

### 3. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

#### *Organization of this Chapter*

This chapter presents the environmental setting of the project for the various impact categories, and then evaluates potential impacts associated with the Westlands Solar Park Master Plan and WSP Gen-Ties Corridors Plan, and finally identifies feasible mitigation measures, as applicable, to avoid the impacts or to reduce their severity to less-than-significant levels.

#### *Environmental Protection Measures*

At the time of construction and operation of the WSP solar facilities and the WSP Gen-Tie projects, it is anticipated that the project proponents will implement Environmental Protection Measures (EPMs) and Construction Standards to minimize environmental effects due to construction, operation, and maintenance activities. Typically, many of these EPMs reflect standard mitigation measures for reducing environmental impacts (e.g., erosion control), while other EPMs address matters that do not rise to the level of a significant impact but reflect regulatory requirements (e.g., mark transmission structures for aviation safety), or best practice guidance (e.g., avian protection from collision or electrocution on power lines), or are otherwise mitigative (e.g., repair roadways and fences damaged during construction). These EPMs are typically identified at the project-specific stage of environmental review and incorporated into construction plans and specifications included as part of construction contract documents. Specific Environmental Protection Measures are not identified at this programmatic level of review but would be established by the project proponent and lead agency at the time of project-specific environmental review prior to project approval for construction. For purposes of this EIR it is assumed that standard EPMs will be implemented during project construction, operation and maintenance.

## 3.1. AESTHETICS

### 3.1.1. ENVIRONMENTAL SETTING

#### ***Westlands Solar Park***

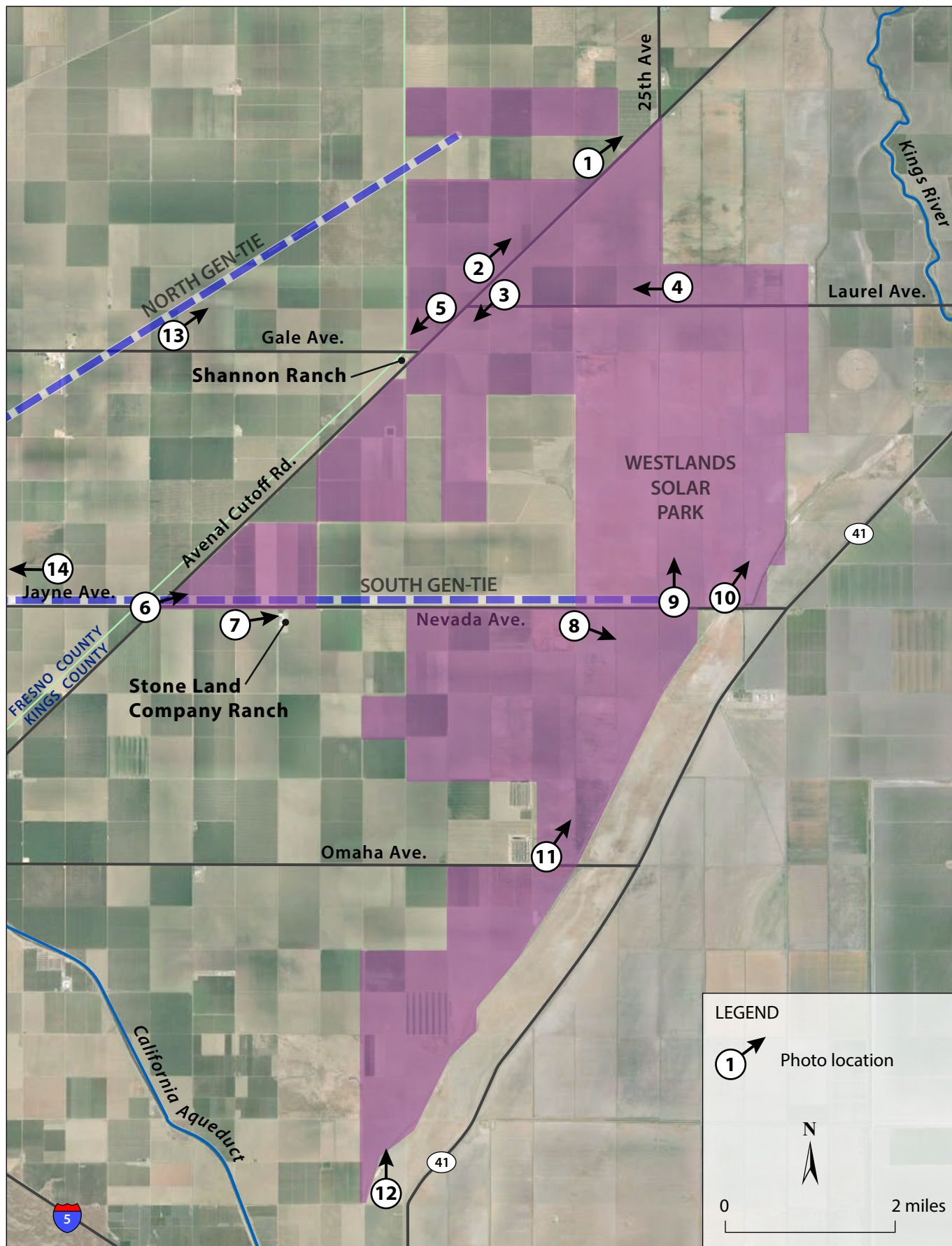
Under current conditions, the entire 21,000-acre WSP plan area appears as agricultural land covered with field crops, fallow land, pasture, and some tree crops. The plan area is essentially level and lacking in topographical features except for irrigation canals and ditches with adjacent levees (see Figures AE-1a through AE-1e). There are no structures within the plan area except for wells, piping and pump works associated with agricultural irrigation. There are no historic structures or rock outcroppings within or near the WSP plan area. The plan area includes a few scattered trees, but none that are visually important or notable. Overall, the plan area has the appearance of having been highly modified for the purpose of large-scale agricultural use and retains little if any of its original natural attributes. The modified character of the plan area is typical of agricultural lands on the west side of the San Joaquin Valley.

