Chapter 4.
Environmental Analysis
Section 4.1
Aesthetics
4.1 Aesthetics

4.1.1 Introduction

Aesthetics, as addressed in the California Environmental Quality Act (CEQA), refers to visual considerations in the physical environment (CEQA Guidelines, 2011). A person’s reaction and attachment to a given viewshed is subjective; therefore, visual change in a viewshed inherently affects viewers differently. Given this variability, aesthetics analysis, or visual resource analysis, uses a systematic process to logically assess visible change in the physical environment and the anticipated viewer response to that change. The Aesthetics section of this Environmental Impact Report (EIR) describes the existing landscape character of the project area, existing views of the area from various on-the-ground vantage points, the visual characteristics of the proposed project, and the landscape changes that would be associated with the construction and operation of the proposed project, as seen from various vantage points.

Sources that were consulted for information on existing and future visual resources in the project area included: the U.S. Geological Survey State topographic quadrangles, plans of development provided by the project proponent, the project proponent’s Aesthetics Technical Report (provided as Appendix B), highway maps, Pacific Crest National Scenic Trail (PCT) trail guide and map, Google Earth images, and other internet sources. Regulatory standards were investigated, including the Kern County General Plan (KCGP), the Kern County Zoning Ordinance, and the project proponent’s Applications for a Zone Change and Conditional Use Permit.

Visual Resource Terminology and Concepts

When viewing the same landscape, people may differ in their responses to that landscape and any proposed visual changes. Their responses are based upon their values, familiarity, concern, or expectations for that landscape and its scenic quality. Because each person’s attachment to and value for a particular landscape is unique, visual changes to that landscape inherently affect viewers differently. However, generalizations can be made about viewer sensitivity to scenic quality and visual changes. Recreationists, hikers, equestrians, tourists, and people driving for pleasure are expected to have high concern for scenery and landscape character. People who are commuting daily through the same landscape generally have a moderate concern for scenery, while people working at industrial sites (such as wind farms) within the landscape generally have a lower concern for scenic quality or changes to existing landscape character. The visual sensitivity of a landscape is affected by the viewing distances from which it is seen, such as close-up or far away. The visual sensitivity of a landscape also is affected by the travel speed at which a person is viewing the landscape (e.g., high speeds on a highway, low speeds on a hiking trail, or stationary at a residence).

A particular feature of a project can be perceived differently by people depending on the distance between the observer and the viewed object. This distance is defined as “viewing distance” or “distance zones.” For the purpose of this analysis, distance zones are delineated as immediate foreground, foreground, middleground, and background. When a viewer is closer to a viewed object in the landscape, more detail can be seen and there is greater potential influence of the object on visual quality because of its form or scale (relative size of the object in relation to the viewer). When the same object is viewed at background distances, details may be imperceptible but overall forms of terrain and vegetation are evident, and the horizon and skyline are dominant. In the
middleground, some detail is evident and landscape elements are seen in context with landforms and vegetation patterns (like the background).

This analysis was conducted using the evaluative process set out by the Federal Highway Administration in *Visual Impact Assessment for Highway Projects* (FHWA, 1988). This approach is widely used to provide systematic and objective evaluations of visual change. The following is an overview of the fundamental methodology used throughout this analysis:

**Terminology:**

**Views** are what can be seen from the project area and what can be seen of the project area from outside the project. It is not feasible to depict every view of the project elements; therefore, viewpoints have been selected that are representative of views that would be available to the general public. These representative viewpoints are called Key Observation Points (KOPs).

**Viewshed** is the area surrounding a project from which the project is, or potentially could be, visible to viewers.

**Simulations** are depictions of how the project would appear as seen from a particular KOP. A photograph of the existing landscape is modified by computer modeling to incorporate project elements, thereby illustrating the appearance of the proposed project within the landscape.

**Viewers** are persons who have views of the project. Viewers are usually discussed in terms of general categories, or viewer groups, based on activities (such as residents, workers, recreationists [park users, boaters, or bicyclists], pedestrians, or motorists [both commuters and leisure travelers]).

**Viewer sensitivity** (or level of concern) is a combination of the following factors for a specific view:

- How many people have that view and what types of viewers are they?
- How long can they see the view? Residents and recreationists generally have views of long duration while bicyclists and motorists typically have short-duration views.
- What is their likely level of concern about the appearance, aesthetics, and quality of the view? Level of concern is a subjective response that is affected by factors such as the visual character of the surrounding landscape, the activity a viewer is engaged in, and their values, expectations, and interests. Generally, residents and recreationists are considered to be highly sensitive viewers, and local business staff and commuters are considered to be less sensitive.

Low viewer sensitivity occurs when there are few viewers who experience a defined view or they are not particularly concerned about the view. High viewer sensitivity exists when there are many viewers who experience a view frequently or over a long duration, as well as viewers (many or few), such as those in a residential neighborhood, who are likely to be very aware of and concerned about the view. Viewer sensitivity or level of concern does not imply support for or opposition to a proposed project.

**Visual character** is a description of what the landscape consists of and is defined by the visible relationships between the existing natural and built landscape features. These relationships are considered in terms of dominance, scale, diversity, and continuity. Visual character-defining resources and features include:

- Landforms: types, gradients, and scale.
- Vegetation: types, size, maturity, and continuity.
- Land uses: height, bulk, scale, and architectural detail of associated buildings and ancillary site uses.
• Transportation facilities: types, sizes, scale, and directional orientation.
• Overhead utility structures and lighting: types, sizes, and scale.
• Open space: type (e.g., parks, reserves, greenbelts, and undeveloped land), extent, and continuity.
• Viewpoints and views to visual resources.
• Water bodies, historic structures, and downtown skylines.
• Apparent “grain” or texture, such as the size and distribution of structures and unbuilt properties or open space in the landscape.
• Apparent upkeep and maintenance.

**Viewing distance** is the distance between the viewer and the object being viewed. The closer the viewer is to a viewed object the more detail can be seen and the greater the potential influence the object has on visual quality. For this analysis, three viewing distances were used. They are (1) foreground (between 0 and 0.5 mile of the viewers), (2) middleground (between 0.5 and 4 miles), and (3) background (beyond 4 miles).

**Visual quality** is an assessment of the composition of the character-defining features for selected views. Under the FHWA visual quality analysis system, the characteristics are evaluated in terms of vividness, intactness, and unity (which are defined below) and are scored for these characteristics. The scores are then averaged for a total visual quality score between 1 and 7, where a low score represents low visual quality and a higher score represents high visual quality. This assessment asks: Is this particular view common or dramatic? Is it a pleasing composition (a mix of elements that seem to belong together) or not (a mix of elements that either do not belong together or are eyesores and contrast with the other elements in the surroundings)?

Visual quality is evaluated and discussed using these terms:

• **Vividness** is the degree of drama, memorability, or distinctiveness of the landscape components. Overall vividness is an aggregated assessment of landform, vegetation, water features and human-made components in views.

• **Intactness** is a measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes, as well as in natural settings. High intactness means that the landscape is free of unattractive features and is not broken up by features and elements that are out of place. Low intactness means that visual elements can be seen in a view that are unattractive and/or detract from the quality of the view.

• **Unity** is the degree of visual coherence and compositional harmony of the landscape considered as a whole. High unity frequently attests to the careful design of individual components and their relationship in the landscape or an undisturbed natural landscape.

**Viewing Zones:**

For this analysis, four viewing distances (or zones) were used. These are increasingly far from the viewer and take into account the distance between the viewer and the project. They are:

• Immediate Foreground (the area from the viewer to 300 feet away)
• Foreground (the area between 300 feet and 0.5 mile away)
• Middleground (the area between 0.5 and 4 miles away)
• Background (the area beyond 4 miles to the horizon)

Motion is one of the strongest visual attributes in a landscape, which is mostly static and motionless. Therefore, any motion in the landscape attracts and holds a viewer’s attention. The human eye
can detect motion in the landscape from very long distances (USDA Forest Service, 1973). The motion from large spinning rotors on wind turbine generators (WTGs) is an example of this factor that affects visual quality and attracts attention.

