

CHAPTER 1 – PROJECT DESCRIPTION

1.1 PROJECT OVERVIEW

Pacific Gas and Electric Company (PG&E) proposes to construct and operate an approximate 4.9 acre 115/21kV electrical substation called the Seventh Standard Substation to meet increased electrical load demands within Kern County, California. The project is located entirely on private land located in northwest Bakersfield.

A negative declaration (Zone Change No. 06-1698) was adopted by the City of Bakersfield in January 2008, for a proposed residential development that, together with other area development, has triggered the need for the substation. As required by the California Environmental Quality Act (CEQA Guidelines Section 15126.2), the PG&E substation was included in the project description and environmental review for that project.

As directed by California Public Utilities Commission (CPUC or Commission) staff, this Proponent's Environmental Assessment (PEA) provides a more detailed description and environmental analysis of the substation project. It was prepared in support of an application to the CPUC for a Permit to Construct (PTC) the Seventh Standard Substation. A PTC must be approved by the CPUC before construction can begin, pursuant to the Commission's General Order (GO) 131-D. This PEA was prepared in compliance with the CPUC's PEA Guidelines (CPUC Information and Criteria List, Appendix A Section V) and draft PEA Checklist, as well as with the CPUC's requirements for a PTC pursuant to GO 131-D.

1.2 PROJECT LOCATION AND REGIONAL CONTEXT

The project is located on private land in northwest Bakersfield, Kern County, California (Figures 1 and 2). The proposed substation is located south of Seventh Standard Road and west of the Calloway Canal approximately 2.5 miles west of State Route (SR) 99.

The substation site is located within the northern half of the northwest quarter of Section 1, Township 29 South, Range 26 East (Mount Diablo Baseline and Meridian).

