1. INTRODUCTION

This Draft Environmental Impact Report (EIR) has been prepared by the California Public Utilities Commission (CPUC) in accordance with the California Environmental Quality Act (CEQA) to inform the public and to meet the needs of local, State, and Federal permitting agencies to consider the Tri-Valley 2002 Capacity Increase Project proposed by Pacific Gas and Electric Company (PG&E Co., also referred to in this document as "the Applicant"). The Proposed Project is described briefly below, and in detail in Section B of this EIR. This EIR does not make a recommendation regarding the approval or denial of the project; it is purely informational in content.

This EIR evaluates and presents the environmental impacts that are expected to result from construction and operation of PG&E Co.'s Proposed Project, and provides mitigation measures which, if adopted by the CPUC or other responsible agencies, could avoid or minimize the environmental impacts identified. This EIR also identifies alternatives to the Proposed Project and evaluates the environmental impacts associated with those alternatives, including the No Project Alternative, in accordance with CEQA requirements.

Section 2 of this Executive Summary presents a summary description of the Project proposed by PG&E Co. and the alternatives evaluated in this EIR. Section 3 highlights areas of controversy based on comments made by agencies and the public during the scoping period. Section 4 summarizes the impacts of the Proposed Project and alternatives within each of the 11 environmental issue areas included in this analysis. The comparison of alternatives that leads to the identification of the Environmentally Superior Alternative is presented in Section 5. Section 6 describes the mitigation monitoring program that would be implemented upon project approval, and Section 7 presents the Impact Summary Table that lists all of the impacts and mitigation measures from the EIR.

2. DESCRIPTION OF PROPOSED PROJECT AND ALTERNATIVES

2.1 PROPOSED PROJECT

The Tri-Valley 2002 Capacity Increase Project is proposed by PG&E Co. to meet the projected electric demand in the Cities of Dublin, Livermore, Pleasanton, and San Ramon, and in portions of unincorporated Alameda and Contra Costa Counties adjacent to these cities. Figure ES-1 illustrates the location of the Proposed Project. The components of the Proposed Project are listed below by area:

Pleasanton Area:

- Modification of the existing Vineyard Substation (in Pleasanton) to include a 230 kV transmission interconnection.
- Installation of 2.8 miles of new 230 kV overhead double-circuit transmission line and 2.7 miles of 230 kV underground double-circuit transmission line to serve the Vineyard Substation, and a transition structure to convert the 230 kV overhead transmission line to an underground cable system.

North Livermore Area:

- Construction of a proposed North Livermore Substation, located 3 miles north of Interstate 580 at the intersection of May School Road and North Livermore Avenue.

Dublin/San Ramon Area:

- Construction of a proposed Dublin Substation, located 3 miles north of Interstate 580 and 1 mile east of Tassajara Road in Contra Costa County.

North Livermore and Dublin/San Ramon Areas:

- Installation of 7.9 miles of new 230 kV overhead double-circuit transmission line in PG&E Co.'s existing vacant easement to serve the Dublin and North Livermore substations.

Phase 2 (North Livermore to Tesla):

- Construction of approximately 10 miles of new 230 kV double-circuit transmission line in PG&E Co.'s existing vacant easement from the Contra Costa-Newark 230 kV line southeast to the Tesla Substation. This would connect the Dublin and North Livermore Substations directly to the Tesla Substation but would not be required until the Phase 1 connection to the Contra-Costa Newark 230 kV line becomes overloaded.

2.2 ALTERNATIVES

As a part of the alternatives evaluation process, 27 potential alternative routes or methods of providing the required increase in electricity to the region were evaluated. Of these, 14 alternatives were eliminated because they did not offer significant environmental advantages over the Proposed Project or because they were not feasible. The alternatives are divided into four categories because of the geographic spread of this project: Pleasanton, Dublin/San Ramon, North Livermore, and Tesla Connection (Phase 2). This EIR includes analysis of four alternatives for the Pleasanton Area, two alternatives for the Dublin/San Ramon Area, three alternatives for the North Livermore Area, and three alternatives to the Tesla Connection (Phase 2), as well as the No Project Alternative. Figure ES-1 shows where these alternatives are located. Table ES-1 below lists each alternative and the geographic area of the EIR category in which that alternative is addressed. In addition, Table ES-1 compares the total length, underground length, and overhead length of the transmission line for all alternatives.

These alternatives are considered in the Draft EIR for full analysis so that they can be compared to the Proposed Project. All alternatives are briefly described below. See Section 4.13 for mitigation measures that would require transmission line reroutes, such as Alternatives S2A and P3.

Figure ES-1

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page 1 of 2

Figure ES-1 page 2 of 2

Table ES-1 Characteristics of Alternatives Evaluated (by Area)

Alternative Name		Total Length of Transmission Line	Length of Overhead Line	Length of Underground Line
EIR Geographic Area: Pleasanton Area				
Proposed South Area Transmission Line		5.5	2.8	2.7
S1: Vineyard-Isabel-Stanley		6.7	5.6	1.1
S2: Vineyard Avenue		5.8	1.1	4.7
S4: Eastern Open Space		6.6	3.4	3.2
LG: Local Generation		<0.1	0.1	0
EIR Geographic Area: Dublin/San Ramon Area				
Proposed Dublin Substation and Transmission Line		4.9	4.9	0
D1: South Dublin		2.8	2.3	0.5
D2: Dublin-San Ramon		4.6	4.0	0.6
EIR Geographic Area: North Livermore Area				
Proposed North Livermore Substation and Transmission Line		3.1	3.1	0
P1: Proposed Project with 1 Mile Underground		3.1	2.1	1.0
P2: Proposed Project with 3.8 Miles Underground		3.8	0	3.8
L1: Raymond Road		1.0	0	1.0
L2: Hartman Road		7.3	3.7	3.6
EIR Geographic Area: Tesla Connection/Phase 2				
Proposed Phase 2 Transmission Line		10.0	10.0	0
BP: Brushy Peak Alternative Segment		10.3	10.3	0
T1: Stanislaus Corridor	to S1/S2/L1	B.6.4.2	14.2	14.2
	to Proposed/S4	B.6.4.3	17.3	173
T2: Switching Station		N/A	N/A	N/A

Pleasanton Area Alternatives

S1 (Vineyard-Isabel-Stanley)*:* In this alternative, the Contra Costa-Newark (CC-N) line would be tapped in the Tesla-Newark Corridor adjacent to Sycamore Grove Regional Park. The transmission line would be installed overhead from the Tesla-Newark corridor to the southwest corner of Highway 84 and Vineyard Avenue. The new 230kV line would follow the existing 60kV route. The overhead/underground transition point would be located about 100 feet southwest of the corner of Highway 84 continuing straight north to the point where it meets Vineyard Avenue. The underground line would continue on the south side of Vineyard to Isabel. It would be installed overhead along the west side of Isabel to Stanley Blvd., then turn west and be installed overhead along the north side of Stanley. It would cross Stanley Boulevard into Vineyard Substation, just before Bernal Avenue. This alternative is about 6.7 miles long with 1.1 miles underground (versus 5.5 miles of proposed route with 2.7 miles underground).

S2 (Vineyard Avenue)*:* As with S1 above, this line would tap the CC-N line adjacent to Sycamore Grove Regional Park and be installed as an overhead 230 kV line to Highway 84. At the junction of Highway 84 and Vineyard, the S2 route would to underground along Vineyard to Bernal. Where Vineyard meets Bernal Avenue, the line would turn north on Bernal (still underground), and into the

Vineyard Substation as it would in the proposed route. This alternative would be about 5.6 miles long; the first 1.1 miles would be installed overhead and the remainder underground.

S4 (Eastern Open Space)*:* This alternative would follow the proposed route's overhead transmission line from a tap in the Tesla-Newark Corridor, 2.2 miles to a point where S4 would turn northeasterly away from the proposed route. The route would continue northeasterly and overhead for 1.2 miles, then transition to underground for the last 0.7 miles north to Vineyard Avenue. At this point, the S4 route would turn west on Vineyard, still underground, and follow the S2 route along the south side of Vineyard Avenue and Bernal into the Vineyard Substation. The total length of this alternative (from the Tesla-Newark tap to the Vineyard Substation) would be about 6.2 miles.

LG (Local Generation): There are three potential generation projects in the Tri-Valley area, two in Pleasanton and one in Livermore. Each would involve construction of an under-50 MW natural gas turbine power plant. If constructed by mid-2002, the Pleasanton projects could defer the Vineyard Substation upgrade and associated transmission upgrade for one to two years, depending on demand growth. The impact assessment for the LG Alternative is summarized in Section 4.13.

Dublin/San Ramon Area Alternatives

D1 (South Dublin): The South Dublin Substation would be located between Fallon and Tassajara Roads, north of the I-580. It would be about 2,600 feet west of Fallon Road, about 1,000 feet north of the I-580 and immediately south of (and adjacent to) the future extension of Dublin Boulevard. The 230kV transmission line connection would be from the Vineyard Substation in the south. Starting at the Vineyard Substation, the transmission line would go north across Stanley until it reached the north side of the paved east-west roadway into the gravel area. Then it turns east for 0.25 miles to the corner, then it turns north for 0.35 miles. At this point, the route follows El Charro Road through the gravel quarries and continues to the south side of the I-580 interchange. At this point, the line would transition to underground, turning west to follow the south side of the Caltrans ROW, turning north and crossing the freeway ½ mile west of Fallon Road.

D2 (Dublin-San Ramon)*:* PG&E's proposed Dublin Substation would be fed from the west (from PG&E's existing San Ramon Substation). The 230kV line from Dublin to San Ramon would follow PG&E's vacant ROW. Approximately one mile of the westernmost part of the route (from the ridgeline into PG&E's existing San Ramon Substation) would be installed underground. In addition, the San Ramon-Pittsburg line (a single circuit 230kV line) would need to be reconductored along its entire length (approximately 20 miles) along with some minor upgrades to the San Ramon Substation to increase power into the substation.

North Livermore Area Alternatives

P1 (Variant on the Proposed Project)*:* This alternative is identical to the proposed project, except that the one mile of north-south 230 kV transmission line along North Livermore Road would be installed

underground. Two overhead/underground transition stations (one for each circuit) would be located just southwest of the corner of North Livermore Road and Manning Road**.**

P2 (Variant on the Proposed Project)*:* This alternative follows the route of the proposed project, but would require underground installation of two components: (a) the 230 kV transmission line between the CC-N line (at its tap near Milepost B10.4) and approximately Milepost B13.2 (about 2.8 miles across north valley), and (b) the north-south 230 kV transmission line just west of North Livermore Road (about 1 mile).

L1 (Raymond Road)*:* It would start at a tap to the CC-N line at the northeast corner of Ames Street and Raymond Road. A transition structure would take the line underground at that corner, and the line would run underground to the west for 1 mile to the corner of Raymond Road and Lorraine Road. The North Livermore substation would be located just northeast of this corner, immediately east of the farm/barn property that is just north of the Raymond/Lorraine corner.

L2 (Hartman Road)*:* The 230kV transmission line route would be the same as for S1 above, but rather than turning west on Stanley Boulevard, the line would continue north for an additional 1.7 miles along the Highway 84 corridor to the I-580 junction**.** Between Stanley Boulevard and Jack London Boulevard, the line would be installed overhead and then from Jack London Boulevard north it would be underground. The underground line would turn west to a location just west of the Water Reclamation Plant and east of the end of the airport runways, cross Airway Boulevard at an angle to the northeast, then turn north again along Kitty Hawk. The line continues across I-580 and would continue underground approximately 1 to 1.3 miles north of I-580 to a North Livermore substation study zone in the southwest corner of the North Livermore development area, near Las Positas College. The whole study zone is adjacent to and immediately southeast of the future Hartman Road. The substation would occupy a 5-acre site in the study zone.

Tesla Connection (Phase 2)

Brushy Peak Alternative Segment*:* Based on input from the East Bay Regional Parks District, an alternative to a portion of the proposed Phase 2 route south of Brushy Peak Preserve has been proposed to reduce visual impacts at the entrance of the park. This segment would move a portion of the Phase 2 transmission line south to a point near the future entrance to the Brushy Peak Preserve, so the line would not obstruct views north to the Peak.

Stanislaus Corridor: A new 230 kV double circuit line would be constructed from Tesla Substation to the tap point of the selected alternative (either at about Milepost V17 for the proposed route or S4 alternative or near Milepost V14 for the S1 or S2 alternatives). This route would be about 14 miles long (if combined with the S1 or S2 alternatives) or 17 miles long (if combined with the proposed route or the S4 alternative). The Stanislaus Corridor is currently occupied by two parallel lattice tower lines that would be replaced with one set of tubular steel towers. At Tesla Junction, where the Stanislaus towers continue east across the Valley, the new line would turn northeast, for 2.1 miles into the Tesla

Substation, paralleling an existing 115kV lattice line. This alternative would replace the 10 miles of PG&E Co.'s new Phase 2 Northern Corridor.

***Switching Station**:* This alternative would involve construction of a switching station to allow direct connection of the new 230 kV transmission lines (proposed or alternative routes) that originate in the south adjacent to the existing Tesla-Newark Corridor to the existing Tesla-Newark 230 kV transmission line. The existing Tesla-Newark line, while also a 230 kV line, is rated at approximately 1000 MVA[1], which is much higher than the proposed project's amperage. This existing line has bundled 2300Al conductors had has ratings of 988MVA in normal conditions and 1216 MVA in emergencies. Power flow modeling has been completed by the California ISO to ensure that this line is capable of supplying the switching station and the Vineyard Substation without overloading during contingencies. The impact assessment for this alternative is summarized in Section 4.13.