Baseline data for the project site were collected using an approach that incorporated a combination of information review, agency consultation, analysis of aerial photographs and satellite imagery, map review, field reconnaissance, and on-site photography. Existing information was used to the extent possible and appropriate, including the Aesthetics Technical Report (CH2MILL, 2011) which is included in Appendix B of this EIR, the PdV Wind Energy Project Draft EIR, the Alta-Oak Creek Mojave Project EIR, the Antelope Transmission Project Segments 2 & 3 Final EIR (California Public Utilities Commissions (CPUC), 2007), and the Tehachapi Renewable Transmission Project Final EIR/Environmental Impact Statement (CPUC, 2009).

Baseline data were collected for the environmental setting using the following methodology:

1. A general overview and site reconnaissance was conducted with CH2MHill staff, staff from Aspen Environmental Group, and Kern County Planning and Community Development Department staff in March 2011.

2. Locations of sensitive receptors were noted on maps showing local roads and trails.

3. Viewpoints from which the proposed project could be seen were identified in the Aesthetics Technical Report (CH2M HILL, 2011). Following discussions with the County, 4 key observation points (KOPs) were selected for detailed analysis, based on their ability to exemplify visual resource impacts at a particular location. The KOPs that were analyzed are representative of Project induced visual resource impacts to this particular landscape.

4. Landscape photographs were taken from the KOPs. Computerized photo-montages were prepared by CH2M HILL using existing landscape photography and computer models of proposed features. The resulting photomontages, based on the geographically referenced photograph points and WTG locations, were rendered for each observation point. According to Tables 3-3 and 3-4 (Proposed Wind Turbine Generator Characteristics for the North Sky River Wind Energy Project and the Jawbone Wind Energy Project) in Section 3.0 Project Description, the maximum height of the tallest WTG being considered, the 2.75 MW GE XL WTG, is 497 feet. The Aesthetics Technical Report used the same WTG heights for use in the simulations. The photo-montages provide a perspective of what the proposed project would look like after construction. These pairs of before and after landscape photographs/photomontages from the technical report are found at the end of Section 4.1.

In addition to the construction of WTGs and associated facilities on the project site, the project would also construct improvements to an existing transmission line between the site and an existing substation to deliver the generated power to the state’s electric grid. The options for transmission and their aesthetic impacts are discussed following the discussion of the WTG site.

The overall scenic quality of the landscape seen from the KOPs is rated according to the scheme presented in Table 4.1-1 Landscape Scenic Quality Scale.
### Table 4.1-1 Landscape Scenic Quality Scale

<table>
<thead>
<tr>
<th>Rating</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Outstanding Visual Quality</td>
<td>Landscapes of exceptionally high visual quality that are significant nationally or regionally. They usually contain exceptional natural or cultural features. They are what we think of as &quot;picture post card&quot; landscapes. People are attracted to these landscapes to view them.</td>
</tr>
<tr>
<td>High Visual Quality</td>
<td>Landscapes that have high quality scenic value. This may be due to cultural or natural features that cause the landscape to be visually interesting or particularly comfortable. These landscapes have high levels of vividness, unity, and intactness.</td>
</tr>
<tr>
<td>Moderately High Visual Quality</td>
<td>Landscapes that have above average scenic value but are not of high scenic value. Levels of vividness, unity, and intactness are moderate to high.</td>
</tr>
<tr>
<td>Moderate Visual Quality</td>
<td>Landscapes that are common or typical with average scenic value. They usually lack significant cultural or natural features. Levels of vividness, unity, and intactness are average.</td>
</tr>
<tr>
<td>Moderately Low Visual Quality</td>
<td>Landscapes that have below average scenic value but not low scenic value. They may contain visually discordant man-made alterations, but these features do not dominate the landscape. They often lack spaces that people will perceive as inviting and provide little interest in terms of two-dimensional visual attributes of the landscape.</td>
</tr>
<tr>
<td>Low Visual Quality</td>
<td>Landscapes that have below average scenic value. They may contain visually discordant man-made alterations, and often provide little. Levels of vividness, unity, and intactness are below average.</td>
</tr>
</tbody>
</table>

Source: CH2M HILL, 2011

### 4.1.2 Environmental Setting

#### Regional Character

The 13,535-acre project site is located in northeastern Kern County, in the southeastern Sierra Nevada, 6 miles east of the Mojave Desert and 25 miles west of the San Joaquin Valley. The area is rugged and woodland and desert scrub habitat types are common. Elevations across the site range between 2,680 and 5,600 feet above mean sea level. As is typical in the Sierra Nevada province, there is a climatic gradient across the site. Generally, conditions on the west side are characterized by a moderate supply of moisture. Conditions on the east side of the site are more arid, characterized by a severe lack of available water. Corresponding with the climate, the vegetation on the west side of the project site is typified by pinyon-juniper woodland and oak woodland and on the east side by grasslands and chaparral scrub.

Portions of the project area have been altered from its natural state by authorized and unauthorized off-highway vehicle (OHV) use and by livestock grazing. The Bureau of Land Management’s (BLM) Jawbone OHV Open Area is 8 miles east of the site, located along Jawbone Canyon Road. Existing development in the area includes rural access roads, cattle ranching, meteorological towers (met towers), and wind energy projects. A north-northwest trending segment of the PCT is located west of the proposed project. The distance between the PCT and the project site boundary varies, ranging from 5.5 miles at the northwest corner of the project to 0.8 mile at the southwest corner of the project. The distance between the PCT and the nearest WTG within the project site would be 1.9 miles.

Several residences are located near the proposed project site; however, none of these residences are located within the project boundary. Two residences are located in Kelso Valley, within 1/2 mile west of the project site. The closest residence would be located 3,215 feet west from the nearest WTG. A few residences are located in the southern portion of Kelso Valley, 1.5 miles northeast of Weldon Peak along Jawbone Canyon Road.
Power generated by the proposed project would be conveyed from the project substations to the existing Sky River substation over a new generation tie (gen-tie) line that would be developed as a part of the project. From the Sky River Substation, the power would be transported to the existing Wilderness Substation along Oak Creek Road west of Mojave through the existing Wilderness 230 kV transmission line. To accommodate the additional power, modifications would need to be made to the Wilderness transmission line. Along this route, the minimum distance between the proposed regional Wilderness transmission line reinforcement and a residence would be 1,000 feet. Additionally, the Jawbone Wind Energy Project may convey its power from the project substation to the Pine Tree Substation along a minimum length of 6 miles of 230 kV transmission line.

Major transportation corridors in the region include SR 14 (north–south) and SR 58 (east–west), which intersect about 20 miles south of the project area in the community of Mojave. There are no population centers within viewing distance of the project site; any potential views of the project from locations such as the city of Tehachapi, community of Mojave, and city of California City would be blocked by terrain.

There are several existing, permitted, and proposed wind energy and transmission projects in the region. The Los Angeles Department of Water and Power (LADWP) Pine Tree Wind Development Project is located immediately south of the proposed project site (access to southern portion of the project site is off SR 14 via Jawbone Canyon Road, which also serves the Pine Tree Wind Project). The Alta-Oak Creek Mojave Wind Project, located 14 miles south of the proposed project site, was approved by Kern County in December 2009 and currently is under construction. The 300-MW PdV Wind (recently referred to as Manzana Wind) Project and the 151-MW Pacific Wind Project are located 25 miles south of the proposed project site. In addition, one of the project proponents (NextEra) owns and operates the existing 77-MW Sky River wind energy facility located immediately adjacent to the southwest portion of the proposed project site.

The site is west of SR 14 and the straight line distance from SR 14 to the proposed project site is 8 miles, at its closest. By road, the site is accessed from SR 14 by way of Jawbone Canyon Road, located 16 miles north of the SR14/SR58 interchange near the community of Mojave. The northernmost part of the project site is reached by continuing on Jawbone Canyon Road for 13.6 miles from the road’s junction with SR 14. The southernmost part of the site is 11.2 road miles from SR 14 and is reached by way of Jawbone Canyon Road to where Jawbone Canyon Road turns northwest, then continuing on an unnamed road extending southwest toward the existing Pine Tree Wind Development Project. Within the site is a network of single-lane dirt roads.

