 115 kV Line Reconducting (Hollister 115 kV Reconducting)	San Benito County	Reconductor the line sections on the Moss Landing - Salinas - 115 kV lines feeding Hollister with larger size conductors (140 MVA rating).	Redacted	T458C	Yes	2005	PTC Effective	Operational	Apr-13	Redacted	Redacted	Reliability: Increase grid reliability and capacity
8	Los Esteros 115 kV Breaker	Santa Clara County	Install a new, fourth 115 kV breaker at Los Esteros in conjunction with the interconnection of the Los Esteros Critical Energy Facility	115 kV	T1493	Yes	N/A	NOC Effective	Operational	Apr-13		\$1-\$5	Reliability: Increase grid reliability
9	Los Esteros Critical Energy Facility Generation Interconnection - Expansion	San Jose	Los Esteros Critical Energy Facility, LLC, is proposing to expand their existing Los Esteros Critical Energy Facility by converting a four-unit, simple cycle plant to a combined cycle plant by installing one steam turbine and four heat recovery steam generators. The total net output of the Los Esteros Critical Energy Facility will be 315 MW. The project will interconnect to the Los Esteros Substation via two 115 kV underground cables from the Los Esteros Critical Energy Facility to PG&E's Los Esteros Substation. The proposed Commercial Operation Date (COD) of the Project is May 1, 2013.	115 kV	T1411	Yes	Yes	NOC Effective	Operational	Apr-13		\$5-\$10	Tariff Compliance: Connect new generation
10	Contra Costa - Moraga SPS Installation	Contra Costa County	Install a redundant SPS to improve reliability and resolve overloads on Contra Costa-Moraga 230 kV Transmission Lines Nos. 1 and 2.	230 kV		Yes	N/A	Exempt	Operational	Apr-13	\$1	Redacted	Reliability: Increase grid reliability
11	Sneath Lane 60 kV Ring Bus	Peninsula	Build a six-breaker 60 kV ring bus arrangement at Sneath Lane Substation and loop the substation onto the Martin No. 1 and Millbrae-Pacifica 60 kV lines. Install a new 60 kV MPAC building at Sneath Lane Substation.	60 kV		Yes	N/A	Exempt	Operational	May-13	\$19		Reliability: Increase grid reliability
12	Humboldt 115/60 kV Transformer No. 2	Humboldt	Replace the existing 115/60 kV transformer No. 2 with a transformer rated for 200 MVA or higher.	Redacted	T945C	Yes	2009	Exempt	Operational	May-13	\$7.50	\$5-\$10	Reliability: Increase grid reliability and capacity
13	Caliente Switching Station	San Luis Obispo County	High Plains Ranch II, LLC, (SunPower) proposes to interconnect 250 MW of solar generation onto PG&E's Midway-Morro Bay 230 kV Lines by December 2013. This will require construction of a new switching station to interconnect this project onto the Midway-Morro Bay 230 kV Lines. Prior to December 2013, High Plains Ranch II will temporarily interconnect 140 MW of solar generation on the Midway-Morro Bay 230 kV No. 1 Line by December 2011, which will require construction of a temporary tap connection.	230 kV		Yes	Yes	NOC Effective	Operational	Interim connection: August 4, 2012 Permanent connection June 6, 2013	\$35	Redacted	Tariff Compliance: Connect new generation
14	Kansas South Generation Interconnection Project	Kings	Interconnect a 20 MW (net output) solar power-based generation facility to the Guemsey - Henrietta 70 kV transmission line	70 kV		Yes	Yes	Exempt	Operational	Jun-13	\$2		Tariff Compliance: Connect new generation
15	Caribou No. 2 Reconnector Reliability Project	Sierra	Reconductor 8 miles of the limiting section of the Caribou 60 kV No. 2 Line from Caribou No. 1 PH (CB 42) to Grays Flat substation	60 kV	T1075	Yes	N/A	NOC Effective	Operational	Jun-13	\$14	\$10-\$20	Reliability: Increase grid reliability and capacity
16	White River PV 20 MVA Solar Generation Facility	Tulare	Enco Utility Services, LLC proposes to interconnect 20 MW of solar generation onto the Smyrna-Alpaugh 115 kV Line	115 kV	N/A	Yes	Yes	NOC Effective	Operational	Jun-13	\$16	Redacted	Tariff Compliance: Connect new generation
17	Carrizo Plain Solar Generation	San Luis Obispo County	First Solar plans to interconnect 190 MW of solar generation onto the Morro Bay - Midway 230 kV Lines	230 kV	N/A	Yes	Yes	NOC Effective	Operational	Jul-13	Redacted	Redacted	Tariff Compliance: Connect new generation
18	Hollister 115 kV Reconducting (Anzar Jct - Hollister)	San Benito County	Rebuild the Hollister No. 1 115 kV Tap Line into a double-circuit line with larger size conductors (140 MVA rating).	Redacted	T458D	Yes	2005	PTC Effective	Operational	Aug-13	\$22		Reliability: Increase grid reliability and capacity
19	Oceano 115 kV Circuit Breaker	San Luis Obispo County	This project proposes to upgrade Oceano Substation's 115 kV Circuit Switcher Nos. 316 and 326 with new Supervisory Control And Data Acquisition (SCADA)-operable circuit breakers.	115 kV		Yes	N/A	Exempt	Redacted		\$4.30		Reliability: Increase grid reliability
20	Atascadero-San Luis Obispo Reconducting: Atascadero-Cuesta Grade	San Luis Obispo County	Reconductor approximately 8 miles of line and replacing the 144 wood poles with light duty steel direct bury poles.	70 kV	TBD	Yes	N/A	PTC Effective	Redacted		Redacted		Reliability: Increase grid reliability and capacity
21	Arco Transformer Installation Project	Kern	Install a second 230/70 kV transformer (No. 1), a 230 kV circuit breaker and upgrade the 70 kV bus to connect the new transformer	230 kV		Yes	2013	Exempt	Redacted				Reliability: Increase grid reliability and capacity
22	Half Moon Bay Reactive Support	Peninsula	Install additional voltage support or construct new 60 kV transmission facilities into Half Moon Bay.	60 kV	T979	Yes	2007	Exempt	Redacted		\$15.8		Reliability: Increase grid reliability and capacity
23	Garberville Voltage Support	Humboldt	Install a voltage support device at Garberville Substation.	60 kV		Yes	2009	Exempt	Redacted		\$28.50	\$20-\$30	Reliability: Increase grid reliability and capacity
24	Wheeler Ridge 230/70 kV Transformer Capacity Increase	Kern	Install second 230/70 kV Transformer at Wheeler Ridge Substation rated to handle 200 MVA or higher.	Redacted	T1000	Yes	2008	Exempt	Redacted		Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
25	Herndon 230/115 kV Transformer	Fresno	Install third 230/115 kV Transformer at Herndon Substation rated for 420 MVA.	Redacted	T1003	Yes	2009	Exempt	Redacted		\$17	Redacted	Reliability: Increase grid reliability and capacity
26	Valley Springs 230/60 kV Transformer	Stockton	Install redundant transformer at Valley Springs Substation rated to handle 200 MVA or higher.	Redacted	N/A	Yes	2009	Exempt	Redacted		\$43.80		Reliability: Increase grid reliability and capacity
