

### 4.1 AESTHETICS/VISUAL RESOURCES

This section provides a description of the existing visual and aesthetic resources within the project area and pertinent federal, state, and local plans and policies regarding the protection of scenic resources. This section incorporates several technical studies prepared for the projects including a Reflectivity Analysis, prepared by Aztec Engineering (December 2013) to address potential glint impacts relative to roadway and aircraft traffic. In addition, an Aesthetics Study was prepared by Aztec Engineering and Tecnomia (July 2014) to address potential aesthetics/visual resources impacts. Both reports are included in Appendix B. Effects to the existing visual character of the project area as a result of project-related facilities are considered and mitigation is proposed based on the anticipated level of significance.

#### 4.1.1 Environmental Setting

The project area is located in southern Imperial Valley, just north of the U.S./Mexico border, and is characterized as an agricultural landscape with generally level topography. Prominent visual features within the project area include numerous agricultural canals that supply water and agricultural related structures (e.g., silos). The Yuha Desert is generally located to the west and is comprised of upland desert landscape that transitions into the Coyote Mountains. Mount Signal rises 2,300 feet above mean sea level in the southern Yuha Desert, extending south into Mexico, and is the prominent visual landscape feature southwest of the project area. The City of Calexico is located to the east. Areas to the north and south of the project area are generally level and characterized as an agriculturally dominated landscape. The New River is located north of the FSF and ISF project sites, and the Greeson Wash is located south of the LSF project site.

##### 4.1.1.1 Regulatory Setting

This section identifies and summarizes state and local laws, policies, and regulations that are applicable to the projects. There are no applicable Federal plans or policies that would apply to visual resources within the project study area.

#### State

##### California Department of Transportation

The California Department of Transportation (Caltrans) manages the California Scenic Highway Program. The goal of the program is to preserve and protect scenic highway corridors from changes that would affect the aesthetic value of the land adjacent to the scenic corridor (Caltrans 2008). Interstate 8 (I-8) located to the northwest of the project area is the nearest officially designated scenic route. The scenic route designation for I-8 ends at the junction of I-8 and State Route (SR) 98 near Coyote Wells. The project area is located more than 22 miles southeast of this designated scenic route.

#### Local

##### Imperial County General Plan

The Imperial County General Plan (Imperial County, as amended 2008) contains policies for the protection and conservation of scenic resources and open spaces within the County. These policies also provide guidance for the design of new development. The Conservation and Open Space Element of the General Plan provides specific goals and objectives for maintaining and protecting the aesthetic character of the region. Table 4.1-1 provides an analysis of the project's consistency with the Conservation and Open Space Element Goal 7. Additionally, the Circulation and Scenic Highways Element of the General Plan provides policies for protecting and enhancing scenic resources within highway corridors in Imperial County, consistent with Caltrans State Scenic Highway Program.

**TABLE 4.1-1. CONSISTENCY WITH APPLICABLE GENERAL PLAN CONSERVATION  
AND OPEN SPACE POLICIES**

General Plan Policies	Consistency with General Plan	Analysis
Goal 7: The aesthetic character of the region shall be protected and enhanced to provide a pleasing environment for residential, commercial, recreational, and tourist activity.	Consistent	<p>The projects would result in changes to the visual character of the project area, which is currently characterized as an agricultural landscape. As described in Section 4.1.1.2, the project sites do not contain high levels of visual character or quality; therefore, the projects would not result in a significant deterioration in the visual character of the project sites or project area.</p> <p>Additionally, project-related transmission facilities and associated towers would interconnect as much as possible, with existing transmission facilities, thereby limiting their overall footprint, which would limit their encroachment into background views of Mount Signal and the Peninsular Mountains. Additionally, these features would be primarily located in an east-west orientation and, therefore, would not distract from the overall unity of the viewshed facing west of Mount Signal and the Coyote Mountains.</p>
Objective 7.1: Encourage the preservation and enhancement of the natural beauty of the desert and mountain landscape.	Consistent	The project study area is located within an agricultural portion of the County and generally avoids both desert and mountain landscapes.

### 4.1.1.2 Existing Conditions

#### Existing Visual Resources

The agricultural lands within the project area are considered “typical” views in the Imperial Valley. Considering the level terrain of the area, background views consist of the surrounding Peninsular Range Mountains to the west. The Coyote Mountain and Mount Signal are located to the east and southwest, beginning in the eastern edge of the Yuha Desert and extending south into Mexico. The New River, a hydrologic feature with native vegetation is located to the north of the FSF and ISF project sites. The Greeson Wash is located south of the LSF project site, which has seasonal water flow and limited native vegetation. Due to the lack of aesthetic value, the New River and Greeson Wash are not considered visual resources in this area. The background views of the mountains are the only existing visual resource in the area.

#### Scenic Roadway Designation

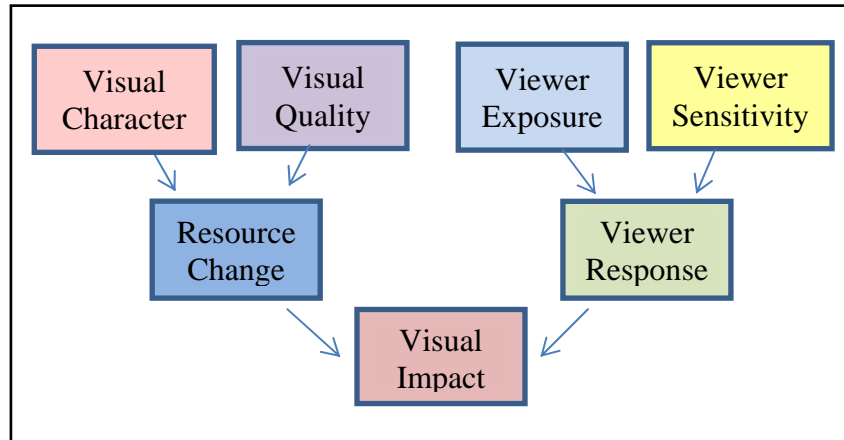
SR-98 is not officially designated or eligible for designation under the scenic highway program (Caltrans 2010). The nearest officially designed scenic route is I-8, located 20 miles northwest of the project area, at the junction of I-8 and SR-98 near Coyote Wells.

