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8.11 VISUAL RESOURCES

This section considers the potential for the construction, operation, maintenance, and long-term presence of the proposed project to cause significant impacts on scenic quality, or on sensitive viewers within the visual sphere of influence (VSOI) established for the proposed project (Figure 8.11-1). The VSOI is referred to on Figure 8.11-1. This section addresses the inventory of the existing visual condition within the affected environment, the assessment of potential environmental consequences, and the laws, ordinances, regulations and standards (LORS) that may pertain to the management of visual resources within the VSOI.

This study and subsequent analysis of potential visual impacts was conducted in conformance with CEC guidelines for the inventory and assessment of visual impacts for AFCs. The CEC guidelines, in turn, comply with California Environmental Quality Act (CEQA) documentation requirements (summarized in Section 8.11.2, Environmental Consequences). The study methods used were based upon elements established by the U.S. Bureau of Land Management (BLM) Visual Resource Management Inventory and Contrast Rating System (VRM) (BLM, 1986) and the U.S. Forest Service Scenery Management System (SMS) (U.S. Forest Service, 1996).

8.11.1 Affected Environment

A characterization of the natural and manmade visual elements that have created the visual setting within the VSOI is provided in this section. This characterization will include a description of the visual inventory methodology, the VSOI, and a description of the regional landscape.

8.11.1.1 Regional Landscape Setting

The proposed project site (at approximately 184 feet above mean sea level [msl]) is located in northern Colusa County, California (see Figure 3.2-1). This area is a region of agriculture characterized by a mosaic of large-acreage farms. The crops grown here generally include rice, fruit, and row crops. The land exhibits a nearly flat topography allowing for expansive open views. Viewers east of the proposed project have views to the west of rolling foothills and Snow Mountain Summit (Mendocino National Forest) in the background threshold. Vegetation is generally composed of low-growing grass species with intermittent shrubs and trees occurring on undeveloped land, along irrigation canals, around farms, and on hillside and mountain slopes.

Cultural modification within the VSOI include roadways (e.g., I-5), solitary ranches and farms and associated facilities (e.g., grain silos, farm equipment), crop storage and delivery facilities, the existing PG&E Compressor Station, four 230 kV high-voltage transmission line corridors, aboveground distribution power lines, gas lines, irrigation canals, bridges, and historic structures. Additionally, the Colusa, Delevan, and Sacramento National Wildlife Refuges occur east of I-5. Of the three, the Sacramento National Wildlife Refuge is closest to the proposed project, 5 miles away and east of I-5.

8.11.1.2 Visual Sphere of Influence

For the purposes of this study and as stated previously, the area in which this project has the potential to cause significant effects on sensitive viewers and on the existing setting is defined as the VSOI. The VSOI accounts for views from key observation points (KOPs) that may be impacted from the long-term presence of the proposed project as well as potential effects associated with the existing setting. The VSOI for this project was established at a 5-mile radius from the proposed power plant site.

Visibility mapping was not performed for this analysis due to the generally flat topography and open views for a number of KOPs within the VSOI. Assessment of potential impacts on KOPs assumed a

worst-case scenario given that all sensitive viewers have views towards the proposed project on a high visibility day (defined as visibility up to 5 miles and beyond).

Outside the 5-mile VSOI, views of the proposed project lack sufficient spatial and scale dominance in a setting shared with the existing PG&E Compressor Station. As a result, the proposed project would not cause significant visual impacts from viewing areas outside the 5-mile VSOI. Regional views, those beyond 5 miles, were generally considered in the context of the proposed project and associated impacts, but were not considered in detail given the distances involved.

8.11.1.3 Visual Inventory Methodology

The following section describes the visual inventory methodology used for this assessment. Elements inventoried included establishing the existing scenic integrity of the project site (e.g., by characterization of the landscape), the identification of viewers who may experience visual impacts of the project within the VSOI, and applicable LORS (described in Section 8.11.5).

8.11.1.3.1 Landscape Character/Scenic Quality

Landscape character gives a geographic area its visual and cultural image or “sense of place,” and consists of a combination of physical, biological, and cultural attributes that make each landscape unique or identifiable. Typically, a tiered level of aggregation for landscape character is employed to capture the existing scenic integrity values. These tiers are generally described at a regional level, characterized at a local scale, and then specifically identified as an image type for local viewers within the VSOI.

Under the BLM VRM, scenic quality is determined by rating the uniqueness and diversity of interest in terms of landform, vegetation, water, cultural features, and the influence of adjacent scenery. In 1996, the U.S. Forest Service incorporated the Scenery Management System into visual resources land management activities. This system more accurately accounts for the value of landscapes that may not necessarily qualify, under the BLM VRM, as high or moderate quality landscape. For example, a large parcel of pristine land may lack sufficient topography or water to be classified as a B-rated landscape under the BLM VRM, but using integrity as a guiding criterion, this same landscape may rate as a Class B within the SMS.

The SMS landscape integrity criterion was chosen for this assessment to more accurately describe the landscape character present within the VSOI and on the project site itself. The concept of evaluating the scenic integrity within the VSOI plays an important role in establishing the magnitude of impact created by the proposed project when considered with other impacting visual elements (e.g., the PG&E Compressor Station and transmission line corridors).

For the purposes of meeting CEC requirements (Appendix B (g) (6) (B) of the Siting Regulations), the characterization of scenic quality inventoried within the VSOI is defined and discussed based on the following descriptions:

- **High Quality or High Scenic Integrity:** Areas exhibiting high scenic integrity either in cultural context (i.e., a landscape representing or identifying with a distinct human era) whether tangible or not (e.g., rural historic districts) and/or lacking significant apparent manmade disturbances over time (e.g., wilderness areas). Areas for which public and agency sentiment may regard noticeable changes as unacceptable.
- **Moderate Quality or Moderate Scenic Integrity:** Areas exhibiting moderate scenic integrity in cultural context (e.g., rural agricultural areas). Manmade disturbances are noticeable and long term, but recoverable over time (e.g., soil disturbance when

revegetated). Areas for which public and agency sentiment regarding changes may be negotiable.

- **Low Quality or Low Scenic Integrity:** Areas representing low scenic integrity in cultural context (e.g., grain processing facilities). Manmade disturbances are highly noticeable and permanent (e.g., transmission lines). An area for which public and agency sentiment regarding changes are low to indiscernible.

8.11.1.3.2 Key Observation Points

For this assessment a KOP is a viewing location where it can be assumed with a high level of confidence that viewers at this location may be susceptible to a change in scenic quality resulting in a visual impact caused by the introduction of the proposed project within their viewshed.

Generally, KOPs assigned a high sensitivity level include residential areas, trails, vista/interpretive overlooks, some recreational areas (e.g., campgrounds), designated or nominated scenic travel routes, recreation destination routes, or significant cultural properties (listed or eligible for listing on the National Register of Historic Places). However, existing viewing conditions from high-sensitivity residential areas may also be characterized as having low scenic integrity (e.g., presence of overhead power lines). Moderate sensitivity KOPs generally include high-end commercial developments (e.g., business parks) and some recreational activities (e.g., shooting ranges), and major travel routes. By definition, views from industrial and/or low sensitivity viewing areas do not qualify as KOPs.

The existing views and simulations developed for this project (see Figures 8.11-1 to 8.11-11) represent views from high-quality KOPs (e.g., from residences) and moderate quality KOPs (e.g., from I-5 and local road travelers) within the VSOI. KOPs were identified based on the review of land use data, field reviews, and direction from CEC staff responsible for the evaluation of visual resources related to the proposed project.

8.11.1.4 Visual Inventory Results

8.11.1.4.1 Landscape Character/Scenic Quality

Agricultural land dominates the landscape character within the VSOI. Mountains visible in the distance further add to form and line attributes of the natural setting. Riparian corridors containing large trees cross through the VSOI.