The plan area is traversed by several County roads, including Avenal Cutoff Road, Laurel Avenue, and Nevada Avenue. State Highway 41 runs parallel to the southeast plan area boundary at a distance of about ½ mile. A 230-kV power transmission line passes through the northwest corner of the site, and several other electric utility lines run through the plan area. The 230-kV transmission line constitutes the most visually prominent feature within the plan area.

The lands surrounding the plan area are similar in character to the WSP plan area, in that they have been highly modified for purposes of large-scale agricultural cultivation. Adjacent to the plan area, there are two ranch complexes with dwellings, outbuildings, equipment yards, and associated landscaping. The most prominent of these is the Shannon Ranch complex, which is located just outside the plan area at the southwest corner of Avenal Cutoff Road and Lincoln/Gale Avenue, and includes 20 residential units and a number of ranch operations buildings (see Figure AE-1c). The second adjacent ranch is the Stone Land Company Ranch, which is located on the south side of Nevada Avenue, approximately 1.4 miles east of Avenal Cutoff Road, and includes two dwellings (see Figure AE-1d).

Adjacent and nearby lands are the sites of four recently completed solar PV projects, including the Mustang, Orion, and Kent South solar projects located at the northwest corner of Avenal Cutoff Road and 25<sup>th</sup> Avenue, and the Kettleman solar project located on the west side of SR-41 near the southern end of the WSP plan area (see Figure PD-2 and Figure AE-1b).

There are two major electrical power substations in the WSP vicinity. PG&E's Henrietta Substation is located about one mile north of the plan area on 25<sup>th</sup> Avenue, and PG&E's Gates Substation is located 6 miles west of the plan area on Jayne Avenue. Several high voltage transmission lines associated with these substations pass through the project area, one of which traverses the northwest corner of the project site, as noted. These facilities represent the most notable structural features of the visual setting of plan area and vicinity.



Source: Google Earth, 2016

**Site Photos - Key Map**  
**Figure AE-1a**

*This page intentionally left blank*





VP1: Northward view from Avenal Cutoff Road toward Kent Solar Facility



VP2: Northward view from Avenal Cutoff Road, north of Laurel Ave.



VP3: Southward view from Avenal Cutoff Road, north of Laurel Ave.

*This page intentionally left blank*





VP4: Westward view along Laurel Ave., east of 25th Ave.



VP5: Southwestward view of Shannon Ranch from Avenal Cutoff Road



VP6: Eastward view from junction of Avenal Cutoff Road and Nevada Ave.