In addition to the alternatives described above, the **No Project Alternative** is evaluated for impacts of the actions that would occur if the Proposed Project is not constructed. The demand for electrical service in the Tri-Valley area would still grow and either the electricity would be supplied by other means (e.g., reconductoring of any available lines or local generation plants) or electrical service quality would quickly decline.

3. PUBLIC PARTICIPATION AND AREAS OF CONTROVERSY

3.1 EIR Scoping Process

The scoping process for the Tri-Valley 2002 Capacity Increase Project EIR consisted of five elements:

(1) Publication of a Notice of Preparation of an EIR (NOP) and Notice of Public Scoping Meetings soliciting comments from affected public agencies, as required by CEQA, as well as from the public

(2) Public scoping meetings and meetings with agencies

(3) Summarization of scoping comments in a Scoping Report

(4) Distribution of the Scoping Report and scoping comments as appropriate to the commenting agencies, scoping meeting attendees, the EIR team members for use in work planning and impact analysis, and to public libraries designated as project repository sites for members of the public interested in reviewing the report and comments

(5) Establishment of an Internet web site, electronic mail address, a telephone hotline, and local EIR Information Repositories.

[1] MVA: megavoltamperes, is defined as the apparent power of the line. MVA is composed of both real power (measured in megawatts or MW) and reactive power (measured in megavoltamperes reactive or MVAR). The cable circuit rating (expressed in MVA) is the apparent power rating. In comparison, the proposed 230 kV line could carry 400 MVA per circuit in underground segments.

3.1.1 *Notice of Preparation*

The CPUC issued the NOP on April 21, 2000 and distributed it to the State Clearinghouse and city, county, state and federal agencies, affected state and federal legislators, and local elected officials. There was a 30-day legally required period for interested parties to submit comments regarding the content of the EIR. There were approximately 180 copies of the NOP mailed out and approximately 250 additional copies distributed at the scoping meetings. A copy of the NOP is available in the Scoping Report, which may be viewed at the EIR Information Repositories and on the Internet, as described in Section 3.3.2.

3.1.2 *Scoping Meetings*

Three public scoping meetings were conducted as part of the EIR scoping process to receive input regarding the scope and content of this EIR, as well as alternatives and mitigation measures which should be considered. The following scoping meetings were held prior to selection of alternatives to be studied and conduct of the analysis documented in this EIR:

- May 8, 2000 at 2:30 pm at the Dublin Branch of the Alameda County Public Library, Dublin (20 attendees).
- May 8, 2000 at 7:00 pm at the Livermore/Pleasanton Rod & Gun Club, Livermore (about 40 attendees).
- May 9, 2000 at 7:00 pm at the Pleasanton Public Library, Pleasanton (about 170 attendees).

3.1.3 *Public Notification of Scoping Period*

About ten days before the scoping meetings, the Notice of Scoping Meeting was mailed to over 1,100 individuals, groups and government agencies identified for the initial EIR mailing list, based on PG&E Co.'s list of property owners located on or near the route of its Proposed Project, as well as groups and individuals with a vital interest in the Proposed Project compiled by the EIR Team.

The dates, times and locations of the three scoping meetings were included in the NOP mailed to affected agencies and other parties interested in the CPUC's General Proceeding for PG&E Co.'s application, about two weeks in advance of the meetings. This information was also posted on the CPUC's project website and on the project hotline.

Several days prior to the scoping meetings, quarter-page ads were published in two newspapers in the project area, as follows:

- The Tri-Valley Herald (May 3rd and 4th, 2000)
- Alameda Times-Star (May 3rd and 4th, 2000)

3.1.4 *Scoping Report*

In July 2000, a scoping report was issued summarizing issues and concerns received from the public and various agencies. This report was made available for review at the five repositories and on the Internet as listed in Section 3.3.2, and mailed to those agencies and individuals who registered at the scoping meetings or requested copies.

3.1.5 *Areas of Controversy*

This Draft EIR reflects comments made by agencies and the public from the time the CPUC published its Notice of Preparation (April 21, 2000) through June 1, 2000, as well as continuing consultation with local jurisdictions and other agencies throughout preparation of this Draft EIR. The majority of comments and concerns received were related to the following issues, primarily in relation to residential areas:

- Electric and magnetic fields (EMF)
- Public safety in regards to high voltage electric transmission facilities
- Visual degradation of the landscape
- Negative effect on property value.

EMF, safety and nuisance concerns are summarized in Section 4.9 of this Executive Summary, and addressed in greater detail in Section C.9 in the Draft EIR. Visual impacts are summarized in Section 4.12 of this Executive Summary, and addressed in greater detail in Section C.12 in the Draft EIR. As stated in the Scoping Report published by the CPUC in July 2000, in accordance with CEQA, the EIR does not analyze the potential economic impacts of the Proposed Project and alternatives. As summarized in Section 4.10 of this Executive Summary, and Section C.10 in the Draft EIR, it has been established that CEQA was not designed to protect against a possible decline in the commercial value of property adjacent to a project *(Hecton v. People of the State of California, 1976, 58 Cal.App. 3d 653, 656)*. For these reasons, the possible reduction of property value *does not* constitute a CEQA impact and no further analysis is warranted.

3.2 Public Notification of Draft EIR Release and Comment Period

3.2.2 *Newsletter*

The CPUC distributed a newsletter in early November 2000 to describe the EIR process and the alternatives selected for detailed analysis in the Draft EIR. The mailing list for this newsletter numbered over 11,000, and included postal carrier routes near the Proposed Project and the alternatives selected for study in the EIR, as well as those added to the mailing list since the mailing of the Scoping Meeting Notice (including those registering at the Scoping Meetings, written commentors during scoping, and requests received via e-mail, telephone/facsimile or postal mail).

3.2.3 *Notice of Release of Draft EIR and Property Owner Notification*

On December 14, 2000, a Notice of Release of the Draft EIR was sent to property owners and occupants on or adjacent to PG&E Co.'s Proposed and the alternative routes, including information on how to access the Draft EIR, the Environmentally Superior Alternative(s) and dates, times and locations for informational meetings on the Draft EIR as well as the CPUC's Public Participation Hearings on PG&E Co.'s application and the Draft EIR. This same information was also published in newspaper advertisements in the *Tri-Valley Herald* and *Alameda Times Star* during the weeks of December 17 and 24, 2000.

3.3 Public Review Period

In compliance with CEQA Guidelines, the CPUC provides a public review period of more than 45 days for the Draft EIR. This public review period commences upon release of the Draft EIR, on December 27, 2000, and goes through February 19, 2001. Written comments on the Draft EIR may be submitted at the informational meetings and Public Participation Hearings, and via facsimile transmission on the EIR Hotline (925/397-3041), e-mail at the EIR e-mail address (Tri-valley@aspeneg.com), or postal mail at:

Beth Shipley
California Public Utilities Commission
c/o Aspen Environmental Group
235 Montgomery Street, Suite 800
San Francisco, CA 94104

Written comments must be received or postmarked by **February 19, 2001**. Please remember to include your name and return address in whatever form you make your written comments. Oral comments will only be received at the CPUC's Public Participation Hearings, in order to ensure an accurate record is made by the court reporter.

3.3.1 *Informational Meetings and Public Hearings*

Following the release of the Draft EIR, three informational meetings will be held in similar locations to the Scoping Meetings. The purpose of these meeting is to help affected communities understand the Proposed Project, the Draft EIR, and how to participate in the CPUC=s decision making processes, including commenting on the Draft EIR. At these informational meetings, the EIR Team and CPUC staff will be available to respond to questions and provide clarification regarding the impact analysis and conclusions presented in the Draft EIR.

Before the end of the comment period, three Public Participation Hearings will be conducted by the CPUC's assigned Administrative Law Judge to receive oral and written testimony on PG&E Co.'s application for a CPCN as well as the Draft EIR. Following are the locations and dates for informational meetings and hearings:

INFORMATIONAL MEETINGS	PUBLIC PARTICIPATION HEARING
January 23, 2001 6:30 – 8:30 p.m. Vintage Hills School: Multi-Purpose Room 1125 Concord Street, Pleasanton	February 8, 2001 7:00 p.m. City of Livermore: Council Chambers 3575 Pacific Avenue, Livermore
January 24, 2001 6:30 – 8:30 p.m. Dublin Elementary School: Multi-Purpose Room 7051 Dublin Boulevard, Dublin	February 13, 2001 6:30 p.m. Vintage Hills School: Multi-Purpose Room 1125 Concord Street, Pleasanton
January 25, 2001 6:30 – 8:30 p.m. City of Livermore: Council Chambers 3575 Pacific Avenue, Livermore	February 15, 2001 7:00 p.m. Dublin Elementry School: Multi Purpose Room 7051 Dublin Boulevard, Dublin

3.3.2 EIR Information and Repository Sites

Placing documents in Arepository@ sites can be an effective way of providing ongoing information about the project to a large number of people. Therefore, four repository sites in the Proposed Project area were established, and documents are also available at the CPUC in San Francisco. EIR-related documents, including the Scoping Report and the Draft EIR have been made available upon their release to the public at the locations listed below.

Pleasanton Public Library
400 Old Bernal Avenue
Pleasanton, CA
(925) 931-3400

San Ramon Library
100 Montgomery Street
San Ramon, CA
(925) 973-2850

Livermore Public Library
1000 South Livermore Avenue
Livermore, CA
(925) 373-5500

Dublin Brach Library (Civic Center)
7606 Amador Valley Blvd.
Dublin, CA
(925) 828-1315

CPUC Central Files
505 Van Ness Avenue
San Francisco, CA 94102
(415) 703-2045

A telephone hotline for project information has been established at (925) 397-3041. This number receives voice messages and faxes.

EIR information is also available on the Internet, including Proposed Project information, the Scoping Report, the November 2000 newsletter and the Draft EIR. The address below links to the CPUC's CEQA project list page, then click on the Tri-Valley 2002 Capacity Increase Project (A.99-11-025): **http://www.cpuc.ca.gov/environment/projects.htm**

4. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

4.1 INTRODUCTION

Section 4 summarizes the findings from the environmental analysis for each of the 11 environmental issue areas evaluated in the EIR. Within each issue area the following information is summarized: impacts identified for the proposed project, proposed mitigation measures, significant unavoidable impacts, and alternatives. For the No Project, Local Generation, and Switching Station alternatives as well as reroutes suggested to mitigate impacts, this information is summarized in Section 4.13. Growth-inducing impacts, significant irreversible changes and cumulative impacts are summarized in Section 4.14. Impacts were evaluated in each issue area using the following classification of the impacts:

Class I: Significant; cannot be mitigated to a level that is not significant
Class II: Significant; can be mitigated to a level that is not significant
Class III: Adverse, but not significant
Class IV: Beneficial impacts.

4.2 AIR QUALITY

The project study area is within the San Francisco Bay Area Air Basin. The San Francisco Bay Area Air Basin is currently in non-attainment status of the National Ambient Air Quality Standard (NAAQS) and the California Ambient Air Quality Standard (CAAQS) for ozone. The air basin is also in non-attainment status of the CAAQS for PM_{10}. Although the Bay Area is currently above the national CO standard, it is still considered to be a "maintenance area" for that pollutant.

Environmental Impacts of the Proposed Project. Potential impacts associated with fugitive dust emissions generated during construction activities are mitigable to a level that is less than significant. All other potential impacts associated with the project were found to be adverse, but less than significant, and include: short-term exhaust emissions from construction equipment; emissions generated by periodic maintenance and inspection activities occurring at various times; and increased electrical generation at power plants in the region.

Mitigation Measures. Measures proposed by PG&E Co. would reduce potential PM_{10} and exhaust emissions. In addition, Mitigation Measures A1 through A4 are PM_{10} reduction measures that BAAQMD require of all construction projects with sites greater than 4 acres in area that PG&E Co. did not commit to. The measures require daily sweeping of all access roads, parking areas and staging areas, installation of sandbags, and replant vegetation in disturbed areas with 30 of completion of construction. Two other mitigation measures require reroutes to reduce or eliminate underground construction associated with alternatives to the northern portion of the proposed route. Mitigation Measure A-5 would modify the route of the D2 Alternative so it connects with the existing San Ramon-Pittsburg 230 kV line approximately one-half mile northeast of the San Ramon Substation, which would eliminate the need for 1.0 mile of underground construction. Mitigation Measure A-6 would modify the route of the D2 Alternative so it would have approximately 1.8 miles less underground construction.

Significant Unavoidable Impacts of the Proposed Project. There are no significant, unavoidable air quality impacts associated with the Proposed Project.

Alternatives. The impacts described above for the Proposed Project are similar to the impacts that could occur under any one of the project alternatives. All alternatives would involve construction-related air quality impacts. A comparison can be made between the alternatives as to the amount of underground construction that would occur and the total distance of the routes. With this said, the following routes are preferred: Alternative S1 in the Pleasanton Area, the Proposed Project in the Dublin Area, and the Proposed Project in the North Livermore Area. For Phase 2 of the project, the Proposed Project is preferred.

4.3 BIOLOGICAL RESOURCES

A variety of habitats occur within the study area, which lies within the Tri-Valley area, in the southeastern portion of the San Francisco Bay region, it is a moderately dry area that receives an average of 14 to 15 inches of annual precipitation and experiences cool, wet winters and very warm,

dry summers. Within the undeveloped portions of the study area, the availability of seasonal water and the topography of the land are the critical factors that determine the distribution of vegetation types and associated wildlife species. This section describes the existing biological resources in the Proposed Project region, specific biological resources within the project study area, and the regulations applicable to biological resources.