27	Westlands Solar Farm Generation Interconnection Project	Fresno	Interconnect 20 MW of solar power-based generation via the Gates-Coalinga 70 kV transmission line No. 1	70 kV		Redacted	Yes	Exempt	Redacted	Feb-14	\$11		Tariff Compliance: Connect new generation
28	East Nicolaus 115/60 kV Transformer No. 3 Addition	Sierra	Install East Nicolaus 115/60 kV Transformer No. 3 with a transformer rated for 200 MVA or higher.	Redacted		Yes	N/A	Exempt	Construction	Redacted	\$14	\$10-\$20	Reliability: Increase grid reliability and capacity
29	FRV Orion Kern Solar Generation Interconnection Project	Kern	Interconnect 20 megawatts (MW) (net output) solar power-based generation facility to Pacific Gas and Electric Company's (PG&E's) Weedpatch - San Bernard 70 kV Line in Kern County.	70 kV		Yes	Yes	Exempt	Engineering	Mar-14	\$3	Redacted	Tariff Compliance: Connect new generation

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30	Panoche-McMullin 230 kV Reconductoring	Fresno County	The Panoche-McMullin 230 kV Line will be reconducted to be capable of carrying 1893 amps under normal and emergency conditions. Upgrades to terminal equipment at Panoche and McMullin substations should be performed as necessary to accommodate the higher ratings.	230 kV	T1289	Yes	2009	Redacted	Engineering	Mar-14	\$26.20	Redacted	Reliability: Increase grid reliability and capacity
31	Oakland 115 kV Cable No. 3 Capacity Increase	East Bay	This project proposes to upgrade the limiting substation equipment (four feet section of the Oakland Station X 115 kV bus) at Oakland Station X to increase the Oakland 115 kV Cable No. 3 existing summer normal and emergency ratings.	115 kV		Yes	2006	Exempt	Engineering	May-14	\$1	\$1-\$5	Reliability: Increase grid reliability and capacity
32	Palermo - Rio Oso 115 kV Reconductoring	North Valley and Sierra	Reconductor 115 kV lines between Palermo and Rio Oso substations	115 kV	T686A	Yes	2005	PTC Effective	Construction	May-14	\$95	Redacted	Reliability: Increase grid reliability and capacity
33	Pittsburg-Lakewood SPS	Contra Costa County	Install a Special Protection System to address reliability issues.	115 kV	T1218	Yes	2010	Exempt	Construction	Jul-14	\$5.5	\$1-\$5	Reliability: Increase grid reliability
34	Cortina 60 kV Reliability	Colusa County	Install an additional 115/60 kV transformer at Cortina rated for 200 MVA or higher.	Redacted	T346A	Yes	2007	Exempt	Construction	Redacted			Reliability: Increase grid reliability and capacity
35	Redacted												
36	Redacted												
37	Mendocino Coast Reactive Support	North Coast	Install dynamic reactive device at Big River 60 kV substation	60 kV	T993	Yes	2006	Exempt	Engineering	Dec-14	\$22.00	Redacted	Reliability: Increase grid reliability and capacity
38	Helms PSP Special Protection Scheme	Fresno County	Install redundant special protection schemes at multiple substations and Helms PSP to trip pumping units offline at Helms PSP.	230 kV	T1291	Yes	2010	Exempt	Redacted	Dec-14	\$17.70		Reliability: Increase grid reliability
39	FRV Regulus Solar Generation Interconnection Project	Kern	Interconnect 67.5 megawatts (MW) (net output) solar power-based generation facility to Pacific Gas and Electric Company's (PG&E's) Lamont Substation	115 kV		No	Redacted	Exempt	Engineering	Dec-14	\$13		Tariff Compliance: Connect new generation
40	Henrietta-McCall 230kV Reconductoring	Fresno County	The Henrietta to McCall section of the Gates-McCall 230 kV Line will be reconducted to be capable of carrying 1893 amps under normal and emergency conditions. Upgrades to terminal equipment at Gates, Henrietta and McCall substations should be performed as necessary to accommodate the higher ratings.	230 kV	T1287	Yes	2010	NOC Effective	Engineering	Apr-15	\$43.30		Reliability: Increase grid reliability and capacity
41	Pittsburg - Tesla 230 kV Reconductoring	East Bay	Reconductor the Pittsburg-Tesla 230 kV Nos. 1 and 2 Lines with larger capacity conductors.	230 kV	T984	Yes	2007	NOC	Permitting	Redacted			Reliability: Increase grid reliability and capacity
42	Crazy Horse Canyon Switching Station	Central Coast	Construct a 115 kV switching station.	115 kV	T970	Yes	2007	PTC Effective	Construction	May-15	\$40	\$20-\$50	Reliability: Increase grid reliability
43	Caruthers - Kingsburg 70 kV Reconductoring	Fresno	Reconductor the Caruthers - Lemoore NAS - Camden 70 kV line (25 miles) and install a new 2 mile 70 kV section from Henrietta to Lemoore NAS Substation.	70 kV	T1128	Yes	2009	NOC	Engineering	May-15	\$18	Redacted	Reliability: Increase grid reliability and capacity
44	Newark - Ravenswood 230 kV Reconductoring	Bay Area	Reconductor the Newark - Ravenswood 230 kV Line with larger conductors.	230 kV	T982	Yes	2006	NOC	Engineering	May-15	Redacted		Reliability: Increase grid reliability and capacity
45	Tulucay 230/60 kV Transformer No.1 Capacity Increase	North Bay	This project proposes to replace Tulucay Circuit Breaker No. 62 and all of its associated switches with a circuit breaker rated at 2000 Amps or higher. Any other associated terminal equipment will also be replaced as necessary	Redacted		No	2012	Exempt	Engineering	May-15			Reliability: Increase grid reliability and capacity
46	Menlo Area 60 kV Reinforcement	San Mateo County	The project scope is to reconductor the Glenwood bus, replace all 60 kV line switches that have a rating of less than 800 Amps with switches that have a capability of 800 Amps or greater; reconductor the line section between Glenwood and Menlo Substations, and upgrade equipment within Menlo Substation.	60 kV	T1036	Yes	2007	NOC	Redacted	May-15		\$10-\$20	Reliability: Increase grid reliability and capacity
47	Lemoore 70 kV Disconnect Switches Replacement	Kings	Replace disconnect switches 21, 23, and 25 with disconnect switches rated for 1200 amps or higher at Lemoore Substation	70 kV		No	2011	Exempt	Engineering	May-15		<\$1	Reliability: Increase grid reliability
48	Lockheed 1 Distribution Substation (D)	Santa Clara County	Re-build the Lockheed 1 Station into a two-bank distribution substation	115 kV	T1494	No	Not Yet	Exempt	Engineering	Jun-15		\$10-\$20	Reliability: Increase Distribution System Capacity
49	Shepherd Substation Interconnection	Fresno County	Interconnect new distribution substation by looping Kerckhoff-Clovis-Sanger 115 kV No. 1 Line	115 kV	T1120	No	2009	Redacted	Engineering	Jun-15		Redacted	Reliability: Increase Distribution System Capacity
