

ENVIRONMENTAL CHECKLIST

1.	Project Title:	PG&E Northern Geysers Area Reinforcement Project (Application Number 98-06-039)
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2.	Lead Agency Name and Address:	California Public Utilities Commission 505 Van Ness Avenue, Fourth Floor San Francisco, CA 94102-3298
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3.	Contact Person and Phone Number:	Stephen Rutledge, Regulatory Analyst Energy Division (415) 703-1637
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4.	Project Location:	Eagle Rock Substation is located in Northern Sonoma County within the Known Geysers Resource Area approximately 11 miles south of Clear Lake; Fulton Substation is located approximately 2 miles north of the City of Santa Rosa at the intersection of Highway 101 and River Road (see Figure 1)
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5.	Project Sponsor's Name and Address:	Pacific Gas and Electric Company P.O. Box 7442 San Francisco, CA 94120 Attn: John Mintz (415) 973-5779
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6.	General Plan Designation:	<u>Geysers Site:</u> Resources and Rural Development <u>Fulton Site:</u> Public/Quasi Public	7.	Zoning:	<u>Geysers Site:</u> Resources and Rural Development <u>Fulton Site:</u> Public Facility
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8.	Description of Project:
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Purpose and Need

Pacific Gas and Electric Company (PG&E) is proposing to reinforce the Northern Geysers Power Line System by making additions to existing facilities at the northern and southern ends of the existing Geysers Unit 11-Fulton transmission line. The proposed facilities would be installed at the Geysers and Fulton sites, both located in Sonoma County,

California. The purpose of the project is to meet the rising demand for electricity in Colusa, Lake, Mendocino and northern Sonoma counties, to which PG&E provides power.

PG&E currently operates two power line systems that are served by geothermal power generated at The Geysers: the Northern Geysers 115/60kV Power Line System and a 230kV transmission system. The Northern Geysers Power Line System serves customers in Colusa, Lake, Mendocino and northern Sonoma counties. The 230kV transmission line provides electric service in southern Sonoma and Napa counties.

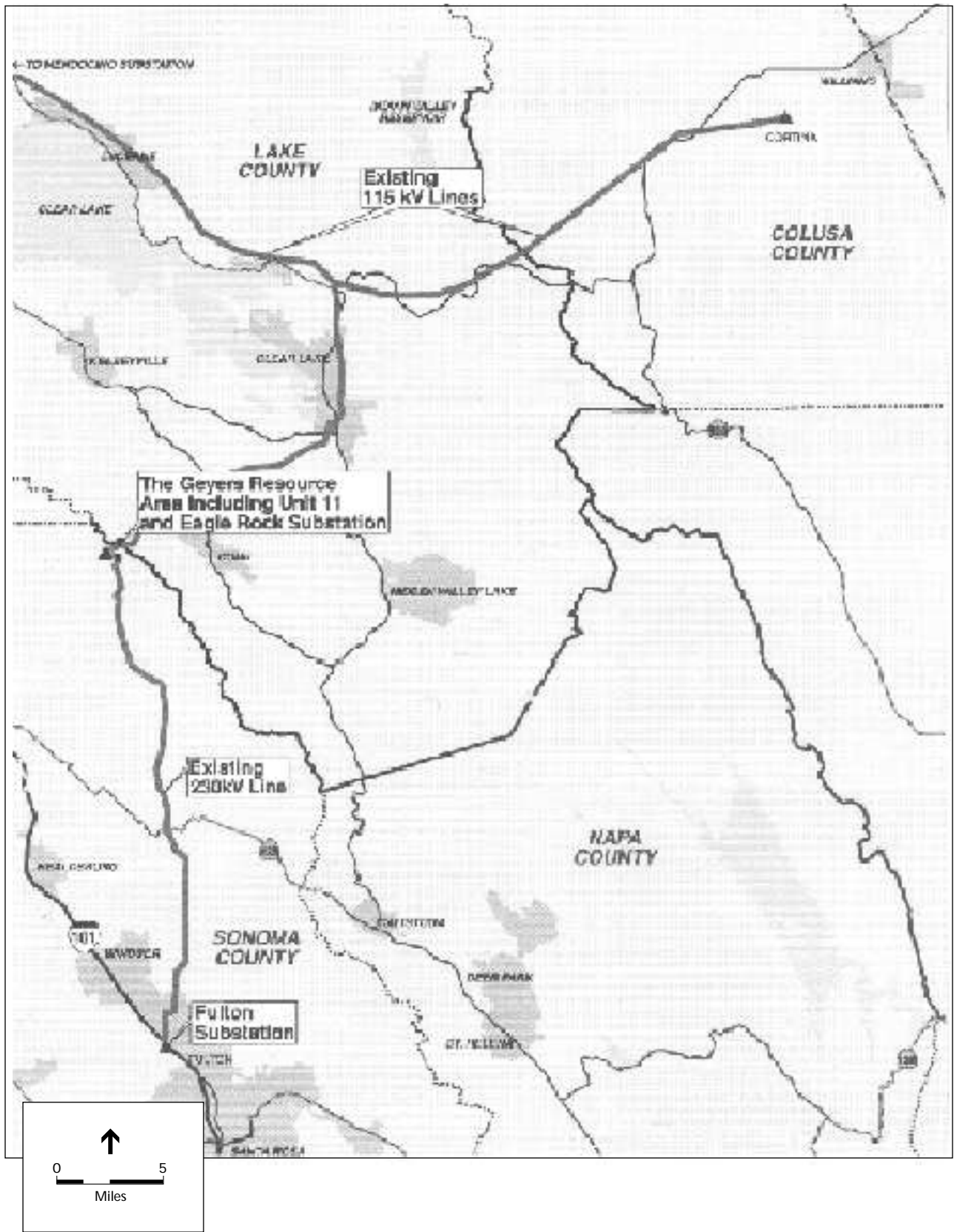
Electricity demand in Colusa, Lake, Mendocino and especially, northern Sonoma counties has increased over the past several years (PG&E, 1998). PG&E has stated that the expected electrical load growth is the primary reason for reinforcement of the Northern Geysers Power Line System. Currently, the system is served by six geothermal plants (including PG&E's Geysers Units 5, 6, 7 and 8) and the Eagle Rock Substation. A fifth unit (Geysers Unit 11) and other units are currently connected to the 230kV system. Power flow studies simulating area peak load conditions in 1998 indicate that transformer bank capacity overload and unacceptable low voltages would occur on the 115kV/60kV power line if an outage were to occur at Geysers Units 5 and 6 or if Geysers Unit 7 were temporarily or permanently taken out of service. Under such conditions, transformer and power line overloads could interrupt electrical service for customers in Colusa, Lake, Mendocino and northern Sonoma counties.

Project Description

Location. PG&E's proposed reinforcement of the Northern Geysers Power Line System would consist of new power lines at two existing facilities, located at the Geysers and Fulton Substation sites, and circuit breaker structures at the Geysers Eagle Rock Substation.

The Geysers site is located in the northern portion of the Known Geysers Resource Area (KGRA), approximately twelve miles south of Clear Lake (see Figure 1). The site includes Geysers Unit 11 and the Eagle Rock Substation. The KGRA is a developed area in the rural Mayacamas Mountains used for heavy industry, primarily geothermal power plants. The area includes substations, transmission lines, access roads and support facilities. As topography at the Geysers site is mountainous, facilities have been constructed in flat areas of constructed cut and fill at the site. The site is in a remote location that has no public access.

The Fulton site is located adjacent to U.S. 101 approximately two miles north of Santa Rosa and roughly one-half mile east of the community of Fulton (see Figure 1). The site contains the Fulton Substation, two 230 kV transmission lines and one 115kV power line. The general site vicinity is primarily defined as rural or suburban, with agricultural uses, disturbed grasslands and nearby vineyards.



