

New Substations and Network Upgrades	Upgrade Identification Name
500 kV replacement of existing 220 kV line to create new 500 kV Antelope-Vincent #1 line (21 miles) (segment 5)	Antelope-Vincent_1_replace
Add new 500 kV Antelope-Vincent #2 line (17.6 miles)	Antelope-Vincent_2
Rebuild existing Avenue 58-Coachella Valley 161 kV line from Avenue 58 substation to Coachella Valley substation with double-circuit 230 kV towers to create a 230 kV Avenue 58-Coachella Valley #1 line (17.5 miles)	Ave58-CoachellaValley_1_rebuild
Replace existing Coolwater-Black Mountain lines with new 500 kV Baker1-Barstow1 #1 line (50 miles) between Baker and Barstow.	Baker1-Barstow1_replace
Rebuild existing El Centro-Avenue 58 161 kV line from Avenue 58 substation south as far as Bannister with double-circuit 230 kV towers and connect rebuilt line to Bannister substation creating a 230 kV Bannister-Avenue 58 #1 line (61 miles)	Bannister-Ave58_1_rebuild
Add 230 kV Bannister-Coachella Valley #1 line on open side of new 230 kV structures between (i) Bannister and Ave 58 substation area, and (ii) Ave 58 substation area and Coachella Valley substation (56.2 miles)	Bannister-CoachellaValley_1
Add 500 kV Bannister-Devers #1 line (91.2 miles)	Bannister-Devers_1
Add 230 kV Bannister-El Centro #1 line on open side of new towers (27.5 miles)	Bannister-ElCentro_1
Add 230 kV Bannister-Geo #1 line (16 miles)	Bannister-Geo_1
Add 230 kV Bannister-Geo #2 line (16 miles)	Bannister-Geo_2
Build 230 kV Barren Ridge Switching Station-Haskell Canyon #2 line with double circuit towers (60 miles)	BarrenRidge-HaskellCanyon_2
Upgrade existing 230 kV Owens Gorge-Rinaldi line from Barren Ridge Switching Station to Haskell Canyon switching station (60 miles)	BarrenRidge-HaskellCanyon_upgrade
Build new Barstow-Kramer 500 kV line (XX miles)	Barstow1-Kramer_1
Build new 500 kV Barstow1-Lugo #1 line with double circuit towers (51 miles)	Barstow1-Lugo_1
Add new 230 kV Camp Pendleton-Escondido #2 line on open side of existing towers (37 miles)	CampPendleton-Escondido_2
Reconductor existing 230 kV Talega-Escondido #1 line between Escondido and new Camp Pendleton substation (37 miles)	CampPendleton-Escondido_upgrade

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Add new 230 kV Camp Pendleton-Talega #2 line on open side of existing towers (10 miles)	CampPendleton-Talega_2
Reconductor existing 230 kV Talega-Escondido #1 line between Talega and new Camp Pendleton substation (10 miles)	CampPendleton-Talega_upgrade
Add 230 kV Castaic Power Plant-Haskell Canyon #2 line on open side of towers (12 miles)	Castaic_HaskellCanyon_2
Replace two existing single-circuit 220 kV lines with new double-circuit 220 kV towers creating new 220 kV Chino-Mira Loma #1 line. Requires relocating several existing 66 kV lines near Chino substation. (6.7 miles) (segment 8B)	Chino-MiraLoma_1_replace
Add new 230 kV Chino-Mira Loma #2 line on open side of new double-circuit 230 kV towers. (6.7 miles) (segment 8A)	Chino-MiraLoma_2
Add new 220 kV Chino-Mira Loma #3 line on open side of new 500 kV towers. (6.7 miles) (segment 8B)	Chino-MiraLoma_3
Add Coachella Valley-DeversII 230 kV line #1 (35 miles)	CoachellaValley-DeversII_1
Add Coachella Valley-DeversII 230 kV line #2 (35 miles)	CoachellaValley-DeversII_2
Upgrade existing 230 kV Coachella Valley-Mirage #1 (20 miles)	CoachellaValley-Mirage_1_upgrade
Upgrade existing 230 kV Coachella Valley-Mirage #2 (20 miles)	CoachellaValley-Mirage_2_upgrade
Build Collinsville-Pittsburgh 230 kV line #1 (1 mile)	Collinsville-Pittsburgh_1
Build Collinsville-Pittsburgh 230 kV line #2 (1 mile)	Collinsville-Pittsburgh_2
Build new Collinsville-Tracy2 area 500 kV line (40 miles)	Collinsville-Tracy2_1
Replace two existing 115 kV Control-Inyokern lines between Control and new Lone Pine substation with a new 230 kV Control-Lone Pine #1 line built to 500 kV specifications (45 miles)	Control-LonePine_1_rebuild
Build 500 kV Desert Center-Devers #1 line (40 miles) on double-circuit towers (one segment of the recently modified Palo Verde-Devers #2 project)	DesertCenter-Devers_1
Add new 500 kV Desert Center-Devers #2 line on open side of towers (40 miles)	DesertCenter-Devers_2
Add new 500 kV Devers-Valley #2 line (40 miles)	Devers_Valley_2
Connect Devers and DeversII substations with a 500 kV tie (0.3 miles)	Devers-DeversII_1