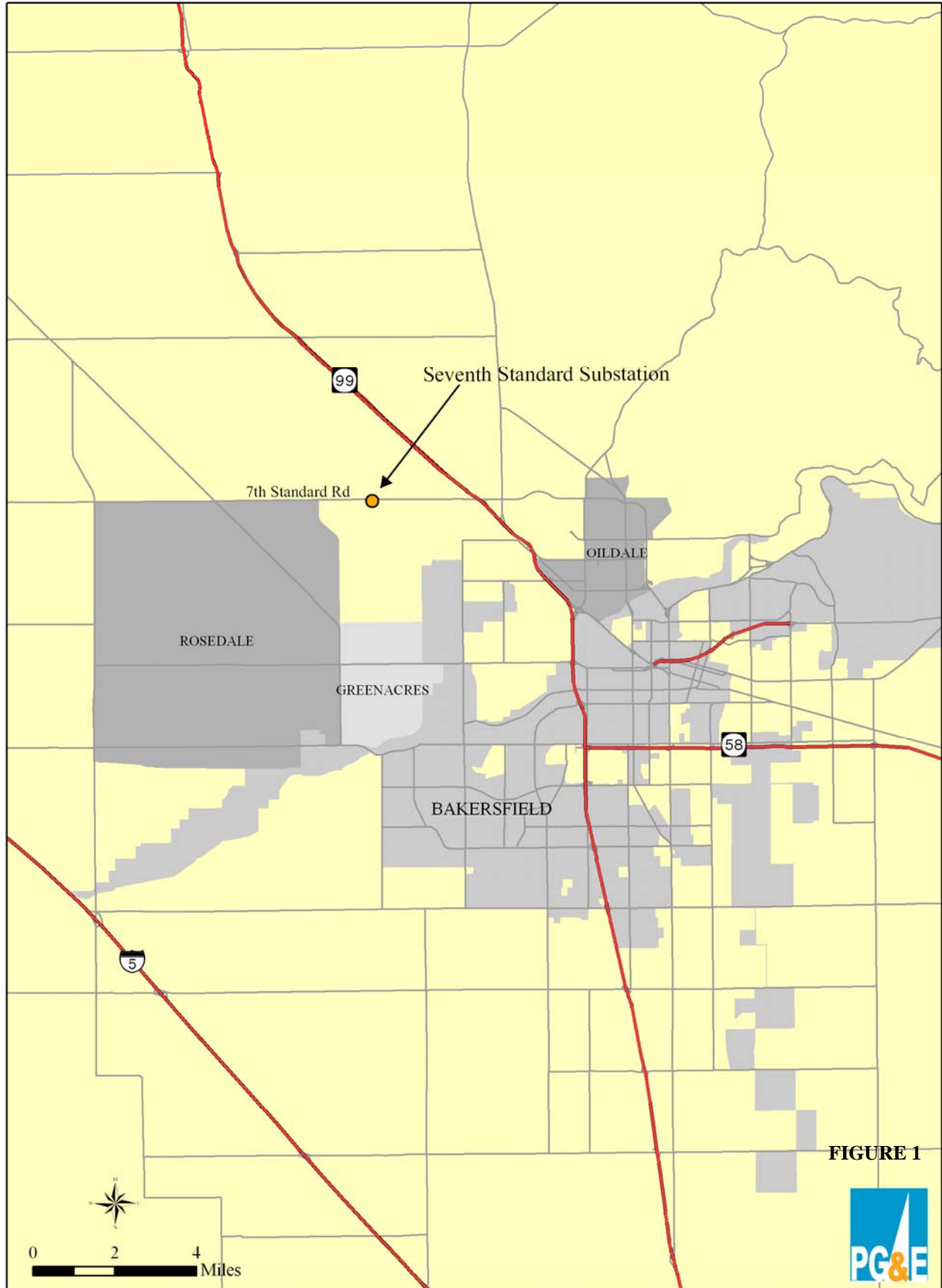
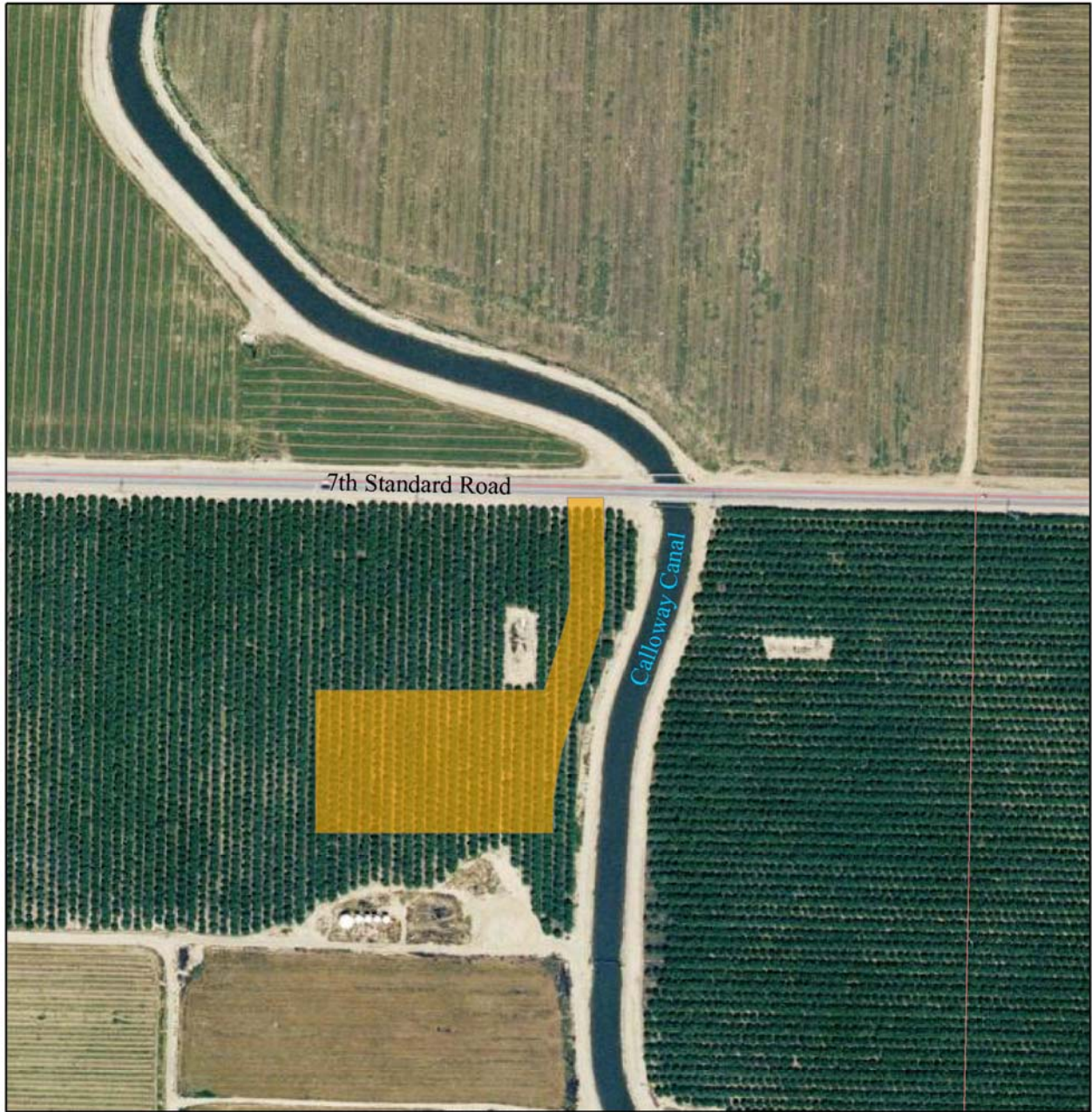