*This page intentionally left blank*





VP7: Eastward view of Stone Land Company Ranch from Nevada Ave.



VP8: Southeastward view from Nevada Ave., east of 25th Ave.



VP9: Northward view from Nevada Ave. at 25th Ave.

*This page intentionally left blank*





VP10: Northeastward view from Nevada Ave. at east WSP boundary



VP11: Northeastward view from Omaha Ave. near east WSP boundary



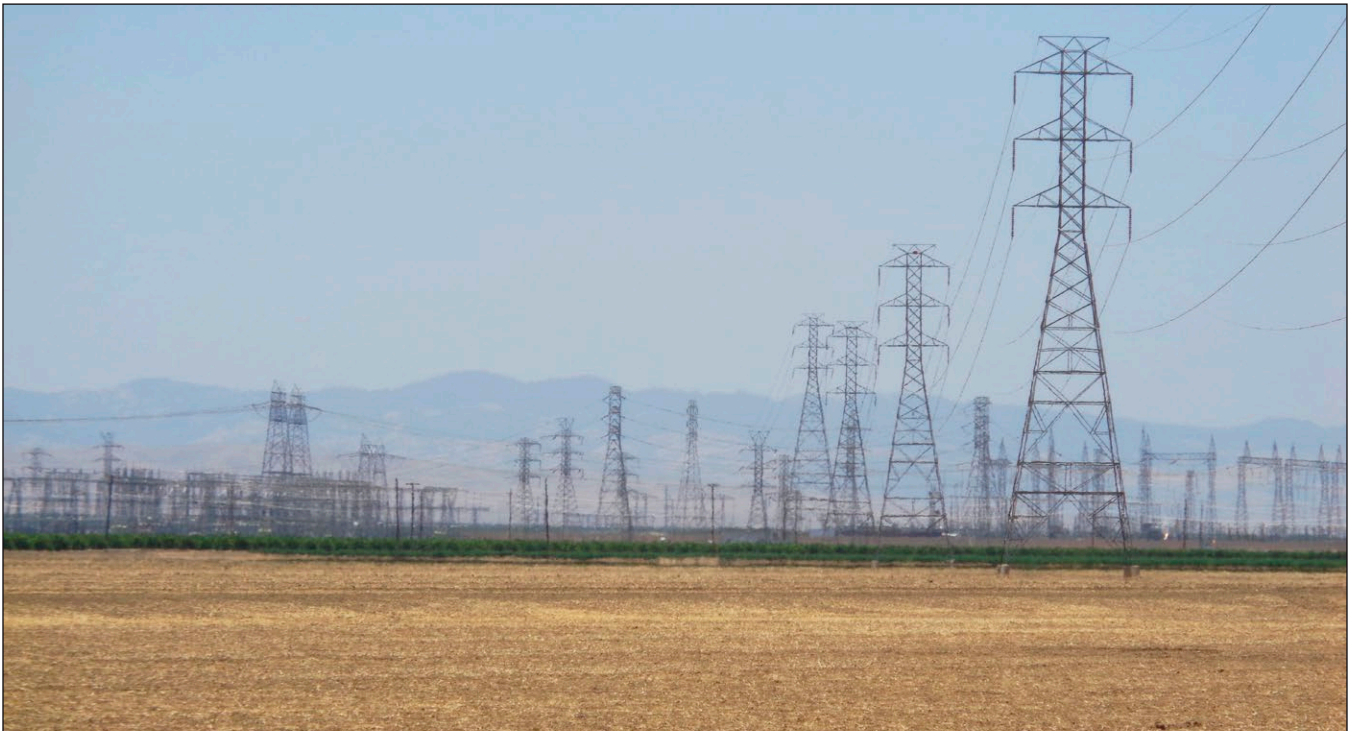
VP12: Northward view from southern tip of WSP

*This page intentionally left blank*





VP13: Northwestward view of existing PG&E Henrietta-Gates 230-kV transmission line, east of SR-269. The WSP-North to Gates Gen-Tie would run along the southeast (right) side of this transmission line.



VP14: Southwestward view of existing PG&E Henrietta-Gates 230-kV transmission line, west of SR-269. The WSP-North to Gates Gen-Tie would run along the southeast (left) side of this transmission line.