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Build new 230 kV Green Path North #2 line from DeversII to Century 230 kV bus (175 miles) (Includes (a) 95 miles of circuit on open side of new double circuit towers, (b) 10 miles of new underground construction in the Upland area, and (c) removing and restringing 70 miles of an existing 287 kV Victorville-Century #2 line and operating restrung line at 230 kV)	DeversII-Century_1
Build new 230 kV Green Path North #1 line from DeversII to Victorville 230 kV bus (133 miles) (Includes (a) 95 miles of new double circuit towers, (b) 10 miles of new underground construction in the Upland area, and (c) removing and restringing 28 miles of an existing 287 kV Victorville-Century #2 line and operating restrung line at 230 kV)	DeversII-Victorville_1
Build new Devers-Mira Loma 500 kV ckt #1 on double-circuit towers	Devers-MiraLoma_1
Build new Devers-Mira Loma 500 kV ckt #2 on double-circuit towers	Devers-MiraLoma_2
Add a 500 kV Devers-Valley #3 line by replacing the existing Devers-Valley #1 towers with double circuit towers and stringing the third line on the open side of the towers (40 miles)	Devers-Valley_3
Disconnect Dixieland-El Centro 230 kV line from El Centro substation and (i) rebuild existing El Centro-Avenue 58 161 kV line north as far as Bannister with double-circuit 230 kV towers, and (ii) connect rebuilt line to Bannister substation creating a Dixieland-Bannister 230 kV line (43 miles)	Dixieland-Bannister_rebuild
Rebuild existing El Centro-Pilot Knob 161 kV line east as far as Highline substation with double-circuit 230 kV towers and connect to Highline substation creating 230 kV El Centro-Highline #1 line (19 miles)	ElCentro-Highline_1_upgrade
Add 230 kV El Centro-Highline #2 line on open side of new towers (19 miles)	ElCentro-Highline_2
Add 230 kV El Centro-Imperial ValleyII #2 line (18 miles)	ElCentro-ImperialValleyII_2
Reconductor existing Morro Bay-Gates 230 kV line (will accommodate the next 1000 MW of development in this area) (70 miles)	Gates-MorroBay_1_upgrade
Add new 220 kV Gould-Eagle Rock #1 line on open side of existing towers. (9.4 miles)	Gould-EagleRock_1
Upgrade existing 230 kV Owens Gorge-Rinaldi line from Haskell Canyon switching station to Rinaldi (15 miles)	HaskellCanyon_Rinaldi_upgrade

