

2.0 ALTERNATIVES ANALYSIS

2.1 REASON FOR ANALYSIS OF ALTERNATIVES

The California Environmental Quality Act (CEQA) does not require a review of alternatives where, as with PG&E's project, the proposed project would result in no significant environmental impacts after mitigation (Guidelines, Sec. 15126.6, subd. (a) and (f)(2)(A); assigned Commissioner's Ruling dated October 16, 2001, A.01-07-004.) This is because, under CEQA, a "reasonable alternative" is one that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects of the project (CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, Section 151626.6 as amended July 24, 2007.) However, General Order 131-D (GO 131-D) requires that an application for a Permit To Construct (PTC) include the "reasons for adoption of the power line route or substation location selected, including comparison with alternative routes or locations, including the advantages and disadvantages of each" (GO 131-D, section IX.B.1.c.) The discussion that follows addresses the GO 131-D requirement.

2.2 INTRODUCTION

Pacific Gas and Electric Company considered the following Windsor Substation Project objectives before determining that a substation was needed, and ultimately selecting Site B as the proposed substation site for review and approval by the California Public Utilities Commission (CPUC):

- **Meet Immediate Capacity Needs:** Provide the necessary electric distribution capacity to serve existing and new customers within and around the Town of Windsor in the Fulton Fitch-Mountain DPA by 2011.
- **Meet Long-Term Capacity Needs:** Eliminate electric distribution capacity deficiencies expected to occur beyond 2011.
- **Construct a New Substation To Reinforce Existing System:** Maximize system efficiency and increase future flexibility by constructing a new distribution substation within the limits of the DPA and approximately three to five miles from the existing distribution substations.
- **Locate New Substation Near Load Growth:** Minimize ratepayer costs and environmental impacts, and maximize system efficiency and reliability, by locating the new substation as close as possible to the center of the load growth so that distribution circuit routes are as short as possible.

Early in the planning process, PG&E planning engineers considered several electric planning solutions and system alternatives to address the need for additional reliability and distribution capacity, including capacity increases at existing substations, load transfers to adjacent distribution planning areas, adding distribution circuits from more remote distribution planning areas, and combining distributed generation, load management, and customer energy efficiency programs. To this end, PG&E evaluated nearby existing substations and potential feeder routes

based on their proximity to existing transmission infrastructure and environmental impact potential. However, as discussed in Section 2.5 Other Alternatives Considered and Eliminated, PG&E determined that these alternatives were either infeasible, or were not desirable due to increased construction costs with no corresponding environmental benefit. As a result, PG&E did not evaluate these alternatives further. PG&E then moved forward with the identification of several alternative projects that provide for a new substation and meet the project objectives.

After consulting with the Town of Windsor and investigating the area and numerous sites between the existing Fulton and Fitch Mountain Substations for available sites that could support a new substation, PG&E identified three potential substation sites that best met the project objectives. These sites are all located in the central part of the Fulton-Fitch Mountain Distribution Planning Area (DPA), identified as Site A, B, and C and depicted in Figure 2-1.

The locations of the sites relative to current land use designations are depicted on Figure 2-2. PG&E also evaluated a ‘No Project’ alternative. This chapter discusses the selection, evaluation, and comparison of the four alternatives. It also discusses the existing conditions at Sites A and C, and provides an impact analysis. Existing conditions and impacts are thoroughly discussed for Site B (proposed substation site) in the remaining chapters of this Proponent’s Environmental Assessment (PEA).

2.2.1 Selection and Evaluation of Alternatives

In order to meet the project objectives, PG&E looked for potential substation sites within the DPA boundary and near the center of the load growth to best accommodate planned and anticipated growth. PG&E land planners and electrical planners identified potential locations for a new substation by reviewing aerial photographs, conducting field visits and feasibility studies, discussing the project with property owners, and consulting with the Town of Windsor. The three selected alternative substation sites, all of which met the project objectives, were then analyzed by evaluating each site by the following criteria to determine their suitability:

- Economics
- Engineering
- Environmental impacts
- Land Use
- Project objectives

Figure 2-1: Alternative Sites Map

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Figure 2-2: Land Use Designations

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2.3 DESCRIPTION OF ALTERNATIVES