Earth tones of green, brown, tan, grey, blue, and white are dominant colors within the setting. Agricultural lands display primarily brown, tan, and green hues associated with rotating and production crops while the flanking foreground foothills display greens (during spring and summer months) and tans and browns (during fall and winter months). Middleground foothills and background mountain slopes take on more blue/grey tones with whitecapped mountain peaks displayed during the fall, winter, and spring months.

Given the relative homogenous vegetative palette that exists (e.g., low-growing grass species and dispersed trees), vegetation textural elements lack definition in the natural setting. Additionally, noticeable topographic textural elements (e.g., rock outcroppings) are lacking in the setting. The overall textural composition of the setting can be characterized as smooth with flowing line elements contributed to by the background foothills and mountains.

Overall, the landscape character inventoried within the VSOI is consistent with moderate and low scenic integrity as described in Section 8.11.1.3.1. Generally, within 2.5 miles of the project site, moderate scenic integrity image types exist within the viewsheds of KOPs. Viewsheds from these KOPs include

dominant vertical elements associated with the PG&E Compressor Station and associated transmission line corridors. Within a 2.5- to 5-mile radius of the project site, a low-scenic- integrity image type exists within the viewsheds of KOPs. Viewsheds in these KOP thresholds include the cumulative visual clutter of the PG&E Compressor Station and the transmission line corridors as well as the residential structures and their associated farming facilities (e.g., grain silos, farm equipment, supporting infrastructure). It should be noted that existing scenic integrity will vary within the overall classification based on specific viewing conditions (e.g., orientation of view, duration of view).

8.11.1.4.2 Key Observation Points

Portions of the proposed project would be visible by a majority of residences and travelers within the VSOI. Windshield field surveys conducted within the VSOI determined that approximately 50 to 75 detached homes are present and may have views of the proposed project. Additionally, the project would be visible to travelers on nearby roads and I-5 (approximately 4.25 miles to the east). The traffic volume is approximately 370 vehicles per day along Delevan Road, approximately 180 vehicles per day along McDermott Road, and approximately 50,000 vehicles per day along I-5 (see Section 8.10, Traffic and Transportation).

Four types of KOPs were identified within the VSOI: (1) foreground or close-range residents to the east, northeast, and north, (2) middle-ground residents to the east, southeast, and northeast, (3) background residents to the east, southeast, and northeast, and (4) I-5 and local roadway travelers and passengers. Areas retaining high scenic integrity were inventoried west of the proposed project, but no KOPs were identified because few viewers are likely to occur in this location. It should be noted that dispersed recreationers (e.g., hunters) may view the proposed project from west of the PG&E Compressor Station at some point during the life of the project. The following section describes more specifically the existing viewing condition from each KOP.

- KOP #1 (Figure 8.11-2) is located on McDermott Road south of Delevan Road at a distance of approximately 2.7 miles from the proposed site. This viewpoint is representative of a traveler's view and scattered residents' expected degree of perceived change within this viewshed. Traveling north along McDermott Road, the proposed site comes into view intermittently as there are large trees, farms, and other view blockage elements present. The existing PG&E Compressor Station and transmission corridors are noticeable in open viewing conditions. Existing scenic integrity along this road can be characterized as low to moderate along the majority of its length through the VSOI.
- KOP #2 (Figure 8.11-4) is the residence closest to the proposed project—the farm in Section 6—at an approximate distance of 1.7 miles from the proposed site. This view represents the highest degree of visibility expected from a KOP with implementation of the proposed project. The existing viewshed has been heavily modified due to the high visibility of the PG&E Compressor Station and transmission line corridors. Existing scenic integrity from this KOP can be characterized as moderate based on the variety of higher-quality views oriented away from the PG&E Compressor Station.
- KOP #3 (Figure 8.11-6) is located in an area where up to three residences are located at an approximate distance of 2.0 miles from the proposed site. This viewing location is also representative of residents' expected perceived change within this viewshed from a greater distance than KOP #2. The existing PG&E Compressor Station and transmission lines are entirely back-dropped by topography. Some vegetative screening is present in the middle ground threshold from this location. Existing residences are more completely screened with vegetation present on these land parcels. Existing scenic integrity from this KOP can be characterized as moderate.

- KOP #4 (Figure 8.11-8) is located at the ranch along Road 69 at an approximate distance of 2.3 miles from the proposed site. This viewpoint represents a flank view of the proposed project. The PG&E Compressor Station can be detected from this viewshed as a subordinate element on the landscape and entirely back-dropped by distant topography. However, the eastern 230 kV transmission line corridors are highly visible and sky-lined for a majority of the length in the field of vision. Existing scenic integrity from this KOP can be characterized as moderate.
- KOP #5 (Figure 8.11-10) is located on the shoulder of the southbound lane of I-5, at an approximate distance of 4.25 miles from the proposed project site. This KOP represents a viewpoint at the outer edge of the VSOI. The PG&E Compressor Station is apparent on the landscape, but subordinate. The transmission line corridors are indiscernible. Drivers along this roadway may notice the existing PG&E Compressor Station, but at an average speed of 65 miles per hour and with vehicle operators focused on the roadway, these occurrences are likely to be infrequent. Passengers would more likely view the existing PG&E Compressor Station, but would need to negotiate the intermittent existing visual clutter in their viewshed to achieve this. Existing scenic integrity from this KOP can be characterized as moderate. It should be noted that some views from this KOP have a much lower scenic integrity level and some have a slightly higher scenic integrity level, dependent upon modifications (e.g., buildings, signs, bridges, interchanges) present in the immediate foreground views.

8.11.2 Environmental Consequences

8.11.2.1 Significance Criteria

The assessment of visual impacts is based primarily on CEQA requirements. Appendix G of the CEQA Guidelines identify criteria and areas of concern regarding a project's potential impact on visual resources, as follows:

- A substantial adverse effect on a scenic vista.
- Substantial damage of scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings.
- Substantial degradation of the existing visual character or quality of the site and its surroundings. In this analysis, substantial degradation is defined as a perceptible, long-term (longer than 1 year), high level of visual impacts occurring within moderately to highly sensitive public views.
- Creation of a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

In addition, the CEC requires that consideration be given to the following questions:

- Will the project comply with local guidelines or goals related to scenic quality?
- Will the project significantly alter the existing natural viewsheds, including any changes in natural terrain?
- Will the project significantly change the existing scenic quality of the region or eliminate visual resources?

- Will the project significantly increase light and glare in the project vicinity, particularly nighttime glare?
- Will the project result in significant amounts of back-scatter light into the nighttime sky?
- Will the project result in a significant reduction of sunlight, or the introduction of shadows, in areas used extensively by the community?

Table 8.11-1 describes the matrix used to determine visual impact significance for KOPs. The level of impact significance is determined by combining visual impact susceptibility with severity. A brief definition of impact levels is provided below.

- **Significant Impact** – will likely cause a substantial long-term and adverse effect on landscape character or scenic quality on an existing viewshed due to the contrast between the proposed project and the level of existing scenic integrity.
- **Less-than-Significant Impact** – will create a noticeable but not substantial change in landscape character/scenic quality; or will cause a noticeable, but not substantial change on a KOP viewshed.
- **No Impact** – will create negligible or no change in contrast, severity, and susceptibility to changes in scenic integrity, viewer sensitivity, project visibility, and viewer exposure.

8.11.2.2 Assessment Methodology

This section discusses the assessment methodologies used to evaluate impacts of the proposed project on landscape character/scenic quality and KOPs. Also discussed is the use of photo simulations, which aided in confirming the assessment of impacts (see Figures 8.11-3, 8.11-5, 8.11-7, 8.11-9, and 8.11-11). Assessment of impacts on landscape character/scenic quality was performed using the following main considerations: (1) the level of existing scenic integrity; and (2) the degree of perceived change (or project contrast) to the current naturalness of the area (or scenic integrity). The primary factors considered in the assessment of impacts on KOPs include: (1) the susceptibility of a KOP to realize an impact; and (2) the magnitude or severity of impact realized on a KOP. The dimensions of the major structures identified in Table 3.5-1 aided in this assessment.

