

4 AESTHETICS

4.1 INTRODUCTION

The purpose of this chapter is to document the existing visual resources in Pacific Gas and Electric Company's (PGandE) Delta Distribution Planning Area Capacity Increase Substation Project (project) area and to assess the visual impacts that could occur as a result of the project's construction and operation. A summary of public regulations and policies pertaining to visual quality in the project vicinity is also provided.

As described in Chapter 1: Project Description, the project involves construction and operation of a three-bank, 230/21 kilovolt (kV) distribution substation on an undeveloped site near the southeastern edge of the City of Antioch. The changes in the appearance of the project area that will result from the project will, to some extent, be visible to the public; however, due to distance and topography, these changes will not substantially alter the existing visual character or quality of the project site and surrounding area. As a result, impacts to visual resources resulting from the project will be less than significant.

4.2 METHODOLOGY

The analysis of potential visual effects associated with the project is based on both site reconnaissance and review of a variety of data, including project maps and drawings, aerial and ground-level photographs of the project area, and local planning documents and computer-modeling of existing conditions and of project elements. Field observations were conducted in October 2004 to document existing visual conditions in the project area and to identify potentially affected sensitive viewing locations.

This visual study employs assessment methods based, in part, on the U.S. Department of Transportation Federal Highway Administration (FHWA) and other accepted visual-analysis techniques as summarized by Smarden et al. (1986). This study also addresses the California Environmental Quality Act (CEQA) Guidelines for visual impact analysis. Included are systematic documentation of the visual setting, an evaluation of visual changes associated with the project, and elements incorporated into the project design to reduce potentially significant visual impacts. An inventory of existing visual conditions was prepared to characterize the affected environment in terms of its visual character, quality, and location of potentially sensitive viewpoints. A set of photographs showing representative public views of the project area is included in Attachment 4-A.

This impact analysis is based partially on the FHWA's methodology for determining visual-resource change and assessing viewer response to that change. Central to this assessment is an evaluation of representative views from which the project will be visible to the public. To document the expected visual change, simulations show the project from two of the visual character photographs representing key viewpoints. The visual simulations are presented as "before" and "after" images from these key viewpoints. The visual impact assessment was based on evaluation of the changes to the existing visual resources that will result from construction and operation of the project. The changes were assessed, in part, by evaluating the "after" views

provided by the computer-generated visual simulations and comparing them to the existing visual environment.

The computer-generated simulations are the result of an objective analytical and computer modeling process and are accurate within the constraints of the available site and project data. A description of the technical methods employed to produce the visual simulations is included in Attachment 4-B.

4.3 EXISTING CONDITIONS

4.3.1 Regional and Local Landscape Setting

The project site lies in northern Contra Costa County (County) near the juncture of three major geographic regions: the San Francisco Bay Area, the Delta, and the Central Valley. The project area is characterized by steep hillsides, rolling hills, ridgelines, grassland, riparian corridors, and valleys. Figure 1-3 in Chapter 1: Project Description shows the project's regional location. The area's hillsides and ridgelines are recognizable landscape features seen from many locations, thus contributing to a strong sense of place and orientation within the vicinity. Ridgelines and peaks reach elevations of 400 to 500 feet. The valley of Sand Creek, generally situated between an elevation of 200 to 350 feet, and the valley of Horse Creek, which lies at an elevation of 300 feet, are also among the area's topographic features. However, Mount Diablo (approximately 6 miles to the southwest) and the land around the Black Diamond Mine Regional Preserve (approximately 4 miles west) are the dominant visual features of the surrounding area. Sand Creek originates west of the project site in the uplands of the Black Diamond Mines Regional Preserve and meanders eastward, eventually emptying into Marsh Creek to the northeast of downtown City of Brentwood.

A mix of oak savannah, oak woodland, grassland, and brush land characterizes the vegetation pattern found in this landscape region. During winter and spring months, the green hillsides include displays of scattered, seasonal wild flowers. Beginning in late spring through the fall, the hills turn gold and brown. The dark green foliage of the oaks appears in higher contrast to the golden hillsides throughout this arid season.