*This page intentionally left blank*

The Open Space Element of the 2035 Kings County General Plan describes the important scenic resources of the County. The key landscape features recognized in the Open Space Element include the Kings River located one to two miles east of the plan area, and the foothills and mountains in the southwestern portion of County. The Kettleman Hills rise to an elevation of about 1,200 feet at a distance of approximately 5 miles to 15 miles from the nearest plan area boundaries. Beyond these foothills, the first ridge of the Coast Ranges reaches elevations of approximately 4,700 feet at 35 miles from the nearest plan area boundaries. The plan area is not associated with any recognized scenic resources or vistas in the area.

The plan area is at least one mile west of the Kings River and its relatively narrow riparian corridor. At this distance, the WSP plan area is not integral to, nor does it contribute to, the scenic value of the river or its riparian corridor. The Kettleman Hills and the Coast Ranges the west appear as low ridges on the horizon in distant views to the west and southwest, and make up a very small portion of the overall field of view for observers within or near the plan area (see Figure AE-1b – Photo 3). While the long distance views of these ranges from the WSP vicinity provides minor visual interest to the area, the westward views from the WSP plan area could not be characterized as scenic vistas.

There are no State, County or City-designated or proposed scenic highways or routes in the WSP vicinity. The only recognized scenic route in the County is the segment of SR-41 running through the southwest corner of the County as it enters the Coast Ranges at SR-33 and continues southwestward to the Kern County line and then on San Luis Obispo County. None of the roadways in the WSP vicinity are designated or proposed scenic routes.

In summary, the WSP plan area is not visually connected to such recognized scenic resources as the Kings River to the east or the foothills and mountains in the distance to the southwest. The plan area itself is flat and featureless and generally has a low level of visual interest and quality. There are few public roads that traverse or pass within sight of the WSP plan area, and there are very few residential properties with one mile of its boundaries. The combination of low visual quality, limited visual access from public viewpoints, and small number of residential visual receptors indicates that the plan area has low visual sensitivity.

### ***WSP Gen-Tie Corridors***

The visual character of the lands surrounding the WSP Gen-Tie Corridors is defined by the rural and agricultural landscapes of the valley floor, with the lower foothills of the Diablo Range forming a visual backdrop to the west (see Figure AE-1f). The agricultural landscapes of the gen-tie corridors include several different cropping patterns, including tree crops, field crops, pasture, and fallow fields, which provide some variety and visual interest. A small number of residential and agricultural support facilities are dispersed throughout the sparsely settled lands in the corridors vicinity. There are no historic buildings, rock outcroppings, or other scenic resources within or near the gen-tie corridors. The gen-tie corridors include a few scattered non-orchard trees, but none that are considered scenic resources.

The rolling foothills to the west of the valley are covered with annual grasses with few trees. While the views of the foothills provide amenity and visual relief from the flat topography of the valley floor, the scenic value of the foothills is reduced by lack of visual contrast and limited variety of landscape features.

Due to the relatively arid conditions along the eastern slope of the Coast Ranges, the creeks and streams that drain from the foothills to the valley floor produce only seasonal flows. The nearest creek to the gen-tie corridors is Los Gatos Creek which passes at least 4 miles to the northwest and is not visible from the gen-tie corridors.

The dominant built forms in the vicinity of the gen-tie corridors consist of large infrastructure facilities such as the I-5 freeway, the California Aqueduct, and multiple high voltage transmission tower lines which converge on the Gates substation (see Figure PD-7). The gen-tie corridors cross SR-269 and County roads such as Nevada/Jayne Avenues, Gales Avenue, and Avenal Cutoff Road. The southern gen-tie corridor is entirely visible from Nevada/Jayne Avenues to which it runs parallel. The northern gen-tie corridor runs diagonally through the area, so visibility of this corridor is limited to the vicinity of the crossing points at Gales Avenue and SR-269.

There are no State-designated or proposed scenic highways or routes in the vicinity of the gen-tie corridors. The nearest State highway that has been determined to be eligible for designation as a State scenic highway is the segment of SR-198 from I-5 west to the Monterey County line (Caltrans 2011). The northern gen-tie corridor is located at least 10 miles southeast of that scenic highway segment at its nearest point.