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Replace existing 500/230 kV 600 MVA Imperial Valley transformer with a new 1120 MVA transformer	ImperialValley_xfmr_2_upgrade
Add third 500/230 kV Imperial Valley transformer (1120 MVA)	ImperialValley_xfmr_3
Add 500 kV Imperial Valley-Bannister #1 line (51 miles)	ImperialValley-Bannister_1
Build new 500 kV Inyokern-Kramer #1 line (66 miles)	Inyokern-Kramer_1
Rebuild existing 230 kV Iron Mountain-Camino line with new double circuit 500 kV towers (39 miles) between Iron Mountain and Jontry Junction creating a 500 kV Iron Mountain-JontryJunction #1 line	IronMountain-JontryJunction_1_rebuild
Add 500 kV Iron Mountain-Jontry Junction #2 line on open side of towers (39 miles)	IronMountain-JontryJunction_2
Rebuild existing 230 kV Iron Mountain-Camino line with new 500 kV towers between Jontry Junction and Camino (10 miles) creating a 500 kV Camino-Jontry Junction #1 line	JontryJunction-Camino_1_rebuild
Build 500 kV Jontry Junction-Pisgah #1 line with double circuit towers (84 miles)	JontryJunction-Pisgah_1
Add 500 kV Jontry Junction-Pisgah #2 line on open side of towers (84 miles)	JontryJunction-Pisgah_2
Build new 500 kV Kramer-Lugo #1 line with double circuit towers (48 miles)	Kramer-Lugo_1
Build new 500 kV Kramer-Windhub #1 line with double circuit towers (38 miles)	Kramer-Windhub_1
Build new Talega-Escondido/Valley-Serrano 500 kV line (31 miles)	LeeLake-CampPendleton_1
Replace two existing 115 kV Control-Inyokern lines between new Lone Pine substation and Inyokern with a new 230 kV Lone Pine-Inyokern #1 line built to 500 kV specifications (53 miles)	LonePine-Inyokern_1_rebuild
Build new 500 kV Lucerne Valley-Lugo #1 line with double circuit towers (21 miles) (Scored as double circuit 500 kV/2)	LucerneValley-Lugo_1
Build Lugo-Victorville 500 kV #2 (24 miles)	Lugo-Victorville_2
Partial rebuild of Eagle Rock-Pardee from Vincent to Gould and partial stringing of new conductor on vacant tower positions from Gould to Mesa. 18 miles 230 kV construction and 18 miles 500 kV construction.	Mesa_Vincent_2
Build 500 kV SCE Midpoint-Desert Center #1 line (70 miles) on single-circuit towers (one segment of the recently modified Palo Verde-Devers #2 project)	Midpoint-DesertCenter_1

New Substations and Network Upgrades	Upgrade Identification Name
Reconductor Carrizo-Midway section of existing 230 kV line (will accommodate first 1100 MW of renewables connected to Carrizo switching station) (46 miles)	Midway-Carrizo_1_upgrade
Build new 230 kV Midway-Geo #1 line with double-circuit 230 kV towers (16 miles)	Midway-Geo_1
Add 230 kV Midway-Geo #2 line on open side of new 230 kV towers (16 miles)	Midway-Geo_2
Construct new 500 kV Midway-Gregg #1 line (141 miles, two 2300 kcmil AAL bundled conductors)	Midway-Gregg_1
Construct new 500 kV Midway-Gregg #2 line on the opposite of the towers (141 miles, two 2300 kcmil AAL bundled conductors)	Midway-Gregg_2
Build new 500 kV Midway-Kramer #1 line with double circuit towers (118 miles)	Midway-Kramer_1
Add new 500 kV Midway-Kramer #2 line on open side of towers (118 miles)	Midway-Kramer_2
Reconductor the PG&E-owned northern portion of the existing 500 kV Midway-Vincent #3 line between Midway substation and a point 9.78 miles north of new Whirlwind substation (52.5 miles)	Midway-Whirlwind_1_upgrade
Upgrade existing 230 kV Mirage-Devers #1 (15 miles)	Mirage-Devers_1_upgrade
Upgrade existing 230 kV Mirage-Devers #2 (15 miles)	Mirage-Devers_2_upgrade
Replace existing 115 kV Coolwater-El Dorado line with new 500 kV Mountain Pass1-Baker1 #1 line (50 miles) between Mountain Pass and Baker.	MountainPass1-Baker1_replace
Replace existing 115 kV Coolwater-El Dorado line with new 500 kV Mountain Pass1-El Dorado #1 line between Mountain Pass and El Dorado (32 miles).	MountainPass1-ElDorado_1_replace
Build a new +/- 500 kV DC NEO-Collinsville line (3-conductor bundle 1272 kcmil ACSR (640 miles)	NEO-Collinsville_1
33.2 mile portion of existing Eagle Rock-Pardee 230 kV line between Pardee and Vincent. (Termination costs only)	Pardee_Vincent_2
Build new Pisgah-Barstow 500 kV line (XX miles)	Pisgah-Barstow1_1
Build new 500 kV Pisgah-Lucerne Valley #1 line with double circuit towers (47 miles) (Scored as double circuit 500 kV/2)	Pisgah-LucerneValley_1