For the most part, the hillsides surrounding the valleys have a natural appearance. Toward the west, most of the hillsides are characterized by a mosaic of natural-appearing oak woodlands and grasslands. To the east, most of the hillsides have the appearance of open grasslands used for cattle ranching. The areas to the north include a mix of recent suburban development and areas devoted to agriculture. While the Highway 4 Bypass is a major highway that provides regional access to local communities in the vicinity of the site, there is also a local network of streets and roads, including Deer Valley Road, Heidorn Ranch Road, and Empire Mine Road, which connect existing communities, undeveloped rural areas, and regional open space. The presence of highly visible development and infrastructure features that include roads, buildings, and major transmission lines, as well as areas of still mostly open lands, results in a landscape context that has a mix of both rural and built elements.

As detailed in the Chapter 11: Land Use and Planning, Recreation, and Agricultural Resources, the project area is largely open space and agriculture. The closest suburban development to the site is a residential area approximately 0.5 mile to the north. In addition, a single dwelling is approximately 0.4 mile to the northeast. Situated approximately 0.5 mile to the northwest, the Kaiser Medical Facility is currently under construction. The Shell oil-pumping facility is situated along Heidorn Ranch Road, about 2,000 feet west of the project site. An existing PGandE overhead transmission line supported by lattice steel towers lies approximately 300 feet to the southwest. The project will tie into this existing 230 kV line.

4.3.2 Visual Character of the Project Site

The project site occupies approximately 5 acres of undeveloped land situated at the base of a grass-covered hill. The land is used for row crops and is not served by an access road at present. Located about 2,500 feet east of Heidorn Ranch Road, the site lies south of Sand Creek. Trees and understory shrubs intermittently line this meandering riparian corridor. At the closest point, the substation site is approximately 250 feet from the creek. The project area is relatively flat and slopes gently down toward the creek to the south. Figures 4-2a through 4-2c in Attachment 4-A present photographs of the site taken from the surrounding vicinity.

4.3.3 Project Viewshed and Potentially Affected Public View Corridors

The project viewshed, defined as the area from which the new substation will be visible, encompasses areas to the north, east, and west, including agricultural lands and public roadways, as well as public open space and residential development. The project site is not generally visible from the south because existing topography obstructs views toward the project.

Visual details generally become apparent to the viewer when they are seen in the foreground, at distances of 0.25 to 0.5 mile or less. For purposes of the visual analysis, this foreground viewshed is considered to be the primary potentially affected area. In addition, the area of up to approximately 1 mile from the project site, where change could be noticeable, is addressed.

From much of the project viewshed, it is anticipated that views of the project will be partially or fully screened by existing trees and landform. To the extent the project is visible, it will generally be seen against a hillside or landscape backdrop, making project facilities less visible. Figure 4-1 in Attachment 4-A depicts representative viewing locations from which the new substation facility could be visible to the public. Figures 4-2a through 4-2d present 13 photographs taken from these representative viewpoints that document existing visual conditions.

4.3.3.1 Views from the North (Photos 1 through 4, Figure 4-2a)

The land immediately north of the site is devoted to agriculture. About 0.5 mile to the north lie areas characterized by recently built suburban development, including primarily residential subdivisions as well as recreational facilities, such as Chaparral Park.

Photo 1, taken from Oneida Way, shows a view looking toward the project site from the edge of a recently constructed residential development. This view encompasses rolling agricultural land. The existing 230 kV transmission line appears on the skyline toward the left side of the photo. The project site is also seen near the left edge of the view near the base of the hill, between the transmission line and the line of trees along Sand Creek.

Photo 2 is a view from the Chaparral Park playing field looking southeast toward the project site. The site lies immediately to the east (left side) of the existing transmission line. From here, the project area appears against a hillside landscape backdrop with parkland seen in the foreground. More distant ridgelines are discernable in the backdrop toward the center and the right edge of the photo.

Photo 3 is the view looking south toward the project site from the end of Hillcrest Avenue at a distance of roughly 0.5 mile. This view encompasses an existing distribution line supported by wood poles seen in the foreground, as well as the more distant lattice tower-supported transmission line, which appears near the center of the photo. The site lies beyond at the base of the hill to the right of the line of wood poles. Current plans call for extending Hillcrest Avenue, at which time it will form the eastern boundary of the site.