#### Federal Highway Administration Assessment Method

The Federal Highway Administration (FHWA) methodology outlined in the *Visual Impact Assessment for Highway Projects* (1981) was used for this visual assessment. Per the FHWA guidelines, the aesthetic quality of an area is determined through the variety and contrasts of the area’s visual features, the character of those features, and the scope and scale of the scene.

The aesthetic quality of an area depends on the relationship between its features and their importance in the overall view. Evaluating resource change requires a method that: (1) characterizes visual character; and (2) assesses their quality (vividness, intactness, and unity). The viewer exposure and viewer sensitivity is evaluated to determine the viewer response. The resource change is combined with the viewer response to determine the overall visual impact. Figure 4.1-1 illustrates this FHWA methodology. The FHWA terminology definitions are listed below.

**Figure 4.1-1. FHWA Visual Environment Concept Diagram**



Visual impacts related to the visual environment are characterized by their potential levels of change based on these following category ratings:

- **Low (L)** – Minor adverse change to the existing visual resource, with low viewer response to change in the visual environment. May or may not require mitigation.
- **Moderately Low (ML)** – Low negative change to the visual resource with a moderate viewer response, or moderate negative change to the resource with a low viewer response. Impact can be mitigated.
- **Moderate (M)** – Moderate adverse change to the visual resource with moderate viewer response. Impact can be mitigated within five years using conventional practices.
- **Moderately High (MH)** – Moderate adverse visual resource change with high viewer response or high adverse visual resource change with moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than five years to mitigate.
- **High (H)** – A high level of adverse change to the resource or a high level of viewer response to visual change such that architectural design and landscape treatment cannot mitigate the impacts. Viewer response level is high. An alternative project design may be required to avoid highly adverse impacts.

### Assessing Visual Resources

#### Visual Character

Visual character includes attributes such as form, dominance, diversity, and continuity (as described below) to describe, not evaluate visual character; that is, these attributes are neither considered good nor bad. However, a change in visual character can be evaluated when it is compared with the viewer response to that change. Changes in visual character are identified by how visually compatible a project would be with the existing condition by using visual character attributes as an indicator. For this project, the following pattern characters or attributes were considered:

- Form – visual mass or shape;
- Dominance – position, size, or contrast;
- Diversity – pattern elements, as well as the variety among them;
- Continuity – uninterrupted flow of form, line, color, or textural pattern.

### **Visual Quality**

Both natural and created features in a landscape contribute to its visual quality. Landscape characteristics influencing visual quality include geologic, hydrologic, botanical, wildlife, recreation, and urban features. Several sets of criteria have been developed for defining and evaluating visual quality.

According to these criteria, none of these is itself equivalent to visual quality; all three must be considered high to indicate high quality. The visual quality terms are defined as follows:

- *Vividness* is the extent to which the landscape is memorable and is associated with distinctive, contrasting, and diverse visual elements.
- *Intactness* is the integrity of visual features in the landscape and the extent to which the existing landscape is free from non-typical visual intrusions.
- *Unity* is the extent to which all visual elements combine to form a coherent, harmonious visual pattern.

### **Assessing Viewer Response**

Viewer response is based on the viewer exposure (location, quantity, and duration) combined with the viewer sensitivity (activity, awareness, and local values), as described in the following definitions:

#### **Viewer Exposure**

- *Activity* relates to the preoccupation of viewers. Are they preoccupied, thinking of something else, or are they truly engaged in observing their surroundings. The more they are actually observing their surroundings, the more sensitivity viewers will have of changes to visual resources.
- *Awareness* relates to the focus of view. If the focus is wide and the view general or the focus is narrow and the view specific the more specific the awareness, and the more sensitive a viewer is to change.
- *Local values* and attitudes also affect viewer sensitivity. If the viewer group values aesthetics in general or if a specific visual resource has been protected by local, state, or national designation, it is likely that viewers will be more sensitive to visible changes.

#### **Viewer Sensitivity**

- *Location* relates to the position of the viewer in relationship to the object being viewed. The closer the viewer is to the object, the more exposure.
- *Quantity* refers to how many people see the object. The more people who can see an object or the greater frequency an object is seen, the more exposure the object has to viewers.
- *Duration* refers to how long a viewer is able to keep an object in view. The longer an object can be kept in view, the more exposure. High viewer exposure helps predict that viewers will have a response to a visual change.

Table 4.1-2 provides the visual impact ratings, and how they are quantified. The table illustrates how the combination of resource change and viewer response is used to determine the resource impact further discussed in Section 4.1.2.3, Impact Analysis.

TABLE 4.1-2. FHWA VISUAL IMPACT RATINGS

Resource Change	Viewer Response					
	Ratings	Low (L)	Moderately-Low (ML)	Moderate (M)	Moderately-High (MH)	High (H)
	Low (L)	L	ML	ML	M	M
	Moderately Low (ML)	ML	ML	M	M	MH
	Moderate (M)	ML	M	M	MH	MH
	Moderately High (MH)	M	M	MH	MH	H
	High (H)	M	MH	MH	H	H

#### 4.1.1.3 Existing Conditions

A site reconnaissance was conducted to identify visual resources in the project area, including the project sites and off-site transmission areas. Viewpoints within the project area were selected based on the public viewing areas. A general description of the visual quality for the project area is described below. To capture the existing visual quality for each of the project components, views within the project area were photo-documented.

Figure 4.1-2 illustrates the photo-documented key view points and the direction to which the photographs were taken. The photographs depicting the existing condition at each project site are presented in Section 4.1.2.3, Impact Analysis along with visual simulations at each key view point depicting the proposed condition.