2.3.1 Site B (Proposed Project)

Site B is a 3.2-acre parcel located on a flat area that is sloped gently to the southwest. Currently designated for light industrial use (refer to Figure 1-2: Proposed Substation Site Aerial Map in Chapter 1: Project Description) and previously graded in 2006 for projected developments, it is comprised of mainly annual grasses and weeds and is owned in fee by PG&E. Situated within the limits of the Town of Windsor, Sonoma County, the site is located 0.25 mile west of the intersection of Conde Lane and Mitchell Lane, just west of Highway 101, and is bounded by Mitchell Lane to the north and the Northwestern Pacific Railroad (NWPRR) right-of-way to the west. A surrounding residential area lies west of the railroad tracks and light industrial lands lie generally to the east of the site. To the north is the Wilson Ranch Soccer Park; and to the south is the Conde Lane Mitigation Site of the Santa Rosa Plains Conservation Strategy, which consists of oak woodlands, seasonal wetlands, and vernal pools. The existing Fulton No. 1 60 kV power line, which would be used to provide power for the substation, runs parallel to the NWPRR, approximately 120 feet southwest of Site B. One existing wood pole (pole no. 3/11) on the Fulton No. 1 60 kV power line will be replaced with a new weathered Tubular Steel Pole (TSP) and one additional TSP structure will be installed within the substation property. A new 60 kV double-circuit interconnection will loop the existing Fulton No. 1 60 kV circuit into the substation. (Eventually, these 60 kV lines will be converted to 115 kV voltages.) An in-depth description of the proposed site and components is provided in Chapter 1: Project Description.

2.3.2 Site A Alternative

Site A is a 3.6-acre, privately-owned parcel zoned for residential development, surrounded by housing, in the Town of Windsor (see Figure 2-3). The site is located approximately 400 feet north of the intersection of Oak Park Street and Daybrook Drive, which provides access to the adjacent residential areas. The site is surrounded by a residential community and is bordered immediately to the north, and east by residences. Immediately south of Site A is a dense riparian corridor and tributary to Starr Creek with mature oaks and willows and a parallel unpaved trail, which abuts the backyards of residences located just south of the riparian corridor. Immediately west lies what appears to be a large-lot residential parcel with two apparently vacant residences. Site A appears to be in current use as a horse or small livestock pasture. The parcel is dominated by annual non-native grasses and forbs, and grazed grassland. The existing Fulton No. 1 60 kV power line, which would be used to provide power for the substation, is located along the northeastern boundary of the site, parallel to the NWPRR.

2.3.3 Site C Alternative

Site C is a 5.3-acre portion of an 8.7-acre parcel currently designated for light industrial use. Approximately 3 acres in the western portion of Site C is a wetlands preserve that is part of the Conde Lane Mitigation Site of the Santa Rosa Plains Conservation Strategy (see Figure 2-4). The site is located west of Highway 101 approximately 350 feet west of Conde Lane. It is bounded by American Way to the north, vacant light industrial lands to the east, the NWPRR to the west, and Pool Creek to the south, which is dominated by mature riparian vegetation that forms dense

cover along the creek banks. The western portion of the site includes oak woodlands, seasonal wetlands, and vernal pools. The existing Fulton No. 1 60 kV power line, which would be used to provide power for the substation, is located along the western boundary of the site, parallel to the NWPRR.

2.3.4 No Project Alternative

Under the No Project alternative, a three bank, 115-12 kV distribution substation would not be constructed and the project objectives would not be met.

If the project were not implemented, there would be no direct impacts to existing environmental conditions. However, because the No Project alternative does not meet the project's objectives, and due to the issues discussed above, this alternative was rejected.

2.4 COMPARISON OF ALTERNATIVES

Each of the alternative sites for the substation would meet the project's basic objectives, and PG&E determined that all of them could likely be developed without prohibitive engineering or economic constraints.

Construction of Sites A, B, and C would result in similar effects to cultural resources, geology and soils, hazards and hazardous materials, recreation, agricultural resources, population and housing, public services and utilities and service systems, and growth-inducing and cumulative impacts with the implementation of similar avoidance and protection measures to reduce effects, where necessary. However, potential effects to aesthetics, air quality, biological resources, hydrology and water quality, land use and planning, and noise-level resources were found to vary among sites.

The following section provides a comparison of the alternatives with specific regard to aesthetics, air quality, biological resources, hydrology and water quality, land use and planning, and noise-level resources effects. The No Project alternative is also compared to the proposed project.