Situated approximately 0.75 mile east of the project site, the Highway 4 Bypass is a four-lane roadway that runs roughly north-south. Photo 4, a view looking southwest from the Highway 4 Bypass, shows the site from a distance of almost 1 mile. From here, the site appears near the center of the view against a hillside backdrop, beyond the trees lining Sand Creek.

4.3.3.2 Views from the East (Photos 5 through 8, Figure 4-2b)

Photos 5 and 6 are views looking southwest and west toward the site, respectively, from places along the Highway 4 Bypass. The existing 230 kV transmission line appears near the center of both views. Photo 5 encompasses agricultural lands and the riparian corridor in the foreground with hillsides and ridgelines, including Mount Diablo, seen in the backdrop. Photo 6 includes similar landscape features in the foreground with the site appearing near the center of the view.

Heidorn Ranch Road provides the closest public views of the site. Photo 7, taken from Heidorn Ranch Road just north of the Shell parcel, encompasses agricultural lands in the foreground with hillsides and ridgelines, including Mount Diablo, in the backdrop. The project site lies near the base of the hill, below Mount Diablo. From here, the site appears against a hillside landscape backdrop to the right of the transmission tower, near the center of the photo.

Photo 8 is a close-range view of the site from a private farm road on the adjacent property to the east. In this view, the existing transmission line can be seen along the horizon. The site appears near the center of the photo, to the right of the transmission tower from a distance of approximately 1,500 feet.

4.3.3.3 Views from the West (Photos 9 through 12, Figure 4-2c and 4-2d)

Situated approximately 0.75 mile west of the site, Deer Valley Road runs north-south through gently rolling agricultural lands, including scattered farmsteads. Photos 9 through 11 are views of the site from Deer Valley Road.

Photo 9 shows a view looking southeast. From here the site lies near the center of the photo at the left edge of the hill. Photo 10, a similar but closer-range view, shows the project site beyond the line of riparian vegetation at the left edge of the hill. When seen from the west and southwest, respectively, intervening vegetation and landform screen views of the site from Deer Valley Road looking east and from Empire Mine Road looking northeast (Photos 11 and 12). The Empire Mine Road view of the site is at a distance of more than 1 mile.

4.3.3.4 View from the South (Photo 13, Figure 4-2d)

Photo 13 shows a view towards the site from Astor Court situated approximately 0.75 mile southeast of the site. When seen from the southeast intervening landform screens the view of the site from Astor Court looking northwest.

4.4 RELEVANT PLANS AND POLICIES AND PROJECT CONSISTENCY

As described in Chapter 11: Land Use and Planning, Recreation, and Agricultural Resources, the project area falls within the Sand Creek Focus Area of the City of Antioch. Residential development is planned to occupy almost half of the Specific Plan area while about one third is anticipated to be devoted to recreation and open space uses, including the Sand Creek corridor. The Specific Plan envisions a total of approximately 4,800 residential units, including a variety of single and multi-family housing, which would be developed on approximately 1,300 of the site's 2,707 acres. Nonresidential uses, including Retail/Commercial (about 9 percent), streets (about 5 percent), and Public/Quasi Public facilities, such as schools (slightly over 2 percent), will occupy the remaining acreage within the Specific Plan area. Because CPUC-regulated utility projects are not subject to local land use regulations, and because the Specific Plan has not been fully adopted by the City of Antioch, its policies are not applicable to the project. With respect to the project's potential visual effects, however, this document does provide a useful point of reference. The Specific Plan's overall physical and visual framework for development provides the following guidance:

- to provide for development on the flat valley floor,
- to preserve and enhance Sand Creek,
- to limit and restrict development into the hillsides, and
- to prohibit development on significant ridge lines, hilltops, and hill faces.

4.4.1 City of Antioch General Plan

As indicated in Chapter 11: Land Use and Planning, Recreation, and Agricultural Resources, non-utility development in the project area is subject to the City of Antioch General Plan, including the Community Image and Design Element (Section 5), which contains the following policies that pertain to the project.