The viewer's distance from landscape elements plays an important role in the determination of an area's visual quality. Landscape elements are considered higher or lower in visual importance based on their proximity to the viewer, which contribute to a project area's overall viewshed. Generally, the closer a resource is to the viewer, the more dominant, and therefore visually important, it is to the viewer.

The FHWA separates landscapes into foreground, middleground, and background views. Although this should be considered on a case-by-case basis, in general, the foreground is characterized by clear details (0 up to 0.25 - 0.5 mile from the viewer); the middleground is characterized by loss of clear texture within a landscape creating a uniform appearance (up to 0.25 - 0.5 to 0.05 to 3 - 5 miles in the distance); and the background extends from the middleground (3 - 5 miles) to the limit of human sight. The FHWA foreground, middleground, and background view approach is used for describing the relative quality of each of these landscapes.

The FHWA attributes of form, dominance, scale, and continuity were used to determine the overall existing visual character. Vividness, intactness, unity were then applied to determine the visual quality. These visual resource changes were then combined with the viewer response to determine the visual impacts of the projects as discussed further in Section 4.1.2.3, Impact Analysis.

#### Visual Character

The overall character of the region and the project area is that of predominately agricultural landscapes, with a few residences to house the farming community. The area does not have a dominate feature in the surroundings due to the level terrain, which provides an uninterrupted flow and continuity to the landscape. The area farms have similar crops, so there is no diversity in the pattern elements for color or texture of the landscape. Although the area possesses a continuous pattern, there is no diversity, or dominate features. This results in a low visual character of the general area.



Figure 4.1-2. Photo-Documented Viewpoints within the Project Sites



### Visual Quality

#### FSF

The landscape in the vicinity of FSF is characterized by level terrain, scattered agricultural residences and support structures, irrigation canals, drain facilities, dirt roadways, and the New River located to the north. (Viewpoint A, Figure 4.1-3). Foreground views include agricultural farmland, and an irrigation canal. Middleground views consist of open fields, isolated trees, and scattered agricultural structures. Background views consist of riparian vegetation associated with the New River.

The prominent visual feature in the area is the agriculture farmland. No distinctive mountain background views are present from this key viewpoint. The visual quality of the FSF project site is assessed below.

- **Vividness:** The foreground is characterized by typical views of active agricultural operations with numerous cultivated agricultural fields and irrigation canals and dirt roadways. No unique physical or geographic features add to the vividness of the FSF project site. There are no distinctive views of the surrounding mountains in the background or memorable landscapes. The FSF project site is considered to have low vividness.
- **Intactness:** The landscape can be characterized as an agricultural landscape, with the exception of the New River which contains riparian vegetation. Considering the change in the land use, the existing agricultural structures, utility poles, irrigation canals, fencing, and private access roads located in the fore- and middleground views are now considered “typical” visual intrusions to the area (Viewpoint A, Figure 4.1-3). Due to the agricultural ground disturbing activities (plowing), particulate matter in the air is increased which compromises visibility. In addition, the air quality is reduced during high temperature events, further reducing the background views of the mountains. The compromised air quality acts like a visual intrusion to the background views. The FSF project site is considered to have a moderately low level of intactness.
- **Unity:** The project area is predominately agricultural, which results in a harmonious visual pattern. The FSF project site is considered to have a moderately high level of unity.

As described above, the FSF project site has low vividness, moderately low intactness, and high visual unity, resulting in a moderate visual quality.

#### RSF

Similar to the FSF, the landscape in the vicinity of RSF project site is characterized by level terrain, scattered agricultural residences and support structures, irrigation canals, drain facilities, and dirt roadways (Viewpoints B through E, Figures 4.1-4 through 4.1-7). Foreground views include cultivated agricultural fields, utility poles, and ruderal vegetation along roadsides. Middleground views are similar to the FSF project site. Background views of the mountains are visible from Viewpoints C, D, and E. The visual quality of the RSF project site is assessed below.

- **Vividness:** The foreground is characterized by typical views of active agricultural operations with numerous cultivated agricultural fields, related agricultural structures, and roadways. No unique physical or geographic features add to the vividness of the RSF project site. Air quality issues are similar to the FSF, compromising the background views of the mountains. Similar to the FSF project area, this area is considered to have low vividness.
- **Intactness:** Similar to the FSF, the landscape can be characterized as an agricultural landscape. The existing agricultural structures, utility poles, irrigation canals, roadways, and private access roads, in the fore- and middleground views are considered “typical” visual intrusions to the area. The mountains are visible from the west to the south in the background (Viewpoint D, Figure 4.1-6). Similar to the FSF, the reduced air quality acts like a visual intrusion to the background views. The visual appearance of the existing structural elements does not contribute

as visual enhancements to the human-built landscape. The RSF project site is considered to have a moderately low level of intactness.

- **Unity:** Similar to the FSF, the area is predominately agricultural, which results in a harmonious visual pattern. The RSF project site is considered to have a moderately high level of unity.

As described above, the RSF project site has low vividness, moderately low intactness, and moderately high visual unity, resulting in a moderate existing visual quality.

### Iris Solar Farm

Similar to the FSF, the landscape in the vicinity of ISF project area is characterized by level terrain, isolated agricultural residences and support structures, irrigation canals, drain facilities, dirt roadways, and the New River located to the north (Viewpoint F thorough J, Figure 4.1-8 through 4.1-12). Foreground views include cultivated agricultural fields, irrigation canals, and ruderal vegetation along roadsides. Middleground views consist of cultivated and fallow agricultural fields, isolated trees, and scattered agricultural structures. Although not visible in the key viewpoints for the LSF, the mountains are visible in the background views to the west and southwest. The visual quality of the ISF project site is provided below.