8.11.2.2.1 Landscape Character/Scenic Quality

The assessment of impacts on landscape character/scenic quality included consideration of the current level of scenic integrity that exists at the proposed project site and the magnitude of change that would occur to landform and vegetation at the site with the construction of the proposed project. Inventory results concluded that the existing scenic integrity at the plant site was low, given the close proximity of the PG&E Compressor Station, transmission line corridors, canals, roads, and other associated elements that have contributed to compromising the scenic integrity (e.g., signs, fences, and aboveground distribution lines). Anticipated levels of landscape contrast resulting from ground-disturbing activities and from vegetation removal are anticipated to be low.

Typically higher impacts would occur on scenic quality if natural amenities on the project site were of a higher quality (e.g., rock outcroppings, large trees, bodies of water, landscape intactness) and to a degree in which the presence and contribution of these natural amenities to the existing scenic quality would be jeopardized. Given the absence of substantive contributing natural amenities at the proposed site, by definition, the scenic quality of the site is low.

8.11.2.2.2 Key Observation Points

Susceptibility

The following components were considered in identifying the degree to which a KOP would be *susceptible* to impact:

- Scenic integrity level – the amount of noticeable disturbances within a landscape setting;
- Viewer sensitivity level – the anticipated level of sensitivity a viewer may have for changes occurring within the viewsheds;
- Project visibility – an evaluation of the angle of view, available screening, lighting, and time of day; and
- Viewer exposure – an evaluation of the distance, number of viewers, and duration of view.

Table 8.11-2 identifies individual values relating to visual impact susceptibility assigned to each component above for each KOP included in this assessment.

Severity

The potential change a project can cause to a specific landscape setting within a specific sensitive viewshed is assessed a level of visual impact *severity*. Severity levels can range from significant to indiscernible. A number of components are considered and combined to determine the magnitude of visual impact severity the proposed project may have. These components are as follows:

- Form, line, color, texture, and scale contrast;
- Scale dominance and spatial dominance;
- View blockage; and
- Night lighting.

Table 8.11-3 identifies individual values relating to visual impact severity assigned to each component above for each KOP included in this assessment.

8.11.2.2.3 Photo Simulations

The development of photo simulations assisted with the determination of impacts on KOPs. The approach used to develop these photo simulations is described below.

Photo/3D Model Composite Simulation

To ensure a high degree of visual accuracy in the simulations, Computer Aided Design (CAD) equipment and the use of Global Positioning Systems (GPS) allow for life-size modeling within the computer. This translates to using *real world scale and coordinates* to locate facilities, other site data, and the actual camera locations corresponding to 3D simulation viewpoints. The degree of accuracy of the CAD equipment is absolute; the accuracy for the GPS location data is to within approximately 1 meter, or 3.28084 feet.

Microstation/AutoCad, 3D CAD, and GPS Data Integration

A CAD site map is imported as a background reference. Microstation CAD drawings of both existing and proposed facilities are placed on top of the site map to register and orient the correct locations of KOPs. The 3D massing models of both the existing structures and the proposed modifications are generated in real world scale. The GPS camera positioning information is then referenced to the 3D data set.

Model View Professional/3D Studio Max/Adobe Photo Shop

An electronic camera lens matches the camera lens that was actually used in the field. A 35-mm camera with a 50-mm lens was used consistently throughout the process. This lens selection allows for viewing of the computer-generated model in the same way that the proposed project would be viewed in the field.

Next, the photographic negative is scanned into the 3D database and loaded as an environment within which the view of the 3D model is generated. To generate the correct view relative to the actual photograph, the electronic camera is placed at a location (within the computer) from where the photograph was taken. This is supported by the GPS location. From here, the 3D wire frame model is displayed on top of the existing structures so that proper alignment, scale, angle, and distance can be verified. When all lines of the wire frame model exactly match the photograph, the camera target position is confirmed.

To complete this phase, the sun angle is set, materials and textures are applied, and the composite image is rendered through a computer image process known as *RayTracing*. Any additional filters required for appropriate atmospheric conditions, such as blur/focus/haze etc., are applied at this time.

The photo simulations developed for this project have been designed to be viewed 12 inches from the viewer's eye. This distance will portray the most realistic life-size image from the location of the KOPs.

8.11.2.2.4 Project Features Designed to Reduce Impacts

The location of structures and equipment on the power plant are shown on Figure 3.4-1. In addition, dimensions of major structures (which will be primarily constructed of steel) are listed in Table 3.5-1, provided in Chapter 3, Facility Description and Location. The following design features were incorporated into the proposed project to reduce the potential for visual impacts:

Power Plant

- Structures, stacks, buildings, and storage tanks will be painted an earth tone color.
- The colors will provide for subtle variations and contrast. The selected color will help the project to blend more naturally with the natural setting.
- Fencing will be constructed of electrogalvanized or hot dipped galvanized materials to reduce visual effects on sensitive viewers. Additionally, reflectivity of surfaces will be reduced by using nonreflective elements where practical.

Lighting

- Lighting on the project site will be limited to areas required for operations, maintenance, and safety, will be directed on site to avoid back-scatter, and will be shielded from public view to the extent practical.

- All lighting that is not required to be on during nighttime hours will be controlled with sensors or switches such that the lighting will be on only when needed.
- High-pressure sodium vapor fixtures will be used. These lights typically produce low-intensity amber light, which will reduce visual contrast with the night sky.
- Stacks and other tall project elements will be lit in accordance with Federal Aviation Administration guidelines.

Gas and Water Pipelines

- After construction, areas stripped of vegetation will be revegetated or vegetated to the same extent as the surrounding area.

Laydown Yard/Tensioning and Pulling Sites

- Upon completion of the project, the laydown yard and the tensioning and pulling sites will be revegetated to blend with adjacent vegetation.

Glenn-Colusa Bridge Replacement

- Original approaches will be final graded to blend with the surrounding land topography and seeded with grass local to the region as directed by the County Extension Office.

8.11.2.3 Impact Results

8.11.2.3.1 Visual Impacts on Landscape Character/Scenic Quality of the Site

The project site lacks substantive high- or moderate-quality natural amenities (e.g., it has no rock outcroppings, mature vegetation, or water bodies). Earthwork will be required to create a level pad for the proposed project. Temporary or short-term impacts may include the disturbance of vegetation and soil at the construction laydown areas, tensioning and pulling sites, gas pipeline alignment, water pipeline alignment, Glenn-Colusa Bridge removal, and during construction of the new bridge and roadway improvements. As a result, vegetation will be removed, primarily grass species, and the soil will be manipulated. Revegetation of disturbed areas (e.g., pipelines, lay-down yard, tensioning and pulling sites, and temporary road construction easements) will eliminate long-term impacts to the landscape character. As a result, no impact on scenic quality is likely to occur to landscapes from the construction or operation of the proposed project.

8.11.2.3.2 Visual Impacts on KOPs

Table 8.11-4 summarizes the visual impact susceptibility, visual impact severity, and the resultant visual impact significance on KOPs. For a more detailed description of the elements used to assess impacts, please refer to Tables 8.11-2 and 8.11-3. A discussion of each KOP follows.

- KOP #1 (Figures 8.11-3 and 8.11-4) is located along McDermott Road south of Delevan Road at a distance of approximately 2.7 miles from the proposed site. The primary factors contributing to the assignment of an impact level at this location are (1) duration of view, (2) view blockage, and (3) sensitivity of viewer. Travelers using this road typically will be driving between 25 and 35 miles per hour. At this speed and with the operator's attention focused on the road, it is unlikely that views of the proposed site would be substantially noticeable. Additionally, screening is available along this road that would contribute to a reduction in viewer impact susceptibility. Finally, this road is

used primarily by local residents. These viewers typically use this road to commute from their homes to work, school, or shopping. They are intimately familiar with elements in their viewshed and have become accustomed to experiencing the visual clutter that currently exists in the setting. The addition of the proposed project behind the existing PG&E Compressor Station will not detract significantly from a traveler's experiences along this road.