4.4.1.1 General Design Policy

- Policy 5.4.2 c. Maintain view corridors to natural ridgelines and landmarks, such as Mount Diablo and distant hills, local ridgelines, the San Joaquin River, and other waterbodies.
 - Recognizing that new development will inevitably result in some loss of existing views, prohibit the siting of structures or landscaping that would completely block views from adjacent properties.
 - Important view corridors to be protected include Somersville Road, Lone Tree Way, Hillcrest Avenue, Highway 4 Bypass, State Route 160, James Donlon Boulevard, Deer Valley Road, and Empire Mine Road.

The project is sited on relatively flat, low-lying terrain. Because of its site context and the low-profile substation design, it will not obstruct or substantially alter views of local ridgelines or distant hills, including Mount Diablo, which are currently available to the public. Consequently, the project does not conflict with this policy.

4.4.1.2 Landscaping Policy

- Policy 5.4.15 b. The use of water efficient landscape materials and the installation of appropriate irrigation systems are required. This does not mean that the landscape is brown, displays a “desert” theme, or is devoid of plants. However, it does mean that a well-designed landscape shall be provided, which produces the same lush appearance as other non-water efficient landscapes, but requires less water and maintenance. Where consistent with the site’s design theme, native and naturalized species should be featured in the site's landscape design.

PGandE will develop a project landscape plan that will incorporate water-efficient plant material and include both deciduous and broad leaf evergreen trees. PGandE will submit this landscape plan to the City of Antioch for review and approval. This procedure ensures that the project will generally conform to this policy.

4.4.2 Contra Costa County General Plan

Although the Contra Costa County General Plan does not apply within the limits of the City of Antioch, and also does not apply to CPUC-regulated utility projects, County direction has relevance with respect to designated visual/scenic resources. Specifically, the County’s General Plan includes a Scenic Routes Plan that contains a description of scenic routes and scenic corridors. Within the general project area, the scenic routes mapped in the Contra Costa County General Plan are Empire Mine Road and Deer Valley Road.

The project site lies more than 0.5 mile from Empire Mine Road and approximately 0.5 mile from Deer Valley Road. Intervening topography and vegetation will screen views of the project from many places along Empire Mine and Deer Valley roads. Given the viewing distance and level of existing screening, it is expected that the project will not substantially affect the character or quality of views from these two public roadways.

4.4.3 California Department of Transportation Scenic Highways Program

The state Scenic Highways Program, a provision of the Streets and Highways code, was established by the Legislature in 1963 to preserve and enhance the natural beauty of California. The state Scenic Highway System includes highways that are either eligible for designation as scenic highways or have been designated as such. The status of a state scenic highway changes from eligible to officially designated when the local jurisdiction adopts a scenic corridor protection program, applies to the California Department of Transportation (Caltrans) for scenic highway approval, and receives from Caltrans the designation. A city or county may propose adding routes with outstanding scenic elements to the list of eligible highways. However, state legislation is required.

There are no designated or eligible state scenic highways within the project viewshed.

4.5 IMPACTS

4.5.1 Significance Criteria

To determine the significance of the anticipated visual changes, the project's effects were evaluated according to the CEQA Guidelines. Appendix G of the Guidelines indicates that a project will have a significant effect on the environment if it will:

- have a substantial, adverse effect on a scenic vista;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- substantially degrade the existing visual character or quality of the site and its surroundings;
- or
- create a new source of substantial light or glare, which will adversely affect day or nighttime views in the area.

In applying these criteria to determine significance, a variety of factors were considered, including:

- the extent of project visibility from residential areas, public open space, or designated scenic routes;
- the degree to which the various project elements will contrast with or be integrated into the existing landscape;
- the extent of change in the landscape's composition and character; and
- the number and sensitivity of viewers.

Project conformance with public policies regarding visual quality was also taken into account.

4.5.2 Construction

4.5.2.1 Temporary

Construction-related visual impacts will result from the presence of equipment, materials, and work crews at the project site. Given the relatively limited number of affected viewers in the immediate area, these effects will not be particularly noticeable to the public. Visual effects as a result of construction will be less than significant because the impacts will be temporary, short-term, and limited to a relatively small number of viewers.