SOURCE: PG&E, 1998

Northern Geysers Area Reinforcement Project / 980353 ■

Figure 1
Regional Location Map

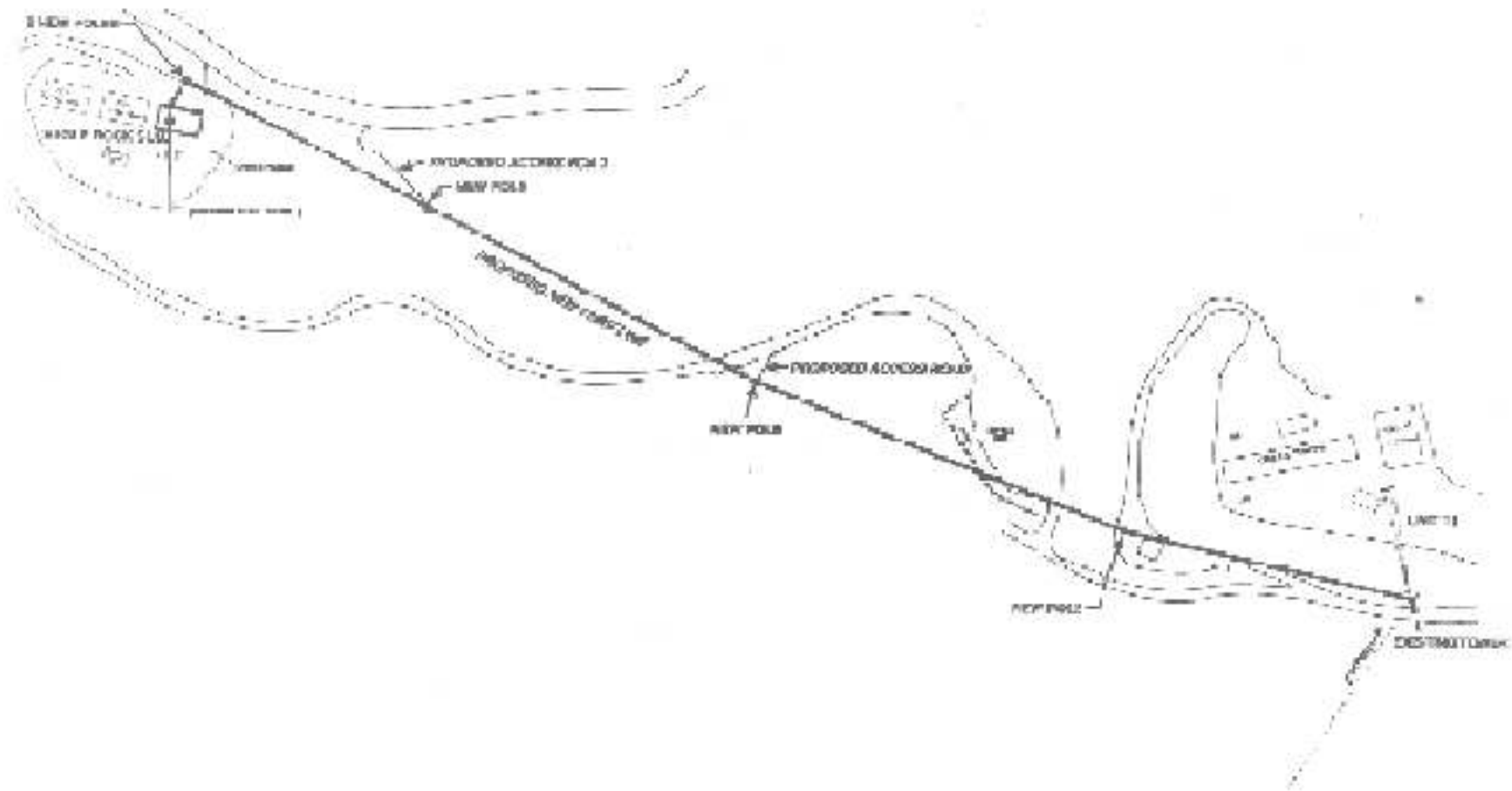
Proposed Facilities. The project consists of two elements:

- the proposed installation of a 3,300-foot long, 115 kV loop that would connect Geysers Unit 11 and the existing Geysers Unit 11-Fulton line to the Eagle Rock Substation, and the addition of two 115 kV electric bays with two 115 kV line positions to the substation at the Geysers site;
- the relocation of the 11-Fulton line connection point from a 230 kV position to a 115 kV line position at the Fulton site (PG&E, 1998).

Geysers Site: The proposed 3,300-foot 115 kV double circuit power line would be constructed from the existing transmission tower south of Geysers Unit 11 to the Eagle Rock Substation at the Geysers site (Figure 2). An existing transmission cross arm on the tower would be replaced with a butterfly cross arm that ties the power line from Unit 11 to the Eagle Rock Substation. The new 115 kV power line would be carried by five new tubular steel power poles, three of which would be up to 135 feet tall and two which would be up to 85 feet tall. A fiber optic communication cable would be strung between Unit 11 and the Eagle Rock Substation on existing wooden poles. Approximately 400 feet of new graded road would be created to provide access to two of the tubular steel pole sites for their construction and maintenance.

Two 115 kV bay structures with two 115 kV line positions would be added to the easterly end of the Eagle Rock substation. The area is an open gravel-covered space located entirely within the existing substation fence. Each bay would be 35 feet high by 36 feet wide by 50 feet long and would be supported on approximately 11 concrete foundation footings which would be 18 inches by 18 inches by 5 feet deep. Each line position would contain a 115 kV circuit breaker, approximately 15 feet high by 13 feet wide by 8 feet long, and three 115 kV air disconnect switches. The line position would be mounted on a 6-foot by 6-foot concrete pad. Control wires in a plastic conduit would run between the existing control building and the proposed circuit breakers. Approximately 200 feet of the control wire would be placed in existing conduit and 100 feet would be placed in new conduit in a one foot wide by three foot deep trench.

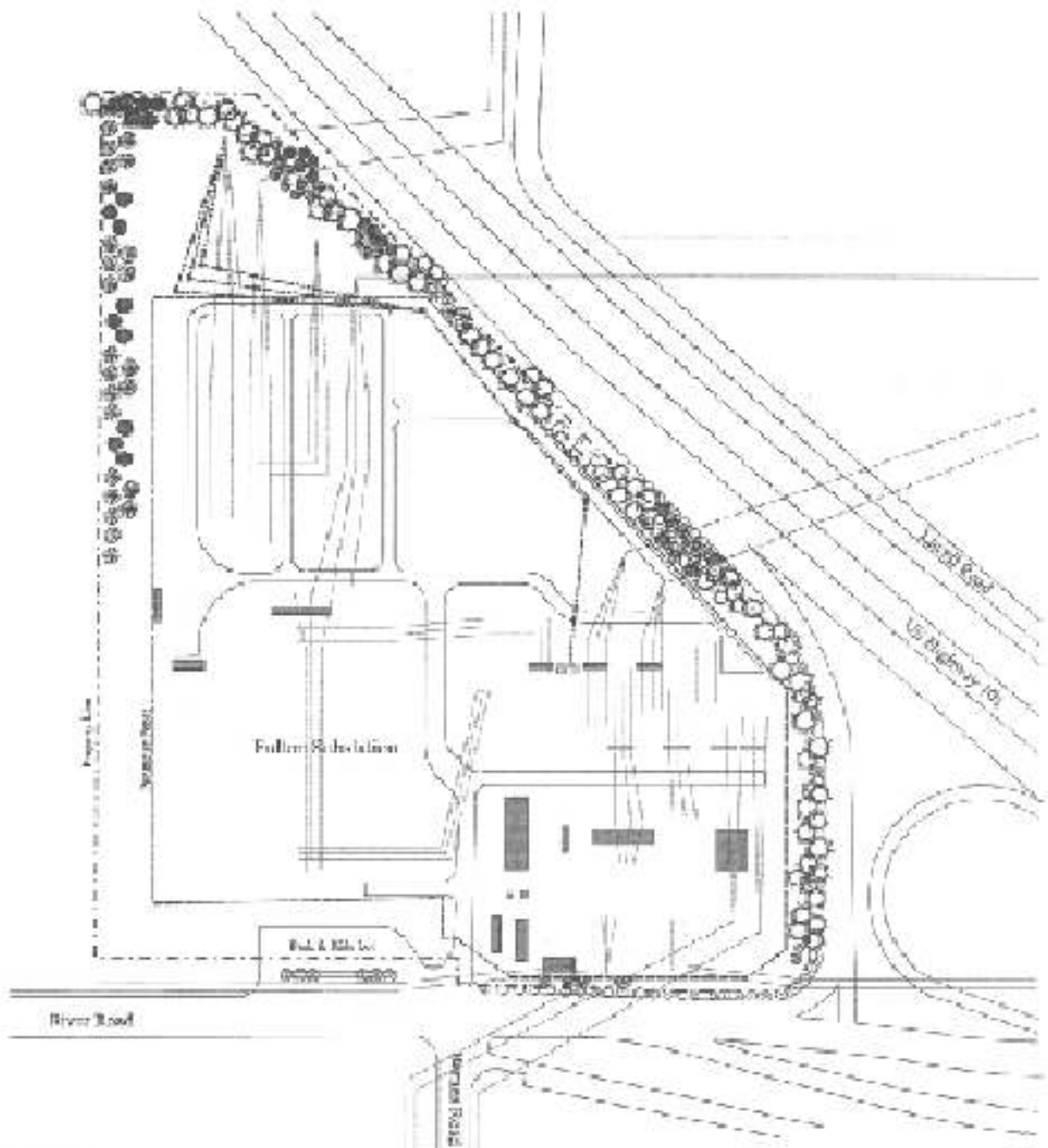
Fulton Site: The project would include installing a new 115 kV line position at an existing 115 kV bay at the Fulton Substation. The line position would include a 115 kV circuit breaker and five 115kV air disconnect switches. The 115 kV circuit breaker would be mounted on a six foot by six foot concrete pad. Approximately 1,200 feet of 115 kV power line would be constructed to route the Geysers Unit 11-Fulton power line from the Fulton Substation to the new 115 kV line position within the substation. The line would be located entirely within the existing substation fence. The construction of the 115 kV line would require the installation of six new tubular steel poles, three of which would be 40 feet tall, and three of which would be 70 feet tall (Figure 3).