Lighting for the proposed power plant facility may cause increased levels of back-scatter light and nighttime glare; however, these levels have been determined to be less than significant based on the application of lighting design elements (e.g., directed lighting, high-pressure sodium vapor fixtures, control switches) incorporated into the project design. Furthermore, at nearly 3 miles from the proposed project, these impacts were not considered to be highly noticeable.

Overall, it was determined that the project would have a less-than-significant impact on viewers along KOP #1.

- KOP #2 was taken from the residence closest to the proposed project (the farm in Section 1) at an approximate distance of 1.7 miles from the proposed site. This KOP currently experiences a high degree of modification to the natural setting as created by the PG&E Compressor Station and the existing transmission line corridors. Elements of form, line, color, and texture are highly noticeable in their current viewshed. The proposed project will be located behind the PG&E Compressor Station, which will contribute to a reduction of impact severity levels (see Figure 8.11-5).

Furthermore, because elements of the proposed project would appear to be of moderate size in comparison to a wide field of view, the scale dominance was established to be co-dominant. Additionally, given the distance KOP #2 is located from varying topography, the open views associated with this viewshed, and the entire back-dropping available, the spatial dominance was established to be co-dominant as well. Lighting impacts from this KOP will be slightly higher than KOP #1 given the closer distance, but would still be considered a less-than-significant impact. It is because of the back-dropping of nearby topography and the specific siting of the proposed facility behind the existing PG&E Compressor Station that a less-than-significant impact level is appropriate for KOP #2.

- KOP #3 is taken from an area where up to three residences are located at an approximate distance of 2.0 miles from the proposed site (see Figure 8.11-7). The primary factors contributing to the assignment of an impact level included (1) view blockage, and (2) scale dominance. Although the viewshed of this KOP is open, a substantial amount of onsite screening is provided close to residences. Additionally, the scale dominance is reduced as a result of back-dropping provided by nearby foothills. Lighting impacts are anticipated to be slightly lower than impacts at KOP #2. Given the modified viewshed that currently exists for KOP #3, impacts would be less than significant.
- KOP #4 was taken from the ranch along Road 69 at an approximate distance of 2.3 miles. The primary factors contributing to the impact level for this KOP are (1) viewer exposure, and (2) form and line contrast. Currently this KOP's viewshed contains the PG&E Compressor Station and parallel views of the transmission line corridors. The proposed project's 175-foot-high stacks will be skylined in this viewshed (see Figure 8.11-9). However, this condition was compared to the sky-lined transmission line corridor and was determined to become co-dominant elements when related to the stacks. Additionally, although the proposed project will be more massive on the landscape, the

presence of the PG&E Compressor Station and the transmission lines creates a co-dominant situation in terms of viewer exposure. Lighting impacts from this KOP are considered to be slightly higher than KOP #3 when considering the flanked view of the proposed project in relation to this sensitive viewpoint.

This KOP is unique in the VSOI, inasmuch as it is the second farthest KOP from the proposed site, and it has dramatic views west (away from the site) to the nearby foothills and snow-capped mountains under virtually pristine viewing conditions. The analysis accounted for the probability that the majority of time, viewers from this KOP would be vested in western views rather than southern views facing the existing industrial facilities (e.g., PG&E Compressor Station, transmission line corridors). This results in a less-than-significant impact.

- KOP #5 is located on the southbound shoulder of I-5 at an approximate distance of 4.25 miles from the proposed project site (see Figure 8.11-5). Given the distance, moderate scenic integrity (see inventory section for details), and duration of view, impacts would be less than significant under daytime and nighttime conditions.

Indirect, temporary, and construction-related impacts on all KOPs and other sensitive viewers may include those associated with the presence of construction equipment during construction activities and the increase of fugitive dust created by the movement of vehicles on dirt roads. Impacts on visual resources during the construction period of the proposed project are expected to range from less than significant to none.

8.11.2.4 Visible Plumes

8.11.2.4.1 HRSG Stack Plume Characteristics

The potential exists for vapor plumes (water vapor condensation) to be visible from the 175-foot-high HRSG stacks. The frequency, persistence, and size of visible condensate plumes depend primarily on the design and type of combustion turbine generator and the HRSG, and meteorological conditions of temperature and humidity. Visible plume formation is more frequent during the cooler seasons (i.e., winter) when ambient conditions are more favorable to plume formation. For this reason, results focused on seasonal daylight clear hours. Seasonal daylight clear hours are defined as daylight hours from November through April that include clear skies and 50 percent of the scattered or broken skies excluding overcast skies, and hours with weather. It should be noted that the same ambient conditions that result in plume formation from the HRSGs would often cause natural weather conditions of fog, haze, and precipitation to occur, which generally reduces visibility. Times when fog, haze, or precipitation is present were excluded from plume frequency calculations for the CEC analysis.

The characteristics of visible plumes that are important to an assessment of visual impacts include plume length (the distance over which a plume remains intact), plume height (the distance from ground to the centerline of the plume), and plume shadowing (the blocking of incident solar radiation by a plume). URS used the Combustion Stack Visible Plume model to assess potential visual impacts associated with plumes. A description of this model and the data inputs that were used may be found in Appendix G7.

The resultant calculations (see Table 2 in Appendix G7) indicated that the 20th percentile visible plume for seasonal daylight clear hours would extend out to approximately 186 meters, have a width of approximately 38 meters, a depth of approximately 56 meters, and reach a height of approximately 174 meters.

8.11.2.4.2 Viewshed

When plumes are formed over the project site they would be above and extend downwind of the project structures. The 20th percentile seasonal daylight clear plume height would start above the 175-foot HRSG stack and could reach an ultimate height of approximately 570 feet above ground and be visible for approximately 627 feet downwind of the stack. Under this condition, the plume would create a co-dominant effect related to the project structures. However, this scenario would only occur 28.65 percent of the seasonal daylight clear hours in the 5 years modeled.

8.11.2.4.3 Plume Contrast

The visible plume considered in relation to the surrounding vegetation would have low to moderate contrast. The primary factors driving this association are the existing backdrop and the seasonal color changes in vegetation. During the months when plume formation is at its greatest, prevalent colors of the landscape vegetation are tones of green, blue, grey, and tan. Furthermore, snow on backdropped mountains further assists in the reduction of plume contrast. During spring months when tones of green are more prevalent, the plumes are less likely to occur. During summer months, the plumes are not likely to be visible due to warmer temperatures. The plumes would cause low to moderate contrast levels to form and line features within the VSOI. This is a result of a plume generally blending more naturally with the overall rounded nature of the surrounding topography.

8.11.2.4.4 Scale Dominance

The formation of plumes when related to the CGS project structures, the PG&E Compressor Station, and the nearby transmission line corridors would create an overall co-dominant level of scale dominance.

8.11.2.4.5 Spatial Dominance

The location of plumes would vary depending on the orientation of a viewpoint. Spatial dominance would range from subordinate to co-dominant with regard to the overall composition of the setting. Because the plumes would be backdropped from the majority of viewpoints, their spatial dominance would be subordinate. Viewpoints to the north of the project site will experience a more co-dominant scenario given the distance and height of backdropping from these locations.

8.11.2.4.6 View Blockage

Some view blockage on views towards moderate to high-quality landscapes may occur during plume formation. The severity of view blockage would therefore be low to moderate, given the frequency of this scenario occurring.