FIGURE 1



Legend
 Property Boundary

Seventh Standard Substation Project
 Pacific Gas and Electric Company

FIGURE 2



1.3 PROJECT PURPOSE AND NEED

1.3.1 Project Objectives

The objectives for constructing the Seventh Standard Substation are to continue to provide safe, reliable electrical service to the unincorporated areas of Bakersfield, the proposed Rosedale Ranch, the planned development areas outlined in the City of Shafter General Plan, the area agricultural pumps and oil production facilities, and other future development.

1.3.2 Project Need

The Seventh Standard Substation is needed to sustain the current electric service demands of the Urban Bakersfield Northwest Distribution Planning Area (DPA). The Rosedale Ranch development, as well as continued development in the surrounding area, will increase electrical demand for the area. Over recent years, the northwest Bakersfield area has experienced consistent, increased electrical load growth. Nearly all electrical capacity has been used within the Urban Bakersfield Northwest DPA. The proposed Rosedale Ranch and other future development will exceed the capacity of the current electrical system within the DPA. Load transfers are not feasible as existing infrastructure (circuits and substations) are too far from the area, preventing reliable service.

PG&E's Urban Bakersfield Northwest DPA, located in Kern County, covers the northwest area of the City of Bakersfield west of SR 99, south of Seventh Standard Road, and north of the Kern River. This area encompasses 49 square miles. The area is served by 12kV and 21kV electric distribution lines, with the majority of the existing load and future growth at 21kV. The Urban Bakersfield Northwest DPA has no 21kV ties to the west, north, or east. To the south there are 21kV ties to the Urban Bakersfield Southwest DPA. Customers in the area are primarily residential with associated commercial. There are large parcels of land suitable for development remaining in the area and growth has been rapid in recent years. The City of Shafter has updated its General Plan to include the area north of Seventh Standard Road and west of SR 99 for light industrial and mixed use development. The City of Bakersfield is working with developers on large scale developments south of Seventh Standard Road. PG&E expects growth to continue into the foreseeable future.

PG&E has four electric distribution substations presently serving this planning area, including Renfro, Kern Power, Fruitvale, and Rosedale. The Kern Power, Fruitvale, and Rosedale Substations are within one-half mile of each other and the Renfro Substation is four miles to the west. The closest substation to the north is the Lerdo Substation, which is 10 miles away and outside of the DPA's service area. The four substations within the DPA have a combined distribution capacity of approximately 250 megawatts (MW). Based on the current demand projection, peak electric demand, currently at 215.3 MW, is expected to reach 283.6 MW in 2010 and exceed the area's capacity by 31.6 MW (12.5%). This load increase includes agricultural pumps and oil production increases in adjacent DPAs, which are not expected to be reduced due to the current economic pressures that are stalling other types of development. With the addition of a new transformer bank at Seventh Standard Substation, distribution capacity for DPA substations will increase to approximately 285 MW by summer 2010. With all three transformers in place at the new substation, the combined capacity of the DPA's substations will increase to approximately 369 MW, sufficient to reliably serve the growing peak demand of customers in the City of Bakersfield, City of Shafter, and the surrounding area in Kern County for at least 12 years.