50	Redacted												
51	Redacted												
52	Cressey - Gallo 115 kV Line Reliability Project	Merced County	Construct new transmission 115 kV line from Cressey to Gallo and install new circuit breakers at Cressey and Gallo Substations	115 kV	T1026	Yes	2013	PTC	Engineering	Jun-15	\$16	\$10-\$20	Reliability: Increase grid reliability and capacity
53	Placer Solar Generation Interconnection Project	Fresno	Interconnect 20 megawatts (MW) (net output) solar power-based generation facility to Pacific Gas and Electric Company's (PG&E's) Helm Substation	70 kV		No	Yes	Exempt	Engineering	Sep-15	\$2	Redacted	Tariff Compliance: Connect new generation
54	Ignacio-Alto 60 kV Circuit Breaker Installation	Marin	Install one 60 kV circuit breaker with bypass switches on the Ignacio 60 kV Bus, in order to sectionalize the Ignacio-Alto 60 kV Line. The Ignacio - Alto 60 kV Line will be disconnected at the Ignacio Junction and reconnected into Ignacio Substation. This reconfiguration will create the Ignacio-Greenbrae-Alto and Ignacio-Novato-Stafford 60 kV lines. Also, replace Greenbrae 60 kV Switch (SW) number (No.) 27 with a 3 Gap-Bottle switch for adequate line operation.	60 kV	N/A	Yes	N/A	Exempt	Construction	Sep-15	\$2.70	\$1-\$5	Reliability: Increase grid reliability
55	Tesla 115 kV Capacity Increase	Stockton	The project scope is to reconductor the Tesla-Salado-Manteca and Schulte - Lammers 115 kV lines.	115 kV	T680B	Yes	2007	NOC Effective	Construction	Oct-15	\$17	\$10-\$20	Reliability: Increase grid reliability and capacity
56	Rose Solar Generation Interconnection Project	Fresno	Interconnect 20 megawatts (MW) (net output) solar power-based generation facility to Pacific Gas and Electric Company's (PG&E's) Helm Substation	70 kV		No	Yes	Exempt	Cancelled	Nov-15	\$3	Redacted	Tariff Compliance: Connect new generation
57	Laytonville 60 kV Circuit Breaker Installation Project	North Coast	This project proposes to construct a loop bus at Laytonville Substation, install three circuit breakers, and terminate the Laytonville-Covelo 60 kV Line into the new bus.	60 kV		Yes	Not Yet	Exempt	Construction	Dec-15	\$7.5		Reliability: Increase grid reliability
58	East Nicolaus Area Reinforcement	Sierra	Replace East Nicolaus 115/60 kV Transformer No. 2 with a larger capacity unit.	115 kV	T962	Yes	2007	Exempt	Engineering	Redacted	\$8	\$5-\$10	Reliability: Increase grid reliability and capacity
59	Fort Ross 60 kV Circuit Breaker	Sonoma	Add new 60 kV CB to Fort Ross Substation in order to sectionalize the Gualala - Monte Rio 60 kV Line.	60 kV	T1156	No	N/A	Exempt	Engineering	Dec-15	\$4	Redacted	Reliability: Increase grid reliability
60	Embarcadero-Potrero 230 kV Project	San Francisco	Construct a new 230 kV underground cable to connect Embarcadero and Potrero substations.	230 kV	T1032	No	2012	CPCN	Engineering	Dec-15	Redacted		Reliability: Increase grid reliability and capacity

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61	Redacted												
62	Lompoc Wind Power Project Interconnection	Santa Barbara County	Pacific Renewable Energy Generation LLC proposes to interconnect 55.5 MW of wind power generation onto the Cabrillo - Divide 115 kV line.	115 kV		No	N/A	NOC Effective	Cancelled	Dec-15	\$11	\$10-\$20	Tariff Compliance: Connect new generation
63	Cotati 60 kV Circuit Breaker Installation	Sonoma	Install CB at Cotati and fully loop in sub between Fulton - Molino - Cotati 60 kV Line and Lakeville No. 2 60 kV Line. Also install high-side CB on Cotati Bank No. 1	60 kV		Yes	N/A	Exempt	Engineering	Dec-15	\$3	\$1-\$5	Reliability: Increase grid reliability
64	McMullin-Kearney 230 kV Reconductoring	Fresno County	The McMullin to Kearney section of the Panoche-Kearney 230 kV Line will be reconducted to be capable of carrying 1893 amps under normal and emergency conditions. Upgrades to terminal equipment at Kearney and McMullin substations should be performed as necessary to accommodate the higher ratings.	230 kV	T1288	Yes	2010	NOC	Engineering	Dec-15	\$10.60	\$10-\$20	Reliability: Increase grid reliability and capacity
65	Westside Solar Generation Interconnection Project	Fresno	Interconnect a 20 megawatts (MW) (net output) solar power-based generation facility via a tap onto Schindler-Coalinga No. 2 70 kilovolt (kV) transmission line	70 kV		No	Yes	TBD	Engineering	Dec-15	\$2	Redacted	Tariff Compliance: Connect new generation
66	Whitney Point Solar Generation Interconnection Project	Fresno	Interconnect a 20 MW (net output) solar power-based generation facility via a switching station that loops the Schindler-Huron-Gates 70 kilovolt (kV) transmission line	70 kV		No	Yes	TBD	Redacted	Dec-15	\$3	Redacted	Tariff Compliance: Connect new generation
67	LeGrand-Chowchilla 115 kV Reconductoring	Fresno County	Redacted	230 kV	T1285	Yes	2010	Redacted	Engineering	Dec-15	\$16.70	\$10-\$20	Reliability: Increase grid reliability and capacity
68	Redacted												
69	Weber 230/60 kV Transformer Nos. 2 and 2A Replacement	San Joaquin County	Replace Weber 230/60 kV Transformer Nos. 2 and 2a with a new transformer rated at least 300 MVA with LTC and associated equipment	Redacted	TBD	No	2010	Exempt	Engineering	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity
70	Kern - Old River 70 kV Reconductoring	Kern	Reconductoring Kern-Old River 70 kV lines in two phases. Phase 1- Reconnector Kern-Old River 1, 70 kV line with operation date of April 2014, Phase 2- Kern-Old River 2, 70 kV with operation date of April 2016	70 kV	T1081	No	2009	NOC	Engineering	Apr-16	Redacted	Redacted	Reliability: Increase grid reliability and capacity
71	Monta Vista - Los Altos 60 kV	De Anza	Reconductor about 2 miles of the Monta Vista - Los Altos 60 kV Line with	60 kV	T981	No	2007	NOC	Planning	May-16	\$4	\$1-\$5	Reliability: Increase grid reliability and capacity
72	Redacted												
73	Kearney 230/70 kV Transformer 2	Fresno	Install second 230/70 kV Transformer at Kearney Substation rated for 200 MVA or higher, install 4 element 230 kV ring, expand 70 kV bus and re-terminate lines	Redacted	T1260	Yes	Redacted	Exempt	Engineering	May-16	\$36	\$30-\$40	Reliability: Increase grid reliability and capacity
74	Ripon 115 kV New Line	Stockton	Install 2nd, 5 mile line from Riverbank Jct. Sw. Sta. - Manteca 115 kV Line to Ripon Sub and loop Ripon Sub between new line and existing tap line.	115 kV	T5915	No	2013	NOC	Engineering	May-16	Redacted	Redacted	Reliability: Increase grid reliability and capacity