8.11.2.4.7 Night Lighting

Plumes may be more fully accentuated at night by lighting. Lighting for this project will use directional and shielding devices reducing the potential effects of lights illuminating the vapor plumes. Previous studies of existing vapor plumes have shown that the plumes are not highly visible at night, unless there are substantial ambient light conditions, such as those found in urban settings. Due to frequency and size, the plumes are expected to have a low impact at night.

8.11.2.4.8 Visual Impact Severity

The overall visual impact severity on key observation points and other sensitive viewers would be moderate during periods of the year when plume formation is most likely to occur.

8.11.2.4.9 Visual Impact Susceptibility

Components of scenic integrity, viewer sensitivity, visibility, and viewer exposure were considered in the assignment of a visual impact susceptibility level. Given the infrequency of plume formation with this project, viewer exposure to plumes was rated low. However, viewer sensitivity and plume visibility were rated high. The existing scenic integrity within the VSOI was rated as low to moderate, with intermittent high areas occurring primarily west of the project site. The visual impact susceptibility level during the formation of vapor plumes was rated moderate to high.

8.11.2.4.10 Visual Impact Significance

The overall level of impact on KOPs due to the formation of vapor plumes was rated less than significant.

8.11.3 Cumulative Impacts

The proposed project will add a new industrial facility to the overall landscape setting of the VSOI and will contribute to cumulative adverse visual influences that currently are in the viewsheds of sensitive viewers within the VSOI. The existing PG&E Compressor Station and associated transmission lines have compromised the existing landscape setting. Therefore, the proposed project along with the existing cultural modifications would not dominate the landscape setting. The back-dropping present to the west of the proposed project has added substantially to the reduction of potential visual impact on most of the KOPs. When added to the existing visual setting, the proposed project would not significantly alter existing scenic quality or viewsheds from KOPs or other viewing areas.

8.11.4 Mitigation Measures

Because no significant visual impacts are expected with the implementation of this project, no mitigation measures are warranted at this time.

8.11.5 Laws, Ordinances, Regulations, and Standards

Federal and State LORS

The proposed project, including all ancillary facilities, is located on private lands and is not subject to any federal or state land management requirements relating to visual resources. Additionally, no roadway in the VSOI is a designated State Scenic Highway.

Colusa and Glenn County LORS

The relevant LORS for Colusa and Glenn counties are included in Table 8.11-5. It should be noted that although Glenn County retains no jurisdiction of implementation of LORS for this project, the VSOI extends into Glenn County. Relevant LORS for Glenn County (1993) were also considered in the assessment which determined that the proposed Colusa Generating Station would not conflict with the goals of the Glenn County General Plan.

The principal LORS regulating visual impacts from projects in Colusa County is the County General Plan (1989a) and Land Use Element. The plan establishes goals and standards for protecting scenic values of Colusa County. Overall, this assessment has determined that the Colusa Power Plant would not conflict with the goals set forth in the County General Plan.

8.11.6 Involved Agencies and Agency Contacts

Issue	Agency/Address	Contact/Title	Telephone
Visual Resources within VSOI	Colusa County Department of Planning and Building 220 12th Street Colusa County 95932	Steve Hackney, Director	(530) 458-0480
Visual Resources, Glenn County	Resource Planning and Development Department 125 S. Murdock Willows, CA 95988	Any planner	(530) 934-6540
Selection of representative KOPs within VSOI	California Energy Commission Energy Facilities Siting Division 1516 9th Street Sacramento, California 95814	James Adams, Environmental Planner Dale Edwards, Supervisor	(916) 653-0702 (916) 653-5139

8.11.7 Permits Required and Permit Schedule

No permits are required regarding visual resources.

8.11.8 References

Bureau of Land Management. 1986. Visual Resource Management Inventory and Contrast Rating System.

Colusa County. 1989a. General Plan.

Colusa County. 1989b. Zoning Ordinance.

Glenn County. 1993. General Plan.

U.S. Forest Service. 1996. Scenery Management System. U.S. Department of Agriculture.

Table 8.11-1 Visual Impact Significance Matrix – Key Observation Points					
Visual Impact Severity	Visual Impact Susceptibility				
	High	Moderate to High	Moderate	Low to Moderate	Low
Very High	Significant	Significant	Significant	Less than Significant	Less than Significant
High	Significant	Significant	Less than Significant	Less than Significant	Less than Significant
Moderate	Significant	Less than Significant	Less than Significant	Less than Significant	No Impact
Low	Less than Significant	Less than Significant	Less than Significant	No Impact	No Impact
Negligible	Less than Significant	Less than Significant	No Impact	No Impact	No Impact

Table 8.11-2 Visual Impact Susceptibility – Key Observation Points					
KOP	Visual Impact Parameters				Visual Impact Susceptibility
	Scenic Integrity	Viewer Sensitivity	Visibility	Viewer Exposure	
KOP #1	Low to Moderate	Moderate	Moderate	Moderate	Low to Moderate
KOP #2	Moderate	High	Moderate to High	Moderate to High	Moderate to High
KOP #3	Moderate	High	Moderate	Moderate	Moderate
KOP #4	Moderate	High	Moderate to High	Moderate	Moderate to High
KOP #5	Moderate ^a	Moderate	Moderate	Low	Low

Note: It should be noted that a variety of viewing conditions are present along I-5 that may retain higher or lower scenic integrity based on view location.

**Table 8.11-3
Visual Impact Severity – Key Observation Points**

KOP	Visual Impact Parameters									Visual Impact Severity
	Form Contrast	Line Contrast	Color Contrast	Texture Contrast	Scale Contrast	Scale Dominance	Spatial Dominance	View Blockage	Night Lighting	
KOP #1	Moderate	Moderate	Low	Low	Low	Co-dominant	Co-dominant	Low	Low to Moderate	Low
KOP #2	Moderate	Low	Low	Moderate	Moderate	Co-dominant	Co-dominant	Low	Moderate	Moderate
KOP #3	Moderate	Moderate	Low	Low	Low	Co-dominant	Co-dominant	Low to Moderate	Moderate	Low to Moderate
KOP #4	Moderate	Moderate	Low	Low	Moderate	Co-dominant	Co-dominant	Moderate	Moderate	Moderate
KOP #5	Low	Low	Low	Low	Low	Subordinate	Subordinate	Low	Low	Low

**Table 8.11-4
Summary of Visual Impacts on Key Observation Points**

KOP	Impact Description	Level of Susceptibility	Level of Severity	Visual Impact
KOP #1	KOP #1 is located along side of McDermott Road south of Delevan Road. This viewpoint is representative of a traveler’s expected degree of perceived change while driving north along this road.	Low to Moderate	Low	Less than Significant
KOP #2	KOP #2 is the residence closest to the proposed project and represents the highest degree of impact expected with the implementation of this project.	Moderate to High	Moderate	Less than Significant
KOP #3	KOP #3 is taken from an area where up to 3 residences are located. This viewing location is representative of residents’ expected perceived change within their viewshed from a greater distance than KOP #2.	Moderate	Low to Moderate	Less than Significant
KOP #4	KOP #4 was taken from the ranch along Road 69. This viewpoint represents a flank view of the proposed project and is equal in impact to KOP #2 but farther away.	Moderate to High	Moderate	Less than Significant
KOP #5	KOP #5 was taken from the southbound shoulder of I-5 and represents a viewpoint at the edge of the VSOL.	Low	Low	Less than Significant