There are no urban or rural communities in the immediate vicinity of the gen-tie corridors. The nearest urbanized area is the City of Huron which is located 3 miles northwest of the northern gen-tie corridor. There are a total of 20 rural dwellings located within one mile of the gen-tie corridors. There are no urban or rural communities in the vicinity of the gen-tie corridors. There are 10 rural dwellings located along the south side of Nevada/Jayne Avenues, all of which are located from 125 to 180 feet from the southern gen-tie corridor (see Figure PD-7). The rural dwellings in proximity to the northern gen-tie corridor are located from 2,000 to 5,000 feet from the corridor.

In summary, the gen-tie corridors pass entirely through flat agricultural landscapes where scenic value is limited but somewhat enhanced by the visual backdrop formed by the foothills to the west. Thus the visual quality of the gen-tie corridors vicinity is moderate, albeit somewhat aesthetically diminished by the large infrastructure elements that run through it. Visual access to the gen-tie corridors is available to the public mainly via several county roads and one state highway. The gen-tie corridors are also visible to varying degrees from 20 dwellings located within one mile of the corridors. Over a total distance of 23 miles covered by the gen-tie corridors, this represents an average of one dwelling per mile of transmission corridor. Thus visual accessibility to the gen-tie corridors is moderate for motorists and low to high residential viewpoints, indicating that overall visual accessibility of the gen-tie corridors is moderate. The combination of moderate visual quality and moderate visual accessibility indicates that the overall visual sensitivity of the gen-tie corridors is moderate.



### 3.1.2. REGULATORY SETTING

#### State

##### ***California Scenic Highway Program***

California's Scenic Highway Program was created in 1963 to preserve and protect scenic highway corridors from change which would diminish the aesthetic value of lands adjacent to highways. The State Scenic Highway System includes a list of highways that are either eligible for designation as scenic highways or have been so designated. A highway may be designated as "scenic" depending on how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the travelers' enjoyment of the view.

Within Kings County, there is one highway segment which is designated by the state as an eligible scenic highway. This segment comprises an 8-mile stretch of SR-41 extending southwest of SR-33 to the Kern County line and then on San Luis Obispo County. This scenic highway segment is located 11 miles south of the WSP plan area and 17 miles south of the southern gen-tie corridor at their nearest points (Caltrans 2011).

In western Fresno County, the segment of SR-198 extending west from I-5 to the Monterey County line is designated by the state as an eligible scenic highway. This highway segment is 33 miles long in Fresno County, and its eastern terminus is located 10 miles northwest of the northern gen-tie corridor and 15 miles northwest of the WSP plan area at their nearest points (Caltrans 2011).

#### Kings County

##### **Kings County General Plan**

The 2035 Kings County General Plan contains the following goals, objectives and policies related to aesthetics which are relevant to the project.

##### ***Open Space Element***

#### B. Scenic Resources

OS GOAL B1	<i>Maintain and protect the scenic beauty of Kings County.</i>
OS OBJECTIVE B1.2	<i>Preserve roadside landscapes which have high visual quality and contribute to the local environment.</i>
OS Policy B1.2.1	Review new development and utility projects for compatibility and potential for impacting scenic view sheds along highly traveled scenic routes.
OS OBJECTIVE B1.3	<i>Preserve roadside landscapes which have high visual quality and contribute to the local environment.</i>

OS Policy B1.3.1

Require new development to be designed so that it does not significantly impact or block view of Kings County's natural landscape or other important scenic features. Discretionary permit applications will be evaluated against this requirement as part of the development review process. New developments may be required, as appropriate to:

- Minimize obstruction of views from public lands and rights-of-way.
- Reduce visual prominence by keeping development and structures below ridgelines.
- Limit the impact of new roadways and grading on natural settings. Such limits shall be within design safety guidelines.

**Kings County Development Code**

Under Development Code, *Article 4. Agricultural Zoning Districts*, the northern-most portion of the plan area is zoned "AX Exclusive Agricultural," and the remainder of the plan area is within the "AG-40 General Agricultural-40" zone district. Both zoning districts allow commercial solar photovoltaic electrical generating facilities as conditionally permitted uses subject to approval by the Planning Commission. Under Article 17 of the Development Code, applications for Conditional Use permits are to include Site Plans prepared with information prescribed Section 1602, including detailed site plans.