4.5.2.2 Permanent

The project will alter the appearance of the project site by introducing a new substation facility. Major equipment to be installed at the site includes:

- 230 kV bus structures for an initial ring bus connection and arranged for an ultimate configuration for three 230 kV transmission circuits and three 230/21 kV power transformers. The dead-end structure for two transmission circuits is a two-bay design with three tubular steel columns that are spaced 50 feet apart and 50 feet high. Additional dead-end structures will be installed in the future when the third 230 kV transmission circuit and 230/21 kV power transformer will be connected to the modified ring bus with minimum impact to the operation of the existing system and equipment.
- Six 230 kV circuit breakers (for switching and protecting three transmission lines and three 230/21 kV power transformers), approximately 14 feet wide, by 9 feet deep, by 15 feet high.
- Three 230/21 kV power transformers, approximately 23 feet wide, by 16 feet deep, by 26 feet high.
- Three 21 kV metal-clad switchgears, with the initial installation approximately 67 feet long, by 18 feet deep, by 12 feet high. Each of the two 21 kV switchgears to be installed in the future will have approximately 44 feet long, 17 feet deep, and 12 feet high enclosures.
- One microwave communications equipment consisting of a 6-foot-diameter microwave dish on top of a 40-foot tall steel tower, and auxiliaries.

The structures will be neutral gray in color. To minimize sources for potential glare at the project site, all structures will be painted or finished with a non-reflective treatment.

The substation equipment will require a site area approximately 450 feet by 340 feet. An 8-foot-high, earth tone color concrete wall will enclose the substation equipment and an approximately 30 feet by 50 feet wide spill prevention and containment basin. A 30-foot-wide landscape buffer will surround the property. Trees, to be installed on the outside of the wall, will be grouped in informal clusters that will create a natural-appearing effect. Plant material will be native, drought-tolerant species and will include a mixture of deciduous and broad leaf evergreen species. In addition, a new approximately 120-foot tall lattice tower will be installed immediately south of the site, and a new overhead line connect the substation to the existing 230 kV line.

An existing tower, which is approximately 120 feet in height, will be replaced with a new tower that is comparable in height and appearance. Project installation will involve a minor amount of earthwork and grading at the tower sites, substation site, and access road.

Two types of lighting will be installed at the site. Task lighting will be a 10-foot-high, tapered pole mounted on steel posts. In addition, there will be wall-mounted area lighting on the concrete wall. This lighting will be a 9-foot-tall, swivel-type fixture with a hood. Exterior lighting will include the use of non-glare light bulbs. Lighting fixtures will be designed and located to avoid casting light or glare on off-site locations. Outdoor lighting at the substation site will be controlled manually or by photocell. The photocell will be set to automatically turn on the lights at night and turn them off during the day.

As part of the aesthetic impact evaluation of the project, visual simulations were produced using computer-modeling and rendering techniques. Existing views and computer-generated visual simulations that portray the location, scale, and appearance of the substation facilities are presented as Figures 4-3 and 4-4 in Attachment 4-A. The simulations illustrate the project's visual effects as seen from Chaparral Park (Figure 4-3) and Heidorn Ranch Road (Figure 4-4). The locations of simulation viewpoints are shown on Figure 4-1.

Figure 4-3 in Attachment 4-A portrays a "before" and an "after" view of the project from the Chaparral Park playing field looking southeast. This view encompasses parkland and the existing overhead transmission line in the foreground with scattered tree groupings beyond and more distant ridgelines in the backdrop. The project site lies more than 0.5 mile away, near the center of the view, to the east (left side) of the existing transmission line.