Table 8.11-5 Applicable Visual Resources Laws, Ordinances, Regulations, and Standards (Page 1 of 4)			
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
Local			
Colusa County General Plan, Goals – 2 (g)	To upgrade the visual appearance and quality of development on the approaches to Colusa and Williams and prevent development which degrades the aesthetic quality of scenic roadways elsewhere.	Colusa County	8.11.2.2.1
Colusa County General Plan, Goals – 4 (i)	To encourage the preservation of scenic vistas and limit the proliferation of commercial and political signs along county roadways.	Colusa County	8.11.2.2.1
Colusa County General Plan, Goals – 7 (d)	To retain the natural character of large open space areas.	Colusa County	8.11.2.2
Colusa County General Plan, Goals – 7 (f)	To conserve the natural beauty of county rivers, streams, and hillsides.	Colusa County	8.11.2.2
Colusa County General Plan, Goals – 7 (g)	To maintain expansive open spaces, uninterrupted by urban development, both on the valley floor and in upland valleys.	Colusa County	8.11.2.2
Colusa County General Plan, Land Use Element – 22 (LU-7)	The proposed development pattern should protect the scenic values of Colusa County. More restrictive design standards should be developed within the communities to encourage visually attractive development and lessen the visual impact of existing non-conforming uses.	Colusa County	8.11.2.2
Colusa County General Plan, Circulation –12 (Bicycle, Hiking, and Off-Road Vehicle Trails)	The Central Valley bicycle trail, part of a statewide network for inter-regional travel, runs parallel to I-5 in Colusa County. No other formal bicycle trails exist in the county.	Colusa County	8.11.2.2.1

Table 8.11-5 Applicable Visual Resources Laws, Ordinances, Regulations, and Standards (Page 2 of 4)			
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
Colusa County General Plan, Circulation – 33 (Bicycles)	At this time, neither the county nor the cities of Williams and Colusa have a “bikeways” plan	Colusa County	8.11.2.2.1
Colusa County General Plan, Circulation – 34 (The Value of Scenic Highways)	Despite its lack of topography, the valley (Sacramento) is visually significant; its expanses of rice paddies and field crops uninterrupted by urbanization impresses the passing motorist with the importance of agriculture to this region.	Colusa County	8.11.2.2.1
Colusa County General Plan, Circulation – 35 (Procedures for Scenic Highway Designation)	In Colusa County only State Highway 16 and Highway 20 from the Lake County line are “eligible” scenic highways.	Colusa County	8.11.2.2.1
Colusa County General Plan, Circulation – 36 (Procedures for Scenic Highway Designation)	The Maxwell–Sites Road should be considered for local scenic highway designation.	Colusa County	8.11.2.2.1
Colusa County General Plan, Circulation – 41 (CIRC-41)	The natural scenery which exists along locally recognized scenic highways should be protected from activities which would permanently diminish their aesthetic beauty. Urban development should be discouraged in locally recognized scenic highway corridors.	Colusa County	8.11.2.2.1
Colusa County General Plan, Open Space – 1 (Organization of this Element)	The Open Space Element of the General Plan is necessary to ensure that land in Colusa County will remain available for the production of food, the management of natural resource, the enjoyment of scenic beauty, and recreation.	Colusa County	8.11.2.2

Table 8.11-5 Applicable Visual Resources Laws, Ordinances, Regulations, and Standards (Page 3 of 4)			
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
Colusa County General Plan, Open Space – 19 (OS-15) -	Where possible, new development within Community Plan Areas should be designed to capture view opportunities of the surrounding natural landmarks.	Colusa County	8.11.2.2.1
Glenn County General Plan, Vol. 1 – pp. 3-14	Special Overlay Designations – Historic and Cultural – This overlay designation reflects those areas of unique historical or cultural value within Glenn County. The purpose of this designation is to preserve those sites identified for educational, scientific, and aesthetic purposes.	Glenn County	8.11.2.2.1
Glenn County General Plan, Vol. 1 – pp. 5-33	The open space element must set forth policy for preservation of areas of outstanding scenic, historic, or cultural values.	Glenn County	8.11.2.2
Glenn County General Plan, Vol. 1 – pp. 5-34	NRP – 87 Consider preparation of a scenic highways plan.	Glenn County	8.11.2.2.1
Glenn County General Plan, Vol. 1 – pp. 5-35	NRI – 56 Establish a local committee of citizens to determine the interest in a designated system of scenic highways, vistas, or corridors and subsequently implement policies and standards for their protection.	Glenn County	8.11.2.2.1

Table 8.11-5 Applicable Visual Resources Laws, Ordinances, Regulations, and Standards (Page 4 of 4)			
Laws, Ordinances, Regulations, and Standards	Applicability	Administering Agency	AFC Section
Glenn County General Plan, Natural Resources Issue Paper – pp. 69	Glenn County is fortunate to have great scenic beauty and a variety of scenery, including the Sacramento River and streams, foothill, and mountain areas, agricultural vistas on the valley floor, the Sacramento National Wildlife Refuge, glimpses of wildlife and a distant view of Mount Lassen. It is assumed that these visual resources are valued and that the county, through its General Plan policies, has an interest in preserving this resource for local enjoyment as well as for economic development (tourism) purposes.	Glenn County	8.11.2.2.1
Glenn County General Plan, Natural Resources Issue Paper – pp. 70	The county can locally designate scenic highways and establish policy in the General Plan with regard to allowed uses, setbacks, and design standards. New signs and billboards can be limited or prohibited within such corridors.	Glenn County	8.11.2.2.1



Source:
 USGS Topographic Maps, 7.5 Minute Series:
 Logan Ridge, California, 1973
 Logandale, California, 1973
 Sites, California, 1973
 Maxwell, California, 1994

LEGEND

- ① Viewpoint and Viewing Direction
- 100-acre Project Site
- Plant Layout
- Proposed Transmission Line Interconnection
- Proposed Water Supply Pipeline
- Proposed Natural Gas Pipeline
- Proposed New Roadway
- Proposed Bridge/Intersection Improvements
- Construction Areas