SOURCE: PG&E, 1998

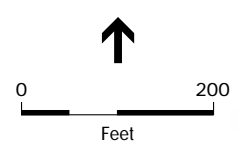
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Figure 2
 Proposed 115kV Transmission Line
 and Eagle Rock Substation Connections



Legend

Existing Vegetation	Proposed Vegetation	Proposed Project Features
⊙ Madrone	⊙ Madrone	⊙ Tubular Steel Pole
⊙ Monterey Elm	⊙ Western Redbud	⊙ 115.2KV Equipment
⊙ Oak	⊙ Lincodium	⊙ 115.2KV Bus
⊙ Sycamore		
⊙ Ceanothus		
⊙ Hollyhock		
⊙ Tamarix		



SOURCE: PG&E, 1998

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Figure 3
Fulton Substation

Construction. Improvements at the Geysers site would be constructed over a 10 week period. Improvements at the Fulton site would be constructed over a period of 13 weeks. Existing roads would be used to transport materials on site. The project would involve the following construction:

- The new 115 kV bays and line positions would be added at the two existing substations.
- At the Fulton site, six new poles would be installed within the perimeter of the substation. At the Geysers site, access improvements would be required at the proposed locations of two of the 5 new poles to be installed, one located near the Eagle Rock Substation, the other at an intermediate pole site located approximately mid-way along the existing access road between Unit 11 and the Eagle Rock Substation. Approximately 400 feet of graded roads would be built to provide access for construction and maintenance of these 2 poles. After completion of these road improvements, the foundations for new tubular steel poles at both sites would be excavated and poured and new poles would be installed.
- Conductors would be strung on the new poles at both the Geysers and Fulton sites. Equipment for installing power line conductors would be placed at opposite ends of the new line sections. After installation of the tubular steel poles and conductors, all equipment would be tested and the line would be energized. Final tests would be run with the facilities energized.
- All construction-related debris would be removed from the sites and disposed at approved landfills.

All construction equipment, vehicles, personnel and staging areas would be accommodated at the existing substations. Construction is scheduled to begin March 1999 and anticipated to finish in June 1999. Construction crews would consist of a maximum of ten people. A substation crew would install the 115 kV line positions, a tower crew would install the tubular steel poles and a line crew would be responsible for stringing conductors. Additionally, a two-person road crew would be used for construction of the access roads at the Geysers site. Construction would not require crossing of any public roads or highways nor any stream crossings.

Although the Geysers Unit 11-Fulton line would be temporarily de-energized, PG&E does not expect electrical service interruptions to customers in the area during the construction (PG&E 1998).

9.	Surrounding Land Uses and Setting:
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The Geysers site is located in a remote unpopulated mountainous area within the KGRA. Surrounding uses include heavy industry, geothermal plants, substations, transmission lines, access roads and support facilities.

The Fulton site is surrounded by agricultural uses, vineyards, residential and commercial uses (see Figure 1). The site is bounded by Highway 101 to the northeast, River Road to the south and vineyards to the west and north. A residential area, consisting of approximately 12 homes, is located east of Highway 101, approximately 500 to 1,500 feet from the northeast corner of the site. Most of the homes are greater than 1,000 feet away from the site. A commercial bed-and-breakfast establishment is located southeast of the site, at the intersection of River Road and Barnes Road. A few commercial buildings are located west of the substation on River Road.

10.	Other public agencies whose approval is required: (e.g., permits, financing approval, or participation agreement)
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Pursuant to State Law, the California Public Utilities Commission (CPUC) is the permitting authority for the project.

A grading permit will be required from Sonoma County for the 400 feet of access roads.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a “Potentially Significant Impact” as indicated by the checklist on the following pages.

- | | | |
|---|---|--|
| <input type="checkbox"/> Land Use and Planning | <input type="checkbox"/> Transportation/Circulation | <input type="checkbox"/> Public Services |
| <input type="checkbox"/> Population and Housing | <input type="checkbox"/> Biological Resources | <input type="checkbox"/> Utilities and Service Systems |
| <input checked="" type="checkbox"/> Geological Problems | <input type="checkbox"/> Energy and Mineral Resources | <input type="checkbox"/> Aesthetics |
| <input type="checkbox"/> Water | <input type="checkbox"/> Hazards | <input type="checkbox"/> Cultural Resources |
| <input type="checkbox"/> Air Quality | <input type="checkbox"/> Noise | <input type="checkbox"/> Recreation |
| | <input type="checkbox"/> Mandatory Findings of Significance | |

DETERMINATION

On the basis of this initial evaluation:

I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.

I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

I find that the proposed project MAY have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a “potentially significant impact” or “potentially significant unless mitigated.” An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

I find that although the proposed project could have a significant effect on the environment, there WILL NOT be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project.



Natalie Walsh, Program Manager
Analysis Branch
Energy Division
California Public Utilities Commission

Date

I. LAND USE AND PLANNING

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with general plan designation or zoning?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be incompatible with existing land uses in the vicinity?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Affect agricultural resources or operations (e.g., impacts to soils or farmlands, or impacts from incompatible land uses)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) The proposed facilities would be constructed on existing PG&E sites and would not change current uses at the sites. The proposed power line connecting Geysers Unit 11 and the Eagle Rock Substation would cross an area that is already designated for geothermal energy facilities, including roads and pads. The proposed power line would be consistent with these uses. The power line would cross land in private ownership and PG&E would be required to obtain an easement for the power line right of way from the property owner. The County of Sonoma *General Plan* identifies the Fulton site as a “Public/Quasi Public” use and the Geysers site as a “Resources and Rural Development” use. Land uses in the vicinity of the Fulton site to the east of U.S. Highway 101 include “Urban Residential” and “Land Intensive Agriculture.” Land uses surrounding the Geysers site include geothermal plants, mining facilities and other related uses. The project would be consistent with zoning at both sites. Zoning at the Geysers site is designated as Resources and Rural Development, and the Fulton site is designated as Public Facility. The proposed project would not conflict with the *General Plan* land use designations at either site.
- b) According to the Sonoma County Permit and Resource Management Department, the proposed project would not conflict with applicable Sonoma County environmental plans or policies (PG&E 1998).
- c) As identified in the Preliminary Environmental Assessment (PEA), the Fulton site is located on PG&E property (PG&E 1998). No structures exist within 500 feet of the site. U.S. Highway 101 is located along the northeast side of the substation, and agricultural

uses exist to the north, south and west. The nearest residential area, consisting of twelve homes, is located east of U.S. Highway 101. The proposed project would not conflict with the existing residential uses because of the large separation distance between the Fulton site and the homes.

The Geysers site is located within the KGRA. Surrounding uses include developed geothermal resources and related uses. The proposed facilities would be compatible with existing land uses in the vicinities of the Geysers and Fulton sites, and would not induce a change in the immediate vicinity. Private property owners in the vicinity were informed in October 1997 that PG&E will need to procure rights to construct roadway and pole facilities after project approval by the CPUC.

- d) The project sites are not located on land used for agricultural purposes. Agricultural lands are located to the north, south and west of the Fulton site. However, at the Fulton site, the proposed facilities would occur entirely on PG&E property, and except for landscaping, within the fenced area of the existing substation. The existing agricultural lands would not be affected by the proposed facilities. Proposed facilities at the Geysers site would occur within the KGRA in an area with no agricultural uses. Therefore, the proposed project would not affect agricultural resources or operations.
- e) The proposed facilities would be constructed at existing PG&E sites, with some construction on private property at the Geysers site. The nearest residences to the Fulton site are located across U.S. Highway 101. The Geysers site is located within the KGRA and no residences exist within a mile of the site. No residences or businesses would have to be removed for the project. The project would not permanently impede access to any adjacent parcels. Therefore, the project would not disrupt or divide the physical arrangement of an established community.

II. POPULATION AND HOUSING

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cumulatively exceed official regional or local population projections?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Induce substantial growth in an area either directly or indirectly (e.g., through projects in an undeveloped area or extension of major infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Displace existing housing, especially affordable housing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) The proposed project is not a land use that would directly increase population within the community, such as by adding housing units. The project is designed to accommodate projected growth in Colusa, Lake, Mendocino and Sonoma counties by providing additional electrical power to a system where the existing electrical capacity will not meet projected needs in the near future. No new public or private projects are anticipated to be directly initiated as a result of the proposed facilities at either the Geysers or Fulton sites. Therefore, no impact would occur because the project would not result in existing population projections being exceeded or induce substantial growth in an area.
- b) See II.a, above. No impact would occur.
- c) No housing units are located on the project sites. A small residential area, consisting of 12 homes, is located approximately 500 to 1,500 feet from the Fulton site, but would not be affected by the proposed facilities due to their distance from the site.