In 2007, after the evaluation of various distribution capacity upgrade alternatives, PG&E determined that a substation in the northern growing area of the DPA would best provide the additional distribution capacity needed to serve the DPA reliably into the future. In order to preserve an appropriate substation site in this rapidly-developing area, PG&E studied the land available, identified an ideally-located site, and began the purchase process on a 4.9 acre parcel for a future substation off of Seventh Standard Road in Kern County.

1.3.3 Project Benefits Description

Completion of the Seventh Standard Substation will increase distribution capacity to serve electric customers in the City of Bakersfield, the City of Shafter, and the surrounding area during peak demand conditions. The project will support the connection of new agricultural pumps and oil production. Furthermore, this project also increases the emergency capacity and reliability in the Urban Bakersfield Northwest DPA. Completion of this project will eliminate the following projected overloads in 2010:

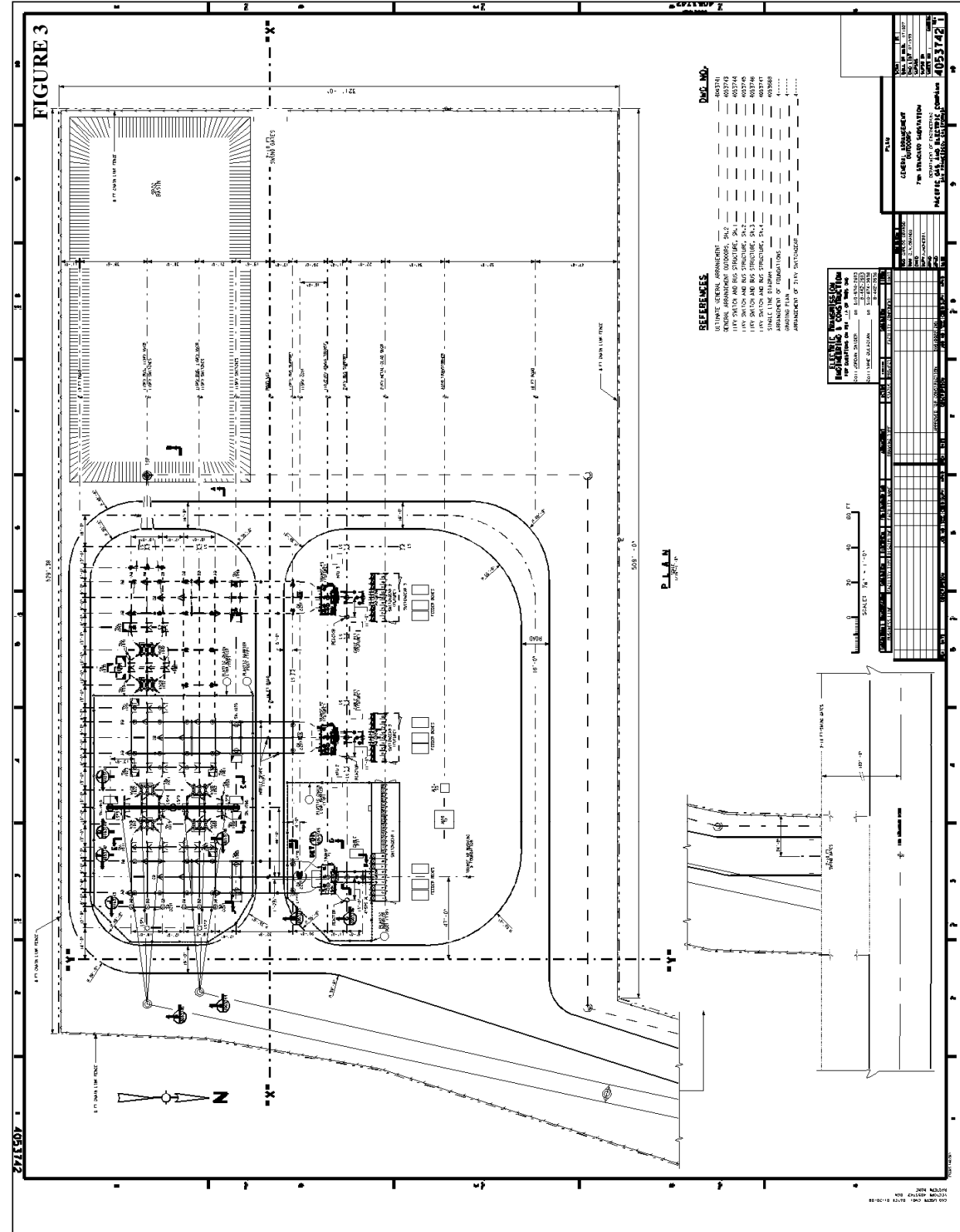
- Renfro Bank #1 – 3.5 MW (7.0%)
- Renfro Bank #2 – 9.7 MW (22.0%)
- Rosedale Bank #1 – 1.5 MW (5.0%)
- Kern Power Bank #7 – 2.4 MW (5.0%)
- Fruitvale Bank #2 – 1.5 MW (5.0%)
- Renfro 2105 circuit – 120 amps (19%)
- Renfro 2107 circuit – 104 amps (17%)