Scale in Miles
 0 1/2 1

Scale in Feet
 0 2000 4000

**KEY OBSERVATION POINT LOCATIONS/
 VISUAL SPHERE OF INFLUENCE**

28067004
 November 2006

Colusa Generating Station
 E&L Westcoast, LLC
 Colusa County, California

URS **FIGURE 8.11-1**

10/29/06 vba 28067004 CPV Colusa 11 Visual 8.11-1_KOP.tcd



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

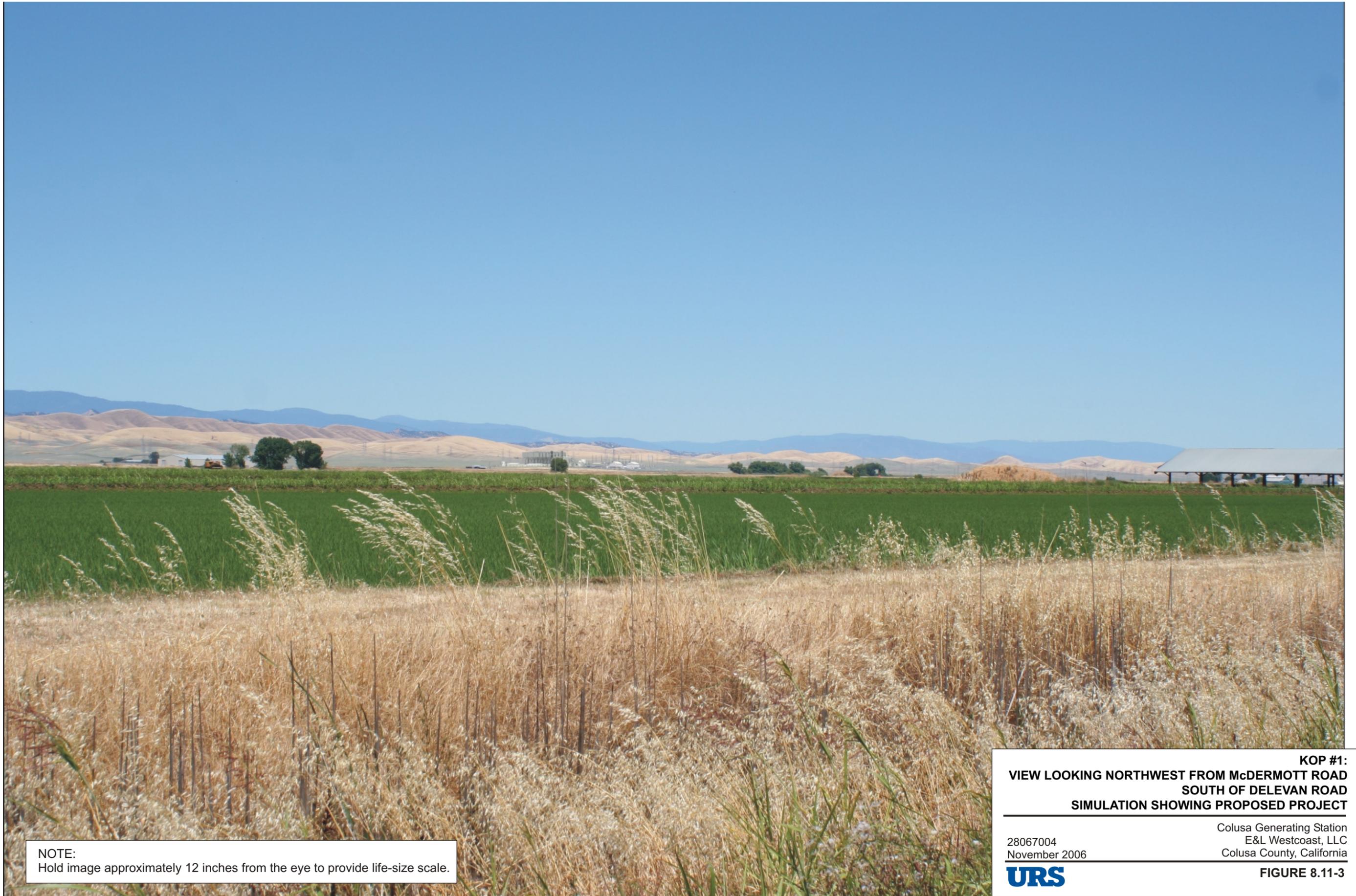
KOP #1:
VIEW LOOKING NORTHWEST FROM McDERMOTT ROAD
SOUTH OF DELEVAN ROAD
EXISTING CONDITION

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 8.11-2



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

KOP #1:
VIEW LOOKING NORTHWEST FROM McDERMOTT ROAD
SOUTH OF DELEVAN ROAD
SIMULATION SHOWING PROPOSED PROJECT

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 8.11-3



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

**KOP #2:
VIEW LOOKING NORTHWEST FROM
NEAREST RESIDENCE
EXISTING CONDITION**

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 8.11-4



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

KOP #2:
VIEW LOOKING NORTHWEST FROM
NEAREST RESIDENCE
SIMULATION SHOWING PROPOSED PROJECT

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California



FIGURE 8.11-5



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

**KOP #3:
VIEW LOOKING SOUTHWEST
FROM McDERMOTT ROAD NORTH OF SITE
EXISTING CONDITION**

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 8.11-6



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

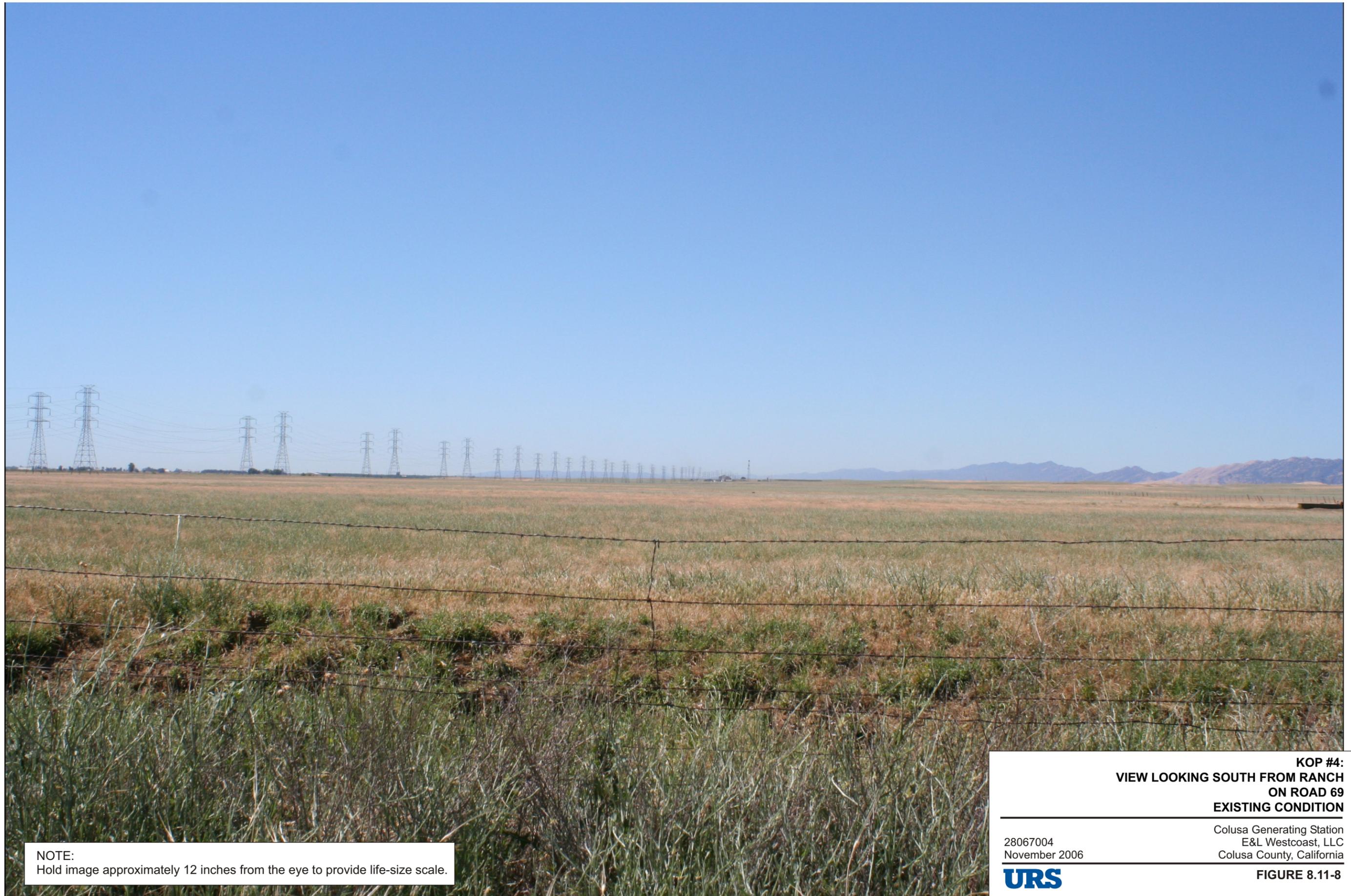
KOP #3:
VIEW LOOKING SOUTHWEST
FROM McDERMOTT ROAD NORTH OF SITE
SIMULATION SHOWING PROPOSED PROJECT

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November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 8.11-7