III. GEOLOGIC PROBLEMS

Would the proposal result in or expose people to potential impacts involving:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fault rupture?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Seismic ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Seiche, tsunami, or volcanic hazard?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Landslides or mudflows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Erosion, changes in topography, or unstable soil conditions from excavation, grading, or fill?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Subsidence of the land?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Expansive soils?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Unique geologic or physical features?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a-e) The proposed project is not anticipated to result in or expose people to potential impacts involving fault rupture, seismic ground shaking, seismic ground failure, seiche, tsunami, volcanic hazard, landslides or mudslides.

The Geysers and Fulton sites are located within a seismically active area of Northern California. The project sites are within the San Andreas Fault System (SAFS), a complex

regional tectonic zone characterized by several large active right-lateral, strike-slip faults and numerous smaller active and potentially active faults. This region is within Seismic Zone 4, the highest seismic hazard zone designated by the Uniform Building Code. The PG&E substation facilities and power lines would be designed in conformance with CPUC General Order 95 to withstand earthquakes, and substantial seismic damage to the Geysers and Fulton substations or power lines from earthquakes is not anticipated.

No known active faults are located at either project site. The sites are not within an Alquist-Priolo Earthquake Fault Zone, and are not expected to be exposed to fault rupture. The project sites have the potential to be impacted by earthquakes and earthquake related hazards from the effects of ground-shaking. The level of seismic shaking at a site is a function of size and energy release at the source (magnitude), the distance between the site and the source, and the type of earth materials that underlie the site. The intensity of ground shaking decreases with distance from the source. In general, poorly consolidated sediments (soft soil) tend to amplify shaking relative to well-consolidated sediments (stiff soil) or bedrock.

The closest active fault zone to the Fulton Substation site is the Rodgers Creek Fault Zone, located approximately 1.3 miles northeast of the site. The fault is capable of generating a magnitude 7 earthquake (WGCEP) 1990, Topozada et al. 1994). The likelihood of such an event occurring in the period between 1990 and 2020 is 22 percent. An earthquake of this magnitude on the Rodgers Creek Fault Zone would generate very strong seismic shaking of Modified Mercalli Intensity (MMI) VIII at the Fulton site.

Other fault zones could produce moderate to strong ground shaking that could potentially affect the project area. These include the San Andreas and the Maacama Fault Zones. The Maacama Fault Zone is the closest major fault to the Eagle Rock Substation. Located approximately eight miles to the west, the Maacama Fault Zone could generate a magnitude 7 earthquake. The probability of this event has not yet been calculated. The Big Valley and Collayomi Faults are smaller active faults in the Clear Lake Highlands. The Geysers site experiences microseismicity (magnitudes of less than 1 to 3) on a daily basis related to the natural movement of molten rock below the surface as well as effects of geothermal energy production activities.

Estimates of the peak ground acceleration in an earthquake have been made for the project area based on probabilistic models that account for multiple seismic sources. Under these models, consideration of the probability of expected seismic events is incorporated into the determination of the level of ground shaking at a particular location. The expected peak horizontal acceleration generated by any of the seismic sources potentially affecting the area, including the project site, is estimated by the California Division of Mines and Geology at greater than 0.7g (g = gravitational acceleration). The expected peak acceleration at the Geysers site would be 0.5 to 0.6g.

The facilities at the Geysers site would experience moderate ground shaking from a seismic event within the Rodgers Creek Fault Zone; however, the facility is not expected to sustain significant damage. PG&E power poles and lines are not anticipated to be damaged from ground shaking. Although local surface failures can cause collapse of poles, evidence of unstable soils or slopes were not identified at the proposed pole locations.

The Fulton site is underlain by young alluvial sediment. These sediments may contain relatively young, shallow, saturated granular sediments that may be susceptible to liquefaction or seismically induced compression and settlement. The Fulton site is located in an area identified as having a low to moderate potential for liquefaction (Topozada et al. 1994).

The Geysers site is underlain with bedrock mantled by cohesive soil, thus the potential for liquefaction is low. This general site area may be affected by seismically-induced landslides, particularly if strong seismic shaking occurs during the rainy season when slopes are saturated. No evidence of active or inactive landslides was found at the proposed pole locations by PG&E's geologist. Although the slopes may be subject to slope creep in the colluvial soils, the foundations for the poles would be set in bedrock, below the zone of active creep. Minor damage to the proposed maintenance road related to creep, minor landsliding, or erosion could occur. However, it is expected that such damage could be repaired by minor grading and would not be significant.

The proposed project at the Geysers and Fulton sites would comply with the seismic design requirements of the Institute of Electrical and Electronic Engineers Standard 693. The foundations for equipment would be designed by a licensed engineer in conformance with the requirements of the Uniform Building Code. No impacts to power lines and substation facilities are anticipated with the implementation of these standards.

- f) The erosion rates from the existing flat paved and gravel surfaces at the Fulton Site are less than significant. Although excavation from the installation of tubular steel poles would expose Yolo silt loam soils during construction, the erosion potential would be low to negligible.

The topography of the Geysers site is rugged. While the surrounding area is moderate to relatively steep, Geysers Unit 11 and the Eagle Road Substation are constructed on engineered flat pads. The first new pole near Unit 11 is located on a flat site where the road is widened. Erosion hazards for the Stonyford gravelly loam and Los Gatos loam soils mapped (USDA, 1971) along the proposed 115 kV power line alignment are high to very high.

Minor grading would be required at the Fulton site. PG&E will obtain a grading permit from the Sonoma County Permit and Resource Management Department prior to

construction. Six new tubular steel poles would be installed at the Fulton site. The installation of three of these poles north of the existing substation security fence, but within the utility-owned property, would require leveling existing dirt piles that are 3 to 4 feet high to provide access for the foundation auger rig. The topography is flat at the pole locations and access would only require blading of the dirt piles and an adjacent field. No grading would be required for the other three poles which would be installed inside the substation fence.

Five new pole locations would be installed for the new 115 kV power line at the Geysers site. Accessing two of these pole locations with the foundation auger rig would require construction of two access spur roads that would total approximately 400 feet in length and 15 feet in width. Approximately 500 cubic yards of earth would be excavated. The grading would create a minor change in the topography at these sites. Because of the steep slope and generally higher erosion rates in the Geysers, the potential exists for significant erosion in graded areas including the two proposed access roads after the vegetation cover is removed. The impact is potentially significant.

Mitigation Measures:

- M.III.f.1. Engineered erosion control measures and drainage features to control runoff shall be employed consistent with Sonoma County grading ordinance requirements. The amount of vegetation cleared shall be kept to a minimum to accommodate the road. All cleared areas shall be immediately seeded.
- M.III.f.2. Consistent with Sonoma County grading requirements, the road shall be sloped as to promote natural sheet flow of water downhill and avoid concentrations in the roadway. Wide water bars shall be installed at appropriate intervals along the road. A culvert with rip-rap material at the outlet to dissipate energy shall be installed where the road crosses an existing swale. A water bar on the existing fire road immediately above the proposed access road shall be redirected so that runoff from the fire road is distributed along and down the slope into the swale.
- M.III.f.3. No excavated soils shall be sidecast unless they are graded to blend into the adjacent slope, resoiled and revegetated. Under no circumstances shall spoil be sidecast into or in close proximity to streams, gullies, drainage ditches or wetlands.

Significance After Mitigation: Less than Significant.

- g) The proposed project would include minor grading for construction of maintenance roadways and utility poles. Any fill required for the project would be designed by PG&E's state-certified civil engineers. Construction fills would be required to be consolidated or compacted. Therefore, no significant impacts associated with subsidence or expansive soils would occur. Subsidence related to groundwater would not occur as no significant groundwater extraction is proposed by the proposed project.

- h) The shrink-swell potential of the soils at both project sites is characterized by the Natural Resource Conservation Service as low. Therefore, no significant impacts related to expansive soils are anticipated.
- i) The project sites do not include any unique physical or geological features. The Fulton Substation occupies the site of similar facilities in that area: the Substation already precludes other uses of that site. The new 115 kV power line component of the project is within the Northern Geysers Steam Field but no observed steam vents or wellheads would be impacted by the project. The existing geothermal steam field operator (Unocal) has no plans to develop sites for steam collection or injection along the roadway.