Figure 2-3: Site A Alternative

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Figure 2-4: Site C Alternative

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2.4.1 Site B (Proposed Project Alternative) Comparison

PG&E selected Site B as the proposed project because it has the least potential to effect the surrounding residential areas (including views, sensitive receptors, and zoning), would result in fewer effects to biological resources and hydrology and water quality, and because all other potential impacts were similar to those at other sites (see the remaining chapters in this PEA for a detailed discussion of effects and avoidance and protection measures.) Additionally, as part of the initial siting of the project, PG&E met with local government officials and Town of Windsor planners on several occasions to discuss potential concerns. Town of Windsor officials were supportive of the project as designed at Site B, demonstrated by the Town's letter to PG&E (see Attachment A).

Construction of a substation at Site B would not substantially alter existing views from the closest residences (approximately 200 feet) because an existing 60 kV power line, a railroad corridor (the NWPRR), and a line of oak trees are located between the residential neighborhood and the proposed project site and would help to conceal the substation from the residential area west of the project site. Additional trees will be incorporated into the landscaping of the site to further screen views from this residential neighborhood. Furthermore, while the closest public roadway and designated scenic corridor, Mitchell Lane, is northerly adjacent to the project site, a pre-cast wall will be built along Mitchell Lane to reduce visual effects to bypassing motorists. An earth-tone colored, decorative wall design and landscaping plan will be submitted for review by the Town of Windsor. In addition, construction of a substation at Site B would enhance the existing views along Mitchell Lane because PG&E plans to replace five existing poles located along Mitchell Lane (supporting a distribution line, telephone line, and cable television line) with underground cables in conduits. While Site B may be visible from Conde Lane, a designated scenic corridor, landscaping would be used to reduce visual effects to views from bypassing motorists. Site B will not be visible from Highway 101.

Additionally, because Site B is located in a developing industrial area with only a residential community to the west, it has less potential to affect air quality and noise-levels of nearby sensitive receptors than the Site A alternative. The nearest public schools are Windsor Creek Elementary, located at 8955 Conde Lane in Windsor and Windsor High School at 8695 Windsor Road in Windsor; both public schools are located 1.4 miles north of the project. The nearest preschool, Windsor State Preschool is located 0.5 mile northeast of the project.

Although construction of the project at Site B has the potential to affect biological resources, as 9 special-status plant species and 29 special-status wildlife species have the potential to occur in close proximity to the project, impacts will be less than significant with implementation of the proposed avoidance and protections measures. According to the Appendage to the *Programmatic Biological Opinion for U.S. Army Corps of Engineers Permitted Projects That May Affect California Tiger Salamander and Three Plant Species on the Santa Rosa Plain, CA*, Site B is not within the known California tiger salamander (CTS) habitat range, and based on correspondence with the U.S. Fish and Wildlife Service and environmental studies performed for other projects in the area, presence of California red-legged frog (*Rana aurora dratonii*) (CRLF) is not likely. Construction of a substation at Site A would have greater impacts to biological resources than Site B because Site A is immediately adjacent to a riparian corridor and thus there would be

potential impact to sensitive species using the adjacent upland habitat at Site A. Similarly, development of Site C would have additional permanent impacts to vernal pools. Both Site A and Site C would require additional avoidance and protection measures if developed as compared to Site B.

Unlike Sites A and C, a single historic-era cultural resource was previously documented at Site B. Resource P-49-2875 (residence and associated barns and other outbuildings) has since been removed and very few traces of it were visible during the field survey. This finding was not evaluated for listing on the National Register of Historic Places, and field surveys indicate that it is unlikely that any associated intact subsurface deposits remain. Additionally, Site B has been mechanically graded and it is unlikely that any natural ground surface has been preserved. Because of these existing conditions, this finding was not considered a factor in siting decisions.

Site B is zoned for light industrial use, and is bounded to the west by trees, a railroad corridor and a power line separating the edge of a residential area west of the site. In contrast, Site A is zoned for Surrounding Residential and is surrounded by an established residential community. From a land use perspective, the substation is more similar to light industrial uses. Site C is located near Site B and has similar zoning.

Site B is not located within any Special Flood Hazard Areas. In contrast, Site A is located within the designated 500-year flood plain that buffers Starr Creek, and Site C is located within the designated 100-year flood plain that buffers Pool Creek. Development of Sites A and C would create additional constraints to substation construction and may require additional avoidance and protection measures as compared to Site B.

2.4.2 Site A Alternative Comparison

Environmental impacts associated with Site A would be generally similar to the proposed project, with the exception of potential impacts to visual resources and nearby sensitive receptors (air and noise), biological resources, and the existing neighborhood land uses.