75	Redacted												

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76	Redacted												
77	Bay Meadows 115 kV Reconductoring	Peninsula	Reconductor 2.5 miles of 115 kV Transmission Lines 1 & 2 between San Mateo and Bay Meadows Substations	115 kV	T249	No	2000	NOC	Engineering	Redacted		\$5-\$10	Reliability: Increase grid reliability and capacity
78	Maple Creek Ring Bus Configuration	Humboldt	Convert the bus to a five circuit breaker ring bus.	60 kV	N/A	No	Not Yet	TBD	Engineering			\$10-\$20	Reliability: Increase grid reliability
79	Maple Creek SVC Installation Project	Humboldt	Install a voltage support device at Maple Creek Substation.	60 kV	N/A	No	2009	TBD	Engineering			\$10-\$20	Reliability: Increase grid reliability and capacity
80	Green Valley 115 kV Bus Upgrade Project	Santa Cruz County	Rebuild Green Valley 115 kV bus into a BAAH configuration	115 kV	T1172B	No	2009	NOC	Planning	Dec-16	\$20-\$30	\$20-\$30	Reliability: Increase grid reliability and capacity
81	Christie 115/60 kV Transformer	Contra Costa County	Install a new 3-phase 115/60 kV, 100 MVA Transformer No. 2, upgrade and install new substation facilities at Christie Substation.	Redacted		Yes	2013	Exempt	Engineering	Dec-16	\$15.00	\$10-\$20	Reliability: Increase grid reliability and capacity
82	Contra Costa - Moraga 230 kV Reconductoring	East Bay	Reconductor the Contra Costa - Moraga 230 kV DCTL with larger capacity conductors.	230 kV	T991	Yes	2006	NOC	Redacted				Reliability: Increase grid reliability and capacity
83	Oro Loma 115 kV Breaker-and-a-Half Installation	Merced County	Upgrade the Oro Loma 115 kV to a 3-bay BAAH bus	115 kV		No	N/A	Exempt	Engineering	Dec-16	Redacted	\$10-\$20	Reliability: Increase grid reliability
84	Weber-French Camp 60 kV Reconfiguration	San Joaquin County	Extend the Weber 60 kV Line No. 1 by 0.2 mile; extend the Weber 60 kV bus for a new bay; install a 60 kV circuit breaker at Weber Substation; install a station bypass switch and three 60 kV circuit breakers at French Camp Substation	60 kV	T1233	No	Not Yet	Exempt	Engineering	Dec-16	Redacted	Redacted	Reliability: Increase grid reliability and capacity
85	AltaGas Renewable Energy Pacific Generation Interconnection	Colusa County	AltaGas Renewable Energy Pacific, Inc., is proposing to interconnect for its Walker Ridge Wind Energy Project, which is a wind generating facility comprised of 29 wind turbines rated at 2.3 MW each and an overall net generating capacity of 66.2 MW. The Project is located in Colusa, California and is proposing to interconnect to the Eagle Rock-Cortina 115 kV Line via a new switching station and a generation tie line. The proposed Commercial Operation Date (COD) of the Project is December 31, 2012.	115 kV	N/A	No	Yes	NOC	Engineering	Dec-16	\$3	\$1-\$5	Tariff Compliance: Connect new generation
86	Redacted	Diablo	Replace Transformer number 2, 230/115 kV at Moraga Substation with a 420 MVA rated unit.	Redacted		No	2007	Exempt	Engineering	Dec-16	\$12	\$10-\$20	Reliability: Increase grid reliability and capacity
87	Stockton 'A'-Weber 60 kV Line Nos. 1 and 2 Reconductor	San Joaquin County	Reconductor the Stockton 'A'-Santa Fe and Santa Fe-Weber sections of the Stockton 'A'-Weber 60 kV Line Nos. 1 and 2 (4.4 miles each with 2.6 miles of 336 AAC, 1.5 miles of #2/0 CU, and 0.3 miles of 397 AAC conductors for a total of 8.8 miles between the two lines) with a conductor rated at least 700 Amps emergency.	60 kV	T1213	No	2010	NOC	Engineering	May-17	Redacted		Reliability: Increase grid reliability and capacity
88	Evergreen-Mabury 115 kV Conversion	San Jose	Convert Mabury Substation for 115 kV operation and rebuild Evergreen-Mabury 60 kV Line for 115 kV operation.	115 kV	T1127	No	2009	PTC	Engineering	Redacted			Reliability: Increase grid reliability and capacity
89	Humboldt - Eureka 60 kV Line Capacity Increase	Humboldt	This project proposes to replace protection equipment on the Humboldt-Eureka 60 kV line between Harris and Eureka substations	60 kV		No	2012	Exempt	Engineering		\$1	\$1-\$5	Reliability: Increase grid reliability and capacity
90	Fulton-Fitch Mountain 60 kV Reconductor	North Coast	The project scope is to reconductor 8-mile section of the Fulton-Hopland 60 kV Line with conductor rated for 742 Amps or higher summer emergency rating. If necessary, associated line terminal equipment would be upgraded.	60 kV	N/A	No	2009	NOC	Engineering		Redacted		Reliability: Increase grid reliability and capacity
91	Glenn #1 60 kV Reconductoring	North Valley	The scope is to reconductor 5.5 miles of the Glenn 60 kV No. 1 Line with a higher capacity conductor capable of handling a minimum of 740 Amps.	60 kV	N/A	No	2009	NOC	Engineering	May-17			Reliability: Increase grid reliability and capacity
92	Napa - Tulucay No. 1 60 kV Line Upgrades	North Bay	This project proposes to reconductor 3.7 miles of the Napa - Tulucay No. 1 60 kV Line from Tulucay Substation to Tulucay Junction. This project also proposes to replace Tulucay Junction SW No. 19 and Napa CB No. 12 and its associated disconnect and bypass switches	60 kV		No	2012	TBD	Engineering	May-17	\$6	\$5-\$10	Reliability: Increase grid reliability and capacity
93	Ravenswood-Cooley Landing 115 kV Reconductoring	Peninsula	Reconductor approximately 1.8 miles of line on the Ravenswood-Cooley Landing 115 kV Line Nos. 1 and 2 with conductors 1,100 amps or greater.	115 kV	T1040	No	2009	NOC	Engineering	May-17	Redacted	\$5-\$10	Reliability: Increase grid reliability and capacity
94	Reedley-Orosi 70 kV Reconductoring	Tulare County	The project scope involves reconductoring approximately 2 miles of the Reedley-Orosi 70 kV line from Orosi Jct to Orosi Substation with a conductor rated to handle up to 600 Amps and 700 Amps under summer normal and summer emergency conditions, respectively. In addition, 20 MVARs of shunt capacitors will be installed at Dinuba Substation.	70 kV	T1194	No	2010	Exempt	Engineering	May-17	\$8	Redacted	Reliability: Increase grid reliability and capacity
95	Cooley Landing - Los Altos 60 kV Reconductoring	Peninsula	Reconductor 11 miles of the Cooley Landing - Los Altos 60 kV Line with larger capacity conductors.	60 kV	T1011	No	2009	NOC	Planning	Redacted		\$5-\$10	Reliability: Increase grid reliability and capacity