Transmission projects that are to be constructed or co-sponsored by an investor-owned utility (IOU) such as PG&E are subject to the sole permitting jurisdiction of the California Public Utilities Commission (CPUC) and are exempt from local jurisdiction. However, CPUC General Order 131-D requires public utilities to coordinate with local jurisdictions regarding consistency of their projects with local plans and policies (CPUC 1994). Transmission lines that may be privately owned (such as non-IOU-owned gen-ties) are not under CPUC jurisdiction, and thus are subject to Kings County jurisdiction and may require the issuance of a conditional use permit from the County.

**Fresno County**

Since no portion of the Westlands Solar Park is located within Fresno County, the County's plans, policies and regulations are not applicable to WSP solar development. As discussed above for Kings County, any segments of the gen-ties that are not owned by a public utility (and thus not under CPUC jurisdiction), would be subject to Fresno County jurisdiction and may require the issuance of a conditional use permit from the County.

**Fresno County General Plan**

The Fresno County General Plan contains the following goals and policies related to aesthetics which are relevant to the project.

K. Scenic Resources

GOAL OS-K

*To conserve, protect, and maintain the scenic quality of Fresno County and discourage development that degrades areas of scenic quality.*

Policy OS-K.1            The County shall encourage the preservation of outstanding scenic views, panoramas, and vistas wherever possible. Methods to achieve this may include encouraging private property owners to enter into open space easements for designated scenic areas.

Policy OS-K.4            The County should require development adjacent to scenic areas, vistas, and roadways to incorporate natural features of the site and be developed to minimize impacts to the scenic qualities of the site.

L. Scenic Roadways

GOAL OS-L            *To conserve, protect, and maintain the scenic quality of land and landscape adjacent to scenic roads in Fresno County.*

Policy OS-L.1            The County designates a system of scenic roadways that includes landscaped drives, scenic drives, and scenic highways. Definitions and designated roadways are shown in the text box below. Figure OS-2 shows the locations of the designated roadways.

[Note: The text box identifies the following Fresno County Designated Scenic Highways in the vicinity of the Westlands Solar Park and the WSP Gen-Tie Corridors:

- SR-198 from I-5 to the Monterey County line (this segment has also been determined to be eligible for State Scenic Highway Designation)
- I-5 within Fresno County

Policy OS-L.3            The County shall manage the use of land adjacent to scenic drives and scenic highways based on the following principles.

\*

b. Proposed high voltage overhead transmission lines, transmission line towers, and cell towers shall be routed and placed to minimize detrimental effects on scenic amenities visible from the right-of-way.

### 3.1.3. ENVIRONMENTAL IMPACT ANALYSIS

#### SIGNIFICANCE CRITERIA

Based on the State CEQA Guidelines, Appendix G, the project would be considered to have a significant aesthetic impact if it would:

- a. Have a substantial adverse effect on a scenic vista. (Impact AES-1)
- b. Substantially damage scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway. (Impact AES-2)

- c. Substantially degrade the existing visual character or quality of the site and its surroundings. (Impact AES-3)
- d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area. (Impact AES-4)

## IMPACTS AND MITIGATION

### **Impact AES-1. Substantial Adverse Effect on a Scenic Vista**

**Westlands Solar Park.** The WSP plan area is not part of a recognized scenic vista, nor are scenic vistas visible from the WSP plan area; therefore, the WSP solar development would not have a substantial adverse effect on a scenic vista. (*Less-than-Significant Impact*)

**WSP Gen-Tie Corridors.** The WSP Gen-Tie Corridors are not part of a recognized scenic vista, nor are scenic vistas visible from the gen-tie corridors vicinity; therefore, the WSP gen-tie lines would not have a substantial adverse effect on a scenic vista. (*Less-than-Significant Impact*)

*This impact analysis addresses significance criterion 'a' above.*

### ***Westlands Solar Park***

The WSP plan area consists of essentially flat agricultural land and is typical of the west side of the valley floor, with no topographic variation or features to provide visual interest or vantage points for panoramic views. The nearest locally significant scenic resource is the Kings River corridor which is located approximately 1 to 2 miles east of the plan area, and not within view of the plan area. The only scenic vistas within view of the plan area are of the Kettleman Hills and Coast Ranges to the west and southwest, which are located 5 to 15 miles from the plan area. The WSP's solar arrays would not exceed 10 feet in height, and thus would not block views of the hills and mountains, nor would they have a substantial effect on long-distance views from the hills and mountains. As such, the WSP solar development would not result in a substantial adverse effect on a scenic vista. Therefore, the project impacts on scenic vistas would be *less than significant*.