New Substations and Network Upgrades	Upgrade Identification Name
Build new 500 kV Pisgah-Mira Loma #1 line using open side of new towers between (i) Pisgah and Lucerne Valley substation area, and (ii) Lucerne Valley substation area and Lugo substation area (bypassing both Lucerne Valley and Lugo substations) and (iii) on new 500 kV double circuit towers between Lugo substation area and Mira Loma (97 miles) (Scored as double circuit 500 kV/2 between Pisgah and Lugo + double circuit 500 kV with open side between Lugo and Mira Loma)	Pisgah-MiraLoma_1
27.9 mi rebuild of Antelope-Mesa 230 kV plus 4.2 miles of existing line (32.1 miles total)	Rio Hondo_Vincent_2
Build a new series compensated (up to 70%) 500 kV Selkirk-Devil's Gap-NEO line #1 (4-conductor bundled 666 kcmil ACSR) (270 miles)	Selkirk-NEO_1
Build a new series compensated (up to 70%) 500 kV Selkirk-Devil's Gap-NEO line #2 (4-conductor bundled 666 kcmil ACSR) (270 miles)	Selkirk-NEO_2
Build new 230 kV Tesla-Newark #1 line (29 miles)	Tesla-Newark_1
(i) 500 kV replacement of existing 220 kV lines between Vincent and Duarte area. (Includes 500 kV replacement of 5 miles of existing 220 kV line between Vincent substation and the northern edge of the Angeles National Forest.) (32.1 miles) (segment 6) + (ii) Replace existing 220 kV line between Duarte area and Mesa substation area with double-circuit 500 kV towers. (Includes relocation of several 66 kV lines between Rio Hondo and Mesa substations.) (15.2 miles) (segment 7) + (iii) Replace an existing single-circuit 220 kV line between Mesa substation area and Chino substations with double-circuit 500 kV towers. (Includes minor reroute of existing 220 kV lines near Fullerton Road.) (21 miles) (segment 8A) + (iv) Remove existing double-circuit 220 kV line between Chino and Mira Loma substations ("segment 8C") and replace with double-circuit 500 kV towers. (6.7 miles) (segment 8A) Add 500 kV Vincent-Mira Loma #1 line between Vincent substation and Duarte area, on one side of new towers between Duarte area and Mesa substation area and on one side of new towers between Mesa substation area and Mira Loma. (Total length = 32.1 + 15.2 + + 21 +6.7 = 75 miles)	Vincent-MiraLoma_1_replace

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Build new 500 kV Whirlwind-Vincent #1 line (33.2 miles)	Whirlwind_Vincent_1
Build new 500 kV Whirlwind-Antelope #1 line (15.6 miles) (segment 4)	Whirlwind-Antelope_1
Build new 500 kV Windhub-Antelope #1 line (25.6 miles)	Windhub_Antelope_1
Build new 500 kV Windhub-Whirlwind #1 line (16.8 miles) (segment 10)	Windhub_Whirlwind_1
Build new 500 kV Zeta 1-Olinda #1 line (42 miles)	Zeta1-Olinda_1
Connect new Zeta 1 substation and existing Round Mountain substation with a short 500 kV line (1 mile)	Zeta1-RoundMountain_1