1.4 PROJECT FACILITIES

1.4.1 Seventh Standard Substation

The new electric substation will include, among other facilities, an access road, distribution circuit outlets, and an interconnection to the existing electrical supply grid. Figure 3 depicts the preliminary layout of the Seventh Standard Substation and Figure 4 is a profile of the substation. The substation will be an automated, low profile facility that will require only periodic maintenance. Electrical power will enter the substation by tapping the Rio Bravo-Kern Oil 115kV Power Line that parallels the south side of Seventh Standard Road. Electrical power will leave the substation as 21kV via distribution feeder lines, which will interconnect with the distribution network. Construction will involve the installation of the following components:

- A new, three-bank 115/21 kV distribution substation
- A single tubular steel pole (TSP) to be located midway between the substation and Seventh Standard Road, and two other TSPs (dead-end structures) to be located nearer to and east of the substation
- Two drop down structures on the east side of the substation
- Up to nine distribution circuits (at full build out) exiting the substation in underground conduit and transitioning to the overhead position or remaining underground
- A paved access road from Seventh Standard Road to the substation



1.5 GENERAL CONSTRUCTION METHODS

1.5.1 Construction Sequence

Project construction will generally occur in the following manner:

1. Access Road Construction
2. Substation Construction
 - a. Land clearing, rough grading, and compaction of substation subgrade
 - b. Installation of security fence
 - c. Excavation of foundations, raceways, and ducts
 - d. Installation of grounding grid
 - e. Construction of the buswork structure
 - f. Installation of facilities
3. Distribution Line Relocation
4. Power Line Interconnection
5. Distribution Line Construction
6. Cleanup and Landscaping

Access Road Construction

PG&E will construct a 16 foot-wide access road from Seventh Standard Road to the substation. The road will be approximately 700 feet in length. All existing vegetation will be cleared to accommodate the road. The access road and roads within the substation area will be paved.

Substation Construction

The substation will be constructed on approximately 4.9 acres, which includes the entrance driveway. The proposed site of the substation is an undeveloped almond orchard. Substation construction will begin by clearing almond trees and grading the site to establish proper drainage and a level surface. Site grading will also involve compaction of the area.

An eight foot-high, chain link, perimeter fence will be constructed around the substation for security purposes. The fence will follow the access road to within 180 feet of Seventh Standard Road. At this point, the fence will terminate and two 10 foot swing gates will be installed.

Following site preparations, PG&E will install foundations, a Spill Prevention Control Countermeasure (SPCC) concrete basin, raceways, and underground conduit. Interior lighting and telecommunications facilities will be installed for safety and security of the substation. Reinforced concrete subsurface footings and concrete slabs will be installed along with the grounding grid. Aboveground steel structures, circuit breakers, transformers, switchgears, buses and other electrical equipment will be installed after the concrete cures. Equipment will be bolted or welded to slabs and footings to meet or exceed seismic requirements. All equipment will be grounded to a substation ground grid. The maximum height of the substation equipment will be approximately 35 feet for the dead-end structures supporting the 115kV interconnection. Substation transformers, switches, and buswork will be less than 15 feet tall. Substation structures and equipment will be neutral in color.