96	Monta Vista - Los Gatos - Evergreen 60 kV Project	Santa Clara County	Reconductor limiting sections of the Monta Vista-Los Gatos and the Evergreen-Almaden 60 kV Lines and upgrade the Los Gatos 60 kV bus	60 kV	T1106	No	2009	NOC	Planning	May-17	Redacted	Redacted	Reliability: Increase grid reliability and capacity
97	Stockton Generation Expansion Project	San Joaquin County	Stockton Generation, LLC, proposing to interconnect two gas turbines and a steam turbine with a combined output of 508 MW. The proposed Commercial Operation Date of the project is May 1, 2014. The project will interconnect with PG&E's Bellota - Tesla No. 2 and Weber-Tesla 230 kV transmission lines by looping these lines into a new switching station and require reconductoring of the Warnerville-Wilson 230 kV Line.	230 kV	TBD	No	Yes	TBD	Planning	May-17	\$46		Tariff Compliance: Connect new generation
98	Mesa-Sisquoc 115 kV Line Reconductoring	Santa Barbara and San Luis Obispo Counties	Reconductor approximately four miles of Mesa-Sisquoc 115 kV line	115 kV		No	2011	NOC	Engineering	Redacted		\$10-\$20	Reliability: Increase grid reliability and capacity
99	Reedley-Dinuba 70 kV Reconductoring	Tulare County	Reconductor the Reedley-Dinuba 70 kV Line. The project scope includes reconductoring approximately 8 miles of the Reedley-Dinuba 70 kV Line with a conductor rated to handle up to 600 Amps and 700 Amps under summer normal and summer emergency conditions respectively.	70 kV	T1197	No	2010	Exempt	Engineering	May-17	\$8	Redacted	Reliability: Increase grid reliability and capacity
100	Mosher Transmission Project	Stockton	Reconductor the Lockeford #1 60 kV Line.	60 kV	T760	No	Not Yet	NOC	Engineering	May-17	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
101	Helm-Kerman 70 kV Line Reconductor	Fresno	Reconductor 2 miles of the Helm-Kerman 70 kV Line	70 kV	N/A	No	2012	NOC	Engineering	May-17	Redacted	Redacted	Reliability: Increase grid reliability and capacity
102	Oro Loma - Mendota 115 kV Conversion Project	Merced County	This project proposes to convert 20 circuit miles of the Oro Loma - Mendota 70 kV Line from 70 kV to 115 kV, install two SCADA switches at Firebaugh Substation, replace the 70/12 kV transformer at Firebaugh with a 115/12 kV transformer, and install 115 kV terminals at Oro Loma and Mendota substations.	115 kV		No	Redacted	TBD	Engineering	May-17		\$30-\$40	Reliability: Increase grid reliability and capacity
103	Midway-Kern PP 230 kV Line Nos. 1, 3 and 4 Capacity Increase Project	Kern	Replace limiting components at Kern PP and Midway Substations, to achieve full capacity on the Midway-Kern 230 kV Line Nos. 1, 3 and 4	230 kV		No	2012	Exempt	Engineering	Redacted	\$5-\$6	Redacted	Reliability: Increase grid reliability and capacity

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						UTILITY*	ISO	CPUC					
104	Missouri Flat - Gold Hill 115 kV Reconductor	Sierra	Reconductor the Missouri Flat - Gold Hill 115 kV Line between Gold Hill and Shingle Springs with larger capacity conductors.	115 kV	T444C	Yes	2008	PTC	Redacted	Jun-17	\$39	Redacted	Reliability: Increase grid reliability and capacity
105	Santa Cruz 115 kV Reinforcement Project	Santa Cruz County	Construct new Green Valley-Rob Roy 115 kV Line and build new 115 kV ring bus at Rob Roy	115 kV	T1173A	No	2009	PTC	Engineering	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity
106	Moraga - Castro Valley 230 kV Line Capacity Increase Project	Alameda County	Upgrade the limiting substation equipment (jumper conductors and wave traps) at Moraga and Castro Valley substations	230 kV		No	2011	Exempt	Engineering	Dec-17	Redacted	Redacted	Reliability: Increase grid reliability and capacity
107	Fulton 230/115 kV Transformer	Sonoma	This project proposes to install a 230/115 kV transformer at Fulton Substation rated for 420 MVA or higher.	Redacted		No	2011	Exempt	Engineering	Redacted	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
108	Jefferson-Stanford #2 60 kV	Peninsula	Construct a new 60 kV transmission line from Jefferson Substation to Stanford's substation	60 kV	T1492	No	2011	PTC	Engineering		Redacted	\$20-\$30	Reliability: Increase grid reliability and capacity
109	North Tower 115 kV Looping Project	North Bay	This project proposes to loop North Tower Substation into the Martinez-Sobranite 115 kV Line by utilizing an idle 115 kV line into North Tower and reconfiguring the connection points at Martinez JCT	115 kV		No	2012	TBD	Engineering	Dec-17	Redacted	\$5-\$10	Reliability: Increase grid reliability and capacity
110	Tesla - Newark 230 kV Upgrade II	Bay Area	Reconductor limiting sections of Tesla - Newark 230 kV No. 2 with larger capacity conductors.	230 kV	T670 B	No	2006	NOC	Engineering	Dec-17	\$8	\$5-\$10	Reliability: Increase grid reliability and capacity
111	Gates No. 2 500/230 kV Transformer	Fresno	Install a second 500/230/13.8 kV transformer (three single-phase units, 374 MVA each) at Gates Substation	Redacted		No	2013	TBD	Engineering	Dec-17	Redacted	Redacted	Reliability: Increase grid reliability and capacity
112	Kearney-Herndon 230 kV Line Reconductor	Fresno	Reconductor 10 miles of the Kearney - Herndon 230 kV Line	230 kV		No	2013	TBD	Engineering	Dec-17	Redacted	Redacted	Reliability: Increase grid reliability and capacity
113	Northern Fresno 115 kV Area Reinforcement	Fresno	Build a new 230/115 kV substation north-east of Fresno. The 230 kV bus will have two 230 kV lines to Gregg, two 230 kV lines to Helms, and two 420 MVA 230/115 kV transformers. In addition to the transformers, the 115 kV bus will also have two 115 kV lines to Kerckhoff PH2, two 115 kV lines to Sanger and one 115 kV line to Shepherd substation.	115 kV		No	2013	CPCN	Engineering	Dec-17	Redacted	Redacted	Reliability: Increase grid reliability and capacity
114	Rio Oso 230/115 kV Transformers	Sierra	Replace the Rio Oso 230/115 kV transformers (Nos. 1 and 2) with two 420 MVA rated transformers. Convert 115 kV bus to BAAH.	Redacted	T985B	No	2007	Exempt	Engineering	Dec-17	\$13	\$10-\$20	Reliability: Increase grid reliability and capacity
115	Rio Oso Area 230 kV Voltage Support	Sierra	Install a new Static Var Compensator (SVC) at Rio Oso Substation and a new Shunt Capacitor at Atlantic Substation.	230 kV		No	2012	Exempt	Engineering	Dec-17	Redacted	\$30-\$40	Reliability: Increase grid reliability and capacity
116	Warnerville-Wilson 230 kV Series Reactor	Fresno	Install a 230 kV multi-step Reactor totaling 50.5 ohms, and associated equipment at Wilson Substation, on the Warnerville-Wilson 230 kV line	230 kV		No	2013	TBD	Engineering	Dec-17	Redacted	\$20-\$30	Reliability: Increase grid reliability and capacity