Points from which viewers might see components of the proposed project include: Jawbone Canyon Open Area; Jawbone Canyon Road; South Kelso Valley Road, the PCT; and local single family residences in the southern part of Kelso Valley. The viewing distances between these viewers and project components (most notably WTGs) are indicated in Figure 4.1-1

### Developed Recreation Sites

There are two designated recreation sites in the project vicinity. One is the Jawbone Canyon Open Area on BLM land between SR 14 and the point where Jawbone Canyon Road turns northwest toward Kelso Valley. The Open Area is located 2 miles east of the project site at its closest point. The other recreation facility is a segment of the PCT located west of the proposed project site at distances ranging from 0.8 to 5.5 miles (See Figure 4.1-1. Figures are found at the end of Section 4.1.)
Visual Characteristics of Proposed Project Site

The visual characteristics of the project site include expansive desert mountains and ranges. As noted above, portions of the project area have been altered from their natural state by authorized and unauthorized off-highway vehicle (OHV) use and by livestock grazing. The area is rugged and woodland and desert scrub habitat types are common. The project site is designated by the KCGP and the County Zoning Ordinance for Agriculture and Estate Residential uses. The site is undeveloped, but has been and is used for cattle grazing. The terrain on the site is hilly to mountainous in nature, with numerous ridge lines above 4,000 feet. A few of the peaks on and near the site reach 5,000 feet or more. Canyons and valleys separating the ridges range down to about 3,200 feet elevation. The site is surrounded by mountainous terrain as well, except to the northwest, where Kelso Valley is located. More distant from the site, the regional visual character of the landscape includes extensive mountains to the north and west and high desert plains to the east and south.

Light and Glare

Within the property, there currently are no sources of nighttime light and glare. The property is uninhabited and no structures exist that would constitute a significant source of light or glare. As a result of vegetation and topography, shadows occur throughout the proposed project site during daylight hours, particularly early and late in the day when the sun is lower in the sky. However, because the vegetation over much of the site is short, mostly bush, shade from vegetation is not pronounced. In its western portion, the site receives more rainfall and the vegetation includes trees and larger shrubs, creating more shadow.

Viewers

Viewers of the project site include residents in Kelso Valley, motorists on Jawbone Canyon Road and South Kelso Valley Road and recreational users of the PCT and the Jawbone Canyon Open Area. The sensitivity of those people to changes within the project site would vary with the type of use they make of the site vicinity, the length of time they would see the project site, and the distance between them and project components on the site. The PCT is designated as a National Scenic Trail according to the National Trail Systems Act (U.S. Department of Interior, National Parks Service (NPS), Amended 2004). The majority of the PCT is in remote and undeveloped areas. Trail users value the solitude, challenge, and vistas offered by the PCT; therefore, users of the PCT are considered to be highly sensitive to any degradation of visual resources along the trail. However, the proposed project site does not exhibit high quality scenic attractions, and most PCT users in this area are simply through-hikers and equestrians; not people who have come to this location to experience high quality scenery.

Key Observation Points (KOPs) – Project Site

Based on the viewshed analysis, input from the Kern County Planning and Community Development Department, and observations made during a field visit, four KOPs were selected to represent a range of views toward the wind energy project site from or near communities in the region and from recreational use areas. The Aesthetics Technical Report prepared for the project (CH2M HILL, 2011) is provided in Appendix B to the EIR. The basis for selecting the KOPs was that each displays a different sensitive receptor location from which the proposed project would be
visible, and represents how the project would appear when seen from different distance zones (immediate foreground; foreground; middleground; and background).

For each KOP, photographs of existing visual conditions and computerized photomontages were prepared by CH2M HILL. KOPs 1, 2, and 4 are a panorama composed of two 50-millimeter (mm) images. The panorama was necessary because the viewpoint is so close to the site and the project facilities would not all be visible in a single frame image. The locations of the KOPs are shown in Figure 4.1-1, at the end of Section 4.1. Figures 4.1-2 through 4.1-5 show the view from the individual KOPs.

**KOP-1 – Jawbone Canyon Open Area**

KOP-1 is located at the western end of Jawbone Canyon Open Area, near where Jawbone Canyon Road leaves BLM land and turns northwest. This observation point is located near the southern border of the proposed project site. This observation point was chosen to give a representative view of the proposed project from the Open Area. From here, the proposed project is in the middleground and background (see Figure 4.1-2).

The view from KOP-1 would be one of short-to-moderate duration by OHV users and of longer duration by campers. During OHV activity, the view would probably not be the primary focus of interest due to the high speeds at which OHV activity takes place. Campers in Jawbone Canyon would likely be at least moderately sensitive to views toward the project site and recreationists who are exclusively OHV users, somewhat less so.

The view from KOP-1 is typical of views from Jawbone Canyon toward the west, characterized by desert scrub vegetation on the valley floor and low hills in the foreground. More distant ridges are visible behind hills on the left side of the view. The valley and hills in the foreground are criss-crossed by tracks created by OHV activity.

The character of the view is one of a somewhat natural appearing Mojave Desert landscape with signs of OHV use. KOP-1 can be rated as having an average level of visual quality. Though color and contours of the ridgelines create visual interest, the vividness of the view is moderately low to average due to the OHV tracks and minimal vegetation. The intactness of the view is also moderately low to average due to the OHV tracks and somewhat degraded vegetation. The unity of the view is moderately high because the landforms in the background and valley in the foreground create a relatively harmonious composition (CH2M HILL, 2011).

**KOP-2 – Jawbone Canyon Road**

KOP-2 is located on Jawbone Canyon Road, 4.2 miles east of South Kelso Valley Road. The observation point is about 0.15 mile east of the project site (See Figure 4.1-3). Jawbone Canyon Road is an unpaved public road connecting SR 14 and Jawbone Canyon Open Area to the Kelso Valley. KOP-2 represents views that residents of Kelso Valley would have driving toward their community. The view from KOP-2 would be one of short-to-moderate duration for motorists. Local residents driving toward their homes are likely to be more sensitive to these views than OHV recreationists.

The view shows an expansive arid landscape that is typical of views on the east side of the project site. From KOP-2, Jawbone Canyon Road is seen heading west toward a long ridgeline covered in grasses and scattered shrubs. Turbines from the Pine Tree and Sky River Ranch Wind Development Projects are faintly visible against the ridgeline in the background on the far left side of the view.
The few built elements visible include Jawbone Canyon Road, a faint road on the ridgeline in the middleground, and the turbines in the background. The character of the view is one of a natural appearing Mojave Desert landscape.

The vividness of the view is average due to the combination of the grasses and shrubs and the contoured ridgeline in the middleground. The intactness of the view is moderately high since few built elements are visible. The unity of the view is moderately high because contours of the ridgelines and the expansiveness of the view contribute to a scenic composition (CH2M HILL, 2011).

**KOP-3 – Kelso Valley**

KOP-3 is located on unpaved South Kelso Road, near its intersection with Jawbone Canyon Road. This view is just over a mile from the project site, and at a private road leading to a group of residences (See Figure 4.1-4). KOP-3 represents the perspective of Kelso Valley residents going to and from their homes via South Kelso Valley Road and also represents views from yards or from south-facing windows. These views would be frequent and of moderate to long-term duration. Residents are assumed to be highly sensitive to the views from and around their homes.

The view from KOP-3 is typical of the long distance views from the Kelso Valley toward the south and is characterized by an open valley floor and ridgelines on the horizon. Vegetation in the foreground is somewhat degraded; presumably the product of the cattle grazing that occurs in this valley. The nearer hills are covered with chaparral scrub and the peaks in the background on the right side of the view are forested. Turbines from the Sky River Ranch project are barely visible against these peaks. Except for the road in the foreground and the faintly visible turbines in the background, no built elements are visible. The character of the view is one of a rural, ranching, sparsely developed, and semiarid landscape.

The vividness of the view is average due to the combination of the scrubby vegetation in the foreground and varied ridgelines in the background. The intactness of the view is moderately high since few built elements are visible. The unity of the view is moderately high because the valley in the foreground and ridgelines in the background create a moderately harmonious composition.

**KOP-4 – Pacific Crest Trail**

KOP-4 is located on the PCT, looking east. This observation point was selected to give a representative view of the proposed project from the PCT at one of its closest points to the project. Project features would be visible in the middleground and background. Unlike the vegetation in KOPs 1 through 3, KOP-4 provides a view of a more richly vegetated and topographically varied area within the project site. The viewer has a topographically higher viewing position relative to the project site (See Figure 4.1-4). Views from the PCT are likely to be of moderate to long duration. Hikers are likely to be very sensitive to views from the PCT, since the PCT is a designated scenic trail.