Environmental Impacts of the Proposed Project. Although most of the proposed transmission line route passes through developed areas and disturbed grasslands with marginal habitat value, there are segments of the route with sensitive habitats and special status species that may be affected construction of the Proposed Project. Several federal and state-listed or candidate species use seasonal wetlands, scrub habitats, and riparian communities within or adjacent to the proposed transmission line route for foraging and/or breeding (California red-legged frog, Alameda whipsnake, and California tiger salamander). The following impacts (Class II) to biological resources were identified:

- Temporary and permanent loss of wetland plant communities
- Temporary and permanent loss of upland plant communities
- Direct mortality and direct disturbance to wildlife
- Overland travel disturbance of plant communities
- Indirect impacts on wildlife from increased human presence and access
- Loss of special status plants and habitats
- Overland travel disturbance of special status plant species and their habitats
- Disturbance of proposed Alameda whipsnake critical habitat
- Disturbance of proposed California red-legged frog critical habitat.

Three potential biological resource impacts are associated with the operation of electric transmission lines; however, these were found to be adverse but less than significant.

Mitigation Measures. Twelve mitigation measures are proposed to reduce potential significant impacts to biological resources. Six measures would protect plant communities and special status plants through avoidance, and six measures would protect wildlife resources by reducing construction-related disturbance and avoiding critical habitats and breeding seasons. Three of the mitigation measures apply specifically to impacts resulting from an alternative.

Significant Unavoidable Impacts of the Proposed Project. There are no significant, unavoidable biological resources impacts associated with the Proposed Project.

Alternatives. In general, potential impacts to biological resources of the transmission line route alternatives are similar to those of the Proposed Project since they cross similar habitat types. A combination of the Vineyard-Isabel-Stanley (S1) route in the Pleasanton Area, and the South Dublin (D1) route in the Dublin/San Ramon Area, is preferred to the comparable segments of the proposed transmission line route because it would reduce potential impacts to Alameda whipsnakes and designated critical habitat, and large areas of proposed critical habitat for the California red-legged frog. Furthermore, the S1 and D1 routes are largely in developed areas, which would reduce impacts to plant communities and their associated wildlife species. The San Ramon-Pittsburg line (used by

Alternative D2 Reconductoring) has additional potential significant impacts to salt marsh harvest mouse, California clapper rail, and California black rail habitats that can be reduced to Class II impacts. The Raymond Road (L1) Alternative could affect the hydrologic functioning of the Springtown Wetland Preserve; if a feasible underground design that avoids this impact cannot be developed, implementation of this alternative would result in an unavoidable significant impact.

4.4 CULTURAL RESOURCES

Environmental Impacts of the Proposed Project. No known ethnographic or contemporary Native American resources, including sacred places and traditional use areas exist in the project area. Other cultural resources or the potential for as yet undiscovered archaeological sites have been identified in and adjacent to the proposed route, alternatives and facilities. Several historic trails and transportation corridors are present in the project area. A major Native American trail is the only prehistoric linear alignment crossed by the project and several of its alternatives. Impacts to these resources may include: inadvertent impacts to recorded, reported, and known cultural resources identified in or adjacent to the project by construction operations; impacts to previously unknown sites; construction operations could result in the inadvertent exposure of significant buried prehistoric and/or historic cultural materials; and impacts to recognized parks, preserves, and recreational areas that may contain cultural resources.

Mitigation Measures. Five mitigation measures are proposed to reduce potentially significant (Class II) impacts to cultural resources. Two mitigation measures will require PG&E Co. to avoid areas where known cultural resources are present and develop a Cultural Resources Treatment Plan for the project. All construction personnel shall be trained regarding the recognition of possible buried cultural remains and procedures to follow in the case of a discovery. Any unsurveyed areas (due to restricted property access during EIR analysis) shall be inventoried prior to construction. Work in the immediate area of a discovery shall stop until it is evaluated and if necessary, mitigated. Any excavation contract shall include clauses that require construction personnel to attend training so they are aware of the potential for inadvertently exposing buried archaeological deposits. During subsurface construction disturbance, areas identified with a potential for significant buried cultural materials will require archaeological monitoring. The final mitigation measure requires PG&E Co. to consult with the East Bay Regional Park District (EBRPD) and the State of California Department of Parks and Recreation regarding conditions for cultural resources for project areas within the EBRPD parks and Mount Diablo State Park.

Significant Unavoidable Impacts of the Proposed Project. There are no significant, unavoidable cultural resources impacts of the Proposed Project.

Alternatives. None of the alternatives will have a direct impact on any recorded, reported, or identified cultural resources which have been evaluated as eligible for the National Register of Historic Places (NR) or the California Register of Historical Resources (CRHR). In addition, the research data suggest a very low potential for as yet unknown buried prehistoric sites and/or significant buried historic archaeological materials within or adjacent to any of the alternative alignments.

The *Pittsburg-San Ramon Line*, which may need to be reconductored for the *D2: Dublin-San Ramon* alternative, has the most cultural resources identified in or adjacent to the corridor including a NR listed historic district, the Black Diamond Mines District within the EBRPD Black Diamond Mines Regional Preserve. However, none of the identified resources either within the NR district or elsewhere within the corridor appear to have the potential to be impacted by the proposed reconductoring.

4.5 GEOLOGY, SOILS, AND PALEONTOLOGY

The Tri-Valley area is located along the complex tectonic boundary associated with the San Andreas Fault System, a series of right-lateral strike-slip faults that extend from the Gulf of California to Cape Mendocino. Major components of the San Andreas fault system in the San Francisco Bay region include the San Andreas, Hayward, Calaveras, and Greenville faults. In addition, blind thrust faults associated with the Mount Diablo Thrust Fault and the Coast Range-Central Valley geomorphic boundary are present in the immediate project area.

Environmental Impacts of the Proposed Project. Specific impacts associated with the Proposed Project include surface fault rupture, strong ground shaking, corrosion, liquefaction, and landslides. Surface rupture comprises a minor earthquake hazard for above fault crossings of the active Greenville, Las Positas, Pleasanton, and Verona, faults. In general, the hazard posed by earthquake surface rupture to overhead transmission lines is only imposed on the support structures. Potential ground shaking from earthquakes can damage project structures and equipment (Class II). The soil characteristics, which may have the most significant impact on the design and operation of the proposed project, are the shrink-swell potential and corrosivity. The corrosion potential is high throughout much of the project area and could impact the chemical stability of concrete and uncoated steel used in transmission line support structures and underground transmission line conduit. Deposits susceptible to liquefaction are present throughout the project area; however, liquefaction hazards are greatest along the proposed route where it closely parallels creekbeds (Class II). Existing landslides and potentially unstable slopes are present throughout the foothills surrounding the Tri-Valley area. In addition, erosion and/or destabilization of natural or constructed slopes could occur as a result of construction activities. Finally, the hazard of seismic failure of Del Valle Dam, however improbable, constitutes a significant, unavoidable impact on the Proposed Project and alternatives in the western half of the project area.

Mitigation Measures. PG&E Co. proposed nine measures to reduce impacts to geology, minerals, and paleontology. Two additional mitigation measures are proposed: one that would require corrosivity testing on a site-specific basis for each support structure located within areas reported to have high potential for corrosive soils; and the second specifies design criteria for underground segments crossing active faults. Implementation of these mitigation measures should reduce these hazards to a less than significant (Class II) level.

Significant Unavoidable Impacts of the Proposed Project: The hazard of seismic failure of Del Valle Dam, however improbable, constitutes a significant, unavoidable impact on the Proposed Project and alternatives in the western half of the project area.

Alternatives. The most significant mineral resources identified in the project area are the sand and gravel deposits in the western Livermore Valley and Central Amador Valley. The D1 transmission line, the S1 and S2 transmission lines, the L2 transmission line, the S4 transmission line (where it coincides with S1), and a portion of the Stanislaus Corridor transmission line alternatives do cross Mineral Resource Zones. An unzoned segment of the active Pleasanton fault is crossed by the D2 underground alternative transmission line and the potentially active Livermore and West Branch Livermore faults intersect the underground segment of the L2 alignment. The seismic safety element of the City of Livermore's General Plan requires that these crossings be at right angles to the fault and that vaults be incorporated in the project design to allow access for rapid repair; a mitigation measure is presented to ensure appropriate fault crossing design.

4.6 HYDROLOGY AND WATER QUALITY

The project area lies within two regional-scale California watersheds, the Alameda Creek watershed and the Central Valley watershed, with the majority lying in the Alameda Creek watershed. This drainage basin encompasses about 633 square miles in Alameda, Contra Costa, and Santa Clara counties. Hydrologic conditions in the project area were investigated through field visits to the project's creeks and watersheds, reviewing prior studies regarding the project area, and by obtaining information from local city, regional, county, and state water agencies.

Environmental Impacts of the Proposed Project. The significant hydrologic impacts caused by the Proposed Project are generally associated with the construction phase along with a few impacts during the operational phase of the project. The following impacts (Class II) to hydrology and water quality were identified:

- Increased stream channel erosion, sediment transport, and alternation of existing drainage pattern
- Accelerated hillslope erosion, increased sediment loading to local channels, and reduction in surface water quality
- Construction and operational impacts to groundwater hydrology and quality
- Construction and operational impacts to surface water hydrology and quality
- Streambed impacts due to horizontal boring of Arroyo Valle
- Tower and new road construction in the more rugged terrains of the project area potentially alters the existing drainage pattern/network, causes erosion, and reduces water quality
- Horizontal dry boring of Arroyo Valle and Arroyo Las Positas

Significant Unavoidable Impacts of the Proposed Project. There are no significant, unavoidable hydrology and water quality impacts associated with the Proposed Project.

Mitigation Measures. Ten mitigation measures, applied as a single measure or in combination, are proposed to reduce potential significant impacts to hydrology of water quality. One measure preserves channel integrity and the form of the drainage network through site-specific analysis and planning during the design and construction processes. Erosion, sediment loading, contamination, and other surface water quality impacts shall be controlled through measures which outline Best Management Practices, Storm Water Pollution Prevention Plans, Erosion Control Plans, Hazardous Substance Control and Emergency Response Plans, and an environmental training program. Impacts to

groundwater hydrology and quality shall be reduced through two measures whereby groundwater depths are tested prior to construction and contaminated soil or groundwater that is encountered during construction is disposed of and treated if necessary.

Alternatives. The underground segment of the Raymond Road (L1) Alternative causes the most potentially detrimental hydrologic impact of the entire project. In fact, this was the only Class I non-mitigable impact determined in the hydrologic impact analysis. By creating a barrier to shallow subsurface flow, the underground L1 line would disrupt the supply and delivery of groundwater to the adjacent Springtown Alkali Sink, a protected ecological reserve. The P2 underground segment also impedes subsurface flow but its greater distance north of the Springtown Alkali Sink reduces the significance of this impact. The S1/S2 Alternatives in the Pleasanton Area will not impact the drainage pattern as much as the Proposed Project and S4 Alternative but are lengthier with more tower locations. Due to its flatter site and greater distance from any tributary channel, the South Dublin Substation (Alternative D1) has less hydrologic impact than the adjacent Proposed Dublin Substation, which is steeper and adjacent to a creek. The Stanislaus Corridor Alternative would avoid the BFI landfill and its potential contamination concerns, and would likely require less grading and scraping than the Proposed Phase 2 Route.

4.7 LAND USE AND RECREATION

The proposed project and alternatives are located within the planning boundaries of a variety of local jurisdictions, including two counties and four cities. The Land Use and Recreation section describes the existing land uses on and adjacent to the Proposed and alternative substation sites and along/adjacent to the Proposed Project and alternative alignments. The applicable land use designations assigned to the Proposed Project and alternative alignments and substations are also identified and described. For each of the city or county planning agencies with jurisdiction over a portion of the project, their general plans and zoning ordinances are reviewed and a detailed analysis of the proposed project's consistency with relevant policies is presented. A similar analysis is presented for other regional, State, or federal planning documents applicable to the project area.

Environmental Impacts of the Proposed Project. Most of the impacts are short-term and temporary, associated with construction (Class III): mitigation measures are recommended to ensure these impacts remain less than significant. A significant but mitigable construction impact (Class II) on residents was identified for the South Area alignment, related to temporarily blocked driveway access which is mitigated by measures identified for Traffic and Transportation impacts. The presence of the transmission line would degrade views along designated scenic routes, in conflict with Alameda County Scenic Route Element policies, which is considered a Class I significant impact. The North Livermore Substation would conflict with North Livermore Specific Plan policies establishing the May School Road Greenbelt with a planned regional multi-use trail, as well as a City of Livermore policy requiring the use of drought-tolerant, native plant species (Class II impacts). The Phase 2 transmission line would require the removal of existing windmills located in a Wind Resource Area, in conflict with Alameda County policy, and would visually degrade the recreational experience in Brushy Peak Regional Preserve.

Mitigation Measures. Two mitigation measures require advance written notice to affected parties and the provision of a public liaison to address complaints for all of the construction dust, noise, odor, and disruption of cattle grazing impacts. To mitigate temporary blockage of residential driveways, mitigation measures recommended for Traffic and Transportation impacts (see Section 4.11) would also apply.

To mitigate the impact related to the North Livermore substation conflicting with a North Livermore policy establishing the May School Road Greenbelt, the Applicant shall relocate the substation to the north, outside of the greenbelt, and screen the southern side of the substation with sufficient landscaping to render it inconspicuous as a manmade element, as viewed from the greenbelt. As mitigation for the impact related to a conflict with planned regional trail, the Applicant shall deed a 25-foot-wide trail easement across the substation site frontage to the County. To mitigate the conflict with a City of Livermore policy requiring the use of drought-tolerant, native plant species, the Applicant shall use such species for the landscaping of the North Livermore substation. Mitigation for removal of the windmills along the Phase 2 alignment entails relocation of the windmills within the Wind Resource Area at the Applicant's expense, while mitigation for the conflict with recreational use of Brushy Peak Regional Preserve would be implementation of the Brushy Peak Alternative (Mitigation Measure L-25).