IV. WATER

Would the proposal result in:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of people or property to water-related hazards such as flooding?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Discharge into surface waters or other alteration of surface water quality (e.g., temperature, dissolved oxygen, or turbidity)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Changes in the amount of surface water in any water body?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Changes in currents, or the course or direction of water movements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations, or through substantial loss of groundwater recharge capability?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Altered direction or rate of flow of groundwater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Impacts to groundwater quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Substantial reduction in the amount of groundwater otherwise available for public water supplies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) No significant changes in absorption rates or drainage patterns are anticipated as a result of the proposed facilities. The proposed project would only slightly increase the volume and velocity of runoff at the Fulton and Geysers sites. The project would include minor

grading and would slightly increase the impervious surface. Approximately 130-square-foot concrete pads for two new circuit breakers and footings for new 115 kV bay structures inside the Eagle Rock Substation and two new gravel access roads would be created at the Geysers site with a combined area of 5,700 square feet. The combined area that would be disturbed at the Geysers site is 5,830 square feet, which would be less than 0.01 percent of the total area of the relatively undeveloped drainage sub-basin in which this portion of the project is located. The surface treatments proposed for the project would not significantly increase the discharge of surface water runoff generated within the drainage basin during the runoff events.

Drainage along the 115kV power line at the Geysers site flows down a moderately steep slope. No drainage channels were observed along the alignment of the power line. However, there are swales oriented perpendicular to the slopes in which runoff is concentrated during rainstorms. The proposed project is not anticipated to alter the flow patterns within the swales. The proposed access roads would be graded to maintain existing sheet flow drainage patterns. Because the proposed project is not anticipated to alter the slope of the project, the velocity of runoff is expected to remain the same.

No significant runoff is anticipated as a result of the proposed project at the Fulton site. A 36 square foot concrete pad is proposed for the new 115 kV circuit breaker. The construction of this pad would not result in significant changes in runoff discharge or velocity. The nominal amounts of additional surface runoff are not anticipated to affect the operation of existing Spill Prevention Containment and Countermeasures ponds at the Fulton and Eagle Rock Substations.

- b) According to the FEMA Flood Insurance Rate Maps (FEMA 1991), neither project site is within a 100 year floodplain. Only minimal increases in runoff are anticipated as a result of the project, therefore no impact on flood hazards would be expected in downstream areas. No exposure of people or property to water related hazards is expected.
- c) The proposed project would only involve limited grading required for the installation of the utility poles and maintenance roads. Construction related silt discharges could affect turbidity in local water courses. As a result of the implementation of the proposed erosion control and drainage mitigation measures and measures identified in Section III, Geologic Problems, no impact to surface water is anticipated.
- d) The proposed project would not cross any water body; therefore, no impact would occur.
- e) The closest water body to the Fulton site is Mark West Creek, located approximately 3,300 feet north of the project site. An unnamed tributary to Squaw Creek is located approximately 700 feet south of the new 115kV power line at the Geysers site. The project is not anticipated to impact these streams. The proposed project would not cause a

significant change in currents or the course or direction of water movements. Discharge into surface waters or other alterations of surface water quality is not anticipated. One of the drainage swales at the Geysers site will be redirected to insure runoff to the new access road is prevented.

- f) The quantity of groundwater would not be significantly changed either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of groundwater recharge capability. Any minor quantities of water needed during construction at the Fulton site would be supplied by the existing municipal water system. Water for the Geysers site would be trucked in from the Geysers Unit 11 cooling tower.
- g-h) The proposed project would not require excavations or construction of barriers that would affect the flow of groundwater. The project is not anticipated to impact the direction or rate of flow or the quality of groundwater as it involves no wells or other means of entry of contaminants into groundwater. Contaminants from substation facilities would be contained in the established Spill Prevention and Control System.
- i) The proposed project is not anticipated to reduce the amount of groundwater available for public water supply. The proposed project would not use groundwater and would have no measurable effect on recharge or local groundwater use.

V. AIR QUALITY

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any air quality standard or contribute to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Expose sensitive receptors to pollutants?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Alter air movement, moisture, or temperature, or cause any change in climate?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create objectionable odors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) The Fulton Substation and southern end of the Geysers Unit 11-Fulton transmission line are located in the northern portion of the San Francisco Bay Area Air Basin and lie within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The northern end of the line and the Geysers site are located within the southern portion of the

North Coast Air Basin and lie within the North Coast Air Pollution Control District (NSCAPD).

Construction activities for the project would temporarily increase particulate concentrations in and around the project sites. The substation sites have been previously graded so they are essentially flat. Approximately 400 feet of new, graded roads would be developed at the Geysers site to provide vehicle access to two of the proposed poles. Construction equipment and vehicles would generate dust during clearing and excavation and produce minor short-term emissions from vehicles and construction machinery. Ten workers would commute to the project during construction.

The Bay Area Air Quality Management District (BAAQMD) considers construction emissions to be significant only if project-appropriate mitigation measures are not implemented. A similar consideration is assumed for the NSCAPD. Dust is comprised of large particles (i.e., larger than 10 microns in diameter) which settle out rapidly on nearby horizontal surfaces and are easily filtered by human breathing passages. Much of the dust generated by construction is, therefore, of concern more as a soiling nuisance rather than for its unhealthful impacts. The remaining fraction of small particulates (under 10 micron diameter, referred to as PM-10), tend to remain suspended in the air and could have the potential to violate the state 24-hour average PM-10 standard in the vicinity of construction. PG&E has committed to BAAQMD mandatory control measures, which include sprinkling the construction areas with water to reduce particulate generation. As a result, the impact would be less than significant.

The nearest sensitive receptor to the Geysers site is located several miles away and the closest receptor to the Fulton site is located approximately 500 feet away. The proposed installation of six poles at the Fulton site would require minimal ground disturbance. The proposed installation of five poles and the road facilities at the Geysers site would require ground disturbance and grading lasting on the order of one day to several days. Construction activities with mitigation proposed by PG&E are not expected to be a significant generator of particulate material.

Operation of the proposed facilities at the Fulton and Geysers sites would not result in an increase in vehicle trips to either site. The project would not cause or contribute to a violation of any federal, state, or local air quality standards.

The proposed project would allow for the delivery of electricity that would otherwise not be transmitted. Approximately 40 percent of California's electricity is generated by fossil fuels, the combustion of which results in air pollutant emissions at power plants. It is assumed that the existing sites operate within air emission caps created by the local air districts. The project itself would not induce demand for generation of additional electricity.

- b) Implementation of the proposed facilities would not create on-site stationary pollution sources. As discussed in the response to item V.a, above, the nearest sensitive receptor to the Geysers site is located several miles away and the closest sensitive receptor to the Fulton site is located approximately 500 feet away. The construction and operation of the proposed facilities would not impact sensitive receptors at either of the two sites.
- c) The proposed project would not be a source of thermal emissions and would not represent the type of facilities or their operation that could cause alteration of air movement, moisture, or temperature, or cause any change in climate. The project would not alter operations of existing geothermal facilities and, therefore, would not affect air emissions related to their operation. Therefore, there would be no impacts related to climate change.
- d) Operation of the proposed project would not generate long-term objectionable odors. The proposed project would not result in changes in geothermal facility operations that generate hydrogen sulfide (H₂S), which is a source of odors at the Geysers.

VI. TRANSPORTATION / CIRCULATION

Would the proposal result in:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increased vehicle trips or traffic congestion?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Hazards to safety from design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Inadequate emergency access or access to nearby uses?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Insufficient parking capacity on site or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Hazards or barriers for pedestrians or bicyclists?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflicts with adopted policies supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Rail, waterborne, or air traffic impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) Long-term traffic impacts (i.e., increase in traffic or congestion) are not anticipated, as the proposed project would not generate trips or alter any public roads. Additional workers would not be needed to operate the project once facilities are completed. Minor short-term

increases in traffic resulting from construction activities are expected. The traffic increase would be limited to 10 workers arriving and leaving each day at each site. Twenty daily vehicle trips are expected at each site. Construction is expected to last approximately ten weeks at the Geysers site and take approximately thirteen weeks at the Fulton site.

During construction at the Fulton site, temporary road and lane closure would not be necessary. Surrounding roads are anticipated to accommodate the minor increase in commuting worker vehicle trips resulting from the proposed facilities. Construction at this site would not close any traffic lanes and therefore would not affect traffic flows on Highway 101 or River Road.

Construction at the Geysers site would require the temporary closure of an existing access road. This road is a private road that is closed to the public. The road closure would occur for a maximum of a few hours to string the conductors for the 115 kV power line. The timing of the closure would be coordinated with Geysers-area entities to avoid impacts to other users in the steam field.

- b) There are no proposed roadway modifications to existing roads as a result of the proposed project. No impact related to traffic safety hazards from design features would occur.
- c) The proposed facilities at the Geysers and Fulton sites would not alter emergency access or access to nearby uses.
- d) The proposed project would not generate parking demand because operation of the facilities would not require additional staff. Project construction would require little parking for workers, and this could be accommodated with existing parking areas at the two sites. Therefore, no impact would occur to parking demand.
- e) The proposed project sites are secured areas without public access. Therefore, impact with respect to pedestrian and bicyclist safety is not anticipated.
- f) The proposed facilities would not create a demand for site visits and would not affect operations of existing public transportation. No conflict with transportation policies would occur; therefore, no impact to transportation policies would occur.
- g) No rail, waterborne, or air traffic is located near either the Geysers or Fulton sites.