The view from KOP-4 is a typical view from the PCT in the southern Sierra Nevada Mountains facing southeast, which is characterized by an expansive view of ridgelines. Pine Tree Wind Development Project turbines are visible across the ridgeline in the center of the view. Sky River Ranch turbines and access roads are visible extending across ridgelines in the center and right side of the view. Though the turbines from both projects are plainly visible, due to distance and because the turbine strings and access roads follow the contours of the hills rather than cut across them, the
turbines do not dominate the view from this observation point. The character of the view is one of a relatively naturally appearing southern Sierra Nevada landscape that already contains some wind power development.

The vividness of the view is moderately high due to the relatively heavy vegetation and series of forested ridgelines. The intactness of the view is moderately high since few built elements are visible and because the existing turbines do not dominate the view. The unity of the view is high because the number of ridgelines visible and expansiveness of the view contribute to a scenic composition (CH2M HILL, 2011).

**Transmission Line Upgrades**

The project proposes a 1,000-foot transmission line tap between the existing Highwind substation and the Wilderness transmission line.

**4.1.3 Regulatory Setting**

This regulatory framework identifies the federal, State, regional, and local statutes, ordinances, or policies that govern the light, glare, viewshed, and scenic character that must be considered by Kern County during the decision-making process for projects that have the potential to affect aesthetics.

**Federal**

**U.S. Department of Transportation**

The U.S. Department of Transportation Act of 1966, Section 4(f), “Protection of Publicly Owned Park, Recreation Area, Wildlife or Waterfowl Refuge, or Land from Historic Sites,” was established to provide certain protections to publicly owned parks; recreation areas; wildlife and waterfowl refuges; and land from historic sites of national, State, or local significance. Section 4(f) requires that the federal agency must show that there are no feasible or prudent alternatives to the use of these areas (USDOT, 2010).

The proposed project would not result in the conversion of existing publicly owned park areas. Therefore, project compliance with the U.S. Department of Transportation Act of 1966 was not considered in this analysis.

**Federal Aviation Administration (FAA)**

The FAA regulates airspace and flyways for air travel. The FAA requires preparation of a Notice of Proposed Construction or Alteration (Form 7460-1) describing the project design and addressing compliance with FAA procedures. The notice must also include the final locations of structures, structure types, and structure heights. The FAA may then conduct its own study of the project and make recommendations to the proponent regarding possible airway marking, lighting, and other safety requirements (FAA, 2005).

The FAA regulates regional airspace jurisdiction for the Edwards Air Force Base, which is located 15 miles east of the proposed project site, and China Lake Naval Weapons Center, which is located 65 miles northeast of the property. Therefore, project compliance with FAA regulations was considered in this analysis (FAA, 2011).
Bureau of Land Management (BLM)

As part of its resource planning efforts, the BLM conducts an inventory and analysis of scenic values on the public lands it administers to establish objectives for the management of activities that may affect visual resources located on those lands (BLM, 2010). Only activities that occur on BLM-administered property are subject to the management objectives related to designated Visual Resource Management (VRM) classifications. The BLM VRM System evaluates visual resources on BLM-administered lands by classifying scenic quality, viewer sensitivity, and distance into one of four categories (Class I, II, III, or IV), with Class I having the highest visual sensitivity and Class IV having the least sensitivity. VRM classifications are designated through BLM land use plans; however, if VRM classifications are not established for an area, then the local BLM office will establish an Interim VRM classification on a project-by-project basis.

The project would require 962 linear feet of new access roads and 1.74 miles of overhead 230 kV gen-tie line on BLM land. The proposed project site does not currently have a VRM classification.

U.S. Department of Agriculture, Forest Service

The National Trails System Act (NTSA) of 1969 seeks to preserve scenic and natural qualities along trails and recognizes the rights of private landowners and provides that “full consideration shall be given to minimizing the adverse effects upon the adjacent landowner or user and his operation” in the development and use of a trail (NPS, 2010). The NTSA assigns management responsibility for trails to various federal resource agencies, depending on which agency holds jurisdiction over the public lands on which the trail is located in a given area (U.S. Forest Service, U.S. Park Service, or BLM).

The PCT was created under the NTSA to provide for outdoor recreation opportunities and the conservation of significant scenic, historic, natural, or cultural qualities. The PCT stretches 2,650 miles from Mexico to Canada through California, Oregon, and Washington and is designated in the KCGP as a scenic feature. The U.S. Forest Service administers the PCT in the vicinity of the proposed project; however, the trail does not occur on the project site.

State

California Environmental Quality Act (CEQA)

CEQA Guidelines define a “significant effect” on the environment to mean a “substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance” (California Code of Regulations [CCR], Title 14, § 15382, 2011).

California Department of Transportation

The California Scenic Highway Program preserves and protects scenic highway corridors from changes that would diminish their aesthetic value. The California Department of Transportation designates scenic highway corridors and establishes those highways that are eligible for the program. The program was created in 1963 with the enactment of the State Scenic Highways Law. The street and highway code includes a list of those highways that are either eligible for designation or are designated (California Scenic Highway Mapping System, 2011).
The proposed project site is not within the viewshed of any Designated State Scenic Highway. Currently, there are no Officially Designated Scenic Highways within Kern County. The Scenic Highway Program identifies SR 14 north of the community of Mojave and SR 58 east of the community of Mojave as “Eligible State Scenic Highways,” which is distinct from an official scenic designation. The proposed project site is not visible from the nearest Eligible State Scenic Highway portions of SR 14 and SR 58, respectively. This is well beyond the 4-mile range at which visible project components are considered background elements in the viewshed.

Local

Kern County General Plan

Chapter 1. Land Use, Open Space, and Conservation Element
1.10.7 Light and Glare

Policies

- Policy 47. Ensure that light and glare from discretionary new development projects are minimized in rural as well as urban areas.
- Policy 48. Encourage the use of low-glare lighting to minimize nighttime glare effects on neighboring properties.

Implementation Measures

- Implementation Measure AA. The County shall utilize CEQA Guidelines and the provisions of the Zoning Ordinance to minimize the impacts of light and glare on adjacent properties and in rural undeveloped areas.

Kern County Zoning Ordinance

The Wind Energy (WE) Combining District (Chapter 19.64) contains development standards and conditions (Section 19.64.140) that would be applicable to the siting and operation of WTGs. The following provisions apply to aesthetics and visual characteristics issues related to the proposed project.

Chapter 19.64 Wind Energy (WE) Combining District Element.

19.64.080 Height Limits

Height limits in a WE District are as follows:

A. Wind-driven electrical generators and associated meteorological towers shall comply with the height limits specified in Section 19.64.140 of this chapter.

B. All other uses and structures shall comply with the requirements of the base district with which the WE District is combined.

19.64.140 Development Standards and Conditions

Development in the WE Combining District shall comply with the following standards:

B. Towers and blades shall be painted a non-reflective, unobtrusive color or have a non-reflective surface.

D. All on-site electrical power lines associated with wind machines shall be installed underground within one hundred fifty (150) feet of a wind turbine and elsewhere when practicable, excepting there from "tie-ins" to utility type transmission poles, towers, and lines. However, if project terrain or other factors are found to be unsuitable to accomplish the intent and purpose of this provision, engineered aboveground electrical power lines shall be allowed.
G. Wind generator machine and associated meteorological tower overall height shall not exceed six hundred (600) feet and is subject to Section 19.08.160.B. For the purposes of this chapter, machine height shall be measured as follows:

1. Overall machine height of horizontal axis machines shall be measured from grade to the top of the structure, including the uppermost extension of any blades.

2. Machine height of vertical axis or other machine designs shall be measured from grade to the highest point of the structure.

I. One (1) project identification sign, located at each point of project ingress and egress, not to exceed thirty-two (32) square feet in area, may be erected on the project site. No other signs shall be installed other than safety signs and the required warning signs. The developer shall submit a sign elevation drawing to the Planning Director for review and approval prior to installation.

4.1.4 Impacts and Mitigation Measures

Methodology

Potential impacts to visual resources within the project area were evaluated based on the following criteria: (1) existing visual quality and scenic attributes of the landscape; (2) location of sensitive receptors in the landscape; (3) assumptions about receptors’ concern for scenery and sensitivity to changes in the landscape; (4) the magnitude of visual changes in the landscape that would be brought about by implementation, construction, and operation of the project; and, (5) compliance with State, County and local policies for visual resources. Photographs of existing landscape conditions and computer-generated photo-simulations are provided in this section to accurately portray the proposed project and changes to the visual character of the landscape.