117	Woodward 115 kV Reinforcement	Fresno	Reconductor the Kerckhoff-Clovis-Sanger and Herndon-Woodward 115 kV lines with larger capacity conductors.	115 kV	T986	No	Not Yet	NOC	Planning	Dec-17	Redacted	Redacted	Reliability: Increase grid reliability and capacity
118	Racetrack - Curtis 115 kV Line	Stanislaus	Construct a new 115 kV, 8.5 mile line from Racetrack Substation to Curtis Substation. Extend the existing Chinese Station Junction - Racetrack Junction line by 3.6 miles to terminate at Racetrack Substation. Upgrade bus arrangement at Curtis and Racetrack substations.	115 kV		No	Not Yet	TBD	Cancelled	May-18	\$15-\$20	Redacted	Reliability: Increase grid reliability and capacity
119	Cascade - Benton 60 kV Line	North Valley	Construct a new Cascade - Benton 60 kV Line (10 miles) and reconfigure the Cascade - Benton - Deschutes 60 kV Line to Cascade - Benton and Benton - Deschutes 60 kV Lines.	60 kV		No	2011	TBD	Engineering	Redacted	\$10-\$20	\$10-\$20	Reliability: Increase grid reliability and capacity
120	San Mateo-Bair 60 kV Reconductoring	San Mateo County	Reconductor the San Mateo-Bair 60 kV Line (11 miles) with conductors rated to handle 1100 Amps or greater.	60 kV	T1114	No	2009	NOC	Engineering	May-18	Redacted	\$5-\$10	Reliability: Increase grid reliability and capacity
121	Table Mountain - Sycamore Creek 115 kV Line	North Valley	Construct a 20 mile 115 kV transmission line from Table Mountain to Sycamore Creek substations.	115 kV		No	2011	PTC	Engineering	May-18	\$30-\$40	\$30-\$40	Reliability: Increase grid reliability and capacity
122	Cressey-North Merced 115 kV Line Addition	Merced County	This project proposes to construct a new 6 mile 115 kV Line from North Merced Substation to Cressey Substation. North Merced and Cressey substations will be expanded as necessary to accommodate the new 115 kV Line.	115 kV		No	2012	PTC	Engineering	May-18	Redacted	Redacted	Reliability: Increase grid reliability and capacity
123	Metcalf-Piercy, Swift-Metcalf, and Newark-Dixon Landing 115 kV Lines	Santa Clara County	Reconductor 115 kV transmission lines (261 MVA rating). (Evergreen-Mabury project defers the need for this project.)	Redacted	T692	No	2002	NOC	Engineering	May-18	\$15	\$10-\$20	Reliability: Increase grid reliability and capacity
124	San Mateo Synchronous Condenser Replacement	San Mateo County	Install reactive support device to replace old synchronous condensers	115 kV	T1107A	No	2006	Exempt	Planning	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity
125	Atlantic-Placer 115 kV Line	Sierra	Construct a new 115 kV line between existing Atlantic and Placer 115 kV substations (approximately 14 miles long, capable of 1,100 Amps under emergency conditions), adding a second Placer 115/60 kV three phase transformer rated at 200 MVA and installing an SPS for the loss of two Gold Hill 230/115 kV transformers.	115 kV		No	2013	PTC	Planning	May-18	Redacted	Redacted	Reliability: Increase grid reliability and capacity
126	Natividad Substation	Central Coast	Interconnect distribution substation.	115 kV	TBD	No	2008	TBD	Planning	May-18	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
127	Soledad Transformer Capacity Increase	Monterey	Replace 115/60 kV Transformers Nos. 4 and 5 with 200 MVA units at Soledad Substation	Redacted	T996	No	2006	Exempt	Planning	May-18	\$8	\$5-\$10	Reliability: Increase grid reliability and capacity
128	Cortina #3 60 kV Line Reconductoring	Colusa County	Reconductor the Cortina No. 3 60 kV Line (5.6 miles of 4/0 AA conductors).	60 kV		No	2011	TBD	Engineering	Redacted	Redacted	\$5-\$10	Reliability: Increase grid reliability and capacity
129	Full Moraga - Oakland "J" SPS	Alameda County	Install a Special Protection System to address reliability issues.	115 kV	T1217	Yes	2010	Exempt	Engineering	May-18	Redacted	\$1-\$5	Reliability: Increase grid reliability
130	Cayucos 70 kV Shunt Capacitor	San Luis Obispo County	install a 25 MVAR Shunt Capacitor at Cayucos Substation	70 kV		No	2011	Exempt	Engineering	May-18	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
131	Pittsburg 230/115 kV Transformer Capacity Increase	East Bay	Install 3rd 230/115 kV Transformer at Pittsburg Substation with a rating of 420 MVA	Redacted	T999	No	2006	Exempt	Engineering	May-18	\$12	Redacted	Reliability: Increase grid reliability and capacity
132	Ashlan-Gregg and Ashlan-Herndon 230 kV Reconductor	Fresno	Reconductor limiting sections of Ashlan-Gregg and Ashlan-Herndon 230 kV sections with higher rated conductors.	230 kV	T1195	No	2010	NOC	Engineering	May-18	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
133	Cottonwood - Red Bluff 60 kV Reconductor	Tehama	Construct new 230kV Station, Construct 2 new 60 kV Lines and Re-terminate existing 60 kV Lines	60 kV	T1211	No	2010	TBD	Engineering	May-18	Redacted	\$50-\$60	Reliability: Increase grid reliability and capacity
134	Oro Loma 70 kV Area Reinforcement	Merced County	This project proposes to build a new 230/70 kV Mercy Springs Substation looped into the Los Banos-Panoche 230 kV No.2 Line.	70 kV		No	2012	TBD	Engineering	May-18	Redacted	\$40-\$50	Reliability: Increase grid reliability and capacity
135	Reedley 70 kV Reinforcement	Fresno	Reconductor approximately 9 miles of the Dinuba-Orosi 70 kV Line and remove limiting equipment on the Reedley-Orosi 70 kV Line.	70 kV		No	2012	NOC	Engineering	May-18	\$10	Redacted	Reliability: Increase grid reliability and capacity
136	Wilson 115 kV Area Reinforcement	Merced County	This project proposes to install a new 230/115 kV substation that is looped into the Melones-Wilson 230 kV Line, and install a new 4 mile 115 kV double circuit tower line from the new substation to El Capitan Substation.	115 kV		No	2012	TBD	Engineering	May-18	Redacted	Redacted	Reliability: Increase grid reliability and capacity
137	Kerckhoff PH No. 2 -Oakhurst 115 kV Line	Madera	Build new 28 mile 115 kV line from Kerckhoff to Coarsegold and upgrade Oakhurst and Coarsegold to looped stations.	115 kV	T1285	No	2011	PTC	Redacted	May-18	Redacted	\$40-\$50	Reliability: Increase grid reliability and capacity
138	Diablo Canyon Voltage Support Project	Central Coast	Install a +150/-75 MVAR Reactive support device at Diablo Canyon 230 kV Substation	230 kV		No	2012	Exempt	Planning	May-18	Redacted	Redacted	Reliability: Increase grid reliability and capacity