- **Vividness:** The foreground is characterized by typical views of cultivated and fallow agricultural fields and related structures, and existing roadways. No unique physical or geographic features add to the vividness of the ISF project site. There are no distinctive views or memorable landscape. The ISF project site is considered to have low vividness.
- **Intactness:** Similar to FSF, the landscape can be characterized as an agricultural landscape. The existing agricultural structures, utility poles, irrigation canals, roadways, and private access roads, in the fore- and middleground views are considered “typical” visual intrusions to the area. Although not visible in the key viewpoints for the LSF, the mountains are visible in the background views to the west and southwest. Air quality issues are similar to the FSF, compromising the background views of the mountains. The visual appearance of the existing structural elements does not contribute as visual enhancements to the human-built landscape. The ISF project site is considered to have a moderately low level of intactness.
- **Unity:** The area is predominately agricultural, which results in a harmonious visual pattern. The ISF project site is considered to have a moderately high level of unity.

As described above, the ISF project site has low vividness, moderately low intactness, and moderately high visual unity, resulting in a moderate existing visual quality.

### Lyon Solar Farm

Similar to the FSF, the landscape in the vicinity of the LSF project site is characterized by level terrain, with the exception of the southeast corner of which has a slight rise in elevation. The area contains isolated cultivated and fallow agricultural fields (Viewpoints K and L, Figure 4.1-13 and 4.1-14). Foreground views include cultivated agricultural fields, irrigation canals, ruderal vegetation, and dirt roadways. Middleground views consist of cultivated and fallow agricultural fields. Although not visible in the key viewpoints for the LSF, the mountains are visible in the background views to the west and southwest. The visual quality of the LSF project site is provided below.

- **Vividness:** The foreground is characterized by typical views of cultivated and fallow agricultural fields and existing roadways. No unique physical or geographic features add to the vividness of the LSF project site. There are no distinctive views or memorable landscapes. This LSF project site is considered to have low vividness.
- **Intactness:** Similar to the FSF, the landscape can be characterized as an agricultural landscape. The existing agricultural structures, utility poles, irrigation canals, roadways, and private access



roads, in the fore- and middleground views are considered “typical” visual intrusions to the area. (Viewpoints K and L, Figure 4.1-13 and 4.1-14). The visual appearance of the existing structural elements does not contribute as visual enhancements to the human-built landscape. Although not visible in the key viewpoints for the LSF, the mountains are visible in the background views to the west and southwest. Given the air quality issues as previously discussed, the background view experience contains visual intrusions. The LSF project site is considered to have low levels of intactness.

- **Unity:** The area is predominately agricultural, which results in a harmonious visual pattern. The LSF project site is considered to have a moderately high level of unity.

As described above, the LSF project site has low vividness, low intactness, and moderately high visual unity resulting in a moderate existing visual quality.

The project area is identified as having a low visual character, combined with a moderate level of visual quality; which results in an existing resource designation of “Medium Low” for each of the project sites. Table 4.1-3 provides a summary of the visual quality within each project site.

**TABLE 4.1-3. EXISTING RESOURCE DETERMINATIONS**

Project Study Area	Visual Character	+	Visual Quality	=	Existing Resource
FSF	L		M		ML
ISF	L		M		ML
RSF	L		M		ML
LSF	L		M		ML

The project sites and proposed off-site transmission areas can be seen by two types of sensitive viewer groups: roadway travelers and people residing and working (residential users) within or near the project area. .

- **Roadway Travelers**
  - **Exposure:** SR-98 is situated in an east/west direction and is not a heavily traveled roadway. These travelers are anticipated to be farmers that work or reside in the area and people traveling to and from Calexico. Roadway speeds in the area are anticipated to be between 45 to 65 miles per hour (mph). The terrain within the project area is relatively flat, which provides open space viewing opportunities. Roadway Traveler’s (traveling towards the west) awareness would be visually drawn toward the background views of the Peninsular Mountains and Mount Signal to the west and southwest. Roadway traveler exposure is considered to be moderate.
  - **Sensitivity:** The outlying area of Calexico has a limited population due to the agricultural nature and does not contain a diverse visual environment. Given the limited population in this area, the roadway traveler sensitivity is considered to be low.
- **Residential**
  - **Exposure:** The residences in this area are primarily associated with people living and working in the agricultural industry. This viewer type has a prolonged view of the area. A total of three residences are located within the project study areas (FSF-1 and ISF-2) as identified in Section 4.11, Noise and Vibration. A total of ten residences are located within close proximity to each of the project study areas (FSF-2, RSF-6, and LSF-2). Given the limited number of residences in the area, the residential viewer exposure is considered low.

- **Sensitivity:** Residents are generally considered a sensitive viewer group due to the prolonged exposures (potentially 24 hours a day). Residents typically have an elevated concern regarding views from their homes that correlate to property values and would be considered engaged in their surrounding visual environment. Given the limited number of residences in the area and the adjacent farming operations, the residential viewer's sensitivity is considered moderate.

The viewer response within the project area is considered to be moderately low. Table 4.1-4 provides a summary of the FHWA viewer response ratings for each of the project sites.

**TABLE 4.1-4. FHWA VIEWER RESPONSE RATINGS**

Viewer Type	Viewer Exposure	+	Viewer Sensitivity	=	Viewer Response
Highway Travelers	M		L		ML
Residential Viewers	L		M		ML

### Light, Glare, and Glint

Glare is considered a continuous source of brightness, relative to diffused light, whereas glint is a direct redirection of the sun beam in the surface of a photovoltaic (PV) or concentrated photovoltaic (CPV) solar module. Glint is highly directional, since its origin is purely reflective, whereas glare is the reflection of diffuse irradiance; it is not a direct reflection of the sun.

Due to the nature of the existing agricultural land uses and few residences, limited light is generated from within the project area. The majority of the light and glare that emits within the project sites is a result of motor vehicles traveling on surrounding roadways, airplanes, and farm equipment. Local roadways generate glare both during the night hours when cars travel with lights on, and during daytime hours because of the sun's reflection from cars and pavement surfaces. Additional sources of light and glare include exterior and interior building lighting, in addition to windows and reflective building materials such as metal roofs. When light is not sufficiently screened and spills over into areas outside of a particular development area the effect is called "light trespassing."