### ***WSP Gen-Tie Corridors***

The WSP gen-tie lines would run through agricultural lands with low to moderate visual sensitivity. The northern gen-tie line would run adjacent to existing 230-kV transmission lines through sparsely settled agricultural lands where the nearest residences are at least 2,000 feet away. Given that the northern gen-tie would not introduce new structural forms to the scene but would add incrementally to forms already present, it would not result in a substantial adverse effect on a scenic vista. Therefore, the impacts of the WSP-North to Gates Gen-Tie on scenic vistas would be *less than significant*.

The WSP-South to Gates Gen-Tie line would run adjacent to Nevada/Jayne Avenue for approximately 11.5 miles. The gen-tie line would add a new structural element to the roadside view along this roadway, and



would represent a substantial visual change. However, the existing visual quality along Nevada/Jane Avenue is low, consisting entirely of flat featureless agricultural lands with little variation or visual interest. There are long distance views toward the foothills to the west, but these cannot be characterized as scenic vistas. Therefore, the impacts of the WSP-South to Gates Gen-Tie on scenic vistas would be *less than significant*.

### **Mitigation Measures:**

**Westlands Solar Park.** No mitigation is required.

**WSP Gen-Tie Corridors.** No mitigation is required.

---

### **Impact AES-2. Substantially Damage Scenic Resources**

**Westlands Solar Park.** The WSP plan area does not include scenic resources such as trees, rock outcroppings, historic buildings, or other scenic features, and is not near a State scenic highway; therefore, the WSP solar development would not substantially damage scenic resources. (*Less-than-Significant Impact*)

**WSP Gen-Tie Corridors.** The WSP Gen-Tie Corridors vicinity does not include scenic resources such as trees, rock outcroppings, historic buildings, or other scenic features, and is not near a State scenic highway; therefore, the WSP gen-tie lines would not substantially damage scenic resources. (*Less-than-Significant Impact*)

*This impact analysis addresses significance criterion ‘b’ above.*

### **Westlands Solar Park**

Under this criterion, a significant impact would occur if the project would result in substantial damage scenic resources such as trees, rock outcroppings, or historic buildings within a state scenic highway. As discussed in Section 3.1.1. *Environmental Setting*, there are no historic buildings, rock outcroppings, or notable trees that would comprise scenic resources within or near the WSP plan area.

The nearest State highway that has been determined to be eligible for designation as a scenic route is the segment of SR-41 running southwest from SR-33 to the Kern County line. This segment of scenic highway is located 11 miles from the WSP plan area at its nearest point. This scenic road segment is located on the west side of the Kettleman Hills which would block any views of the plan area from this scenic road segment. Therefore, the WSP solar development would not alter views from this scenic road segment.

The Kings River, which is located 1 to 2 miles east of the WSP plan area, is a recognized scenic resource in the Kings County General Plan. However, the Kings River is not visible from the nearest areas of the WSP plan area, and the low profile solar arrays within the WSP would not be visible from the Kings River or its

adjacent riparian areas. Therefore, the WSP solar development would not affect the scenic qualities of the Kings River.

In summary, the impact of WSP solar development upon scenic resources would be *less than significant*.

### ***WSP Gen-Tie Corridors***

The gen-tie corridors are similar to the WSP plan area in that there are no historic buildings, rock outcroppings that would comprise scenic resources that could be damaged by the gen-tie projects. The valley floor in the vicinity of the gen-tie corridors is generally lacking in mature non-orchard trees apart from landscape trees at ranch complexes and other residences.

The nearest State highway that has been determined to be eligible for designation as a scenic route is the segment of SR-198 from I-5 west to the Monterey County line. The northern gen-tie corridor is located 10 miles southeast of that scenic highway segment at its nearest point, where it would not be visible from that highway segment.

In summary, the WSP Gen-Tie Corridors would not substantially damage scenic resources such as historic buildings, trees, or rock outcroppings, and would not have a substantially adverse effect on any designated or designation-eligible scenic routes. Therefore, the impact of the gen-tie corridors upon scenic resources would be *less than significant*.