Baseline visual resources data were collected using an approach that incorporated a combination of information review, agency consultation, analysis of aerial photographs and satellite imagery, map review, field reconnaissance, and on-site photography. Existing information from recently completed CEQA documents for projects within the vicinity of the proposed project was used to the extent possible and appropriate. Baseline data were collected for the environmental setting using the following methods:

- A general overview and site reconnaissance was conducted with Aspen Environmental Group; Kern County Staff; CH2M HILL; and the project proponent in March 2011. Locations of sensitive receptors were identified by CH2M HILL, in consultation with Kern County staff and Aspen Environmental Group’s staff.

- Viewpoints were identified by CH2M HILL from which the proposed project would be seen. Locations of sensitive receptors were identified by CH2M HILL in consultation with Kern County staff. Landscape photographs were taken by CH2M HILL from four KOPs for the project site and three KOPs for the wilderness transmission line, for detailed analysis, based on their ability to exemplify visual resource impacts at a particular location. KOPs that were analyzed are representative of project-induced visual resource impacts to this particular landscape.

- Computerized simulations showing existing and with-project conditions were developed by CH2M HILL based on existing landscape photography and computer models of proposed
features. These pre-project landscape photographs and post-project simulations are presented at the end of Section 4.1.

- The existing visual conditions are described for each KOP in Section 4.1.2, Environment Setting. Using the computerized simulations, predicted future visual effects of the project for each KOP are described in this section.

Thresholds of Significance

Appendix G of the CEQA Guidelines gives an Environmental Checklist Form for Aesthetics (CEQA Guidelines, 2011). The Kern County CEQA Implementation Document and Kern County Environmental Checklist are consistent with the statewide CEQA Guidelines, and they state that a project would normally be considered to have a significant impact if it would:

- 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.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Project Impacts

The impacts presented here are for the proposed wind generation facilities within the project site. Impacts associated with the gen-tie line and system upgrades were found to be less than significant and are discussed at the end of this section.

Impact 4.1-1: Have a Substantial Adverse Effect on a Scenic Vista

There are no national, State, or county designated scenic vistas in the vicinity of the proposed project; therefore, implementation of the proposed project would not have the potential to affect a scenic vista and no impact would occur. Impacts to non-designated scenic vistas are evaluated in detail for each KOP under Impact 4.1-3.

Mitigation Measures

The project would comply with the goals, policies, and implementation measures of the KCGP and relevant ordinances. No additional mitigation measures are proposed.

Level of Significance

Impacts would be less than significant.

Impact 4.1-2: Substantially Damage Scenic Resources, Including, but Not Limited to, Trees, Rock Outcroppings, and Historic Buildings within a State Scenic Highway

There are no officially designated State Scenic Highways in Kern County. The only Eligible Scenic Highways in the project vicinity are SR 14 north of the community of Mojave and SR 58 east of the community of Mojave. The proposed project does not extend into the viewsheds of either of these highways. Therefore, the proposed project would not damage any existing scenic resources of any designated or eligible State Scenic Highway. The proposed project would not damage any structures or geologic features on the site. There are no historic buildings located on the site. Limited grading would be required at individual WTG sites and to create some access roads. Grading would require...
removal of vegetation for new access roads and for leveling of WTG installation sites. The area around WTGs not required for maintenance and access would be restored. Given the extensive network of roads and trails on the project site and the relatively sparse and scattered nature of vegetation, the changes would not present a substantial change from current conditions. Additionally, all grading efforts would be subject to the oak tree preservation policies listed in the Kern County General Plan, which would reduce the potential for removal of trees within identified oak woodland areas. Overall, grading would represent a change in the visual environment, but would not be extensive or near potential off-site viewing positions. As a result, impacts would be less than significant.

**Mitigation Measures**

The project would comply with the goals, policies, and implementation measures of the KCGP. No additional mitigation measures are proposed.

**Level of Significance**

Impacts would be less than significant.

**Impact 4.1-3: Substantially Degrade the Existing Visual Character or Quality of the Site and Its Surroundings**

The existing visual character and scenic quality of the proposed project site primarily is based on its undeveloped nature, vegetation, and topography. The existing visual environment of the project site would be altered to accommodate the construction and operation of the proposed project because of the introduction of tall WTGs, transmission lines, substations, operation and maintenance facilities, and an augmented network of dirt roads.

**Project-Wide Visual Impacts**

The proposed project site would be transformed from its current condition (natural appearing open space and/or grazing land) to a commercial-scale wind farm. Tables 3-3 and 3-4 in Section 3.0 Project Description of this EIR shows examples of WTGs that may be installed at the proposed project site. Up to 116 WTGs would be installed at various locations within the 13,535-acre project site. It is unknown what specific WTG model would be deployed at the time of construction; therefore, this analysis of visual impacts assumes a worst-case scenario, namely, that all WTGs would be a maximum of 497 feet tall. According to the Aesthetics Technical Report prepared by CH2M HILL, all simulations presented herein are for the GE 2.5 XL WTGs at 497 feet tall.

Proposed project elements with the potential to substantially alter the existing visual character or quality of the proposed project site include up to 116 WTGs, service roads, a power collection system, communication cables, overhead and underground transmission and collection lines, project substations, meteorological towers, and two operations and maintenance (O&M) facilities. Construction of the proposed project would also require the following temporary project facilities: access roads, lay-down areas, and concrete batch plants. Proposed project facilities are described in more detail in Section 3.5 Project Description.

The proposed project facilities are:

**Wind Turbine Generators (WTG).** Up to 116 WTGs up to 497 feet tall would be installed at the proposed project site. At this time, it is unknown what makes and models of WTG would be used.
Tables 3-3 and 3-4 show examples of WTGs that may be installed at the proposed project site. Potential WTGs of the size and output proposed for the project share similar visual characteristics.

**Substation and Transmission Line.** A new substation for the North Sky River Wind Energy Project would be constructed on three acres near the middle of the site and would include a control house, electrical breakers, one or more transformers, and overhead electrical bus, and poles. The new substation would interconnect at the existing Sky River Substation. This interconnection would require 13 miles of 230 kV transmission line. A permanent 24-foot wide access road would be required for routine maintenance of the gen-tie line. Existing roads would be used when possible. In some sections, cut or fill work may be necessary to construct the road. Power generated at the project would be transferred to the California Independent System Operator (CAISO) grid along the existing Wilderness transmission line. Potential transmission line upgrades are currently being considered from the existing Sky River Substation to the CAISO grid.

A new substation would also be constructed on the Jawbone Wind Energy Project site within Section 22 of the project site. The proposed interconnection for the substation would be at the North Sky River Substation or the Pine Tree Project Substation.

**Operations and Maintenance Facilities.** Two O&M facilities will be constructed for project operations in a location to be determined. Potential staging areas for both temporary and permanent uses are currently being evaluated. Each facility will include an O&M building on a concrete slab and compacted gravel storage yard and parking area.

**Meteorological Towers.** The proposed project will rely on existing met towers, on private land, and BLM-pending new met tower locations to measure and collect data to support project viability and determine optimum turbine layout. The met towers will be placed on sites intended for installation of WTGs. It is expected that once the proposed project is constructed, some of the larger existing 196.9 feet (60-meter) met towers will remain to support project operations and some additional towers may be installed to meet reporting obligations, and to maximize operational efficiency.

**Roads.** Within the proposed project site, the project roadway system will use the existing road network to the greatest extent possible, and will be designed to limit disturbance and avoid sensitive resources to the extent possible. The proposed project’s new access roads would be constructed (and existing roadway alignments will be redesigned) to gain access to the WTG locations. The interior road system would follow existing roadway alignments where possible, but grade adjustments will be required in most locations to accommodate maximum grades, as required by the turbine manufacturers. Permanent access roads constructed for the project would be visible but are not likely to substantially degrade the character or quality of the site due to the extensive network of dirt roads already present on the project site and in the project surroundings.

**Potential Project Visibility Analysis**

CH2M HILL prepared a depiction of the areas from which the project site would be visible using geographic information systems State software (see Figure 4.1-1). The proposed project would be visible in relatively few areas beyond 4 miles from the project boundary. Figure 4-1 shows the areas where the project would be visible or not, and the 4 mile distance at which the project site is considered background. This analysis is based only on topography. At this distance, atmospheric haze and the curvature of the earth would further reduce visibility. Within the area of potential visibility, it is expected that alterations to the viewshed that would occur with the installation of the
proposed project would be experienced most strongly by viewers at closer distances to the proposed project, such as when the proposed project would be in the foreground and middleground distance zones. At these distances, features in the landscape are apparent and the viewshed would be discernibly altered with the introduction of constructed elements. While the proposed project would still be visible to viewers within the viewshed at greater distances, alterations to the viewshed would be less apparent and would be perceived as a change in the pattern of the landscape.