Security lighting will consist of sodium vapor lamps. Exterior lighting will use non-glare light bulbs. The lighting will be designed and positioned to minimize casting light and/or glare to offsite locations. Light poles will be approximately 10 feet high and constructed of galvanized steel. Poles will be placed at each corner of the substation. The lights will be controlled by a photocell that automatically turns the lights on during the night and off during the day.

At full build-out the substation will include three 45 megavolt ampere transformers. Each transformer will contain approximately 12,200 gallons of mineral oil (the mineral oil does not contain polychlorinated biphenyls (PCBs)). A SPCC basin will be constructed to contain accidental, unanticipated spills. The SPCC basin will be sufficiently sized to contain all of the transformer coolant liquid from the transformer.

Parking, lay down, and staging areas for construction will generally be within the substation and access road.

Distribution Line Relocation

A PG&E distribution line currently runs through the proposed substation site. This line will be relocated around the perimeter of the substation within the fenced portion of the substation yard. Specifically, the line will be directed around the northern and western side of the substation.

Power Line Interconnection

The substation will be looped into the Rio Bravo-Kern Oil 115kV Power Line paralleling the south side of Seventh Standard Road. The interconnection line will span approximately 1,000 feet to the south from Seventh Standard Road along the east side of the access road, and enter the substation from the east via dead-end structures dropping down into the substation. One TSP will be erected midway between Seventh Standard Road and the substation and two dead-end structures will be located just east of the substation from which the power line will drop down to the substation. The drop down structures at the substation will be approximately 35 feet tall. Figure 5 displays a TSP and a dead-end structure from a different location that are similar to those to be erected at the Seventh Standard Substation.

For stringing the electrical conductors (wires), sheaves (rollers connected to the structure cross-arm that allows the conductor to be pulled) will be installed. Pulling and tensioning equipment will be positioned at the ends of the segment (at the substation and along Seventh Standard Road). First, a sock line, or rope, will be pulled through and then attached to the conductor and pulled into place. Once the line is adjusted to the proper tension, the conductor will be fastened and the sheaves removed.



FIGURE 5

Typical dead-end structures are depicted on the left and a simulation of a TSP is depicted on the right.

Distribution Line Construction

Within the substation, the 21kV distribution feeder lines will be placed underground in conduit. Nine feeder lines are planned for the substation at ultimate build out. Electrical distribution lines will be constructed from the substation to areas of demand on an as-needed basis. Line trucks and boom trucks will be used for construction. The distribution lines exiting the substation will be placed underground as they leave the substation, and may surface at Seventh Standard Road or remain underground. If the distribution line is above ground the wood poles will be approximately 50 feet tall will be spaced on average approximately 225 feet apart. Typically, the poles will require a mechanical auger to dig a hole approximately six feet in depth. The placement of each distribution line will be based upon the following:

- The location of the current load growth
- Existing electrical distribution facilities in the area
- The location of roads and existing PG&E rights-of-way (PG&E generally constructs distribution lines along existing roads).

Cleanup and Landscaping

PG&E will ensure that the construction site is kept clean during the construction period. Trash will be picked up daily and either removed from the work site or properly contained. Upon completion of construction activities, a final cleanup of the work area will be performed. Final grading will ensure that contours match those of the surrounding area. The substation will be deliberately set back from Seventh Standard Road, and PG&E will consult local authorities for landscaping guidelines and preferences.

1.5.2 Construction Personnel and Equipment

The tasks will be conducted in stages; therefore, personnel and equipment will not be working on all tasks simultaneously at a given location. Thus, personnel will conduct multiple functions and equipment will access work locations on multiple trips. Typical construction equipment used during substation construction is summarized in Table 1.