### 4.1.2 Impacts and Mitigation Measures

This section presents the significance criteria used for considering visual and aesthetics impacts, the methodology employed for the evaluation, and mitigation requirements, if necessary.

#### 4.1.2.1 Thresholds of Significance

The thresholds of significance for impacts included as part of the evaluation are based on the checklist in Appendix G of the State California Environmental Quality Act (CEQA) Guidelines. Consistent with the CEQA Guidelines and the professional judgment of the County's staff and environmental consultants, the projects would result in a significant impact on the environment 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; or

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

### 4.1.2.2 Methodology

This visual impact analysis is based on field observations, a reflectivity analysis prepared by Aztec Engineering (December 2013), and visual simulations created by Aztec Engineering and Tecnomia (July 2014), for each of the projects, (and including proposed off-site transmission facilities), as well as a review of maps and aerial photographs for the project area. As previously presented in Section 4.1.1.2, Existing Visual Resources and FHWA Assessment Methodology, the FHWA visual assessment methodology was used for this analysis.

The analysis of potential impacts was based on changes to the existing visual character that would result from project implementation. In making a determination of the extent and implications of the visual changes, consideration was given to:

- Specific changes in the visual composition, character, and valued qualities of the affected environment;
- The visual context of the affected environment;
- The extent to which the affected environment contained places or features that have been designated in plans and policies for protection or special consideration; and
- The numbers of viewers, their activities, and the extent to which these activities are related to the aesthetic qualities affected by the project-related changes.

It should be noted that an assessment of visual quality is a subjective matter, and reasonable people can disagree as to whether alteration in the visual character of the project area would be adverse or beneficial. For this analysis, a conservative approach was taken, and the potential for substantial change to the visual character of the project sites area is generally considered a significant impact.

### 4.1.2.3 Impact Analysis

*IMPACT                      Substantial Adverse Effect on a Scenic Vista.*

*4.1-1                        Implementation of the projects would not degrade of the visual quality of a scenic vista.*

### Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

As stated in Section 4.1.1, the project sites are located in the southern Imperial Valley, an agricultural landscape, and are not located within an area containing a scenic vista designated by the State or the County's General Plan (Imperial County, amended 2008). None of the viewpoints described in Section 4.1.1.2 characterize the physical attributes necessary to qualify as a designated scenic vista; however, there are scenic mountains identified as background views of the project. The solar arrays (up to a height of 30 feet), and the transmission (up to a height of 140 feet) and collector lines would extend along private lands, traversing the project area both west to east and north to south along major roads (e.g., Kubler Road, State Route SR-98, George Road, Corda Road, and Ferrell Road) and other local roadways.

The solar arrays, transmission lines, and collector lines would not create a visual obstruction for the background views of the mountains. Furthermore, due to the agricultural ground disturbing activities (plowing) particulate matter in the air is increased, which compromises the visibility in the area. In addition, air quality is reduced during high temperature events, further impeding the background views of the mountains. The low air quality acts like a visual intrusion to the background views. Based on these

factors, implementation of the projects would not have a substantial direct or indirect effect on a scenic vistas and **no impact** is identified for this issue area.

### Mitigation Measure(s)

No mitigation measures are required.

**IMPACT**                      *Substantial Adverse Effect on a Scenic Highway.*  
**4.1-2**                              *Implementation of the projects would not result in substantial damage to scenic resources, including, but not limited to, trees, rock outcroppings, and ridgelines within a state scenic highway.*

### Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line

The project sites are located along SR-98, which bisects the floor of the Imperial Valley, just north of the U.S. Mexico border. As provided in Section 4.1.1.2, the nearest designated scenic route is I-8, located 20 miles northwest of the project area and is not visible from the project site. Furthermore, the views to the project area from I-8 as it descends from the Peninsular Mountains are obstructed by Mount Signal. No scenic resources have been identified on the project sites. Based on these considerations, the projects would not result in damage to scenic resources, including trees, rock outcroppings, or historic buildings, including those listed as eligible for the Scenic Highway Program (Caltrans 2010). The proposed projects would not result in impacts to scenic highways. **No impact** is identified for this issue area.

### Mitigation Measure(s)

No mitigation measures are required.

**IMPACT**                      *Changes to Visual Character*  
**4.1-3**                              *Implementation of the projects would not substantially degrade the existing visual character or quality of the project sites and their surroundings.*

The projects consist of the construction of solar arrays, transmission towers, and power lines. The project components would result in a change in the existing land use at each of the four project sites from an agricultural land use to a solar facility. This would alter the visual character of the project area, both in terms of the on-site features proposed under the projects and in the context of the study area's relationship within the currently surrounding agricultural landscape. Each of these frames of reference is considered under the associated headings below.

### On-site Changes to Existing Visual Character

As described in Section 4.1.1, the project sites are utilized for agricultural production. No distinctive visual resources, with the exception of background views of the mountains are located within the general area. Construction of the projects would alter the existing visual character of the project areas and their surroundings as a result of converting existing agricultural lands to a large-scale solar energy facility. The general area is essentially flat; therefore, no substantial site grading and landform change would occur. Although the project study areas would be visually disrupted in the short-term during construction due to soil disturbance activities, these activities would not be more disruptive than existing agricultural operations that also have soil disturbance activities. Because extensive grading is not required and these activities would be temporary, the visual character of the project study areas during construction would not be substantially degraded in the short-term and related impacts would be considered **less than significant**.

### Iris Cluster (FSF, RSF, ISF, and LSF)

As discussed in Chapter 3.0, the major generation equipment that would be installed in conjunction with the projects includes solar arrays, inverter modules and transformers, operations and maintenance (O&M) buildings, electrical, substation(s), and an electrical distribution system. The proposed O&M facilities could reach a maximum height of 25 feet while the solar arrays (should CPV technology be employed) would extend up to 30 feet above the ground surface. As described in Chapter 3.0, each of projects' components within the project area would be enclosed by an 8-foot security fence.