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139	Mountain View/Whisman-Monta Vista 115 kV Reconductoring	Santa Clara County	Reconductor both the Whisman-Monta Vista and Mountain View-Monta Vista 115 kV Lines (approximately 6 and 4.8 miles long, respectively) with conductors ratings of at least 800 Amps and 1200 Amps for summer normal and summer emergency conditions, respectively.	115 kV	T1182	No	2010	NOC	Planning	Redacted	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
140	Vaca Dixon - Lakeville 230 kV Reconductoring	North Coast	Reconductor the Vaca - Lakeville No. 1, Tulucay - Vaca, and Tulucay - Lakeville 230 kV Lines with larger capacity conductors.	230 kV	T603B	Yes	2006	TBD	Engineering	Jun-18	Redacted	Redacted	Reliability: Increase grid reliability and capacity
141	East Shore - Oakland J 115 kV Reconductoring	East Bay	This project proposes to reconductor the Grant-East Shore Nos. 1 and 2 115 kV lines, reconductor the Oakland J-Grant 115 kV Line, and bring a third 115 kV line into Oakland J Substation	115 kV		No	2012	TBD	Engineering	Jul-18	\$30-\$40	Redacted	Reliability: Increase grid reliability and capacity
142	Pease-Marysville 60 kV Line	North Valley and Sierra	Construct new 60kV transmission line between Pease and Marysville Substations	60 kV	T815	Yes	2005	TBD	Engineering	Dec-18	\$18.50	\$10-\$20	Reliability: Increase grid reliability and capacity
143	Watsonville 115 kV Conversion (Salinas - Watsonville Plan)	Santa Cruz and Monterey Counties	Convert 60 kV system from Green Valley to Watsonville and from Watsonville to Crazy Horse Canyon to 115 kV	115 kV	T695	No	2009	PTC	Planning	Dec-18	Redacted	Redacted	Reliability: Increase grid reliability and capacity
144	Cascade 115/60 kV No.2 Transformer	Shasta County	Install a new three-phase, Cascade 115/60 kV Transformer rated at 200 MVA, install a high side 115 kV circuit breaker on Transformer No. 1 and upgrade substation equipment to achieve the maximum transformer rating.	Redacted	T1116	No	2011	TBD	Engineering	Redacted	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
145	Vierra 115 kV Looping Project	San Joaquin County	This project proposes to loop the Tesla-Stockton Co-Gen Junction 115 kV Line into Vierra Substation and convert the Vierra 115 kV bus to a breaker-and-a-half (BAAH) bus.	115 kV		No	2012	TBD	Engineering	May-19	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
146	Ignacio - Alto 60 kV Line Voltage Conversion	North Bay	This project proposes to replace limiting equipment on the Ignacio - San Rafael Numbers (Nos.) 1 and 3 115 kV lines and to convert 15 miles of the Ignacio - Alto 60 kV Line to 115 kV operation	60 kV		No	2012	TBD	Engineering	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity
147	South of Palermo 115 kV Reinforcement	Sierra	Reconductor the southern portions of the Palermo - Rio Oso 115 kV Line Nos. 1 and 2 as well as the entire Palermo - Pease and Pease - Rio Oso 115 kV Lines.	115 kV	T686C	No	2011	TBD	Engineering	Redacted	Redacted	\$60-\$70	Reliability: Increase grid reliability and capacity
148	Kingsburg-Lemoore 70 kV Line Reconductoring	Fresno	Reconductor the Kingsburg-Lemoore 70 kV Line	70 kV	T1228	No	Not Yet	NOC	Engineering	May-19	Redacted	Redacted	Reliability: Increase grid reliability and capacity
149	Metcalf-Evergreen 115 kV Lines	San Jose	Reconductor Metcalf-Evergreen 115 kV transmission lines (224 MVA rating)	Redacted	T854	No	2002	TBD	Planning	May-19	Redacted	Redacted	Reliability: Increase grid reliability and capacity
150	Ignacio - San Rafael 115 kV Reconductoring	North Bay	Reconductor the Ignacio - San Rafael 115 kV Nos. 1 and 3 lines with larger capacity conductors.	115 kV	T197B	No	2012	NOC	Planning	Redacted	Redacted	\$1-\$10	Reliability: Increase grid reliability and capacity
151	Borden 230 kV Voltage Support	Madera	This project proposes to loop the Wilson-Gregg 230 kV Line into Borden Substation (Borden) and install 200 MVARs of mechanically switched capacitors on the Borden 230 kV bus.	230 kV		No	2012	TBD	Engineering	May-19	Redacted	Redacted	Reliability: Increase grid reliability and capacity
152	Glenn - Corning 60 kV Line	North Valley	Build new 12 mile line from Glenn to Corning 60 kV Substation. Upgrade bus at	60 kV	T1225	No	Not Yet	TBD	Engineering	May-19	Redacted	\$20-\$30	Reliability: Increase grid reliability and capacity
153	South of San Mateo Capacity Increase	Bay Area	Redacted	115 kV	T920A	No	2006	TBD	Engineering	Redacted	Redacted	\$50-100	Reliability: Increase grid reliability and capacity
154	Vaca Dixon-Davis 115 kV Conversion	Sacramento	Rebuild 60 kV facilities between Vaca Dixon and Davis substations to 115 kV.	115 kV	T1053	No	2011	TBD	Engineering	Redacted	Redacted	\$80-\$90	Reliability: Increase grid reliability and capacity
155	West Point-Valley Springs 60 kV Radial Line Improvement	Stockton	Add new 18.5 mile line between Valley Springs and Pine Grove substations. Install four-CB ring bus at Pine Grove and one CB at Valley Springs.	60 kV	T1227	No	2011	TBD	Engineering	Redacted	Redacted	\$30-\$40	Reliability: Increase grid reliability and capacity
156	Ignacio-Mare Island 115 kV Reinforcement Plan	Solano County	Reconductor 19 miles of both the Ignacio - Mare Island Numbers (Nos.) 1 and 2 115 kV Lines with higher rated conductors.	115 kV	T1135	No	2010	NOC	Engineering	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity
157	Morro Bay 230/115 kV Transformer	San Luis Obispo County	Install an additional 230/115 kV transformer at Morro Bay Substation rated for 200 MVA or higher.	Redacted	T1196	No	2010	Exempt	Engineering	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity
158	Clear Lake 60 kV Reinforcement	Humboldt	This project proposes to install a 115/60 kV transformer at Middletown Substation and construct 12 miles of new 115 kV line to connect Middletown Substation to Lower Lake Substation	60 kV	T1134	No	2009	PTC	Engineering	Redacted	Redacted	\$30-\$40	Reliability: Increase grid reliability and capacity
159	Stagg - Hammer 60 kV Line	Stockton	This project proposes to install a new 4.2 miles of 60 kilovolt (kV) line between at Stagg and Hammer substations.	60 kV		No	2012	TBD	Engineering	Redacted	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
160	West Point - Valley Springs 60 kV Line Reinforcement	Stockton	Reconductor about 11 miles of the West Point - Valley Springs 60 kV Line with larger conductors (66 MVA rating).	Redacted	T880B	Yes	2007	TBD	Engineering	Redacted	Redacted	\$5-\$10	Reliability: Increase grid reliability and capacity