Significant Unavoidable Impacts of the Proposed Project. The conflict with Alameda County's Scenic Route and Open Space policies (in its General Plan) are considered significant and unavoidable. The placement of towers along North Livermore Avenue and Manning Road could interfere with the trail corridor planned in the North Livermore Specific Plan, and be visually incompatible with the recreational enjoyment of the trail. Both of the foregoing Class I impacts would be avoided by the P2 Variant Alternative.

The Proposed Phase 2 overhead line would cross land recently acquired by the East Bay Regional Park District (EBRPD) for inclusion in the Brushy Peak Regional Preserve. The Proposed overhead line would be inconsistent with the EBRPD's Master Plan, which seeks to avoid construction of high voltage power lines within EBRPD lands. This Class I impact would be avoided by the Brushy Peak Alternative.

Alternatives

Pleasanton Area. Impacts from Alternatives S1 and S2 include possible construction impacts on vineyards and interference with grape harvesting, construction and operational incompatibility with Sycamore Grove Regional Park, loss of farmland, and inconsistency with Alameda County scenic route policies. Construction of Alternatives S2 and S4 could adversely affect students in a planned elementary school with noise, dust, and diesel exhaust.

North Livermore Area. Two alternatives, Variants P-1 and P-2, would result in the same conflicts with North Livermore policies identified for the north alignment pertaining to establishment of a greenbelt and regional trail and requirement for drought-tolerant, native landscaping species. Variant P-1 would also conflict with County policies on scenic routes identified for the proposed north alignment.

Alternative L1 would cause a significant, unmitigable impact by interfering with groundwater flow into the North Livermore Alkali Sink Reserve, in conflict with North Livermore Specific Plan policy. It would also interfere with operations at the FCC monitoring station and would conflict with a North Livermore Specific Plan policy prohibiting sodium vapor lighting. Alternative L2 would create a significant but mitigable impact due to exceeding Livermore height limits within 5,000 feet of an airport runway. L2 also possible construction impacts on vineyards and interference with grape harvesting, construction and operational incompatibility with Sycamore Grove Regional Park, loss of Farmland, and inconsistency with Alameda County scenic route policies.

Tesla Connection (Phase 2). Two Phase 2 alternatives, the Brushy Peak Alternative and the Stanislaus Corridor Alternative, would have the same impact on windmills identified for the proposed Phase 2 alignment. Construction of the Stanislaus Corridor Alternative would possibly conflict with existing land uses along the alignment and would displace productive vineyards, depriving their owners of income.

4.8 NOISE

The noise study is a qualitative analysis of potential noise impacts that the Proposed Project and/or alternatives may have on the existing noise environment. The noise environment of the study area varies dramatically from route to route. Ambient noise levels are estimated to range from 45 to 50 dBA along portions of routes that are in undeveloped areas and 60 to 70 dBA in areas adjacent to major roadways. The majority of sensitive receptors in the study area are residential in nature.

Environmental Impacts of the Proposed Project. All impacts identified under the Proposed Project were found to be adverse, but less than significant**.** Potential impacts are as follows: project construction would generate intermittent and continuous noise levels during transmission line and substation upgrade construction; peak noise levels associated with passing trucks and commuting worker vehicles during construction activities; Corona noise generated by 230 kV lines during adverse weather conditions; noise levels associated with proposed substation upgrades could be audible at the mobile home park, south of the substation.

Mitigation Measures. Measures proposed by PG&E Co. would reduce construction noise at sensitive receptor locations. In addition, two land use mitigation measures require that PG&E Co. provide advance notice to residents, tenants, and occupants near the project and a public liaison person and a toll-free information line for construction complaints or questions.

Significant Unavoidable Impacts of the Proposed Project. There are no significant, unavoidable noise and vibration impacts associated with the Proposed Project.

Alternatives. The impacts described above for the Proposed Project are similar to the impacts that could occur under any one of the project alternatives. All alternatives would involve construction related noise impacts. A comparison can be made between the alternatives as to the amount of residential receptors in the vicinity of the construction area would experience adverse noise levels. Operational impacts associated with corona noise would only occur on the overhead route alternatives.

Substation noise would only potentially impact noise receptors in close proximity to the substation sites. For example, near the Alternative L1 substation site, a potentially significant, but mitigable impact associated with long-term substation noise would occur at two nearby residential receptors. Implementation of Mitigation Measure N-1 would require PG&E Co. to construct the substation site within an earthen landscaped berm, with a precast concrete wall structure to reduce noise levels at the residential receptors to levels less than significant. With this said, the following routes are preferred: Alternative S4 in the Pleasanton Area, Alternative D1 in the Dublin Area, and Alternative L2 in the North Livermore Area. For Phase 2 of the project, the Stanislaus Corridor is preferred.

4.9 PUBLIC HEALTH, SAFETY AND NUISANCE

Overhead and Underground Power Systems. Electric utility power systems are made up of generating plants, high-voltage transmission lines (above 69 kV) and low–voltage distribution lines (below 69 kV). Transmission and distribution lines were originally developed as a system of energized overhead wires supported by wood or steel structures. Placing electric power lines underground has become more common as technology developed insulated cables that could be placed either directly in the ground or in conduit systems.

At distribution voltages (e.g., under 50 kV), the cost differential between overhead and underground construction has decreased to a point where the use of underground has become more prevalent. From a reliability perspective, distribution lines are typically built as looped circuits and are divided into small sections so that a single cable failure will only affect a relatively small number of customers. In addition, stocking spare distribution cable is not cost-prohibitive, so in the event of a failure the repair time can be kept to a minimum.

In contrast, the cost differential between overhead and underground construction for transmission lines (e.g., over 50 kV) is very large, which is the primary reason that underground technology has not seen widespread use at transmission voltage. Although improvements in underground cable insulation and use of concrete encased duct bank construction have both resulted in improved reliability for high-voltage underground lines, the fact that loss of a transmission circuit can affect a very large number of customers, coupled with the longer repair time associated with these more complex systems, results in limited application of overhead transmission lines.

The public recognizes electricity, whether from house wiring, neighborhood distribution lines, or transmission lines, as a potential shock and fire hazard. Local, state, and national codes regulate the design, construction and operation of all electrical facilities. These codes include minimum insulation levels and clearances that needed to be provided for correct operation and to safeguard workers and the public. Due to the differences between overhead and underground lines, they each must meet different code requirements and they use different materials. Overhead lines typically use a bare overhead wire attached to insulators supported on wood or steel structures. For underground lines an insulated cable is used, which is either direct-buried or placed in ducts.

The primary differences between underground distribution lines, which are very common in cities and neighborhoods across the country, and underground transmission lines is the size of cable used and the type and amount of insulation on the cable. Underground transmission lines have been much less common because of their high relative cost and the time needed to develop insulation materials at higher voltages. Experience with underground transmission lines covers over 30 years with installation in a full range of land use areas from congested downtown areas, to commercial, residential and even submarine environments. In Northern California today there are multiple underground segments within PG&E Co.'s service area and eight different transmission segments totaling 17.5 miles in the Sacramento Municipal Utility District's service area at 115 kV and 230 kV.

In the event of transmission line failures or cable faults the public is protected from shocks through high speed relaying and circuit breakers that detect faults and de-energize the transmission line in fractions of a second. Further, for underground installations of the type proposed by PG&E Co., several feet of earth and concrete separate the public from the cables.

Underground power lines do provide a reliable means to transmit power. A reliability benefit of underground lines is that they are protected from vehicle collisions or wind-blown debris, which both contribute to outages for overhead lines. Underground lines are susceptible to dig-in by construction contractor's equipment; however, in new transmission installations it is typical to place a concrete cap above the cables or to encase them in a concrete duct entirely (as proposed by PG&E Co.) to protect from this type of outage. In the event of a transmission line outage, overhead facilities are typically quicker to repair since the materials needed are much more common.

Environmental Impacts of the Proposed Project. The prevalent concerns of the public with respect to health, safety and nuisance are primarily focused in three areas: electric and magnetic fields (EMF), the safety of high-voltage electric facilities, and radio, television, or electrical equipment interference. Electric and magnetic fields are present in the existing environment both naturally and as a result of human activities that use electricity. Additional electric and magnetic fields will be generated as a result of the project. The EMF levels from the project are within the range anticipated for power lines of this type and size. The fields from the project will be very localized since field strength attenuates rapidly as distance from the source increases.

EMF levels from transmission lines are not regulated nationally. In a few states EMF levels are regulated at levels in excess of the field strengths expected for this project. The CPUC has not adopted any specific limits on EMF, but has issued a decision to create a research program (described below), and requires the use of "low-cost" or "no-cost" mitigation measures for transmission lines and substations such as those included in the proposed project.

The Proposed Project and a number of the alternatives studied include the use of underground transmission construction. Although the use of underground transmission is not proposed to address EMF levels, placing transmission lines underground does mitigate EMF. Where underground transmission is used in lieu of overhead, electric fields from the line would essentially be eliminated. In addition this results in a substantial decrease in the magnetic field strength. For example, burying the

underground portion of the South Area transmission segment 2 feet deeper reduces the magnetic field 21%, from 6.3 mG to 5.0 mG, at a cost of approximately $1.6 million. PG&E indicated that low-cost or no-cost mitigation measures will be employed to reduce field strengths from this project including optimum phasing on overhead line segments and the use of delta (triangular) arrangement of phases for underground segments.

In California, ongoing research and policy analysis is being carried out through the CPUC and the California Department of Health Services (DHS). The CPUC Decision 93-11-013 created the California Electric and Magnetic Fields (EMF) Program to research and provides education and technical assistance on the possible health effects of exposure to electric and magnetic fields from powerlines and other uses of electricity. In addition to funding research and policy analysis on this issue, the EMF program provides education and technical assistance to government agencies, professional organizations, businesses, and members of the general public. Under the CPUC decision, this program is funded by money provided by the state's investor-owned utilities and is based in DHS. The California EMF program produces periodic reports to the CPUC, and its goal is to make the research, policy analysis, and educational products useful to the CPUC in future decision-making. Presently, there is no scientifically established cause and effect relationship between EMF exposure and health effects, although significant research and discussion continues on the subject.

Power lines can also generate high frequency energy and EMF that can interfere with broadcast signals or electronic equipment, this is generally not a problem for power lines of the type and size proposed for this project. Radio and television interference problems, when they do occur, tend to be associated with loose or worn hardware, and the sources of interference can be located and remedied. It is also recognized that certain levels of magnetic field may interfere with electronic equipment or computer monitors; these problems can be resolved with a variety of measures, including software solutions, relocation of the monitor, use of magnetic shield enclosures or replacement with liquid crystal displays that are not susceptible to magnetic fields. The proposed overhead transmission line segments are generally not routed in developed areas, however, underground installation is proposed in areas where the line would be in proximity to electronic equipment. The magnetic field from the proposed overhead transmission lines is below 20 mG at the edge of the right-of-way dropping to approximately 6 mG 50 feet from the edge of the right-of-way. The magnetic field from the proposed underground transmission lines is 6 mG at the edge of the right-of-way dropping to below 1 mG 50 feet from the edge of the right-of-way.

4.10 SOCIOECONOMICS, PUBLIC SERVICES, AND UTILITIES

The nine county Bay Area is one of the largest and most dynamic metropolitan areas in the country. Its employment and population have grown and are expected to continue to grow at a substantial rate. Between 1990 and 2000, Bay Area population is estimated to have grown by more than 900,000 people while regional employment grew from 3.2 million to approximately 3.7 million, matching the 15 percent increase of population growth. Projections suggest an employment growth rate of 27 percent between 2000 and 2020. Since the population growth rate is only forecast to be 16 percent during the 20 year time span, a population growth of approximately 1.1 million, there is likely to both be an

increase in labor force participation and a growth of in-commuting to Bay Area jobs from the surrounding counties.

The community socioeconomic characteristics which are analyzed for the region and project area include employment patterns, income, and population and household trends. The data presented are primarily from the 1990 U.S. Census and the Association of Bay Area Governments' (ABAG) *Projections 2000*. Other sources include the state Department of Finance's population estimates and employment data compiled by the California Employment Development Department (EDD).

The Tri-Valley area is in both Contra Costa and Alameda Counties. It is the fastest growing portion of Alameda County, and in Contra Costa County, San Ramon has been and continues to be a residential and employment growth center. ABAG forecasts anticipate considerable growth in the Tri-Valley. School districts and other public service providers have been increasing their capacity to meet the needs of the expanding population. Relative to the rest of Alameda and Contra Costa Counties, the project area is less demographically diverse and has a higher median household income.

Proposed transmission line projects often raise concerns about their potential effects on property values. It has been established that CEQA was not designed to protect against a possible decline in the commercial value of property adjacent to a project (Hecton v. People of the State of California, 1976, 58 Cal.App. 3d 653, 656). Potential visual, safety, and nuisance impacts resulting from the Proposed Project are addressed in other sections of this EIR. For these reasons, the possible reduction of property values does not constitute a CEQA impact and no further analysis is warranted.

Environmental Impacts of the Proposed Project. Construction and operation of the Proposed Project will not have adverse impacts on population, households, and employment patterns. Impacts on public services and utilities are also expected to be less than significant, with the exception that construction equipment utilized to construct transmission towers and/or underground segments could have adverse impacts on access roads not built to handle heavy trucks. This impact can be mitigated by resurfacing any construction access roads damaged in the process.