Construction of a substation at Site A would result in close-range foreground views from the backyards of existing residential areas along the north and east sides of Site A, and some viewpoints from those homes along the south side adjacent to the existing riparian corridor. To some extent, perimeter landscaping could reduce these visual impacts; however, even with landscaping, a substation facility at Site A would appear visually prominent to those with viewpoints into Site A from the surrounding residential development.

Additionally, Site A has greater potential to impact nearby sensitive receptors because there are residential communities to the north and south, a residence immediately adjacent to the east, and one school located within 0.25 mile from the site. As such, air quality and noise related impacts are likely to be greater due to the proximity of these sensitive receptors.

Use of Site A has a greater potential to impact biological resources than that of the proposed project because Site A is immediately adjacent to a riparian corridor along the south side of the

site that could provide habitat to sensitive wildlife species. In addition, there is potential for several of the same sensitive wildlife species and special status plant species to occur at Site A as those of Site B. According to U.S. Fish and Wildlife Service *Santa Rosa Plain Conservation Strategy*, CTS is not likely to occur within or around Site A.

Site A is located within the Special Flood Hazard Area that buffers Starr Creek, which is a designated 500-year flood plain. Site A's location in the Special Flood Hazard Area would create additional constraints to construction of the substation and may require additional avoidance and protection measures in comparison to the proposed Site B.

Furthermore, as mentioned before, Site A is located within a densely-populated area, bounded by residences to the north and east, and residential communities to the north and south (just south of the existing riparian corridor). While the site to the west is currently vacant, Site A and the surrounding area is zoned Surrounding Residential (SR). From a land-use perspective, the substation is more similar to light industrial uses. Site B (located in a designated and developing industrial area) would be preferred to Site A (surrounded by a densely populated residential community).

In addition, while all three sites are geographically suitable (because they are located about midway between the two existing substations in the middle of the area of electrical load), Site A's location in relation to the existing distribution network provides less efficient and cost-effective options for extending distribution feeders out of the substation than the Site B and C locations.

Overall, PG&E determined Site A to be a less preferable alternative to Site B because of the potentially greater visual impacts, proximity to densely-populated residential areas and schools, potential impacts to the nearby riparian corridor, location in a Special Flood Hazard Area, and location in relation to the existing distribution network.

2.4.3 Site C Alternative Comparison

Environmental impacts associated with Site C would generally be similar to the proposed project, with the exception of the potential to substantially impact biological resources.

Construction at Site C would have similar potential impacts to sensitive wildlife species; however, there are four seasonal wetlands in the area (of which approximately 1 acre would be permanently impacted) and several seasonal wetlands northerly adjacent to Site C that would potentially be impacted. Existing wetlands within and adjacent to Site C may support additional special-status wildlife, such as vernal pool crustaceans. Additionally, Pool Creek borders Site C to the south and is dominated by mature riparian vegetation that forms dense cover along the creek banks. The creek has the potential to support special-status species, including the northwestern pond turtle (*Actinemys marmorata marmorata*), and other special-status species of concern. While potential impacts to biological resources at Site C could likely be mitigated to less than significant levels with appropriate avoidance and protection measures, Site B offers more potential to avoid impacts.

In addition, Site C is located within the Special Flood Hazard Area that buffers Pool Creek, a designated 100-year flood plain. Site C's location in the Special Flood Hazard Area would apply additional constraints to construction of the substation and may require additional avoidance and protection measures in comparison to Site B.

Overall, PG&E determined Site C to be a less preferable alternative due to the significant amount of potential impacts to biological resources, the amount of wetland acreage permanently impacted by the substation, and the proximity of Pool Creek with its associated aquatic habitat.

2.4.4 No Project Alternative Comparison

The No Project alternative would avoid potential impacts to visual and environmental resources associated with construction of Site B. This alternative would not add or upgrade either local transmission or distribution facilities or allow for significant local generation. However, this alternative is not considered a realistic option because it would not achieve the objectives of increasing Fulton-Fitch Mountain DPA distribution capacity to accommodate both planned and anticipated local load growth, and it does not address the need to provide safe and reliable electric service to existing customers in the Town of Windsor, the City of Santa Rosa, and nearby unincorporated areas of Sonoma County.