TABLE 1 SUBSTATION MANPOWER AND EQUIPMENT LOADING SCHEDULE				
Primary Equipment Description	Primary Equipment Quantity	Number of Personnel	Estimated Activity Schedule	Estimated Usage per Day
Office Trailer	1		Project duration	
Grading				
Water Trucks	2			8 hours
1/2 Ton Pick-up Truck, 4X4	1			2 hours
980 Loader	1	6	40 days	8 hours
Grader	1			8 hours
Vibratory compactor	1			3 hours

**TABLE 1
SUBSTATION MANPOWER AND EQUIPMENT LOADING SCHEDULE**

Primary Equipment Description	Primary Equipment Quantity	Number of Personnel	Estimated Activity Schedule	Estimated Usage per Day
Survey				
1/2 Ton Pick-up Truck, 4X4	2	2	10 days	8 hours
Civil (foundation, underground conduit, ground grid, etc construction)				
1 Ton Crew Cab 4X4	2			4 hours
Fork Lift	1			4 hours
Dump truck	2			3 hours
Stake bed truck	1	8	50 days	2 hours
Drill rig	1			1 hour
Tractor	1			7 hours
Trencher	1			4 hours
Electrical (MEER, switchracks, conductor, circuit, breakers, etc.)				
1 Ton Crew Cab 4X4	2			6 hours
1/2 Ton Pick-up Truck, 4X4	4			4 hours
Carryall vehicles	2	4	80 days	6 hours
Cranes	2			4 hours
Lift truck	1			4 hours
Manlifts	2			4 hours
Transformer Setup				
1 Ton Crew Cab 4X4	2			2 hours
Carryall vehicle	1			2 hours
Crane	1	5	20 days	6 hours
Forklift	1			6 hours
Processing trailer	1			12 hours
Low bed truck	1			4 hours

TABLE 1 SUBSTATION MANPOWER AND EQUIPMENT LOADING SCHEDULE				
Primary Equipment Description	Primary Equipment Quantity	Number of Personnel	Estimated Activity Schedule	Estimated Usage per Day
Test Facilities				
1/2 Ton Pick-up Truck, 4X4	1	2	40 days	2 hours
Paving				
1 Ton Crew Cab Flat Bed, 4X4	1			5 hours
Dump trucks	2	8	8 days	6 hours
Barbergreen	1			2 hours
Skip loaders	2			6 hours
Fence Construction				
1/2 Ton Pick-up Truck, 4X4	1			4 hours
1 Ton Crew Cab Flat Bed, 4X4	1	4	10 days	4 hours
Bobcat	1			8 hours
3 Ton Flat Bed Truck	3			1 hour

1.6 ESTIMATED GROUND DISTURBANCE

Construction and operation of the Seventh Standard Substation project will result in approximately 4.9 acres of permanent ground disturbance.

1.7 CONSTRUCTION SCHEDULE

Construction is scheduled to begin in the summer of 2009. Construction activities will take approximately six months to complete. Construction crews will work during daylight hours on weekdays unless otherwise required for project safety or to take advantage of necessary line clearances.

1.8 OPERATIONS, MAINTENANCE, AND INSPECTION

Operation of distribution equipment at the Seventh Standard Substation will be controlled remotely from the Midway Substation. Telecommunications lines will connect the station and line alarms to the control center.

All structures at the Seventh Standard Substation will be inspected annually on the ground to detect problems with corrosion, equipment alignment, or foundations. Routine substation inspection includes inspection of hardware, insulator keys, and conductors. Trimming of vegetation will be performed in accordance with the CPUC's General Order 95. Emergency inspections will occur as necessary.

1.9 REQUIRED APPROVALS

The CPUC is the lead agency for CEQA review. This PEA has been developed in accordance with the CPUC's General Order No. 131-D as part of the PTC application. This and other discretionary approvals that may be required for the proposed project are summarized in Table 2.

Agency	Permit
US Department of the Interior, Fish and Wildlife Service	Endangered Species Act, Section 7
California Public Utilities Commission	Permit to Construct
California Regional Water Quality Control Board	National Pollution Discharge Elimination System, General Construction Stormwater Permit
California Office of Historic Preservation	National Historic Preservation Act, Section 106

1.10 RIGHT-OF-WAY ACQUISITION

PG&E is in the process of acquiring the property rights for the 4.9 acre substation site, including the access road. Property owners identified within 300 feet of the proposed substation are included in Appendix A.