Mitigation Measures. Two mitigation measures that pertain to the Proposed Project would: require PG&E Co. to consult with local jurisdictions and agencies responsible for all underground utilities to define the exact placement of the underground transmission line; and require implementation of the potential property exchange between the property owners and FCC or the FCC property must be changed to accomodate the substation.

Significant Unavoidable Impacts of the Proposed Project. There are no significant, unavoidable impacts associated with the Proposed Project.

Alternatives. The socioeconomic and public services/public utility setting and impacts are the same for project alternatives. Two exceptions are the L1 alternative that could interfere with the FCC facility in North Livermore unless the facility is relocated (an option in the North Livermore Specific Plan) and/or substation plans are considerably modified from standard practice and the Alternative S2A that could

impact existing infrostructure associated with the Zone 7 water plant. Potentially significant impacts would be reduced to less than significant levels by complying with all Zone 7 protection measures outlined in Mtigation Measure S-3

4.11 TRAFFIC AND TRANSPORTATION

The Proposed Project and alternatives would pass primarily through residential and undeveloped areas of Dublin, Pleasanton, Livermore and San Ramon and in portions of the unincorporated Alameda and Contra Costa Counties adjacent to these cities. The roadway network that could potentially be affected by the Proposed Project and project alternatives includes highways and streets where transmission lines would be installed or where substations would be constructed.

Environmental Impacts of the Proposed Project: Potential transportation impacts from the project are primarily associated with construction of the transmission lines and substation. (Since there is minimal employment or human activity associated with operations and maintenance, the traffic and parking impacts thereof are negligible). Class II construction impacts include: road and lane closures, physical damage to roads and sidewalks, impaired property access, increased traffic safety risks to pedestrians and bicyclists, potential interference with emergency response vehicles, use of public roads and parking for construction activities and interference with public transit.

Mitigation Measures. The potential impacts associated with the Proposed Project could be mitigated by: implementation of traffic control plans, prompt repair of any damage, provisions for alternative property access, alternative pedestrian/bicycle routes, and coordination with emergency service providers and school district and transit service providers.

Significant Unavoidable Impacts of the Proposed Project. There are no significant, unavoidable transportation and traffic impacts associated with the Proposed Project.

Alternatives

Pleasanton Area: Construction of S1 could interfere with ongoing Caltrans work for the Isabel Parkway improvements and could impact Union Pacific (UP) Railroad and commuter rail operations using the UP track north of Stanley Boulevard. Impacts associated with this alternative could be mitigated by the appropriate measures mentioned above for the Proposed Project plus measures designed to lessen impacts on ongoing Caltrans projects and freight and passenger rail activity. The trenching needed to construct S2 would have a more substantial and prolonged impact on access and circulation and the physical condition of the roadways. However, the impacts could still be mitigated by appropriate measures mentioned above for the Proposed Project.

Dublin/San Ramon Area: Both D1 and D2 would require implementation of mitigation measures related to encroachment and roadway damage. The P1 and P2 variants would require the same mitigation measures as those for the Proposed Project. Impacts associated with this L1 involve lane closures, access and potential pavement damage at three small rural roadways. These impacts would be significant but could be mitigated by implementation of mitigation measures related to encroachment

and roadway damage. The impacts of undergrounding transmission lines in the vicinity of the Livermore Airport and I-580 be would be significant. The path of this alternative would like Alternative S1 potentially interfere with ongoing Caltrans work for the Isabel Parkway improvements. However, these impacts could be mitigated by the kinds of measures described above for the Proposed Project.

4.12 VISUAL RESOURCES

Project area landscapes encompass a mosaic of visual features characteristic of a landscape in transition from an historical rural, agricultural environment to one of modern day residential suburbs, business and high technology industrial parks, and infrastructure. In the context of rapid urbanization, the remaining open viewsheds of the scenic undeveloped foothills and rural agricultural valleys become more highly valued visual resources for the visual respite they provide from the adjacent urban intensity.

Environmental Impacts of the Proposed Project. Implementation of the Proposed Project will result in the introduction of new structures into both urbanized and undeveloped landscapes. The visual significance of new project components depends on the existing visual character of the host landscape, site-specific placement of project structures, and the viewer's location and visual expectations. In general, project components located in the open, scenic landscapes of the undeveloped foothills and rural areas result in greater visual impact while components located within, or adjacent to, existing development result in less of a visual impact. The following specific visual impacts have been identified for the proposed project by geographic area:

Pleasanton Area. Introduction of additional transmission line structures into the viewshed of Route 84 (Vallecitos Road) results in an adverse but not significant (Class III) visual impact. Placement of a new transition structure into the viewshed of the Kottinger Ranch residential development results in an adverse but not significant (Class III) visual impact.

Dublin/San Ramon Area. Introduction of an industrial-appearing substation into a rural, undeveloped landscape as a result of construction of the proposed Dublin Substation results in an adverse but not significant (Class III) visual impact (the impact is not significant due to the absence of public visual access).

*No**rth Livermore Area.*** Introduction of new structures of industrial character into a scenic, rural valley south of Manning Road in the vicinity of Carneal Road results is a significant but mitigable (Class II) visual impact. Introduction of built structures of industrial character into a scenic, rural landscape along Manning Road, from the Contra Costa-Newark Transmission Line to Milepost B13 in North Livermore, negatively impacting views from scenic routes, local roads, and nearby residences, results in significant, unavoidable (Class I) visual impacts. The introduction of the proposed North Livermore Substation along with the proposed overhead transmission line, with prominent industrial character would adversely impact scenic views from North Livermore Avenue, Manning Road, and nearby residences and results in a significant but mitigable (Class II) visual impact.

Tesla Connection. Intrusion of built structures of industrial character into a predominantly rural, agricultural and undeveloped landscape lacking similar structures in the North Livermore Valley foothills results in a significant, unavoidable (Class I) visual impact Introduction of additional structures of industrial character into the viewshed of a state-designated Eligible Scenic Highway and county-designated scenic highway, at the I-580 spanning point results in an adverse but not significant (Class III) visual impact (the impact is not significant due to the prominence of existing windfarm structures).

Mitigation Measures. In addition to several Applicant-proposed measures, one mitigation measure is suggested for the Proposed Project, and two mitigation measures for alternatives. For the Proposed Project's North Area overhead transmission line (in North Livermore), undergrounding of a key segment is suggested or relocation of about 15 miles of the overhead line slightly south to screen the line is suggested.

Significant Unavoidable Impacts of the Proposed Project. Several significant, unavoidable (Class I) visual impacts have been identified. All of these Class I impacts can be avoided by selection of L2 and Stanislaus Corridor or Switching Station (Phase 2) alternatives.

Alternatives. For the Proposed Project and alternatives: (1) underground facilities are preferred over aboveground facilities; (2) upgraded and reconductored in-place facilities are preferred over new facilities; and (3) new facilities that are located in close proximity to other built structures and facilities are preferred to those located away from other built structures. In comparing the Proposed Project with other built alternatives, the following conclusions were reached with regard to minimizing visual impacts:

Pleasanton Area. The S2 Vineyard Avenue Alternative with Mitigation Measure V-1 (creating an all-underground route) is preferred over the Proposed Project and other alternatives. If this combination is selected, only the transition structure adjacent to the existing Tesla-Newark corridor and the modifications at existing Vineyard Substation would be aboveground and they would be only marginally visible. This combination would eliminate the construction of new facilities within undeveloped, hillside landscapes and also eliminate long-term views of the project from within residential areas and recreation areas (Sycamore Regional Park, Ruby Hill golf course, and Shadow Cliffs Regional Recreation Area).

Dublin/San Ramon Area. The D1 South Dublin Alternative is preferred over the proposed project and D2 Alternative because it would confine the construction of new facilities to within highly modified and industrial environments (the D1 route through the mineral extraction areas between Stanley Boulevard and I-580) or within commercial and office landscapes (the Alternative South Dublin Substation in the Dublin Ranch development near I-580). Selection of the D1 Alternative would eliminate the introduction of new facilities across undeveloped landscapes along the North Valley foothills and through areas that are being developed (or will be developed) as residential suburbs.

North Livermore Area. The L2 Hartman Road Alternative is preferred over the proposed project and alternatives because it would eliminate the significant visual impacts in the North Livermore area that

would result from the introduction of new structures of industrial character into scenic, rural, undeveloped landscapes that are viewed from scenic routes, local roads, and nearby residences. The L2 Alternative would limit the construction of aboveground transmission facilities to an area already developed and is adjacent to the eastern border of the mineral extraction area between Vineyard Avenue and East Jack London Boulevard. The L2 substation would be constructed immediately east of the existing Las Positas College, in the vicinity of the Route 84 extension, which is presently under construction south of I-580.

***Tesla Connection**:* The Switching Station (See Section 4.13) and Stanislaus Corridor Alternatives are preferred over the Proposed Project Phase 2 route because either would eliminate the establishment of a new utility corridor and the proliferation of new structures across the undeveloped northern foothills of the Livermore Valley. The Stanislaus Corridor Alternative would be constructed within an existing, occupied corridor and would result in the net reduction of visible structures and impacted acreage across the South Livermore wine region since it would replace two existing lattice structure transmission lines with one tubular structure line.

4.13 ANALYSIS OF OTHER ALTERNATIVES

Several alternatives and mitigation reroutes are analyzed separately from the 11 environmental discipline discussions represented in Sections 4.2 to 4.12. The impact assessment for the following alternatives and mitigation measures listed in Table ES-2 are summarized in this section.

Table ES-2 Other Alternatives Addressed

Alternative/Issue	Mitigation Measure
Switching Station Alternative to Phase 2*	Not Applicable
Local Generation*	Not Applicable
No Project Alternative*	Not Applicable
Impacts of Mitigation Measures Requiring Reroutes	**A-5:** Connection of D2 Alternative to San Ramon-Pittsburg line (bypassing San Ramon Substation);
	A-6: (also called **P3 Alternative**): Underground Along May School Road to Proposed North Livermore Substation
	V-1, L-7, and L-10: (also called the **S2A Alternative,** a segment of the S1/S2/L2 Alternatives): Move the Tesla-Newark tap point to south of Zone 7 water treatment plant and install transmission line underground along access road
	V-2: Reduce transmission line structure heights along Alternative S4 or move underground transition structure further to the south
	V-5: Reroute south of Manning Road between MP B13 and B14.5; Install the line underground from the top to the Contra Costa-Newark line to approximately Milepost B14.5
	L-16: Relocate the Proposed North Livermore Substation further to the north
	L-20: Convert Alternative L2 to underground approximately 4,000 feet to the south, just north of Stanley Boulevard.

*See description of these alternatives in Section 2.2.

Impacts of Switching Station Alternatives

Switching Site 1 would be located on undeveloped land with non-native grassland habitat and there are three significant but mitigable biological resources impacts. Other potential significant impacts include exposure of previously unknown cultural resource sites or materials, corrosion potential on project structural materials, and surface and groundwater contamination from construction related materials. All of these impacts can be mitigated to less than significant. There are less than significant impacts associated with Switching Station Site 1 for air quality, socieconomics and public services, public health, safety, and nuisance, traffic and transportation, and visual resources.

Switchin Site 2 would be located on land currently designated to grazing cattle. There are less than significant impacts associated with Switching Station Site 2 for air quality, socieconomics and public services, public health, safety, and nuisance, traffic and transportation, and visual resources. There is a potential significant impact to California red-legged frog or its habitat associated with Site 2, but it could be mitigated to less than significant. Other potential significant impacts are similar to those discussed above for Site 1, all of which can be mitigated to less than significant.

Switching Station Site 3 would be located on undeveloped grassland within Sycamore Grove Regional Park. There are five, three to plant communities and two to wildlife or wildlife habitat, potential significant but mitigable biological resources impacts associated with Site 3. Site 3 would not be compatible with the values of the Livermore Area Recreaton and Park District *Master Plan 1995* and the conservation easements of the South Livermore Valley Agricultural Land Trust, and therefore would have a significant, unavoidable impact. It would also result in significant, unavoidable visual impacts to trail users. Other potential significant impacts to cultural resources, geology, soils, and paleontology, and hydrology and water quality are similar to those discussed above for Site 1, all of which can be mitigated to less than significant.

Impacts of Local Generation

The proposed electrical generation facility is located on an approximately one-acre industrial site. Unlike the Proposed Project, the local generation alternative would produce long-term operational air pollutant emissions that are potentially significant. All biological resources impacts would be reduced, including plant communitites and wildlife habitats, in relation to the Proposed Project. Construction of the local generation faciity would require the use of a variety of heavy, motorized equipment with the potential of accidental spill of hazardous chemicals used to maintain the machinery. Such occurences could lead to the discharge of contaminants into the drainage system and could cause significant impacts. Potential significant noise impacts are not clear and a more detailed anaylsis is going to be conducted for the City of Pleasanton's EIR. The CPUC does not have jurisdiction over this alternative project to implement measures to reduce significant impacts.

Impacts of Proposed Mitigation Measures Requiring Reroutes

Two mitigation measures that recommend transmission line reroutes (A-6 and V-1) have been incorporated into the Environmentally Superior Alternative (defined in Section 5), and in that context are titled the P3 and S2A Alternatives, respectively.