Visual simulations were created for 12 key viewpoints to represent "typical views" that are associated with the project components (see Figures 4.1-3 through 4.1-14). The locations for Viewpoints A through L are identified in Figure 4.1-2. Figures 4.1-3 through 4.1-14 present the existing conditions and the visual simulations to illustrate a visual representation of the proposed condition to present the potential changes of the visual environment.

Visual simulations (also termed "photographic simulations" or "photo-simulations") are realistic, computer-generated, three-dimensional images of a project that simulate certain project features in their context (as they would be seen from critical views and under specific viewing conditions), matching baseline photographs of the same views. These conditions include angle of view, distance, and time of day, ambient lighting, and atmospheric perspective (the attenuation of details due to particulates or moisture). The computer imaging is generally restricted to features of the project, with the context being represented by a photograph. The image and photograph are then blended to realistically portray the project in its context. Three-dimensional (3-D) photo-simulations are simulations based on a photographic montage and 3-D modeling of geographic elevation information with other associated pertinent information that is representative and accurate.

Current industry standard procedures were used for the development of the visual simulations, resulting in the visual simulation that is both seamless and accurate. The photo simulations presented are by no means representative of all views affected. They are included to provide the reader with a better overall sense of project changes to the existing environment as well as to help visualize public perception and responses to these changes.

As previously discussed in Section 4.1.1.2, the existing visual resources in the area are limited to the background views of the peninsular Range Mountains that include Coyote Mountain and Mount Signal. The Greens Wash is located south of the LSF project site and the New River is located north of the RSF and ISF project sites. These features lack aesthetic value and are not considered visual resources. The nearest officially designated scenic route is I-8, located 20 miles northwest of the project study areas and project features would not be visible from this long distance.

The four project sites have similar visual impacts. Figures 4.1-3 through 4.1-14 illustrates that the visual changes from 12 perspective viewpoints. The changes from the existing condition to the proposed condition would have a significant visual change from an agricultural land use to a solar farm facility. As stated in the Existing Conditions, Section 4.1.1.3, the general area has a low visual character due to a lack of diversity in landscape pattern elements (color and texture) and the area lacks a dominate feature. The existing visual quality of the area has low vividness, moderately low intactness, and a moderately high visual unity. The combination of the low visual character and moderate visual quality results in a moderately low existing resource determination.

The surrounding area is currently being developed with (or proposed for) numerous solar projects of similar scale as the proposed projects; including the Mount Signal Solar Project, consisting of over 4,000 acres of land that will be constructed in the near-term. Considering the existing visual character of the area is considered low and the surrounding area is currently in the process of solar development, the construction of the proposed projects would be consistent with current and planned development patterns and types in the area. Furthermore, the surrounding area has a moderately low existing visual quality, and no resources were identified in the area with the exception of the background views of the mountains. The proposed heights of project components would not obscure the background views of the mountains.



Figures 4.1-3 through 4.1-14 illustrate that the impacts would be similar across the four project sites. The viewer response ratings as identified in Table 4.1-4, are considered to be moderately low, combined with a moderately low resource change that would result in a moderately low visual impact due to the construction of the project, as shown in Table 4.1-5, Summary of Key View Ratings.

**TABLE 4.1-5. SUMMARY OF KEY VIEW RATINGS**

Project Study Area	Key View	Existing Visual Quality Analysis	Viewer Response	+	Resource Change	=	Visual Impact
FSF	A	ML	ML		ML		ML
RSF	B	ML	ML		ML		ML
	C	ML	ML		ML		ML
	D	ML	ML		ML		ML
	E	ML	ML		ML		ML
ISF	F	ML	ML		ML		ML
	G	ML	ML		ML		ML
	H	ML	ML		ML		ML
	I	ML	ML		ML		ML
LSF	J	ML	ML		ML		ML
	K	ML	ML		ML		ML
	L	ML	ML		ML		ML

With the exception of access roads and O&M facilities, the solar grids would cover the entire project site for each solar farm project. Figures 4.1-15 through 4.1-18 provide an oblique post-project rendering of the four project sites to illustrate the associated conceptual solar array grid layout. As shown, the solar array grids would provide uniform coverage over the project sites with the access roads and grid inverter model and transformer sites forming a rectangular grid layout that would be oriented in a north-south or east-west direction. This proposed layout would blend-in with and compliment the rectangular row cropping patterns present in adjacent agricultural fields. When considering the factors in the context of the low levels of vividness and moderately low levels of intactness as documented within the project area, these project-related changes would have a **less than significant** impact on the existing onsite visual character.

### Transmission Line

As stated earlier, the visual character of all the project area is low due to a lack of diversity of landscape pattern elements (color and texture) and because the project area lacks dominate features. The existing visual quality of the surrounding areas where transmission lines are proposed is similar to the project sites, having a low vividness, moderately low intactness, and a moderately high visual unity. Figures 4.1-15 through 4.1-18 include the proposed 230 kilovolt proposed transmission line. The construction of the transmission line will not change the visual character or visual quality of the surrounding area.

Background views of the Peninsular Mountains and Mount Signal would not be impeded by proposed transmission lines because extensive grading is not required and these activities would be temporary; therefore, the visual character of the project area would not be substantially degraded in the short-term and related impacts would be considered **less than significant**.

### Mitigation Measure(s)

No mitigation measures are required.

**Figure 4.1-3. Existing and Proposed Views at Viewpoint A (FSF Project Site)**



FSF Existing Condition: View from Kubler Road (southwest corner of APN 052-180-042).  
View is directed toward the northeast.



FSF Proposed Condition: View of the solar arrays from Kubler Road (southwest corner of  
APN 052-180-042). View is directed toward the northeast.

**Figure 4.1-4. Existing and Proposed Views at Viewpoint B (RSF Project Site)**



RSF Existing Condition: View from SR-98 (southwest corner of APN 052-180-040).  
View is directed toward the northeast.



RSF Proposed Condition: View of the solar arrays from SR-98 (southwest corner of  
APN 053-180-040). View is directed toward the northeast.