The No Project alternative would have a substantial impact on the communities PG&E serves. This alternative could impact human health and safety as a result of insufficient capacity and prolonged power outages, as severe and widespread overloading of the electric system could lead to equipment overheating and ultimately electrical and/or mechanical failures. These failures would result in electric service interruptions necessary to relieve overload during peak demand periods. As a result, PG&E would not be able to provide reliable service to existing customers, meet additional demand from these customers, or be able to serve new customers. This is true even with all current electric transmission and distribution systems working at maximum efficiency and with planned upgrades in place. Inability to provide reliable electrical service is inconsistent with plans for new development in the project area. PG&E anticipates future distribution capacity deficiencies to occur in the Fulton-Fitch Mountain DPA beginning as early as 2011.

2.5 OTHER ALTERNATIVES CONSIDERED AND ELIMINATED

As discussed in Section 2.1 Introduction, PG&E considered several system alternatives to determine if they could provide the additional distribution capacity needed in the Fulton-Fitch Mountain DPA prior to evaluating the alternative substation sites. A brief discussion of these alternatives and why they were eliminated is provided below.

2.5.1 Capacity Increases at Existing Substations

PG&E evaluated the potential to increase the capacity at several existing substations to meet the Fulton-Fitch Mountain DPA's demand requirements. The locations of the two substations—

Fulton and Fitch Mountain—are depicted on Figure 2-1. However, for the reasons discussed below, none of these alternatives would meet the project’s objectives and were, therefore, eliminated.

- **Fulton Substation (230 kV-12 kV):** This site is currently built out to the ultimate arrangement for the existing transmission voltages. Converting the existing 230 kV-12 kV 30-megavolt-ampere (MVA) banks (Bank no. 5 and 6) to 230 kV-12 kV 45-MVA banks would require extensive reconstruction of the substation and is not practical because all available feeder outlet routes to serve the Windsor area have been utilized with no other practical routes available. Even if PG&E were able to find a solution to the lack of practical outlets, this alternative would reduce service reliability in the Windsor area and would only defer the need for a new substation until 2019.
- **Fitch Mountain Substation:** This site is built out to the ultimate design and is too far north of the load growth to provide any capacity or reliability benefits.

2.5.2 Load Transfers to Adjacent Distribution Planning Areas

There are no existing DPAs that are located close enough to the Fulton-Fitch Mountain DPA to transfer load growth.

2.5.3 Bringing in Distribution Feeders from More Remote Distribution Planning Areas

There are no existing DPAs that are located close enough to the Fulton-Fitch Mountain DPA to extend distribution feeders.

2.5.4 Combined Distributed Generation, Load Management, and Customer Energy Efficiency Programs

PG&E retained Energy and Environmental Economics, Inc. to perform a Local Integrated Resource Planning (LIRP) study for the DPA. The LIRP study evaluated the potential for demand-side management (DSM) measures, distributed generation (DG) technologies, and demand-response programs to defer the planned capacity projects by cost-effectively reducing peak load. The study found that the costs of implementing the DSM, DG, or demand-response programs exceed the benefits from implementing the traditional distribution capacity projects for the Fulton-Fitch Mountain 12 kV DPA.

2.6 CONCLUSION

All three of the substation site alternatives meet the project’s objectives. However, constructing the substation at Site B would be optimal for the following reasons:

- Site B is located nearby fewer residences and schools, unlike Site A, which is located within a densely populated area, bounded by residences, and within 0.25 mile of one school and nearby several other schools and pre-schools. There are fewer sensitive receptors near Site B,

and thus fewer constraints likely to impact engineering and construction of the substation and the associated impacts to air quality and noise within residential communities.

- Site B is the only alternative that exists outside of Special Flood Hazard Areas and does not include any natural drainage, unlike Sites A and C that impact a tributary to Starr Creek and Pool Creek, respectively. Consequently, Site B will have less potential to impact sensitive species that potentially use the drainage/creek and the adjacent riparian corridor near Sites A and C for habitat.
- Site B is located about midway between the two existing substations in the middle of the area of electrical load, thereby providing the best opportunity for the least-costly and most-efficient network of distribution feeders as compared to Site A.
- Construction of the substation at Site B would cause fewer impacts on aesthetics, air quality, biological resources, hydrology and water quality, land use and planning, and noise levels than the other alternatives.
- Town of Windsor officials support locating the project at Site B, as demonstrated by the letter from the Town of Windsor to PG&E (see Attachment A).
- The site is already owned by PG&E.

None of the non-substation alternatives (e.g., no project alternative, capacity increase, load transfer, etc.) meet the project objectives.

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