P3 is an Air Quality mitigation reroute of the P2 Alternative in North Livermore, which replaces 3.8 miles of underground construction along PG&E Co.'s vacant easement and 1 mile along North Livermore Avenue with 2.8 miles of underground construction from the Contra Costa-Newark transmission line and along May School Road. Overall, the P3 Alternative would have fewer impacts that the P2 Alternative due to the decrease in underground construction; however, relative to the Proposed Project there would be an overall slight increase in impacts. There would be no difference in visual impacts between the two underground alternatives, but as with P2, P3 would avoid visual impacts associated with the Proposed Project.

S2A is a Visual and Land Use and Recreation mitigation reroute that replaces the southernmost segment of the S1/S2/L2 Alternatives, replacing the construction of 1.1 miles of overhead transmission lines (including 2,000 feet within Sycamore Grove Regional Park) with the construction of 1.1 miles of underground transmission line. The S2A Alternative would have more impacts associated with its underground construction activities for air quality, cultural resources, hydrology and water quality, and noise; however, it would eliminate the land use conflict associated with construction of a new overhead line through Sycarmore Grove Regional Park. The S2A reroute would eliminate the impact to recreational users in the park. There would be a decrease in impacts to biological resources in terms of potential bird collisions and a decrease in visual impacts associated with the overhead S1/S2/L2 Alternatives segment.

4.14 OTHER CEQA CONSIDERATIONS

4.14.1 Growth Inducing Effects. The California Environmental Quality Act (CEQA) requires a discussion of the ways in which a Proposed Project could be an inducement to growth. The *CEQA Guidelines* [Section 15126.2(d)] identify a project to be growth-inducing if it fosters economic or population growth or the construction of additional housing, either directly or indirectly, in the surrounding environment. Typically, the growth-inducement potential of a project would be considered significant if it fosters growth or a concentration of population above what is assumed in local and regional land use plans, or in projections made by regional planning authorities. However, it cannot be assumed that the creation of growth-inducing potential automatically leads to growth.

Potential growth-inducing impacts of the proposed Tri-Valley Capacity Increase 2002 Project could be manifested in two fundamental manners:

- Growth resulting from the direct and indirect employment needed to construct and operate the Proposed Project
- Growth resulting from the additional power that would be transmitted by the Proposed Project.

Growth Caused by Direct and Indirect Employment. The construction and operation of the project itself would not affect the employment patterns in the area. Construction personnel would come from the existing labor pool in the Bay Area, most likely from PG&E Co.'s current employees. Operation of the project would require no full-time personnel, and maintenance would be done by PG&E Co.'s employees responsible for the many existing PG&E Co. facilities in the same project area.

Growth Related to Provision of Additional Electric Power. The nine county Bay Area employment and population have grown and are expected to continue to grow at a substantial rate. This employment growth, along with the associated population and housing growth, is the driving force behind the need to expand the electrical service capacity of the Tri-Valley area. Many other large projects are already under construction or have recently been completed in the area. The Proposed Project did not cause this growth to occur; rather it has resulted from the economic success of the Bay Area. PG&E Co. is responding to growth that is occurring and planned, based on city and county planning documents. Given the projections by ABAG, it is extremely difficult to conclude that the Proposed Project could foster growth beyond these already high levels.

Environmental Impacts of the Proposed Project. There is potential for the Proposed Project's provision of electric service infrastructure to the currently under-developed North Dublin and North Livermore areas (via the new Dublin and North Livermore Substations) to accommodate growth levels in these areas beyond those currently permitted by local or regional plans and policies. Such potential is mediated/mitigated by the local politics of growth and the local jurisdiction's posture on, and regulatory authority over, growth management and land use policy, such as the recent passage of Measure D in Alameda County. The projection of demand (and need) for the Proposed Project is based on approved projects only, and not on growth which Measure D now prohibits. The potential for growth-inducement in these two relatively undeveloped areas of eastern Alameda and Contra Costa Counties was one factor in the development of certain alternatives to these components of the Proposed Project (D1 and L2), in order to move the substations closer to the customer load already represented in approved plans and permits.

For the Livermore-Las Positas Distribution Planning Area (DPA), reflecting actual load in the past two years and the growth associated with these approved projects, PG&E Co. projects a shortfall in 2002 at its existing capacity of about 18 MW (or roughly 14%). There are a couple of different approaches to avoiding this significant impact

- Scale back the North Area capacity increases to be more commensurate with the projected, approved growth (e.g., 18 MW in the Livermore-Las Positas DPA), such as distributed generation. This could be considered part of the No Project Alternative.
- CPUC approval of Alternatives D1 and L2, which would move this additional capacity (and associated footprint) south, toward the I-580 corridor where development is largely focused. However, Alternative L2 is not the Environmentally Superior Alternative for the North Livermore Area, so at least part of this method is not effective in reducing overall environmental impacts.

Significant Unavoidable Impacts of the Proposed Project. A mitigation possibility would be to limit the number of distribution connections served by the Proposed Project's Dublin and North Livermore Substations to that currently permitted by the relevant local jurisdiction. However, such limits could be very difficult to quantify (e.g., for commercial developments where the number of potential tenants is generally not set in plans, and whose demand for electric service will be substantially different from residential service) and even more unwieldy to administer and enforce, and therefore are not recommended. Therefore, this would remain a significant, unavoidable impact **(Class I)** for the Proposed Project in the North Area (Dublin and North Livermore).

4.14.2 Significant Irreversible Changes

The *CEQA Guidelines* [Section 15126.2(c)] require an evaluation of significant irreversible environmental changes that would be caused by a project if implemented, such as to evaluate and justify the consumption of nonrenewable resources and the extent to which the project commits future generations to similar uses of nonrenewable resources.

The transmission line construction phase would require an irretrievable commitment of natural resources from direct consumption of fossil fuels, construction materials, the manufacture of new equipment that largely cannot be recycled at the end of the project's useful lifetime, and energy required for the production of materials. Although the construction of the Proposed Project does commit the future use of some amounts of nonrenewable resources, the Project is indifferent to whether the energy it transports is nonrenewable or renewable.

In addition, the construction of the transmission line would necessitate some vegetation and habitat removal. The construction of a new transmission line corridor in open space would commit future generations to a visual impact of that transmission line.

Although EMFs have not been conclusively determined to have an adverse health impact on humans, the Proposed Project would commit future generations to relatively close proximity to the 230 kV line.

4.14.3 Cumulative Scenario

Section 15130 of the *CEQA Guidelines* requires a discussion of cumulative environmental impacts when they are evaluated as being significant. The approach to the cumulative scenario for this Draft EIR is a compilation of a list of past, present, and probable future projects producing related or cumulative impacts [Guidelines, Section 15130 (b)1(A)]. Cumulative impacts are defined as those impacts that are created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. The cumulative scenario consists of projects that are reasonably foreseeable and that would be constructed or operated during the life of the project

4.14.4 Cumulative Impact Analysis

Air Quality

The pollutants generated from proposed cumulative projects, which are composed of residential, commercial, and infrastructure projects, would have an impact on ambient air quality if they were constructed in close proximity and at the same time as the Proposed Project. Construction of the cumulative projects could further exacerbate the potentially adverse exhaust emission impacts and the potentially adverse PM_{10} emission impacts estimated for the Proposed Project or alternatives construction.

Cumulative impacts during the operation of the Proposed Project or alternatives are not expected since limited amounts of emissions would be generated as a result of the Proposed Project. The impacts to air quality may be adverse, but less than significant.

Biological Resources

Cumulative impacts to biological resources could effect both vegetation and wildlife resources. Cumulative impacts to vegetation resources include all impacts by projects that are planned or projected to be built during the life of the Proposed Project. Projects were considered in the cumulative analyses if their potential impacts considered together with the impacts of the Proposed Project would be additive and compound or increase the vegetation impacts assessed above.

Cumulative impacts to wildlife resources include all impacts that are planned or projected to be built during the life of the Proposed Project. Although planned or Proposed Projects in central and eastern Alameda and Contra Costa counties will not impact the same special status species at the same levels or in the same way; cumulatively, wildlife habitat is degraded or lost as a result of these activities. The Tri-Valley Project contributes to the degradation of wildlife habitat in the region. This is considered a significant impact, mitigated by the implementation of the Applicant's Proposed Measures and Mitigation Measures B-3, B-5, B-6, and B-8 to B-11 **(Class II)**.

Cultural Resources

Although the areas affected by the Proposed Project are small in relation to the general Bay Area, any cultural resources exposed in the project area as a result of construction could provide significant information important to interpreting the regional prehistory and/or history. The completion of project specific cultural resources studies for planning and environmental compliance documents and the development of appropriate mitigation measures could help reduce the cumulative effects of development **(Class II)**. If project construction operations were to expose a large, stratified, buried prehistoric or historic archaeological site, the severity of cumulative impacts would rise because such sites are highly significant. Any potential impacts to an unknown archaeological site would be minimized by evaluation and the development of a treatment plan to mitigate project effects **(Class II)**.

Geology, Soils, and Paleontology

Potential cumulative geologic impacts are limited to loss of unique geologic features and alteration of the topography from the Proposed Project and one or more future projects. Seismic impacts comprise the impact of the geologic environment on the project and are not cumulative. Construction of the Proposed Project would contribute only a negligible increase to the potential cumulative geologic impacts **(Class III)**. Any future impacts associated with cumulative projects in the immediate vicinity of the project would be primarily attributable to future projects.

Hydrology and Water Quality

Impacts from the cumulative projects have a cumulative hydrological impacts with the Proposed Project are related to construction activities and locally increased runoff due to the increase of impervious surfaces. The type and size of these projects reveal that the project region is an area of rapid residential, industrial and commercial expansion. The larger project sites involve large residential and urban development projects and occur in areas previously undeveloped. These larger project sites are found in the Pleasanton Area, South Dublin Area, and North Livermore Area portions of the project

area. The replacement of these relatively undeveloped parcels with suburban residential neighborhoods and office-park type developments would result in increased stormflow related runoff. Increased runoff generated by the proposed Dublin and North Livermore substations contributes to this cumulative impact but is reduced to non-significance **(Class II)** through the application of Mitigation Measures H-2, H-3, H-10, and H-13. Several of the projects are concentrated near or around the existing Vineyard Substation. Since the modifications to the Vineyard Substation are relatively minor, in that they occur within the existing substation footprint, detrimental cumulative hydrologic impacts due to the added modifications at the Vineyard Substation are not expected.

Land Use and Recreation

The primary type of cumulative impacts that could result from implementation of the Proposed Project would be disruption from construction in combination with other projects in the vicinity. Such disturbances are primarily related to the generation of noise and dust, but can also pertain to temporarily blocked access or other interference with normal use of a property. Due to the nature of the Proposed Project, it does not have the potential to generate more typical cumulative operational impacts that can occur with other types of development projects, including conversion of cumulatively significant areas of vacant or agricultural land to urban use.

While a number of large development projects and numerous smaller projects are planned or already underway in the vicinity of the Proposed Project alignment, it is not anticipated that the Proposed Project would contribute to significant cumulative land use impacts **(Class III)**.

Noise

Future and proposed single-site and linear projects in close proximity to construction of the Proposed Project could have adverse cumulative noise impacts on the study area. The majority of the projects are residential, commercial, and infrastructure projects.

With regards to project operation, noise levels associated with the operation of the Vineyard Substation and the Local Generation Project in Pleasanton could combine to create adverse cumulative noise impacts to the residents at the Mobile Home Park southeast of the Vineyard Substation.

Public Health, Safety, and Nuisance

There are no conclusively known cumulative impacts from transmission line and substation EMFs. No EMF mitigation measures are required or recommended beyond the no-cost, low-cost measures incorporated by PG&E. Operation of the proposed transmission lines increases the possibility for induced currents and shock hazards. These impacts are not cumulative and can be mitigated through proper grounding techniques on large metal objects in the vicinity of the lines.

Operation of the proposed transmission lines increases the possibility for radio/television/equipment interference in the vicinity of the line. These impacts are not cumulative and can be mitigated by designing conductors and equipment to limit corona and gap discharges, correcting through

maintenance any gap discharges from worn hardware, and by using software or installing magnetic field shielding on sensitive equipment.

Therefore, no significant cumulative impacts are anticipated **(Class III)**.

Socioeconomics and Public Service

Although there are a variety of anticipated public facility, residential, and commercial development projects anticipated for the Tri-Valley area, the major development projects are either consistent with local and regional plans, or the focus of plan amendments which include provisions to extend required public services. Labor force shortages are not anticipated during the construction phase. The Proposed Project is a by-product of the cumulative development anticipated in the Tri-Valley. While rapid cumulative development of additional housing could result in temporary shortages of school space or strain upon public service agencies, such as police or fire departments, the development and operation of the Proposed Project should not contribute to this problem.

Traffic and Transportation

A number of cumulative projects both proposed and underway have been identified within the study area and consist of proposed commercial and residential land uses, and planned infrastructure improvements such as road widening and creek diversion. Some of these projects could potentially exacerbate the construction impacts of the Proposed Project and project alternatives depending on location, intensity and scheduling.

Five local projects were identified that could potentially affect the construction of the proposed transmission line project. Three would not likely affect or worsen the impact of the Proposed Project but could generate construction worker and truck trips to and from the area. In the event that this project is approved and that PG&E project construction activities overlap there will be a need for coordination between the two actions and the appropriate agencies to ensure that safe vehicle, pedestrian and bicycle access and circulation is maintained. The Proposed Project would not require additional mitigation measures beyond those identified **(Class III)**.

The other significant project in the area is the planned road widening of Bernal Avenue at Arroyo Vall, however, according to City of Livermore staff, this project has been delayed and would not coincide with the Proposed Project.

Pleasanton Area

A total of eight projects have been identified as potentially worsening the impacts associated with constructing the Vineyard-Isabel-Stanley (S1) Alternative. Coordination between the City of Livermore and PG&E Co. would serve to mitigate and manage the combined impacts of these two projects.