161	Taft 115/70 kV Transformer #2 Replacement	Kern	Replace Taft 115/70 kV Transformer No. 2 with a 200 MVA rated transformer.	Redacted		No	2012	Exempt	Engineering	May-19	Redacted	Redacted	Reliability: Increase grid reliability and capacity
162	Del Monte-Fort Ord 60 kV Reinforcement - Phase II	Monterey County	Reconductor the Fort Ord-Del Monte 60 kV Nos. 1 and 2 Lines with higher capacity conductors.	60 kV	T1138	No	2009	NOC	Planning	Redacted	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
163	Kern PP 230 kV Area Reinforcement Project	Kern	• Convert Kern PP 230 kV double bus single breaker arrangement to breaker and a half • Replace limiting equipment on Kern PP 230/115 kV transformer No. 4 as necessary to achieve full transformer rating • Install a 230/115 kV Transformer Special Protection Scheme at Kern 115 kV to mitigate overloads of Kern PP Transformer Nos. 3, 4, and 5	230 kV		No	2012	Exempt	Engineering	Dec-19	Redacted	\$50-\$60	Reliability: Increase grid reliability and capacity
164	Bay Area 500 kV Long Term Plan	Bay Area	In the conceptual planning stage. Phase 2 economic studies underway with input from the CAISO, San Francisco and Palo Alto	TBD	T073	No	Not Yet	TBD	Cancelled	May-20	Redacted	Redacted	Reliability: Increase grid reliability and capacity
165	Lockeford - Lodi 60 kV Reconductoring	Stockton	Reconductor about 17 miles on the Lockeford-Industrial, Lockeford-Lodi No. 2 and Lockeford-Lodi No. 3 60 kV lines with larger capacity conductors.	60 kV	T678B	No	Not Yet	NOC	Redacted	May-20	Redacted	Redacted	Reliability: Increase grid reliability and capacity
166	Valley Springs-Martell No. 1 60 kV Line Reconductoring	Stockton	Reconductor the Valley-Springs-Martell No. 1 60 kV Line	60 kV	T850	No	Not Yet	NOC	Engineering	Redacted	Redacted	\$10-\$20	Reliability: Increase grid reliability and capacity
167	Valley Springs-Martell No. 2 60 kV Line Reconductoring	Stockton	Reconductor the Valley Springs-Martell No. 2 60 kV Line	60 kV	T1298	No	Not Yet	NOC	Engineering	Redacted	Redacted	\$5-\$10	Reliability: Increase grid reliability and capacity
168	Wheeler Ridge Voltage Support	Kern	Install three 75 MVAR steps of mechanically switched capacitors on the Wheeler Ridge 230 kV bus, expand the 230 kV bus as necessary reconductor 0.5 miles of the Wheeler Ridge-Lakeview 70 kV line and transfer Copus from the Old River-Copus 70 kV line to the Wheeler Ridge-Lakeview 70 kV line.	230 kV		No	2012	Exempt	Engineering	May-20	\$25	Redacted	Reliability: Increase grid reliability and capacity
169	Kern PP 115 kV Area Reinforcement	Kern	Reconductor approximately 38 circuit miles of various 115 kV lines serving Bakersfield area	115 kV		No	2012	TBD	Engineering	Redacted	Redacted	\$50-\$60	Reliability: Increase grid reliability and capacity
170	Semitropic-Midway 115 kV Line Reconductor	Kern	Reconductor 14.2 miles of the Semitropic-Midway 115 kV line	115 kV		No	2012	NOC	Engineering	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity
171	Lockeford-Lodi Area 230 kV Development	Stockton	Construct new 15 mile 230 kV DCTL from Eight Mile Substation to Lockeford Substation	230 kV		No	2013	CPCN	Engineering	May-20	Redacted	\$80-\$105	Reliability: Increase grid reliability and capacity
172	New Bridgeville - Garberville No. 2 115 kV Line	Humboldt	Build a new 36 mile 115 kV Line from Bridgeville to Garberville substation as well as install a 115/60 kV transformer to Garberville Substation	115 kV		No	2012	PTC	Planning	Redacted	Redacted	Redacted	Reliability: Increase grid reliability and capacity

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173	Midway-Andrew 230 kV	Central Coast	Upgrade existing 65 miles long Midway-Santa Maria 115KV line to 230kV	230 kV		No	2012	TBD	Planning	Redacted	\$120-\$150	Reliability: Increase grid reliability and capacity	
174	Cortina - Eagle Rock 115 kV Reconductor	North Coast	The project scope is to either install and additional 230/115 kV transformer at Cortina and reconductor Cortina - Eagle Rock and Cortina - Mendocino 115 kV lines with larger capacity conductors or convert the Eagle Rock - Fulton 115 kV line to 230 kV.	TBD	T346B	No	Not Yet	NOC	Engineering	Dec-20	Redacted	Redacted	Reliability: Increase grid reliability and capacity
175	Moraga-Potrero 230 kV Project	Bay Area	Establish a 230 kV connection between Moraga and Potrero Substations.	230 kV		No	Not Yet	CPCN	Planning	Dec-20	\$400-\$600	Reliability: Increase grid reliability and capacity	
176	Vaca Dixon - Fulton Connection	North Coast and Sacramento	Establish a 115 kV connection between Vaca Dixon and Fulton substations.	115 kV	T603C	No	Not Yet	PTC	Planning	May-21	Redacted	Reliability: Increase grid reliability and capacity	
177	Rio Oso - Atlantic 230 kV Line	Sierra	Construct a second Rio Oso - Atlantic 230 kV Line.	230 kV		No	2011	CPCN	Engineering	Redacted	\$40-\$50	Reliability: Increase grid reliability and capacity	
178	Gates-Gregg 230 kV New Line	Fresno	Build new DCTL (roughly 60 miles) of Gates-Gregg 230 kV line and upgrade substation equipment	230 kV		No	2013	CPCN	Engineering	Dec-22	\$100-\$200	Reliability: Increase grid reliability and capacity	

* General project approval from PG&E Management is obtained when a project is submitted to the Cal-ISO for approval. Specific and final project-by-project approval from PG&E Management is obtained after the establishment of detailed project scope, cost and schedule. Permitting, engineering, procurement and construction activities will commence once specific approval is received.

** Project Status: 1) Planning, 2) Permitting, 3) Construction, 4) Operational, and 5) Cancelled.

*** With the exception of the cost estimates for the Northeast San Jose and Tri Valley projects, which are based on the extensive evidentiary records developed in CPUC A.99-09-029 and A.99-01-025, these cost estimates are taken from the ISO Grid Planning process. Though based on the best information presently available, these estimates were developed from standard unit costs and do not generally reflect extensive analysis of engineering, routing, environmental mitigation, or feasibility issues. Changes in the presently anticipated scope of these projects -- as a result of additional analysis of the above-listed or other factors, or as a result of changes resulting from any applicable permit processes -- could substantially increase the cost of these projects.

**** Customer funded.