**Viewshed Analysis**

An analysis was prepared to determine what portions of the land within the project site are visible from points within and surrounding the project site (CH2M HILL, 2011). Figure 4.1-1 provides a graphic representation of those land areas from which the project would be visible.

The methodology used to evaluate potential impacts of the proposed project included a characterization of the visual sensitivity of existing landscapes and the characteristics of existing visual changes apparent in the landscape. At each KOP, existing conditions of the landscape and viewing circumstances were described, leading to a conclusion about the viewpoint’s overall visual sensitivity.

Project-induced visual change at each KOP was assessed based on field evaluations of anticipated visual contrast and project dominance. Project-induced visual change can result from aboveground facilities, vegetation removal, landform modification, component size or scale relative to existing landscape characteristics, and the placement of project components relative to existing developed features. The experience of visual change can also be affected by the degree of available screening by vegetation, landforms, and existing structures; distance from the observers; atmospheric conditions; and angle of view.

Visual impact significance is a function of two factors: overall visual sensitivity and extent of visual change. Table 4.1.2 illustrates the general relationship between visual sensitivity and visual change. This table was used primarily as a consistency check between individual KOP evaluations. Determinations of visual sensitivity and visual change were based primarily on analyst’s professional experience and site-specific circumstances.

The relationships presented in Table 4.1-2 are intended as a guide only, recognizing that site-specific circumstances may warrant a different conclusion. However, it is reasonable to conclude that lower visual sensitivity ratings combined with lower visual change ratings will generally correlate well with lower degrees of impact significance when viewed on-site. Conversely, higher visual sensitivity ratings combined with higher visual change ratings will tend to result in higher degrees of visual impact occurring at the site.

Implicit in this rating methodology is the acknowledgment that for a visual impact to be considered significant two conditions generally exist: (1) the existing landscape is of reasonably high quality and is relatively valued by viewers; and (2) the perceived incompatibility of one or more elements or characteristics of the project tends toward the high extreme, leading to a substantial reduction in visual quality.
Table 4.1-2. General Guidance for Review of Visual Impact Significance

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<td>Not Significant¹</td>
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<td>Adverse but Not Significant²</td>
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<td>Low to Moderate</td>
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<td>Moderate to High</td>
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<td>High</td>
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<td>Significant⁴</td>
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1 Not Significant – Impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.
2 Adverse but Not Significant – Impacts are perceived as negative but do not exceed environmental thresholds.
3 Adverse and Potentially Significant – Impacts are perceived as negative and may exceed environmental thresholds depending on project and site-specific circumstances.
4 Significant – Impacts with feasible mitigation may be reduced to levels that are not significant or avoided altogether. Without mitigation, significant impacts would exceed environmental thresholds.

Visual Impacts at Specific KOPs

There are two public roads from which the public could view the proposed project: Jawbone Canyon Road and South Kelso Valley Road. Also, there are some one-lane dirt roads or tracks on and near the proposed project site from which the public could view the proposed project. The PCT runs in a north-south direction to the west of the proposed project site and provides pedestrian and equestrian trail users views of the project. The project would result in changes to the visual environment that may result in potentially adverse effects on visual quality throughout the project area. Visual impacts as seen from the four KOPs are discussed below.

KOP-1 – Jawbone Canyon Open Area

KOP-1 is located at the west end of BLM’s Jawbone Canyon Open Area, 3.5 miles east of the project site. Figure 4.1-2 presents a photo of the existing view west toward the project site from KOP-1 (Photo A), and a simulation of the view as it would appear after construction (Photo B). A comparison of the images shows that when the project is in place, the overall visual quality would be somewhat altered. From KOP-1, project turbines would be prominent in the middleground portion of the view. While the closet turbines are 4 miles away, they are relatively prominent due to their size and to the lack of other built elements, aside from the road in the fore- and middleground.
Though existing turbines from the Pine Tree project are visible in the left side of the background, proposed project turbines (Photo B) are much more visible due to their proximity to the KOP and because they are visible against the skyline rather than against a hillside backdrop. Due to the prominence of project turbines, the intactness of the view decreases from average to low and unity decreases from average/moderately high to average. The resulting overall visual quality decreases from average to moderately low in an area that is heavily used by OHV enthusiasts where visual sensitivity is assumed to be moderate.

**KOP-2 – Jawbone Canyon Road**

KOP-2 is located on Jawbone Canyon Road, approaching Kelso Valley. Figure 4.1-3 presents a photo of the existing view toward the project site from Jawbone Canyon Road, 0.15 mile east of the project site (Photo A) and a simulation of the view as it would appear during the project’s operational period (Photo B). A comparison of the existing view with the post-project image indicates that the project would substantially alter the character and quality of the view.

From KOP-2, project turbines would be very prominent in the foreground of a previously almost undeveloped landscape. Project turbines would constitute new elements on the landscape. Due to their proximity to this observation point and their size, the turbines dominate the view, causing intactness to decrease from moderately high to moderately low/low and unity to decrease from moderately high to average/moderately low. The resulting overall visual quality decreases from moderately high to moderately low in an area assumed to be visually sensitive to local residents and of moderate sensitivity to OHV enthusiasts.

**KOP-3 – Kelso Valley**

KOP-3 is located on South Kelso Valley Road just north of its intersection with Jawbone Canyon Road. Figure 4.1-4 presents a photo of the existing view toward the project site from Kelso Valley 1.15 miles northwest of the project site (Photo A), and a simulation of the view as it would appear during the project’s operational period (Photo B). Comparison of the existing view with the post project image indicates that the project would substantially alter the character and quality of the view.

From KOP-3, project turbines are prominent along the ridgeline on the left and center of the view. Due to their size and proximity, project turbines dwarf the ridges on which they are located and are visible against the skyline. Proposed turbines on the right side of this view are seen against a mountainous backdrop. Although turbines would not be new elements in this landscape due to the somewhat visible distant turbines in the background on the right side of the view, project turbines would be far more prominent and proximate to the viewer. With project turbines, the intactness of the view decreases from moderately high to moderately low/low and unity decreases from moderately high to average. The resulting overall visual quality decreases from average/moderately high to moderately low to moderately low in an area assumed to be visually sensitive to local residents.

**KOP-4 – Pacific Crest Trail**

KOP-4 is located on the PCT at the point where the trail is nearest to a number of the WTGs on the project site. Figure 4.1-5 presents a photo of the existing view toward the project site from the PCT, 2 miles west of the project site (Photo A), and a simulation of the view as it would appear after construction (Photo B). Comparison of the existing view with the post-project image indicates that the project would somewhat alter the character and quality of the view.
From KOP-4, project turbines would be visible in middleground and background views but would not dominate the image. Turbines from the Pine Tree Wind Development Project and Sky River Ranch Wind Project are visible on the right side of Photo A. Project turbines would increase the number of turbines visible and bring them into much closer proximity to the viewer at KOP-4. However, project turbines would not be a new element in this view and visually relate to the existing turbines at Pine Tree and Sky River Ranch. Project turbines are also somewhat integrated into the landscape because they are seen against a mountainous backdrop rather than the skyline. Project turbines also appear to be somewhat in scale with the ridges on which they are located. Due to the presence of the project turbines, the intactness of the view decreases somewhat from moderately high to average, and unity decreases from high to moderately high (see Appendix B, Table 4). The resulting overall visual quality decreases from moderately high to average/moderately high.

**Maintenance and Abandonment**

Maintenance practices at wind energy facilities can affect the visual quality and character of landscapes. Research and recent publications indicate the public is generally not happy with the visual blight of un-maintained WTGs, spare WTG parts strewn across the land, or decommissioned WTGs that are not removed from the landscape. Chapter 19.64 (WE Combining District) of the Kern County Planning Ordinance, Section 19.64.150, discusses Wind Turbine Maintenance and Abandonment. Section 19.64.150-B declares that “Any wind turbine not in operational condition for a consecutive period of twelve (12) months shall be deemed abandoned and shall be removed within sixty (60) days from the date a written notice is sent to the property owner and turbine owner, as well as the project operator, by the County.” Enforcement of this provision would aid in the improvement of visual quality and landscape character at the proposed project site. Additionally, more stringent mitigation measures regarding maintenance practices as described below would improve the visual environment of the proposed project.