The Vineyard Avenue (S2) Alternative would likely encounter the most significant impacts related to proposed actions in the area. Project activity along Vineyard Avenue other than PG&E Co. trenching could include further development of Ruby Hill (residential construction), the realignment of a 1.2 mile

segment of Vineyard Avenue (east of Ruby Hill) as part of the Vineyard Avenue Corridor Specific Plan and the installation of new sewer lines along Vineyard between Petronave Lane and Bernal Avenue. This type of invasive road work would likely result in extended lane and road closures if it were to overlap. If Alternative S2 were to be built it would be necessary to develop a comprehensive traffic management plan (similar to Mitigation Measure T- 3) and to coordinate project schedules in order to mitigate significant impacts **(Class II)**.

Dublin-San Ramon Area

The South Dublin (D1) Alternative would potentially be impacted by the planned widening of Stanley Boulevard and the construction of Phase 1 of the Dublin Ranch Development (residential construction). Coordination between PG&E Co. and the Cities of Dublin and Pleasanton with implementation of Mitigation Measures T-1 to T-3 would allow construction of this alternative to occur (with minimized cumulative impacts). The identified projects in this area would not affect the construction of the D2 Alternative and no further mitigation would be required.

North Livermore Area

The Hartman Road (L2) Alternative would potentially be impacted by development of the North Livermore Specific Area Plan and the Shea Center, a commercial development that would be located on the southeast corner of North Canyons Parkway and Collier Canyon Road. Coordination between projects and appropriate agencies and implementation of Mitigation Measures T-1 to T-3 would reduce potential impacts to less than significant status **(Class II)**.

Visual Resources

Cumulative impacts to visual resources would occur where project facilities occupy the same field of view as other built facilities or impacted landscapes. It is also possible that a cumulative impact could occur if a viewer's perception is that the general visual quality of an area is diminished by the proliferation of visible structures (or construction effects such as disturbed vegetation), even if the new structures are not within the same field of view as existing structures. The significance of the cumulative impact would depend on the degree to which (1) the viewshed is altered; (2) visual access to scenic resources is impaired; (3) scenic character is diminished; or (4) the project's visual contrast is increased.

Although several of the proposed cumulative projects could have an adverse visual impact in conjunction with the Proposed Project, the impact would not be significant (**Class III).** However, for the some cumulative projects in concert with certain Alternative could result in a significant impact and those cases are discussed below.

Pleasanton Area

In the case of the Ruby Hill development project, a longer-term cumulative visual impact could occur if the S4 Alternative is selected and Mitigation Measure V-2 is not implemented, resulting in the long-

term visibility of the S4 Alternative in the same viewshed as the Ruby Hill development. This impact would be significant and unmitigable (**Class I**).

The Planned Unit Development at the northeast corner of Holmes Street and Wetmore Road would be constructed within the same viewshed as that of the S1/S2/L2 common segment. If Mitigation Measure V-1 is not implemented, resulting in the long-term visibility of the S1/S2/L2 in the same viewshed as the Planned Unit Development, a significant and unmitigable (**Class I**) cumulative visual impact would occur.

North Livermore Area

North Livermore Specific Plan urban development would be constructed within the same viewshed as the proposed North Livermore Substation. Over the longer term, it is probable that the northern location of the proposed substation relative to the probable location and direction of early development of North Livermore Specific Plan urban development would result in a distinct separation between the two projects and a significant and unmitigable (**Class I**) cumulative visual impact would result.

5. COMPARISON OF ALTERNATIVES

This section summarizes and compares the environmental advantages and disadvantages of the Proposed Project and the alternatives evaluated in this EIR (see Figure ES-1). This comparison is based on the environmental impacts of the Proposed Project and each alternative, as identified in EIR Sections C.2 through C.13.

Section 5.1 describes the process used for comparing alternatives. Section 5.2 presents the environmentally superior "Build Scenario," including a map of the environmentally superior transmission line routes and substation locations (Figure ES-2). Section 5.3 then compares the Environmentally Superior Build Scenario with the No Project Alternative, and identifies the resulting Environmentally Superior Alternative for this EIR.

5.1 COMPARISON METHODOLOGY

Following is the methodology that was used to compare alternatives in this EIR:

Step 1: An alternatives screening process was used to identify the alternatives that have the potential to eliminate significant impacts of the Proposed Project.

Step 2: The environmental impacts of the proposed and the alternative route segments were identified (EIR Sections C.2 through C.13), including the potential impacts of transmission line and substation construction and operation. These impacts are summarized for each alternative segment in Section 5.3.

Step 3: The environmental impacts of the alternatives in each area/phase were compared to the comparable segment of the proposed route. This comparison was performed for each of the 11 environmental issue areas. The conclusion of this process resulted in a determination as to the environmental superiority of the project components in each of the four geographic areas or phases of

the project (Pleasanton, Dublin/San Ramon, and North Livermore, and the Phase 2 portion of the project). This information is summarized in Sections 5.2.1 to 5.2.4.

Step 4: The best environmental components for each area were evaluated as to their ability to work in combination. The conclusion of this analysis is presented in Section 5.2.5.

CEQA does not provide specific direction regarding the methodology of alternatives comparison. Each project must be evaluated for the issues and impacts that are most important; this will vary depending on the project type and the environmental setting. For the Tri-Valley 2002 Capacity Increase Project, potential impacts in three environmental issue areas are considered to be most important in this analysis:

- Visual resources
- Land use and recreation
- Biological resources
- Construction and operational impacts on nearby residents.

These issues were considered to have more weight in the comparison because they are primarily long-term impacts that will be present for the life of the project: permanent visual intrusion of project components in scenic areas; changes in the character of land uses, especially recreational lands; and permanent loss of small amounts of habitat for various species. Construction and operational impacts are included in this comparison as important impacts, even though they are generally considered to be less than significant (Class III) due to their short-term nature, because they can be disturbing to residents and businesses in more densely developed areas.

5.2 ENVIRONMENTALLY SUPERIOR "BUILD" ALTERNATIVE

Determination of which of the project alternatives (including the Proposed Project) are environmentally superior is quite difficult and depends on the balancing of many factors. In order to meet the CEQA requirements to identify an environmentally superior alternative, the most important impacts in each area were identified and compared. The following sections (5.3.1 through 5.3.4) summarize the benefits and impacts of each alternative, and state whether the Proposed Project or which of the "build" alternatives is considered to be environmentally superior within each area. Section 5.3.5 addresses the optimum combination of environmentally superior "build" alternatives. The Proposed Project and all alternatives are described in detail in Section B.6 of the EIR and illustrated on Figure ES-1.

5.2.1 Pleasanton Area

The Proposed Project in the Pleasanton area would consist have a 5.5 mile-long transmission line (2.8 mile overhead, a 2.7 mile underground), and upgrades to the Vineyard Substation. Table ES-3 summarizes advantages and disadvantages of these proposed and alternative routes. The shaded row indicates the environmentally superior alternative.

Table ES-3 Alternatives Comparison - Pleasanton Area Summary *

Proposed/Alternative	Advantages	Disadvantages
Proposed Vineyard Substation with 2.8 miles overhead and 2.7 miles underground	• Shortest overall route (5.5 miles) • Most overhead portions of route not visible from sensitive areas	• Underground construction and operational impacts on narrow residential streets • Overhead construction through undisturbed corridor would affect habitat • Several large landslides mapped; southern terminus adjacent to Verona fault zone
S1 Alternative (Vineyard-Isabel-Stanley)	• Best consolidation of utility uses in existing corridors (highway and utility) • Eliminates construction through narrow residential streets	• One of the longest routes (6.7 miles) • Greatest number of recorded of cultural resources • Significant visual impact in Sycamore Grove Regional Park; impact on recreational trail users • Residences east of Isabel Avenue affected by adverse (not significant) visual impact • Longest overall route (22% longer than proposed) • Least underground construction minimizes noise, dust, and traffic impacts
S2 Alternative (Vineyard-Bernal)	• Length comparable to Proposed Project (5.8 miles) • Least visual impact due to maximizing underground construction • Use of larger streets allows greater setback from adjacent land uses	• Significant visual impact in Sycamore Grove Regional Park; impact on recreational trail users • Greatest vineyard frontage (1.8 miles) • Most disruptive to traffic; most air quality and noise impacts from underground construction
S2 with S2A Mitigation (n/s access road west of Sycamore Grove Regional Park)	• No construction in Sycamore Grove Regional Park • Eliminates visual impact (entire 6.1 mile transmission line underground)	• Potential disturbance to Del Valle Water Treatment Plant during construction • Adds 0.8 miles of underground construction and associated impacts to S2 Alternative
S4 Alternative (Eastern Open Space)	• Eliminates construction through narrow residential streets	• Greatest disturbance of habitat, especially underground construction cross-country south of Vineyard Ave • Greatest potential for impact to California red-legged frog proposed critical habitat • Second longest route overall (18% longer than proposed)

* Impacts at Vineyard Substation would be the same under all alternatives.

The S2 Alternative with the S2A Alternative segment (resulting from mitigation recommending that the transmission line route be moved to the west, out of the Sycamore Grove Regional Park) is environmentally superior to the other Pleasanton area routes. This alternative would be completely underground, so visual impacts are eliminated, and it follows disturbed corridors (adjacent to or within existing roadways). Construction impacts along Vineyard Avenue would be minimized with mitigation measures proposed in Section C of the EIR.

5.2.2 North Livermore Area

The Proposed Project in the North Livermore area includes a 3.8-mile overhead transmission line and a new five-acre substation. Two substation site alternatives were evaluated, in addition to several alternatives with different segments of the transmission line underground. Table ES-4 summarizes advantages and disadvantages. The shaded row indicates the environmentally superior alternative.

Table ES-4 Alternatives Comparison – North Livermore Area Summary

Proposed/Alternative	Advantages	Disadvantages
Proposed North Livermore Substation and Transmission Lines (Manning Road and N. Livermore Avenue)	• Utilizes PG&E Co.'s existing vacant easement along Manning Road	• Substation and transmission lines highly visible in scenic area • Close to Greenville fault • Potential conflict with future regional trail
Proposed Project with P1 (1 mile underground along N. Livermore)	• Less overhead transmission line visible in scenic area (No overhead; 3.8 miles of underground)	• Significant visual impact of substation and east-west line would remain • High liquefaction and corrosive soil potential affecting underground segment
Proposed with P2 (3.8 miles underground along N. Livermore and Manning)	• Less overhead transmission line visible in scenic area	• Greatest construction impacts associated with underground cable installation • Significant visual impact of substation would remain • High liquefaction and corrosive soil potential affecting underground segment
Proposed with P3 mitigation (2.8 miles underground along May School Road)	• Shortest route to proposed substation site that eliminates overhead lines (2.8 miles; all underground)	• Greater construction impacts associated with underground cable installation • Significant visual impact of substation would remain • High liquefaction and corrosive soil potential affecting underground segment
L1: Raymond Road (at Lorraine Road)	• Least construction (1 mile underground; no overhead) • Use of existing, disturbed corridor (Raymond Road)	• Significant impacts to groundwater hydrology and biological resources next to bird's beak protected area • Potential impacts on operation of FCC facility • Significant visual impact of substation in rural setting
L2: Hartman Road (near Las Positas College)	• Adjacent to major (future) roadway • Closest to areas of immediate growth and commercial development • Least visual impact of all North Livermore substation alternatives	• Nearly twice as long as Proposed (7.3 miles) • There are no existing roads in the substation area so construction impacts and disturbance of habitat would be more severe. • Substation study area is near a seasonal wetland • Crosses two potentially active faults • Construction through an existing drainage (future Hartman Road) • Passes Livermore Municipal Airport and Water Treatment Plant • Parallel to Hwy 84 construction; crosses SR 84, I-580, and UPRR tracks

In the North Livermore area, the proposed North Livermore Substation site is preferred, with a 2.8-mile underground route along May School Road. This underground route was proposed as a mitigation measure to reduce potential air quality impacts associated with the longer underground route (P2 Alternative). The substation site would result in a significant and unavoidable (Class I) visual impact, but impacts in nearly all other issue areas would be less than for the L1 and L2 Alternatives.

5.2.3 Dublin/San Ramon Area

The Proposed Project in Dublin/San Ramon would be a new five-acre substation in undeveloped private land near the Alameda/Contra Costa County line, and 4.9 miles of overhead transmission line (North Livermore Avenue to Dublin Substation). Table ES-5 summarizes the key comparison factors in this area. The shaded row indicates the environmentally superior alternative.

Table ES-5 Alternatives Comparison – Dublin/San Ramon Area Summary

Proposed/Alternative	Advantages	Disadvantages
Proposed Dublin Substation and Transmission Line from North Livermore	• Substation site is not visible to public	• Significant visual impact along transmission line route between N. Livermore and Proposed Dublin Substation; substation would be visually inconsistent with existing rural landscape • Requires construction of several access roads and construction/operational disturbance of transmission line corridor • Potential impacts to California red-legged frog proposed critical habitat • Many landslides along transmission line route
D1 Alternative (transmission line from Vineyard Substation)	• Shortest route (2.8 miles) • Substation in area zoned for commercial land use, closer to center of highest demand for electricity • Transmission line traverses disturbed industrial area (gravel preserve) • Flat terrain at substation site	• Substation would be visually inconsistent with existing rural landscape • Substation within commercial area reduces area available for development • Potential for reduction of gravel resource availability in future • Transmission line crossing of I-580 Freeway
D2 Alternative (transmission line from San Ramon Substation)	• Transmission line route passes through more developed areas than proposed route (adjacent to ongoing construction/ residential development) • Eliminates visual impacts associated with transmission line between North Livermore Avenue and proposed Dublin Substation	• Potential construction disturbance (underground transmission line into substation) of many residences near San Ramon Substation • Construction associated with 20 miles of reconductoring could affect sensitive biological species and cultural resources • Visual impact from Tassajara Road of transmission line in rural setting
D2 Alternative with Mitigation A-6 (direct connection to SR-Pitts line)	• Eliminates construction at/near San Ramon Substation • Eliminates need for construction disturbance and cost associated with underground construction	• None additional to D2.