VII. BIOLOGICAL RESOURCES

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Endangered, threatened or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Locally designated species (e.g., heritage trees)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Locally designated natural communities (e.g., oak forest, coastal habitat, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Wetland habitat (e.g., marsh, riparian and vernal pool)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Wildlife dispersal or migration corridors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) The two existing substation sites, Eagle Rock Substation and Fulton Substation, consisting of compacted dirt and asphalt, respectively, do not provide any habitat values for common wildlife species. Therefore, no impacts to special status plant and wildlife species nor their habitats will occur from the facilities development at either of these two stations. One pole, as part of the power line extension from Unit 11 to Eagle Rock, will be placed within a graded area just westerly of the Unit 11 substation area and will not affect any wildlife habitat or vegetation community. Two poles would be placed on sites proposed to be graded for access roads to be located on naturally vegetated slopes, west of PG&E Unit 11. Plant surveys, specifically for (*Cryptantha clevelandii* ssp. *dissita*), identified in the PEA as potentially occurring on site, and for other rare, threatened, and endangered species, as well as those species under review by the California Native Plant Society, were conducted by Dr. D.W. Taylor on June 22, 1998. The area surveyed included all potentially affected sites in the vicinity of the proposed transmission line, including the alignment of the transmission corridor, each individual pole site, existing and proposed access roads, and large (previously graded) lay down areas adjacent to the sub-station and nearby steam wells. No sensitive species were reported. Neither special status plant or wildlife species nor their habitats occur within the proposed project site, and therefore no impact would occur.
- b) There are no locally designated species in or near the project area; therefore, no impact would occur. Trees, including redwoods, pines and deciduous species, are landscape

plantings along Highway 101 near the Fulton Substation. None of these trees are designated species and would not be removed as a result of the proposed project.

There is potential for raptors to be nesting in the large trees adjacent to the Fulton Substation, although no raptors or nests were observed during field surveys. To avoid potential harassment of nesting raptors from construction activities, PG&E has proposed that preconstruction raptor surveys shall be conducted, and if nests or raptors are observed, construction shall be rescheduled to avoid the raptor nesting season. Additional mitigation is not required. The impact would be less than significant.

- c) There are no locally designated natural communities in or near the Fulton or Geysers sites; therefore, no impact would occur.
- d) No wetland habitat occurs at the Fulton or Geysers sites and no nearby habitats could be potentially impacted by the proposed project; therefore, no impact would occur.
- e) Both substation sites are fenced and covered either with compacted dirt or with asphalt, and do not function as a wildlife dispersal or migration corridor. The proposed road and power line at the Geysers site would not create barriers to or substantially alter wildlife dispersal or migration corridors.

VIII. ENERGY AND MINERAL RESOURCES

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with adopted energy conservation plans?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Use non-renewable resources in a wasteful and inefficient manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) The proposed project is not energy consumptive. Minor amounts of fuel would be used during construction activities. The project would have no conflict with energy conservation policies and no impact would occur.
- b) The project would use a variety of widely available non-renewable materials for construction of the facilities, including aggregate, asphalt, iron and related minerals used in

manufacturing steel, mineral oil, and fuel to power construction vehicles and equipment. Long-term operation would require only a minor amount of fuel for site inspection vehicles. Proposed construction and operation of the project would not involve the wasteful use of non-renewable resources; no impact would occur.

- c) The Fulton Substation site has no known mineral, oil, gas, geothermal, or aggregate resources. The Geysers site may contain cinnabar (a source of mercury) and other metals, however, these are not mined in the immediate area of the proposed facilities and therefore no impact would result from the project. The Geysers site is within the Known Geothermal Resource Area, and geothermal energy development is present in the immediate surrounding areas. The steam field operator, Unocal, was contacted in October 1997 and indicated they have no plans to construct geothermal wells at the project site. The proposed power line would not interfere with existing geothermal operations. Oil, gas and aggregate resources are not present at the Geysers site. Therefore, no impact would occur.

IX. HAZARDS

Would the proposal involve:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) A risk of accidental explosion or release of hazardous substances (including but not limited to oil, pesticides, chemicals or radiation)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Possible interference with an emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) The creation of any health hazard or potential health hazard?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Exposure of people to existing sources of potential health hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Increased fire hazard in areas with flammable brush, grass, or trees?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) Several hazardous substances would be used in the operation of the Northern Geysers Area Reinforcement Project. Although transformers that contain mineral oil and batteries similar to automobile batteries are commonly used at substations, no new transformers or batteries are proposed as a part of the project.

Other hazardous materials would be used in construction and maintenance of the power lines and substation modifications, including petroleum products, paints, and adhesives, as well as those hazardous materials used in autos and trucks. The use of such materials is common and is regarded as posing less than significant risks to worker or public health or safety. PG&E proposes to handle all hazardous materials and waste in accordance with Best Management Practices (BMP), as prescribed by PG&E (PG&E, 1992).

In the long term operation of the power lines and their terminations at the substations, there is a finite risk of electrical arcing and short-circuits due to failure of the equipment or when a live phase conductor falls to the ground. The design of the power lines and substations, including the placement of the wires, equipment, and fencing at the substation, are intended to prevent public access to high-voltage equipment and to minimize the risk to the public of shock or injury in the event of equipment failure. The sensing and high-speed relay control systems that sense a broken line and activate circuit breakers within about one-tenth of a second mitigate the risk of fire and other harm to the public from downed power lines.

A small amount of excavation would be required for the proposed access roads in the Geysers and for poles at the Fulton Substation project. If soil contamination or naturally hazardous soils (e.g., mercury bearing earth) were present within any construction area, such contaminated soils disturbed or excavated during site preparation could pose a health risk to construction workers or the adjacent public. Contaminated and naturally hazardous waste soils must be handled and disposed of in accordance with local, state, and federal regulations. If soil contamination were present within any construction area, all excavation would proceed according to worker safety requirements of the Federal and California Occupational Safety and Health Administrations (OSHA). If there were any site contamination and naturally hazardous soils that would require action, OSHA rules then would require a site-specific Health and Safety Plan (HASP) to be prepared and implemented by PG&E and its contractors to minimize exposure of construction workers to potential site contamination and to dispose of construction-derived waste soil in accordance with local, state, and federal regulations. These effects would be less than significant.

PG&E's proposed mitigation measures for the new and modified 115 kV power lines are consistent with those employed along the existing 230 kV transmission line, and would be adequate to ensure a minimal risk of fire, accidental explosion or release of hazardous substances. Assuming implementation of the mitigation measures proposed as part of the project, additional mitigation would not be required and the hazard would be less than significant.

- b) To the extent that the construction and operation of the project would improve the reliability of the regional and the local electric power system, the proposed Northern

Geysers Area Reinforcement Project would benefit local emergency response capabilities. No interference with the emergency response plans or emergency evacuation plans of the County of Sonoma is evident.

- c,d) The project will take high-voltage electricity from the two new PG&E 115 kV power lines, and supply that electricity to the regional 115 kV power network. By its nature, the project provides certain benefits and poses certain risks to the public. Because the project will alter the electric and magnetic fields (EMF) along the routes of the two new 115 kV power lines and the related distribution lines, as well as in the vicinity of the Fulton and Eagle Rock substations, concerns about potential health-related consequences of the EMFs are addressed.

Most of the length of the new power lines is on the right-of-way of the existing 230 kV transmission line, an operating high-voltage electric power transmission facility. PG&E has not estimated the magnetic field strengths to be expected under the power lines or at the boundary of the substations. However, similar high-voltage power lines, under peak electrical load conditions, have been estimated to generate magnetic field strengths in the range of roughly 100 to 200 milliGauss (mG) or less at the edge of the right-of-way. Also, magnetic field strengths in the range of roughly 10% to 20% of those values or less can be expected to occur at the substation boundaries, except at locations beneath the power or distribution lines entering or leaving the substation, where the values could be higher. These values represent, in effect, rough estimates of the maximum conditions at the boundaries of the substation and boundaries of the power line right-of-ways.

Typically, it can be expected that the highest levels of magnetic field strengths at the boundaries of the substation would occur at the locations of the distribution lines or the locations of overhead 115 kV power lines. Similarly, the highest levels of magnetic field strengths would be expected to occur at the center of the power line right-of-way, under the lowest point of the power line.

Compared to present maximum contributions from the existing 230 kV power lines, the project would add a contribution that would be similar to the existing magnetic field strength present under the existing lines.

Average annual electrical load conditions for the power lines would be less than the maximum load, and the contribution of the project to the magnetic field strength at the edge of the right-of-way would be about correspondingly decreased.