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

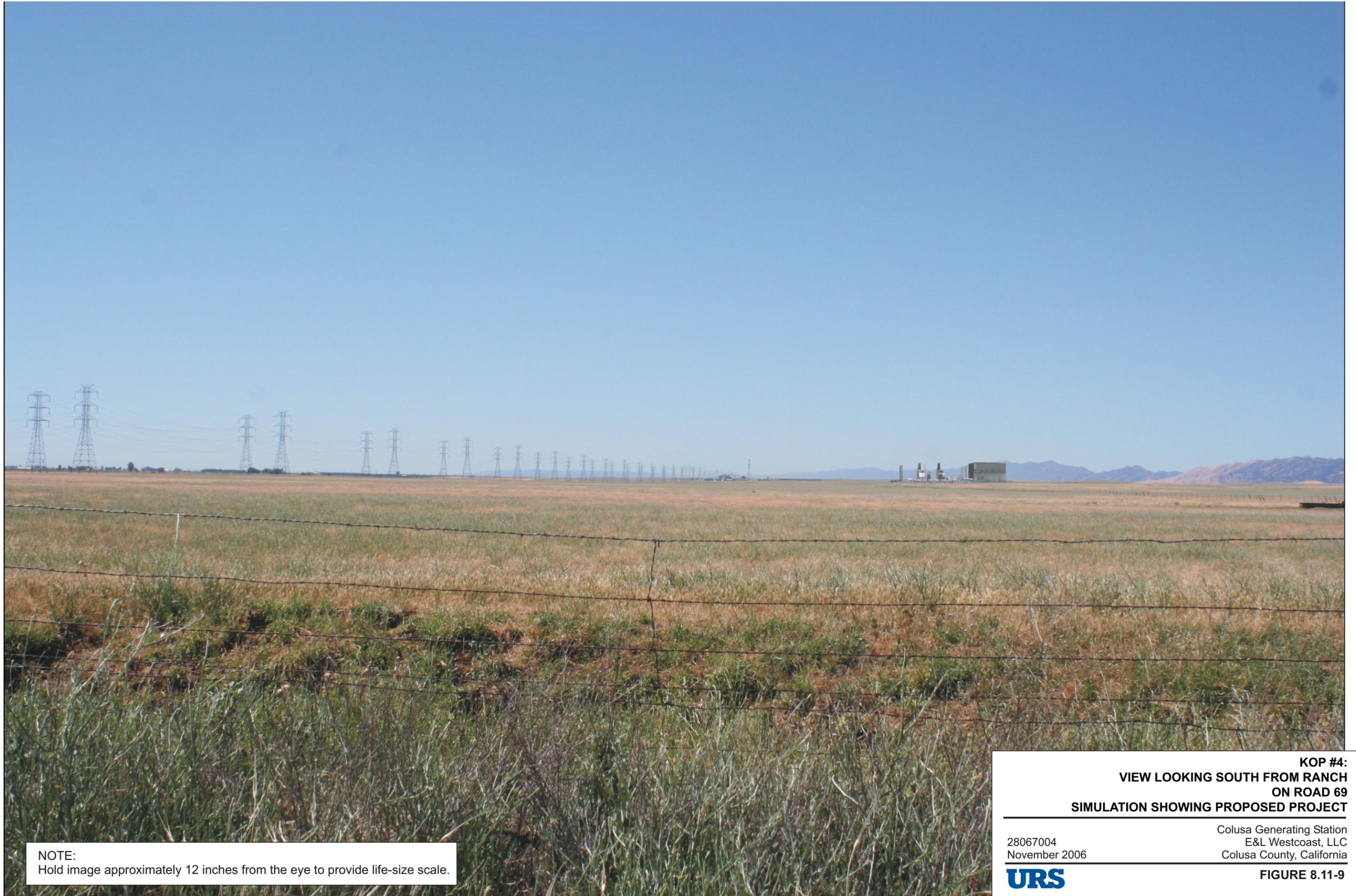
KOP #4:
VIEW LOOKING SOUTH FROM RANCH
ON ROAD 69
EXISTING CONDITION

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 8.11-8



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

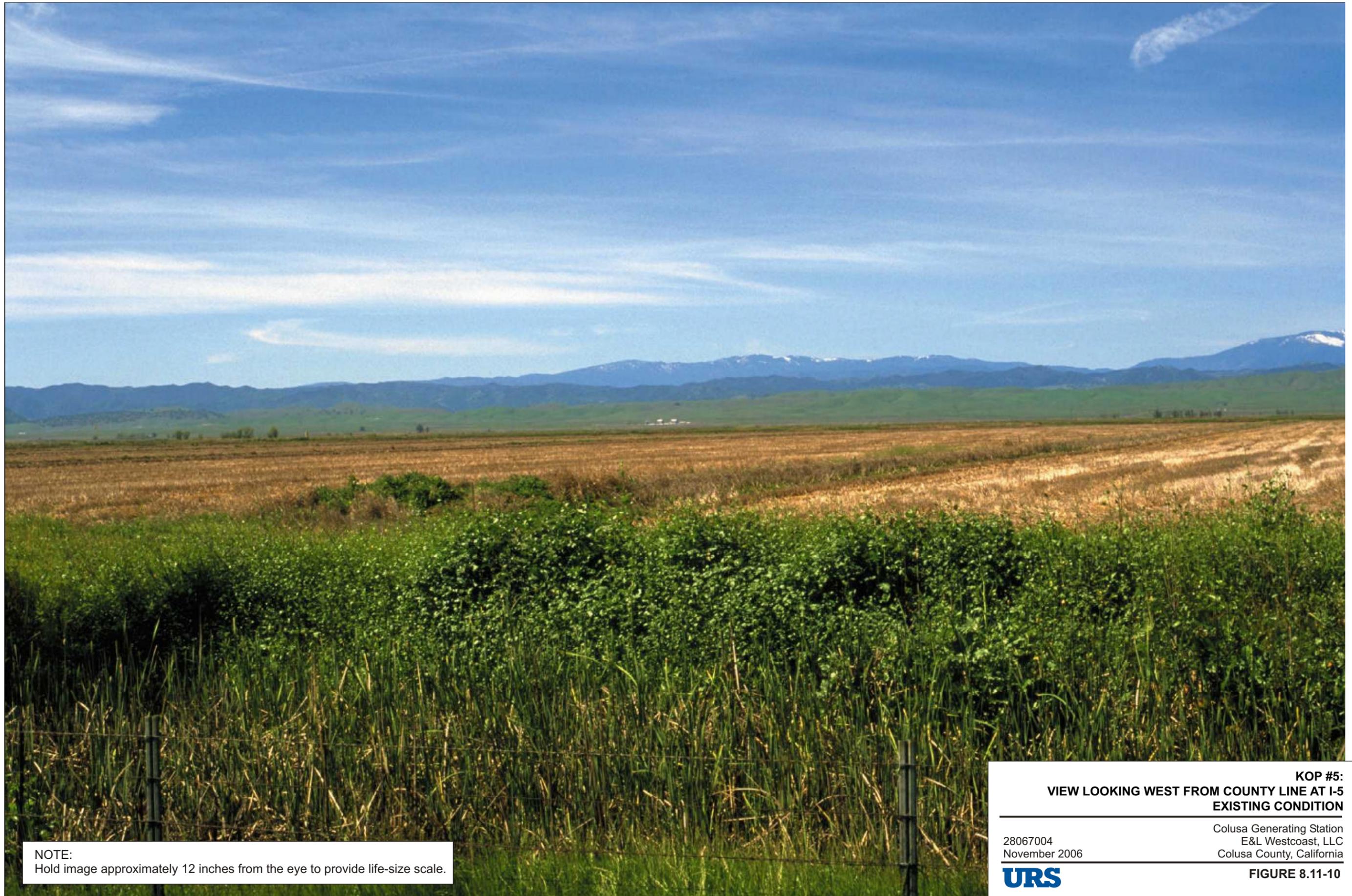
**KOP #4:
VIEW LOOKING SOUTH FROM RANCH
ON ROAD 69
SIMULATION SHOWING PROPOSED PROJECT**

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California



FIGURE 8.11-9



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

KOP #5:
VIEW LOOKING WEST FROM COUNTY LINE AT I-5
EXISTING CONDITION

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California

URS

FIGURE 8.11-10



NOTE:
Hold image approximately 12 inches from the eye to provide life-size scale.

**KOP #5:
VIEW LOOKING WEST FROM COUNTY LINE AT I-5
SIMULATION SHOWING PROPOSED PROJECT**

28067004
November 2006

Colusa Generating Station
E&L Westcoast, LLC
Colusa County, California



FIGURE 8.11-11