As shown in Figure 4-3 in Attachment 4-A, intervening vegetation will partially screen views of the new substation facility. The new tower and a small portion of the substation will appear to the right of these trees and a small part of the substation will be visible above the trees. To the extent that it is visible, the new substation and tower will generally appear against a landscape backdrop when seen from the north. When seen from some places within the park, a small part of the tower and a substation bus structure will appear along the skyline, above the hillside. As portrayed in the simulation image, these elements appear lower and less prominent than the 230 kV transmission towers currently seen on the right side of the existing view (Figure 4-3). A comparison between the existing view and visual simulation demonstrates that the level of visual change associated with the introduction of the new substation, seen near the center of the photo, does not substantially alter the view's existing composition, nor does it substantially affect the overall character of the existing landscape setting.

Views of the project may be available from some places situated to the north other than Chaparral Park, including places within the recently developed residential areas (see Attachment 4-A, Figure 1 and Figure 4-2a, Photo 1). Because viewing distances will be similar to or greater than those experienced from Chaparral Park, the level of impact on views from these areas will be similar to or less than the effect on views from the park, as shown in Figure 4-4. These visual effects will be less than significant.

Figure 4-4 in Attachment 4-A portrays “before” and “after” views of the project as seen from Heidorn Ranch Road, approximately 0.5 mile away. This view encompasses a panorama of agricultural land and grass-covered hillsides. As shown in the simulation, there will be an unobstructed view of the project from Heidorn Ranch Road. From here, the new substation will appear near the center of the view at the base of the hill. Existing landform and vegetation provides a backdrop for the structures. The presence of this landscape backdrop tends to minimize the visual contrast between the new structures and the surrounding environment. The new transmission tower can be seen to the left of the new substation, and downhill from an existing transmission tower. The new tower, which appears against a hillside backdrop, will be similar in form and approximately the same height as the existing transmission towers seen on the left side of the view.

As shown in Attachment 4-A, Figure 4-4, the substation will not appear particularly prominent in relationship to its landscape setting, given the viewing distance and the presence of the landscape backdrop. The project will not obstruct the current, available view of Mount Diablo. The visual changes associated with the project will not substantially alter the existing visual character experienced by the public along Heidorn Ranch Road. By partially screening unobstructed views of the new structures, the project landscaping will further reduce the project’s visual effect on the Heidorn Ranch Road corridor. These visual effects will be less than significant.

Views of the project may also be available from some places east of Heidorn Ranch Road, including points along the Highway 4 Bypass (see Attachment 4-A, Figure 4-1 and Figures 4-2a and 4-2b, Photos 4 through 6). In addition, limited views of the project may be available from places located to the west, including points along Deer Valley Road (see Figure 4-2c, Photos 9 to 11). It is anticipated that the project’s potential effect on views from these areas will not be particularly noticeable due to the viewing distances of approximately 1 mile, as well as the landscape backdrop and visual screening that will be provided by the perimeter tree planting.

Overall, the project will not substantially alter the visual character of the surrounding area as experienced by the public. The project’s modifications to the existing landscape setting will not result in a substantial, demonstrable negative effect for the following reasons.

- The project will not obstruct or substantially affect a scenic vista because the introduction of the new substation will not substantially alter views of the hillsides and ridgelines, including Mount Diablo, that are currently experienced by the public.
- Modifications associated with the project will not be visible from a designated state scenic highway.
- The project will not substantially degrade the existing visual character or quality of the site and its surroundings because it will involve installation of a low-profile design, landscaped substation that will not be highly visible from public-view corridors. In public views of the site from surrounding roadways and residential areas, the project will generally be visible at a distance of 0.5 mile or more. Views of the project site from the south are generally obstructed by existing topography and views from the east and northeast are screened by vegetation and topography.

- Because project lighting will be directed on-site and will utilize non-glare bulbs, and because landscaping will largely screen facility lighting, the project will not create a new source of substantial light that could adversely affect nighttime views in the area. New structures will be treated with a non-reflective finish; consequently, the project will not create a new source of substantial glare.

4.5.3 Operations and Maintenance

Operations and maintenance personnel will visit the site periodically for routine inspection and maintenance procedures. This activity will not be particularly noticeable to the public. Operations and maintenance activities will result in little, if any, visual impact with respect to the visual character and quality of the project area.

4.6 MITIGATION MEASURES

No visual mitigation measures are required because no significant visual impacts will result from project construction or operations.

4.7 REFERENCES

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