Ultimately, new power lines and distribution circuits would connect the Eagle Rock and Fulton Substations to the existing electric transmission and distribution system. While not part of the proposed project, they would contribute to EMFs at locations near the Eagle Rock and Fulton sites. These contributions would occur generally within the existing

power lines rights-of-way. Members of the public that would be exposed to these fields include anyone walking within those right-of-ways. As the Geysers site has restricted access to workers in the KGRA, no hazards to the public are present. The Fulton site is fenced and there are no roads or sidewalks near any of the proposed facilities.

In response to public concern about possible health effects of EMFs from electric utility facilities, the CPUC opened an investigation of the hazards. On November 2, 1993, the CPUC issued Decision 93-11-013, which recognized the public concern, but which declined to “adopt any specific numerical standard in association with EMFs until we have a firm scientific basis for adopting any particular value.” However, in that decision, the CPUC did direct all publicly owned utilities to take “no cost and low-cost” EMF reduction steps on transmission, substation, and distribution facilities to reduce exposure of the public to magnetic fields.

In accordance with that requirement, the final design of the Northern Geysers Area Reinforcement Project would include “no cost and low-cost” EMF reduction measures that likely would include: increasing the separation distance between the public and electrical conductors and equipment; reducing the spacing between current-carrying electrical conductors; minimizing the current carried; and, optimizing the phase configuration in the power line.

The possible relationships between exposure to EMFs and potential health-related effects have been investigated by many organizations, including the U.S. National Academy of Sciences, American Medical Association, American Cancer Society, California Department of Health Services, National Institute of Environmental Health Sciences, U.S. Department of Energy, and the CPUC (PG&E, 1997). The U.S. National Academy of Sciences study (NAS, 1996) is the most recent comprehensive evaluation of the topic; that committee concluded that the current body of evidence does not show that exposure to power-frequency EMFs presents a human hazard.

Based on the results of the U.S. National Academy of Science study, there is no evidence that the EMF from the proposed 115 kV power lines presents a health hazard to those individuals who live and/or work in the vicinity of either substation or along the 115 kV power line routes. Further, there is no evidence that the additional EMF contributed by the new power line circuit would create a health hazard or potential health hazard. The impact is less than significant and mitigation beyond that proposed by PG&E as part of the project, in accordance with CPUC Decision 93-11-013, is not required.

Also, accompanying the operation of the power lines, are concerns about other phenomena such as corona discharge, electrical interference, and electric shock and currents induced by the power lines. Design standards for power lines use established standards to limit the effect of these phenomena to less than significant levels.

Operation of the proposed modified Fulton and Eagle Rock substations would not greatly alter the number of people working on or using those sites, since both are operated remotely. Those who do work periodically at those substations would be PG&E employees or contractors, acting in accordance with occupational health and safety requirements. As a result of these two factors, that part of the project would result in a small increase in the total exposure of people to any existing sources of potential health hazards.

Operation of the proposed power lines would not change the number of people working within or using the power line route right-of-ways. No individuals would live or work within the right-of-ways, which are used for various agricultural uses. As a result, operation of the power lines would result in very small increases in the total exposure of people to any existing sources of potential health hazards.

- e) The power line routes include substantial amounts of native vegetation, including trees within the right-of-way of one of the two proposed power lines. See also the analysis of biological resources effects in this checklist.

The cleared and graded areas within the existing substations would be maintained and kept free of shrubs or trees that might colonize the site; this would prevent any hazard of arcing leading to a fire that would spread to grasses, shrubs and trees outside the perimeters of the sites. There would be no increase in fire hazard on the substation sites or adjacent areas.

Operation of the power lines carries a finite risk of electric arcing due to objects contacting the energized power line; that arcing, in turn, could lead to a fire. Where the new 115 kV power line circuit replaces an existing 230 kV transmission line circuit, the incremental increase in fire risk along that length is very small. The project includes detailed measures to mitigate the fire risk along the routes of the two power lines, so even where there is no existing power line, the incremental increase in fire risk also is very small. The rigorous maintenance of right-of-way landscaping trees, in accordance with CPUC General Order 95 (G.O. 95), would be effective in reducing to acceptable levels the risk of fire due to tree contact with power lines. As a part of the project, PG&E has proposed a further mitigation measure to warn construction and maintenance workers to not discard lighted matches or other burning materials in order to avoid starting fires.

X. NOISE

Would the proposal result in:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increases in existing noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of people to severe noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) Construction noise levels at and near locations on the project sites would fluctuate depending on the particular type, number, and duration of use of various pieces of construction equipment. The effect of construction noise would depend upon how much noise would be generated by construction, the distance between construction activities and the nearest noise-sensitive receptors, and the existing noise levels at those sites.

The noisiest phases of construction would generate approximately 89 L_{eq} at 50 feet (EPA, 1971). Construction activities would require the transportation of materials, equipment and supplies to the two sites. Noise emissions generated from construction equipment varies from 76 dBA for air compressors to 90 dBA for front-end loaders and hydraulic equipment. Noise from localized construction point sources usually decrease by 6 dBA with each doubling of distance from source to receptor.

No sensitive noise receptors exist in the vicinity of the Geysers site. The receptors nearest to the proposed construction activity at the Fulton site would be residences located east of Highway 101. The nearest homes to the Fulton site are approximately 500 feet away. Noise generated from construction at the Fulton site is not expected to be noticeable over the already substantial noise generated from traffic on U.S. Highway 101. Daily access to the site and vehicle parking by construction workers is not anticipated to result in noticeable increases in noise levels for residents.

Since operation of the project would not result in long-term traffic increases, long-term noise impacts are not expected to occur. Additionally, the proposed project would not result in long-term operational source noise. Therefore, the proposed project would result in less than significant noise impacts. Mitigation is not required.

- b) As discussed in the response to Item X.a, the noise levels resulting from project operation would be less than ambient noise levels and would not be considered severe.

XI. PUBLIC SERVICES

Would the proposal have an effect upon, or result in a need for new or altered, government services in any of the following areas:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Maintenance of public facilities, roads?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other governmental services?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) The proposed facilities would not introduce any uses that would generate building square footage or increased population that would typically require additional fire protection services. The Geysers site is currently served by the California Department of Forestry and the Geyserville Fire Protection District. Vehicles would be able to respond to the site in 30-45 minutes and helicopters within 5-15 minutes. The Fulton site is served by the Rincon Valley Fire Protection District, which would have a 5 minute response time to the site. The project would not create any new demand for fire suppression services. While project construction at the Geysers site could result in accidental fires and the new power line could produce arcing that might spark a fire, the hazard is similar to that present throughout the Geysers and would not present a substantial increase in the hazard. Therefore, no increase in fire suppression services would result. The Fulton site is cleared of vegetation and no increase in fire hazards would result.
- b) The County of Sonoma Sheriff Department serves the two project sites. The closest station to both sites is the Sonoma County Sheriff Office located at 600 Administration Drive in Santa Rosa. Response times would be 5-30 minutes to the Fulton site and 10-60 minutes to the Geysers site. The proposed project would not introduce any uses that would increase population or create any other use and activity, which would typically require additional police protection services during operation. The project potentially may require the occasional use of police services during construction. Theft of construction equipment and/or vandalism might occur during the construction period, requiring a police response. The use of police services would be a temporary construction related impact and would not be expected to affect police services substantially. The Geysers site is located in a remote area without public access and the Fulton site is fenced, and therefore not accessible to the general public. Services to be provided by the Sheriff's Department would fall in the typical range of response of any development in the service areas. Therefore, the project would have a less than significant impact on police services.
- c) The proposed facilities would not introduce any uses that would increase population, which would typically require additional school services. Therefore, the project would have no

impact on school or other community services (also see Section II, Population and Housing).

- d) The proposed project would not require additional maintenance of public facilities during its operation. Maintenance of the facilities at the two sites would continue to be handled by PG&E. Tree trimming in portions of landscaped areas along Highway 101 would be the continuing responsibility of Caltrans. Therefore, the project would have no impact on public facilities.
- e) No project impacts to other government services (such as health care, libraries, social services, and County administration) are anticipated within Sonoma County.

XII. UTILITIES AND SERVICE SYSTEMS

Would the proposal result in a need for new systems or supplies, or substantial alterations, to the following utilities:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Power or natural gas?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Communications systems?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Local or regional water treatment or distribution facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Sewer or septic tanks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Storm water drainage?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Solid waste disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Local or regional water supplies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) The project is proposed to respond to a regional need for electrical utility system upgrades and would not in itself be considered a cause for other new or altered power or natural gas utilities. Therefore, no impact to power or natural gas systems or supplies would occur.
- b) The proposed project includes the addition of a fiber optic cable to monitor the facilities at the sites. The cable would be added with the proposed 115 kV power line and circuit breakers on existing wood poles. PG&E has stated that the proposed cable would not cause interference to existing telecommunications lines. No telecommunication lines would have to be altered, moved or require short-term suspension of service to construct the project. Therefore, no impact on communication services is anticipated.