**Figure 4.1-5. Existing and Proposed Views at Viewpoint C (RSF Project Site)**



RSF Existing Condition: View from Kubler Road (northwest corner of APN 052-180-048). View is directed toward the southeast.



RSF Existing Condition: View of the solar arrays from Kubler Road (northwest corner of APN 052-180-048). View is directed toward the southeast.

**Figure 4.1-6. Existing and Proposed Views at Viewpoint D (RSF Project Site)**



RSF Existing Condition: View from Kubler Road (northwest corner of APN 052-180-048).  
View is directed toward the southwest.



RSF Proposed Condition: View of the solar arrays and transmission line from Kubler Road  
(northwest corner of APN 052-180-048). View is directed toward the southwest.



**Figure 4.1-7. Existing and Proposed Views at Viewpoint E (RSF Project Site)**



RSF Existing Condition: View from SR-98 (south side of APN 052-180-064).  
View is directed toward the northwest.



RSF Proposed Condition: View of the solar arrays and transmission line from SR-98  
(south side of APN 052-180-064). View is directed toward the northwest.

**Figure 4.1-8. Existing and Proposed Views at Viewpoint F (ISF Project Site)**



ISF Existing Condition: View from the intersection of Ferrell Road and SR-98 (southwest corner of APN 059-120-001). View is directed toward the northeast.



ISF Proposed Condition: View of the proposed substation from the intersection of Ferrell Road and SR-98 (southwest corner of APN 059-120-001). View is directed toward the northeast.

**Figure 4.1-9. Existing and Proposed Views at Viewpoint G (ISF Project Site)**



ISF Existing Condition: View from SR-98 (southeast corner of APN 059-050-003). View is directed toward the northwest.



ISF Proposed Condition: View of the solar arrays from SR-98 (southeast corner of APN 059-050-003). View is directed toward the northwest.



**Figure 4.1-10. Existing and Proposed Views at Viewpoint H (ISF Project Site)**



ISF Existing Condition: View from SR-98 (south side of APN 053-050-003). View is directed toward the northwest.



ISF Proposed Condition: View of the solar arrays from SR-98 (south side of APN 053-050-003). View is directed toward the northwest.

**Figure 4.1-11. Existing and Proposed Views at Viewpoint I (ISF Project Site)**



ISF Existing Condition: View from Ferrell Road (west side of APN 059-120-001).  
View is directed toward the northeast.



ISF Proposed Condition: View of the solar arrays from Ferrell Road  
(west side of APN 059-120-001). View is directed toward the northeast.



**Figure 4.1-12. Existing and Proposed Views at Viewpoint J (ISF Project Site)**



ISF Existing Condition: View from SR-98 (southeast corner of APN 059-050-003).  
View is directed toward the northwest.



ISF Proposed Condition: View of the solar arrays from SR-98 (southeast corner of  
APN 059-050-003). View is directed toward the northwest.

**Figure 4.1-13. Existing and Proposed Views at Viewpoint K (LSF Project Site)**



LSF Existing Condition: View from Kubler Road (southeast corner of APN 052-180-053).  
View is directed toward the northwest.



LSF Proposed Condition: View of the solar arrays and Operations and Maintenance facility from  
Kubler Road (southeast corner of APN 052-180-053). View is directed toward the northwest.

**Figure 4.1-14. Existing and Proposed Views at Viewpoint L (LSF Project Site)**



LSF Existing Condition: View from Kubler Road (southeast corner of APN 052-180-058).  
View is directed toward the northwest.



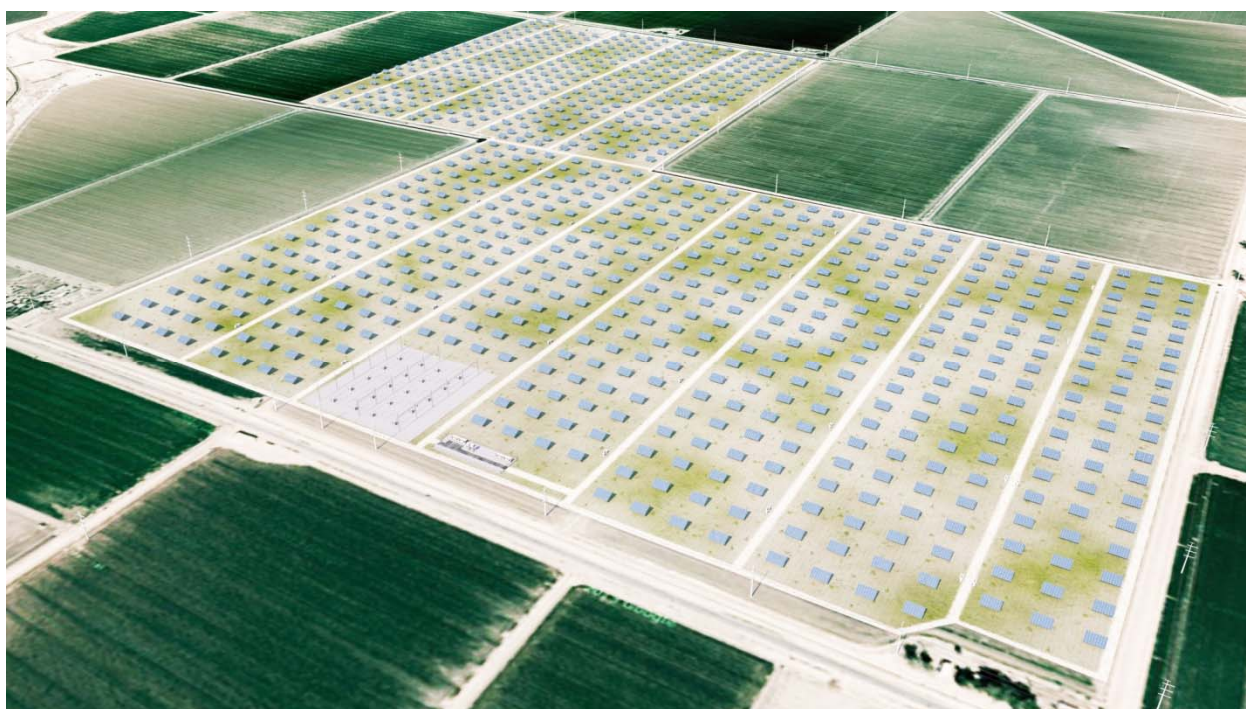
LSF Proposed Condition: View of the solar arrays and substation from Kubler Road  
(southeast corner of APN 052-180-058). View is directed toward the northwest.