The County may authorize up to two 12-month extensions before requiring financial assurances to guarantee the removal of the WTG. Section 19.64.150-B declares that “In no case shall a wind turbine which has been deemed abandoned be permitted to remain in place for more than forty-eight (48) months from the date the wind turbine was first deemed abandoned.”

It is expected that neighbors to the proposed project might find the 48 month time period to be excessive for abandoned wind turbines or turbine parts, and the loss of visual quality to the project vicinity to be visually unacceptable for such an extended period of time. Therefore, additional mitigation measures are recommended below.

Mitigation Measures (MMs) would reduce impacts at individual KOP locations; however, because there are no feasible mitigation measures that can be implemented to preserve the existing open space landscape character while at the same time developing the wind energy project, impacts to visual resources would be significant and unavoidable.

**Mitigation Measures**

**MM 4.1-1** Each wind turbine generator shall be painted a uniform light-gray color (such as “RAL 7035” or a similar color). To minimize the reflectivity of the structures, the paint used shall have a gloss level that does not exceed 30 percent.

The surfaces of all other structures (such as substations, operation and maintenance buildings, and transmission structures and appurtenances) shall have low reflectivity.
finishes in neutral desert tans or other muted colors appropriate to the location so as to minimize the contrast between structures in their background.

**MM 4.1-2** Construction staging and laydown areas shall be located in areas that, where feasible, are already disturbed, or in locations with low visual sensitivity and not visible from offsite. All construction-related areas shall be kept clean and tidy by storing construction materials and equipment within the proposed construction staging and laydown areas and away from public view. The project proponents shall remove construction debris promptly at intervals of two weeks or less, at any one location.

**MM 4.1-3** All operation and maintenance areas shall be kept clean and tidy by storing in an orderly manner all wind generation equipment, parts, and supplies in areas that are screened from view and/or are generally not visible to the public.

The project proponents shall remove derelict wind turbine generators and derelict parts and pieces within 60 days of decommissioning, and shall relocate such equipment, derelict parts and pieces to an area that is screened from view and/or is not visible to the general public.

**MM 4.1-4** Grading and landscape treatment of surface areas around Wind Turbine Generator tower bases that is not otherwise required for the maintenance and safety of the structure shall match conditions of the surrounding landscape and habitat.

**MM 4.1-5** For overhead transmission lines, tubular steel poles shall be used instead of lattice steel towers. Tubular steel poles shall be painted light-gray colors or shall be dulled galvanized steel. All aboveground structures (tubular steel poles, cross-arms, insulators, etc.) specified for this project shall be made of materials that do not reflect or refract light. All conductors specified for the project shall be non-specular, that is, they shall be treated at the manufactory to dull their surfaces to reduce their potential to reflect light.

**MM 4.1-6** All substation equipment shall be coated with a low-reflectivity, neutral finish. All insulators at the substations shall be non-reflective and non-refractive. Fencing surrounding the substations or other facilities shall have a dulled finish to reduce contrast with the surroundings.

**Level of Significance after Mitigation**

Impacts would be significant and unavoidable.

**Impact 4.1-4: Create a New Source of Substantial Light or Glare Which Would Adversely Affect Day or Nighttime Views in the Area**

In accordance with FAA standards, aviation warnings in the form of medium-intensity red strobe warning lights would be placed on the nacelles of the WTGs on each end of a WTG string, as well as on every third or fourth WTG in a row. These warning lights are visible from 10 miles at night and would therefore, be visible from residences in the vicinity and from users of the PCT when camping within or nearby the proposed project site. As the existing character of the night sky of the proposed project is largely free from sources of manmade light, the warning lights would alter the existing character of the night sky for the nighttime viewers of the proposed project site and could potentially cause an annoyance for residents in the area and campers along the PCT. Therefore, the warning lights would constitute a new source of substantial light at night, which would adversely affect nighttime views in the area. Implementation of Mitigation Measure 4.8-8 would reduce the effects of light and glare from FAA-required strobe warning lights to the maximum extent feasible;
however, the impact to nighttime views resulting from the warning lights would remain a significant and unavoidable impact.

Security lighting would be installed on the O&M buildings, substations, and along the onsite security fencing. The security lighting has the potential to be a source of low levels of sky glow and light trespass. As the existing character of the night sky of the proposed project is largely free from sources of manmade light, the proposed project’s potential sources of sky glow and light trespass would constitute a new source of substantial light at night, which would adversely affect nighttime views in the area. However, implementation of MM 4.1-7 would be expected to prevent security lighting on the O&M building(s), substation(s), and on-site security fencing from causing significant levels of sky glow or light trespass. Therefore, implementation of MM 4.1-7 would be expected to reduce impacts related to a new source of light and glare from this source to a less-than-significant level.

The blades on WTGs create a phenomenon known as “shadow flicker.” Shadow flicker is the alternating change in light intensity that occurs when rotating WTG blades cast moving shadows on the ground or on structures.

Shadow flicker effects may have the potential to cause seizures in individuals. Seizures in photosensitive people also may be triggered by exposure to such sources as television screens and computer monitors due to the flicker or rolling images of video games or television broadcasts containing rapid flashes or alternating patterns of different colors, and to intense strobe lights like visual fire alarms. Seizures may also be triggered by natural light, such as sunlight, especially when shimmering off water, flickering through trees or through the slats of Venetian blinds. However, even in individuals predisposed to flicker-induced seizures, many factors must combine to trigger the photosensitive reaction, such as frequency and brightness of the flash, contrast with background lighting, distance between the viewer and the light source, and wavelength of light (Epilepsy Foundation, 2010).

The frequency or speed of flashing light that is most likely to cause seizures varies from person to person. Generally, flashing lights most likely to trigger seizures are between the frequency of 5 to 30 flashes per second (Hertz). (Epilepsy Foundation, 2010)

Although it is not yet known which make and model of WTG would be installed at the project site, the approximate number of flashes per second caused by a WTG with three blades can be estimated with the following general assumptions:

- 1 flash = 1 revolution per blade
- Revolutions per minute = 16.1
- 3 blades/rotor

Using the above assumptions, it is estimated that structures within the shadow path of WTGs on a sunny day would experience shadow flicker at a frequency of less than one flash per second (0.81 flashes per second), which is well below the frequency of flashes considered most likely to trigger seizures (i.e. 5 to 30 flashes per second). Therefore, shadow flicker effects of the proposed project would not be expected to induce seizures in photosensitive individuals.

Based on the location of WTGs within the project site, the distance between the WTGs and the site boundary and between the WTGs and proposed O&M facilities, there is no potential for shadow flicker from the WTGs to have an impact on occupied structures or offsite properties.
Mitigation Measures

Implement Mitigation Measure 4.8-8 as described in Section 4.10, Land Use.

MM 4.1-7 Outdoor and exterior lighting shall be the minimum required to meet safety and security standards. All non-Federal Aviation Administration required light fixtures shall be fully shielded to eliminate any potential for uplighting, glare effects, to prevent light from spilling off the site or up into the nighttime sky, and to minimize the potential for light trespass off of the project site. In addition, the fixtures shall have sensors and switches to permit the lighting to be turned off when it is not required/needed.

Level of Significance after Mitigation

Impacts would be significant and unavoidable, because of the red nighttime strobe lighting on WTGs.

Cumulative Setting Impacts and Mitigation Measures

Cumulative Setting

The geographic extent of the cumulative impacts analysis for visual resources is the same as the extent of the regional setting, as described in Section 4.1.2. That extent is defined as the viewshed from which the proposed project might be seen, including immediate foreground, foreground, middleground, and background viewing distances. Figure 4.1-1 shows the areas from which the project site is visible, and includes a line 4 miles from the project boundary, where project components would become background elements in the landscape.