- c,d) The project sites do not have any septic tanks or sewer services. Implementation of the project would not create a demand on water supply or sewer services. No water or sewer lines would have to be moved or altered as a result of the proposed facilities. Therefore, no impact to water supply and sewer services would occur.
- e) The proposed facilities at the Fulton and Geysers sites would not result in a substantial increase in storm water runoff. The expected increase in the amount of impermeable surfaces (that would create additional run-off) is small and would have a less than significant impact on the local storm drainage system. Site runoff would not exceed the capacity of the storm drains serving the sites. Therefore, the project would have a less than significant impact on storm water infrastructure (also see Section IV, Water). The proposed project would also not affect local drainage.
- f) The project would require solid waste disposal service only during the construction phase. PG&E and its construction contractors would remove all solid wastes from the site to an appropriate landfill or recycling facility. In the long-term, no solid wastes would be generated at the sites. Therefore, a less than significant impact on solid waste disposal services is anticipated.
- g) The project would require a minor increase in water use for construction that could be accommodated by available water service, and would not have a substantial impact on local or regional water supplies. The existing water system would provide water at the Fulton site and a water truck, filled from the Geysers Unit 11 Cooling Tower, would supply water at the Geysers site. No new facilities for water supply would be constructed. In the long term, no additional water services would be needed at the sites as a result of the project. Therefore, no impact to public water services would occur.

XIII. VISUAL / AESTHETICS

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Affect a scenic vista or scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a demonstrable negative aesthetic effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Create light or glare?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) The Sonoma County *General Plan* designates three types of areas that should be protected visually. These include Community Separators, Scenic Landscape Units and Scenic

Corridors. The Fulton site includes two Scenic Corridors, River Road and Highway 101. No construction would occur on River Road.

U.S. Highway 101 is located immediately adjacent to the northeast side of the Fulton site. The proposed facilities at the Fulton site include the placement of three 40-foot poles outside the substation and the placement of three 70-foot poles inside the security fence. The poles outside the substation fenceline are set back from the highway and their lower height would make them recede visually behind the landscaping along U.S. Highway 101. The 70-foot poles inside the fence line would be close to view lines from U.S. Highway 101 but located behind the trees in the landscaping area. Where viewed from U.S. Highway 101, these poles also would tend to merge visually with the substation facilities.

Currently, where the Geysers-Fulton and Fulton-Ignacio 230 kV transmission lines and the Fulton Junction-Fulton 115 kV power lines cross Highway 101, motorists have brief views (approximately one to three seconds) of the substation when travelling at speeds of 50 mph, due to the openings between trees along the highway (PG&E 1998). Due to the wider gaps between trees along Highway 101 north of the substation, motorists travelling southbound have longer views (several seconds). Existing trees on the northern boundary of the PG&E property screen part of this view.

The six proposed poles would be placed behind the existing trees and, therefore, would be partially screened. Based on consultation with the Sonoma County Planning Department, additional trees would be planted as part of the project along the northern PG&E boundary and along portions of the eastern and western sides of the substation to provide additional screening from U.S. Highway 101. The landscaping would effectively screen most of the existing structures within Scenic Corridors. Since the substation is an existing facility, a less than significant impact to scenic vistas or scenic highways would occur.

The Geysers site is located in a remote area out of view from publicly accessible areas, and no specially protected aesthetic resources occur there.

- b) Pursuant to CEQA, public views are eligible for protection and/or mitigation from project effects that could have a demonstrable negative aesthetic impact. The PEA provides photo renderings of existing conditions and visual simulations of the proposed poles at the Fulton site (PG&E, 1998). As stated in the above discussion (a), additional trees would be planted to provide screening of the poles along U.S. Highway 101. As the trees grow, the Fulton substation would become less visible than under current conditions. The proposed facilities would be visible from behind other components of the Fulton substation from River Road. The proposed poles would not be visible from the residences located northeast of Fulton site. The proposed facilities in the Geysers are located in an area without any visual sensitive receptors. Therefore, visual impacts would be less than significant.

- c) The proposed facilities at the Fulton site would not include any new lighting. Several lights would be installed at the Geysers site. Since the Geysers site is located in a remote area out of public view, the proposed lighting addition would not create an impact. A non-reflective finish would be used on proposed poles, circuit breakers and other project components to prevent glare (PG&E 1998). Therefore, the project would have a less than significant impact related to the creation of light or glare on surrounding uses.

XIV. CULTURAL RESOURCES

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Disturb paleontological resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Disturb archaeological resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Affect historical resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Have the potential to cause a physical change that would affect unique ethnic cultural values?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Restrict existing religious or sacred uses within the potential impact area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a,b,c) The site of the Fulton Substation facilities, Eagle Rock Substation and some of the poles at the Geysers site have undergone previous grading (ESA, 1998). Site reconnaissance of the project site was performed by a PG&E cultural resource specialist and an information search was performed within a quarter-mile radius of the site by David Chavez in November 1997. The examination revealed no evidence of cultural resources in the immediate area of the proposed project (PG&E, 1998). However, prehistoric cultural resources have been documented throughout the general Geysers area. Three such sites have been recorded in the vicinity in the proposed Eagle Rock 115 kV power line corridor and one in the vicinity of the Fulton Substation. These cultural resources are not located in close proximity to the two project sites. Therefore, the project is not anticipated to affect paleontological, archaeological, or historical resources, and no impact would occur.

d) No unique ethnic cultural values are attributed to the Geysers and Fulton sites. Therefore, the project would not affect ethnic cultural resources, and no impact would occur.

e) The project sites are not being used for religious or sacred purposes. Therefore, the project would not affect religious or sacred uses, and no impact would occur.

XV. RECREATION

Would the proposal:	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Increase the demand for neighborhood or regional parks or other recreational facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Affect existing recreational opportunities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a,b) The Fulton site does not have existing recreational uses, and construction of the project would not increase the demand for recreational facilities. The Geysers site is used by the land owners for private recreation including hunting and scenic driving. No public recreational facilities are present. The proposed facilities would not interfere with the existing recreational uses of the site. Therefore, the proposed project would result in no impact on the quality or quantity of existing recreational opportunities.

XVI. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) As described in Sections VII, Biological Resources, and XIV, Cultural Resources, the project is not anticipated to have biological or cultural resources impacts.
- b) The proposed project facilities would be consistent with long-term regional and area goals for establishing reliable power to support planned regional growth. PG&E, in coordination with the CPUC, also has established programs and incentives for conservation of energy resources. As discussed below under Section XVI.c, the availability of electrical supply is considered growth-accommodating. Therefore, implementation of the project would have no impact related to the achievement of short-term goals to the disadvantage of long-term environmental goals.
- c) The minor physical changes to the environment at the project sites would not have any cumulatively considerable impacts. The proposed facilities would occur at existing PG&E

facilities and would be compatible with surrounding land uses in the vicinity and consistent with Sonoma County plans and policies.

The proposed facilities respond to electrical load growth in a limited geographical area. No public projects are anticipated to be directly initiated as a result of construction and operation of the substations.

Measures to minimize any impacts have been incorporated into the project. Therefore, the cumulative effects of the proposed facilities on the environmental resources discussed in this document would be considered to have a less than significant impact.

- d) As described in Section IX, Hazards, the project is not anticipated to cause substantial adverse effects on human beings, either directly or indirectly. Therefore, the project would have no impact related to adverse effect on human beings.

REFERENCES

The following references were used throughout this Initial Study:

PG&E (Pacific Gas and Electric), *Proponent Environmental Assessment: Permit to Construct the Northern Geysers Area Reinforcement Project*, June 16, 1998.

LAND USE AND PLANNING

County of Sonoma. *County of Sonoma General Plan*.

GEOLOGIC PROBLEMS

Blake, T.F., *Preliminary Fault Data for EQFAULT and FRISKSP (Selected California Faults)*, 1995.

California Department of Conservation, Division of Mines and Geology (DMG), *Fault Rupture Hazard Zones in California*, Special Publication 42, 1994.

WATER

Federal Emergency Management Agency (FEMA), *Flood Insurance Rate Map (FIRM), County of Sonoma*, 1989.

AIR QUALITY

Bay Area Air Quality Management District (BAAQMD), *BAAQMD CEQA Guidelines, Assessing the Impacts of Project and Plans*, April 1996.

HAZARDS

PG&E, *Environmental Resource Field Guide*, 1992.

NOISE

U.S. Environmental Protection Agency (EPA), *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, December 1971.

PUBLIC SERVICES

Babson, Donna, County Department of Emergency Services, personal conversation, August 20, 1998.

Nolan, Diana, Sonoma County Sheriff Department, personal conversation, August 20, 1998.