In conclusion, the D1 Alternative is environmentally superior for the Dublin/San Ramon area. The transmission line route is primarily within the gravel preserve so would have minimal visual impacts or construction disturbance to the public. The substation site is in the commercially-zoned portion of the Dublin Ranch development, in an area where commercial and industrial growth is focused and there is a high demand for electricity.

5.2.4 Tesla Connection/Phase 2

PG&E Co.'s proposed Phase 2 connection to the Tesla Substation would require 10 miles of transmission line construction between the existing Contra Costa-Newark 230 kV line and the Tesla Substation in eastern Alameda County. Table ES-6 summarizes advantages and disadvantages; the shaded row indicates the environmentally superior alternative.

Table ES-6 Alternatives Comparison – Tesla Connection/Phase 2 Summary

Proposed/Alternative	Advantages	Disadvantages
Proposed Phase 2	• Avoids vineyard disturbance • Shorter transmission line than Stanislaus Corridor (10 miles)	• Underground construction and operational impacts on narrow residential streets • Overhead construction through undisturbed corridor • Significant visual impact in vicinity of Brushy Peak Preserve and adverse impact at I-580 crossing
Proposed Phase 2 with Brushy Peak alternative segment	• Visual impact shifted to south of park entrance • No major roadway crossings	• Crosses near/over two residences • Two landslides mapped • Significant visual impact in vicinity of Brushy Peak Preserve
Stanislaus Corridor	• Uses existing utility corridor • Two sets of existing lattice towers would be removed and replaced by taller towers with smaller footings, spaced farther apart	• Construction disturbance to vineyards • 14-17* miles linger than Proposed Phase 2
Switching Station Site 1 (westernmost site)	• Adjacent to Tesla-Newark transmission corridor • Flat terrain with easy access from Hwy 84 • Outside of park	• Located in or near active Verona fault zone • Potential California red-legged frog habitat • Close to Highway 84 (scenic corridor)
Switching Station Site 2 (near Del Valle Water Plant)	• Adjacent to existing major transmission corridor • Existing paved roadway provides route for underground transmission line • Outside of park	• Significant visual impact from Sycamore Grove Regional Park • Potential California red-legged frog habitat area • Construction disturbance to Zone 7 operations and personnel
Switching Station Site 3 (in Sycamore Grove Regional Park)	• Eliminates need to construct new transmission line to Tesla • Adjacent to Tesla-Newark transmission corridor	• Potential California red-legged frog habitat • Located within the Sycamore Grove Regional Park adjacent to recreational trail • Significant visual impact in park

*Total length depends on which route would connect with Stanislaus Corridor: 14 miles from S1/S2 Alternative and 17 miles from Proposed/S4 Alternative.

Between PG&E Co.'s proposed Phase 2 and the construction of a new transmission line in the Stanislaus Corridor, the Stanislaus Corridor is environmentally superior due to it being an existing occupied transmission corridor. However, assuming that Phase 2 is ultimately required, this alternative would have much greater impacts than any of the Switching Station alternatives, which would require no additional transmission line construction. The selection of the Switching Station site is partly driven by the location of the Pleasanton Area transmission line's tap to the Contra Costa-Newark 230 kV line (in the Tesla-Newark corridor), and partly by the site-specific impacts of the station. Given that the S2/S2A alternative has been identified as environmentally superior in the Pleasanton Area (Section 5.2.1), the Switching Station Site 2 is environmentally superior for Phase 2.

5.2.5 Combination of "Build" Alternatives

Each component of the Proposed Project and the related alternatives could conceivably be combined with components from the other areas. However, some of these combinations can be either (a) inefficient because they would require duplicative transmission lines in essentially parallel corridors (i.e., the combination of the Proposed South Area route or the S4 Alternative with the L2 Alternative), or (b) electrically infeasible due to the restriction on the capacity of underground transmission line

segments (which would prevent adequate electricity to serve three substations from passing through the lines). Therefore, after determination of the environmentally superior alternative in each area (Sections 5.2.1 through 5.2.5), these alternatives were evaluated for their ability to work together.

One configuration of alternatives (S1 or S2 combined with D1 and L2) would have required all three area substations to be connected to the Contra Costa-Newark 230 kV line through one double-circuit loop. Because each of these alternatives includes an underground segment, this combination of alternatives would not be able to provide sufficient power to the substations. Had all of these alternatives been found environmentally superior, the Switching Station would need to be constructed immediately to allow a direct connection of two substations to the more highly rated Tesla-Newark line. However, because these three alternatives were not found to be environmentally superior, the Switching Station would not be required until Phase 2 (or, depending on construction of large power plants and future transmission in the region, possibly never, as discussed in EIR Section A.2).

Phase 1

PG&E Co.'s Proposed Project would have all three substations (Vineyard, North Livermore, and Dublin) connected to the Contra Costa-Newark 230 kV line, at two different locations: the North Livermore and Dublin Substations would be connected in the North Livermore area where the CC-N line runs north-south, and the Vineyard Substation would connect to the CC-N line south of Highway 84. The environmentally superior Pleasanton Area S2/S2A transmission line route would also connect to the CC-N line in the Tesla-Newark corridor near the Del Valle Water Treatment Plant, and the D1 Alternative would continue north from the Vineyard Substation. The proposed North Livermore Substation would be connected to the north-south CC-N line, due east of May School Road (one mile south of the Proposed Project's tap point).

Phase 2

At the time when the CC-N line becomes overloaded, PG&E Co.'s Phase 2 would allow for connection of the North Livermore and Dublin Substations directly to the Tesla Substation. The Stanislaus Corridor Alternative would allow the same direct connection, but the Vineyard Substation (and also the Dublin Substation, with the D1 Alternative) would be connected to Tesla. However, as discussed in Section 5.2.5, the Switching Station Alternative eliminates the need for construction of many miles of transmission lines by allowing access to Tesla's power at a tap in Tesla-Newark corridor.

Conclusion

As illustrated in Figure ES-2, the Environmental Superior "Build" Scenario would be substantially shorter overall than the Proposed Project. However, it also includes more miles of underground line. Table ES-7 summarizes the comparison of the Proposed Project with the Environmentally Superior Build Alternative.

Table ES-7 Mileage Comparison: Proposed Project vs. Environmentally Superior Build Scenario

	Overhead Transmission		Underground Transmission		Total Miles
	Phase 1	Phase 2	Phase 1	Phase 2	
Proposed Project	10.7	10.0	2.7	0	23.5
Environmentally Superior Scenario	2.3	0	9.1	0	11.4

5.2.6 Illustration of the Environmentally Superior "Build" Scenario

As explained in Sections 5.2.1 through 5.2.5, the following alternatives were found to be environmentally superior in each area:

- **Pleasanton Area**: The S2 Alternative (Vineyard Avenue) with mitigation segment S2a (adjacent to the Zone 7 Water Treatment Facility) is environmentally superior.
- **North Livermore Area**: The proposed North Livermore Substation with the mitigation segment P3 (underground along May School Road) is environmentally superior.
- **Dublin/San Ramon Area:** The D1 Alternative is environmentally superior.
- **Phase 2:** The Switching Station Site 2, south of the Del Valle Water Treatment Plant and adjacent to the Tesla-Newark Corridor, is environmentally superior.

Figure ES-2 illustrates the Environmentally Superior "Build" Scenario for the entire project area.

Figure ES-2 Env Superior “Build” Alternative

1 of 2

page 2 of 2 ES-2

5.3 NO PROJECT ALTERNATIVE COMPARED WITH THE ENVIRONMENTALLY SUPERIOR "BUILD" SCENARIO

The Proposed Project would result in a range of construction and operational impacts, many of which can be reduced with implementation of mitigation. However, if the Proposed Project or another "build" alternative is not constructed, PG&E Co. will be forced to respond to growing demand by expanding its existing system to the extent that is possible, and by curtailing service if growth in demand exceeds the transmission system's capacity or reliability requirements for essential services (such as hospitals).

It is possible that delaying implementation of the Proposed Project will result in other alternatives being formulated, or currently infeasible alternatives becoming more likely. As an example, development of local power generation facilities could partially address the Tri-Valley region's transmission constraints. However, many of these small generation facilities would be required in order to supply the power needed to effectively address the present limits on electric service. The impacts of thermal power generation, even small-scale, can also be significant (air quality degradation, noise and use of hazardous substances), although often mitigable as well.

The combination of components which has emerged from the EIR analysis as the Environmentally Superior "Build" Scenario (Section 5.2.6) minimizes the impacts of adding transmission capacity to the growing Tri-Valley region to the maximum extent feasible:

- The Vineyard Substation modifications are minor and the impacts of the underground S2A transmission line route would be short-term, associated with construction.
- Under Alternative D1, the new Dublin Substation would be constructed and operated in a commercially-zoned area and once again, the impacts of the D1 transmission line will largely be short-term, associated with construction.
- Under the Proposed Project with P3 Alternative/mitigation segment, the impacts of the North Livermore transmission line are similarly reduced to short-term, construction-related impacts associated with undergrounding.
- Under the Switching Station 2/Phase 2 Alternative, the construction and permanent visual impacts of 10 miles of new transmission line and towers across the Altamont Hills proposed in Phase 2 by PG&E Co. is avoided (as are those associated with 14-17 miles in the Stanislaus Corridor Alternative).

The new North Livermore Substation under the Environmentally Superior Build Scenario presents the greatest operational (long-term) impact since it would be sited in a relatively undeveloped area, with a Class I (significant, unavoidable) visual impact. The need for the expansion of electrical service in the next five years (the horizon for the Proposed Project) is in question, given the very long-term nature of the North Livermore Specific Plan (development over the next eight to 20 years), as well as the recent passage of Measure D. This is the one component of the Environmentally Superior Build Scenario which could arguably be supplanted by the No Project Alternative, particularly since the new Dublin/D1 Substation would be able to serve North Livermore development along the I-580 corridor (i.e., where the development is starting, proximate to the L2 Alternative).

Similarly, as already discussed, the need for a Phase 2 has been cast into doubt by power flow studies performed by the California Independent System Operator in conjunction with PG&E Co. which show that this additional service from the Tesla Substation is likely not to be necessary, due to transmission system improvements underway and expected. Therefore, the No Project Alternative would be environmentally superior to the Phase 2 "build" scenario, even though it is the relatively benign Switching Station 2.

Therefore, the Complete Environmentally Superior Project would be:

- **Pleasanton Area**: The S2 Alternative (Vineyard Avenue) with the S2a Alternative/mitigation segment (adjacent to the access road to the Del Valle Water Treatment Facility) is environmentally superior.
- **North Livermore Area**: No Project is environmentally superior.
- **Dublin/San Ramon Area:** The D1 Alternative is environmentally superior.
- **Phase 2:** No Project is environmentally superior.

6. MITIGATION MONITORING, COMPLIANCE, AND REPORTING PROGRAM

As the lead agency under CEQA, the CPUC is required to monitor this project during construction and operation to ensure that the required mitigation measures are implemented. The CPUC will be responsible for ensuring full compliance with the provisions of this monitoring program and has primary responsibility for implementation of the monitoring program. The purpose of the monitoring program is to document that the mitigation measures required by the CPUC are implemented and that environmental impacts are reduced to the level identified in the Program. A detailed Implementation Plan will be developed and provided to local jurisdictions for review before it is finalized. Monitoring of mitigation measures within each jurisdiction will be coordinated with that jurisdiction.

A Mitigation Monitoring Program table is included at the end of each issue area's Environmental Analysis in Part C (C.2 - C.12). For each mitigation measure, these tables list:

- The impact that was identified
- The mitigation measure (in summary)
- The location of the impact
- The monitoring action that would be taken by the CPUC or other responsible agency
- How to determine if the measure is effective
- The agency (or agencies) responsible for monitoring
- The timeframe for mitigation measure implementation.

7. IMPACT SUMMARY TABLES

The Impact Summary Tables that follows is a complete, condensed presentation of the significant environmental impacts and mitigation measures for the proposed Tri-Valley 2002 Capacity Increase Project and project alternatives. Full descriptions of the Proposed Project and each of the alternatives

can be found in Part B of the EIR. The complete environmental analyses, along with the recommended mitigation measures for the Proposed Project and for each of the alternatives, are set out fully in Part C of the EIR.

The Impact Summary Tables are organized first according to impact class and within each class according to issue area in the same order as presented in Part C of the EIR and in Section 5 of this Executive Summary. Reading from left to right across the tables, (1) each impact is described briefly, (2) the phase of the project life in which the impact would occur is given[i], and (3) the mitigation measure(s) is presented. When no mitigation measure is specified, this is indicated. In-depth discussion of the three summary areas on the tables is located within Part C of the EIR. The tables summarize the impacts of the project and alternatives; Part C of the EIR presents a detailed description of these impacts. Separate tables are provided for Class I (significant and unavoidable), Class II (significant but mitigable), and Class III (less than significant) impacts.

The Impact Summary Tables comprise a stand-alone document and may be viewed as a convenient compilation of the core data presented in the EIR.