In the vicinity of the proposed project, there are past projects and activities that have modified the landscape and changed the landscape character. Some of these past activities have adversely affected natural-appearing landscape character and visual quality. Examples include buildings, public and non-public roads, and wind energy projects. The most notable cumulative impacts derive from the combination of the proposed project and the existing Pine Tree Wind Development and Sky River Ranch wind energy projects. Wind energy projects have introduced motion into an otherwise motionless landscape, and large rotors atop tall support structures attract attention to the WTGs. The newest generation of WTG is much taller than older WTGs, and has introduced into the landscape a massive, sculptural character, albeit industrial in nature. Existing transmission lines cross the region in several different directions. All of these corridors contain large, industrial character steel towers and high voltage conductors that have affected the landscape character and visual quality. The transmission reinforcement and upgrades associated with the proposed project would introduce minor changes to the visual environment.

Impact 4.1-5: Contribute to Cumulative Aesthetic Impacts

The most relevant projects to the cumulative analysis for the proposed project are other wind energy projects. The nearby existing wind energy projects and transmission line projects could combine with the aesthetic effects of the proposed project to create cumulative visual and aesthetic impacts. 907 MW of power is currently being produced by 3,822 WTGs from existing wind projects in the TWRA. Several new wind energy developments are currently proposed in Kern County and are listed in Section 3.11, Table 3-9. The nearby existing and proposed wind energy projects and
transmission line projects could combine with the aesthetic effects of the project to create cumulative visual and aesthetic impacts.

With regard to Impact 4.1-1 (creating substantial adverse effects on a scenic vista), the proposed project and the gen-tie and reinforcement would not create any significant impacts. There is no national, State, or county designated scenic vista in the vicinity of the proposed project or the gen-tie and reinforcement; therefore, no impact would occur. There are not scenic vistas within the project vicinity; therefore, the project does not have the potential to combine with impacts of other past, present, reasonably foreseeable projects to create a substantial adverse effect on a scenic vista. Therefore, impacts of the proposed project would not have the potential to combine with impacts from past, present, or reasonably foreseeable projects to result in a cumulative aesthetic impact. Therefore, impacts of the proposed project and gen-tie and reinforcement would not combine with impacts of past, present, and reasonably foreseeable projects to create a substantial adverse effect on a scenic vista, and would result in a less than significant cumulative aesthetic impact.

With regard to Impact 4.1-2 (damaging scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway), the proposed project and the gen-tie and reinforcement would not result in a significant impact because they are not visible from any State Scenic Highways.

The proposed project has no aesthetic impact on State Scenic Highways, and combined with impacts of other past, present, reasonably foreseeable projects in the vicinity it does not have the potential to create significant visual or aesthetic impacts on such highways. Therefore, impacts of the proposed project and the gen-tie and reinforcement would not have the potential to combine with impacts from past, present, or reasonably foreseeable projects to result in a cumulative impact. Therefore, impacts of the proposed project would not combine with impacts of past, present, and reasonably foreseeable projects, and would result in a less than significant cumulative aesthetic impact.

With regard to Impact 4.1-3 (substantially degrading the existing visual character or quality of the site and its surroundings), as described above for the entire project area and for four specific KOPs, lands that are currently undeveloped open space would be transformed into a commercial-scale wind farm. The entire proposed project site would change from its current condition (natural open space and/or grazing) to a large sized, commercial-scale wind farm consisting of up to 116 WTGs that would be up to 497 feet tall.

Within the area of potential project visibility (Figure 4.1-1), alterations to the viewshed that would occur with the construction and operation of the proposed project would be experienced most strongly by viewers at closer distances to the proposed project, such as when the proposed project would be in the foreground and middleground distance zones. At these distances, where details in the landscape are apparent, the viewshed would be substantially altered, and views to the surrounding scenic resources would be altered depending on the viewpoint.

The proposed project’s visual and aesthetic impacts have the potential to combine with impacts of other past, present, reasonably foreseeable projects to create additional visual and aesthetic impacts as seen from local roads and the PCT. Adjacent existing wind energy projects would combine with the proposed project to create significant visual and aesthetic impacts, because they would be very visible to viewers as they travel on local roads and on the PCT. Introduction of new tall WTGs in new locations would combine with existing tall WTGs in existing wind farms to degrade the open space landscapes, turning them into commercial-scale wind farms.
Therefore, impacts of the proposed project would combine with impacts of past, present, and reasonably foreseeable projects to result in a significant and unavoidable cumulative aesthetic impact with regard to substantially degrading the existing visual character or quality of the site and its surroundings.

The gen-tie line from the project to Sky River Substation would be within an area currently hosting WTGs and transmission lines. The transmission reinforcement would largely use existing poles or replacement poles of similar height and color to support reconductoring or installation of a second transmission circuit. Neither the gen-tie line nor the reinforcement would create a significant impact by themselves or in combination with existing or foreseeable projects. Therefore, impacts of the gen-tie line and reinforcement would not combine with impacts of past, present, and reasonably foreseeable projects, and would result in a less than significant cumulative aesthetic impact with regard to substantially degrading the existing visual character or quality of the site and its surroundings.

With regard to Impact 4.1-4 (creating a new source of substantial light or glare which would adversely affect day or nighttime views in the area), the proposed project would place aviation warning strobe lights on the nacelles of the WTGs on each end of a WTG string, as well as on every third or fourth WTG in a row. If not obstructed by terrain, these warning lights would be visible from 10 miles away at night and would be visible from residences in the vicinity and from users of the PCT when camping overnight in the vicinity. As the existing character of the night sky of the proposed project is largely free from sources of manmade light, the warning lights would alter the existing character of the night sky and could potentially cause an annoyance for residents in the area and campers along the PCT. Therefore, the warning lights would constitute a new source of substantial light at night, which would adversely affect nighttime views in the area.

Security lighting would be installed at the O&M buildings and substations. The security lighting has the potential to be a source of low levels of sky glow and light trespass. As the existing character of the night sky of the proposed project is largely free from sources of manmade light, the proposed project’s potential sources of sky glow and light trespass would constitute a new source of substantial light at night, which would adversely affect nighttime views in the area. The project’s impacts to light and glare have the potential to combine with impacts of other past, present, reasonably foreseeable projects to combine to result in a cumulative visual impact. There are existing red and white strobe lights on WTGs and meteorological towers in the Tehachapi Wind Resource Area, and new strobe lights will be installed per FAA regulations at the PdV and Alta-Oak Creek Mojave Wind Energy Projects. New outdoor lights at new O&M facilities and substations would combine with existing and planned outdoor lighting at existing and planned wind farms to create new sources of nighttime light. Implementation of MM 4.1-7 would reduce impacts by shielding light fixtures and directing light onto the site, and impacts from this lighting would be less than significant. However, introduction of new red strobe lights on WTG nacelles would create a significant and unavoidable visual impact. Therefore, impacts of the proposed project would combine with impacts of past, present, and reasonably foreseeable projects to result in a significant and unavoidable cumulative impact for light and glare.

Neither the gen-tie line nor the reinforcement would add any new lighting or source of glare; therefore, would not have the potential to contribute to a cumulative impact.
Mitigation Measures

Implement Mitigation Measures 4.1-1 through 4.1-7 as described above and Mitigation Measure 4.8-8 in Section 4.10 Land Use and Planning.

Level of Significance after Mitigation

Impacts would be significant and unavoidable.
Figure 4.1-1
Key Observation Points (KOPs) and Potential Project Visibility

Source: CH2MILL, December 2010.
A. KOP-1. Existing view toward the project site from Jawbone Canyon Open Area.

B. KOP-1. Simulated view toward the project site from Jawbone Canyon Open Area.

Source: CH2MILL, March 2011.
4.1 Aesthetics

Source: CH2MILL, December 2010.

Figure 4.1-3
KOP 2 - View from Jawbone Canyon Road

A. KOP-2. Existing view toward the project site from Jawbone Canyon Road.

B. KOP-2. Simulated view toward the project site from Jawbone Canyon Road.
**A. KOP-3.** Existing view toward the project site from Kelso Valley.

**B. KOP-3.** Simulated view toward the project site from Kelso Valley.

*Source: CH2MHILL, December 2010.*
A. KOP-4. Existing view toward the project site from the Pacific Crest Trail.

B. KOP-4. Simulated view toward the Project site from the Pacific Crest Trail.

Source: CH2MHILL, December 2010.
Figure 4.1-6
Transmission Reinforcement Options and KOPs

Existing view toward the Wilderness Transmission Line from the south end of Sand Canyon Road facing north.

Existing view toward the Wilderness Transmission Line from Pine Canyon Road facing west.

Existing view toward the Wilderness Transmission Line from the north end of Sand Canyon Road facing south.