**Figure 4.1-15. Oblique Post-Project Rendering for FSF**



**Figure 4.1-16. Oblique Post-Project Rendering for RSF**





**Figure 4.1-17. Oblique Post-Project Rendering for ISF**



**Figure 4.1-18. Oblique Post-Project Rendering for LSF**





### **IMPACT**      *New Sources of Nighttime Lighting and Glare.*

4.1-4

*The projects would not create new source of light and glare, which could adversely affect day or nighttime views in the project area.*

### **Iris Cluster (FSF, RSF, ISF, and LSF) and Transmission Line**

As described in Chapter 3.0, the projects would include new sources of nighttime lighting. In addition, given the nature of the projects (e.g., solar facilities), this discussion also considers potential glare-related impacts generated by the proposed solar arrays. This discussion considers each issue under the associated headings below.

#### **Nighttime Lighting**

Sources of nighttime lighting associated with the projects would be minimal and limited to the O&M facilities, the electrical transmission towers for the purpose of alerting aircraft flying in and out of Calexico Airport, and for crop dusting activities. As provided in Chapter 3, project-related lighting would be designed to provide the minimum illumination needed to achieve safety and security objectives. Additionally and consistent with County Ordinance 90301.02(K), development standards for commercial and industrial zones, project lighting would be directed downward and shielded to focus illumination on the projects and away from adjacent properties. Based on these considerations, the projects are not anticipated to create a new source of substantial light which would adversely affect nighttime views in the project area and the impact is considered **less than significant**.

#### **Glare and Glint**

The projects would involve the installation of PV or CPV solar systems, which convert sunlight directly into electricity, and by their sheer nature, are non-reflective. By nature, PV/CPV panels are designed to absorb as much of the solar spectrum as possible in order to convert sunlight to electricity and are furnished with anti-reflective coating for that purpose. Reflectivity levels of solar panels are decisively lower than standard glass or galvanized steel, and should not pose a reflectance hazard to area viewers. Other glare sources in nature (free water surfaces) have a higher glare effect than PV/CPV modules.

Reflected light from standard PV/CPV modules surface is between 10 to 20 percent of the incident radiation (as low as free water surfaces), while galvanized steel (used in industrial roofs) is between 40 to 90 percent (Aztec 2014)<sup>1</sup>. As described in Chapter 3.0, the projects would generally avoid the use of materials such as fiberglass, aluminum or vinyl/plastic siding, galvanized products, and brightly painted steel roofs, which have the potential to create on- and off-site glare impacts.

The Reflectivity Analysis was completed using fix tilt, one axis trackers, and two axis trackers. The analysis was based on flat PV modules with low reflectivity characteristics. The analysis concluded that 10 percent incident radiation is reflected, but some glint may be produced to some key viewpoints. The analysis determined that the single axis trackers had no risk of glare to roadway traffic; however, the fix tilt structures showed a potential risk of glint to south roadway positions, and double axis trackers showed a potential risk of glint to the east and west roadway positions. The Reflectivity Analysis recommendations included the installation of fence slats along southern roadways where fixed tilt trackers may be located, and fence slats along east and west roadways where double axis trackers may be located to reduce potential glare or glint impacts to roadway travelers. Based on these considerations, impacts related to glare or glint to roadway vehicles is considered **significant** in the absence of mitigation.

Furthermore, given the project areas distance from the Calexico Airport of over 2.5 miles to the east, and Johnson Brothers private airstrip 0.50 mile to the southeast, the projects would not use materials that would reflect significant levels of glare or glint upwards in a manner that could affect flight operations.

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<sup>1</sup> It should be noted that high incidence angles are always related to low sun elevation angles (i.e., the sun beams are close to being tangent to the reflecting surface).

Based on these considerations, impacts related to glare or glint to aircraft is considered **less than significant**.

### Mitigation Measure(s)

The following mitigation measures are required for the FSF, RSF, ISF, and LSF:

**4.1-4 Installation of Fence Slats.** Based on final engineering and design, neutral colored security fence slats shall be installed in the following areas:

- **Fixed Tilt** – Fence slats shall be installed for all portions of the project study areas with fixed-tilt trackers installed that face a roadway to the south.
- **Double Axis Trackers** – Fence slats shall be installed for all portions of the project study areas with double axis trackers installed that face a roadway to the east and/or west.

### Significance After Mitigation

With the implementation of Mitigation Measure 4.1-4, potential impacts related to roadway glare and glint would be considered **less than significant**.

## 4.1.3 Decommissioning/Restoration and Residual Impacts

### Decommissioning/Restoration

The project sites are essentially flat agricultural areas; therefore, no grading or significant land form modifications would be required during decommissioning activities upon site restoration in the future. Although the project sites would be visually disrupted in the short-term during decommissioning activities, because extensive grading is not required and these activities would be temporary, the visual character of the project sites would not be substantially degraded in the short-term and related impacts would be **less than significant**.

### Residual

Implementation of the mitigation measure contained in this section would reduce potential glare and glint impacts to roadway travelers to a less than significant level. Impacts related to substantial alteration of a scenic vista and damage to designated scenic corridor would be less than significant and no additional mitigation measures are required. Changes to visual character of the project area would be less than significant and would be transitioned back to agricultural uses in the future following site decommissioning and restoration. Based on these conclusions, implementation of the projects would not result in residual significant unmitigable impacts to the visual character of the project area or add substantial amounts of light and glare.