### **Mitigation Measures:**

**Westlands Solar Park.** No mitigation is required.

**WSP Gen-Tie Corridors.** No mitigation is required.

---

### **Impact AES-3. Substantially Degrade Existing Visual Character and Quality**

**Westlands Solar Park.** The WSP solar development would result in changes to the visual character of the plan area; however, these changes would not substantially degrade the existing visual character or quality of the site and its surroundings. (*Less-than-Significant Impact*)

**WSP Gen-Tie Corridors.** The WSP gen-tie corridors would result in changes to the visual character of the plan area; however, these changes would not substantially degrade the existing visual character or quality of the corridors and their surroundings. (*Less-than-Significant Impact*)

*This impact analysis addresses significance criterion 'c' above.*

## ***Westlands Solar Park***

### **Visual Characteristics of Project Elements**

The development of the WSP plan area with solar PV generating facilities would result in the conversion of much of the plan area from agricultural fields to solar fields and supporting structures. The solar facilities would consist mainly of solar arrays, along with supporting infrastructure, substations, power collection and transmission lines, and security fencing.

The solar arrays would constitute the dominant visual element of the WSP, although the arrays would be low in profile, rising to a height of up to 8-10 feet at maximum angle of tilt for the horizontal tracker units. The rows of solar panels would each be separated by about 10 -14 feet of open space to prevent them from shading each other, which would reduce their visual density. The ground between and beneath the solar panels would be revegetated with native ground cover which would provide a naturalized context to visually soften the structural elements and maintain a visual connection with the rural setting.

Other elements of the solar generating facilities would include intermittently spaced inverter/transformer pads, which would be up to 10- to 12-feet high, and would extend a foot or two above the solar arrays at their maximum tilt. Each solar facility would include one or two small structures for operations and maintenance.

Each SGF would include a system of overhead power collection lines to transfer power from the combining switchgear to the project substations. The power lines would be strung on wooden poles about 45 feet high.

The largest structures would consist of substations with some elements reaching 100 feet or more in height. It is estimated that there would be a total of 8 substations dispersed throughout the WSP plan area. The power from the substations would be transferred to transmission tie-lines to be fed into the regional power grid. These high-voltage transmission corridors would consist of steel monopoles up to 150 feet tall. A portion of these high voltage transmission corridors would run through the WSP plan area, specifically along the north side of Nevada Avenue, and also in a north-south direction along the 25<sup>th</sup> Avenue alignment.

Each solar development project within WSP would include staging and laydown areas, several of which would be active at any given time. The staging areas would include construction trailers, storage areas for equipment and project components, and temporary enclosures for panel assembly, as well as security fencing and lighting.

Construction activity within the WSP plan area would occur over a number of years and would be ongoing concurrently with operation of the solar facilities completed in the initial years of development. Within each solar project, construction would be ongoing at several locations within the SGF site at any given time, and would include grading and trenching, assembly and installation of solar panels, and construction of support facilities, substations, and power lines.

Each solar facility within the WSP would be enclosed by security fencing. The fencing would consist of 6- to 8-foot high chain-link fencing with three strands of barbed wire on top. The perimeter fencing would be installed along the rights-of-way of public roadways and would run as near as 18 feet to the paved portion of the roadway (along a typical County road with a 60-foot right-of-way). The nearest solar arrays would be setback at least 35 feet from the roadway right-of-way, or at least 53 feet from the nearest travel lane on the adjacent roadway.

Upon full buildout of the WSP plan area, the overall visual appearance of the plan area, as viewed from public roadways traversing the plan area, would be as follows. The foreground views would include the security fencing with solar arrays visible through the fence within a field of low-growing grasses. Given the flatness of the terrain, objects in the foreground would tend to screen objects of similar size in the background. In the distance within the solar fields, the larger structural elements such as inverters/transformers, power collection poles, and maintenance buildings would be visible. The largest elements such as substations and transmission tie-lines would be visible. The overall visual effect to passersby would be of a predominantly low profile facility of uniform height (about 10-12 feet) with the medium-height structures such as inverters/transformers appearing intermittently throughout, and the higher structures such as substations and transmission towers appearing much less frequently.

#### **Visual Effects of WSP Solar Facilities**

Visual impacts are evaluated in terms of the visual quality of the project setting, and project's effects upon those who are subject to the visual changes resulting from a proposed activity. As discussed in Section 3.3.1. *Environmental Setting*, the WSP plan area is flat and featureless and generally has a low level of visual interest and quality. There are few public roads that traverse or pass within sight of the plan area, and there only two rural dwellings with direct views into the plan area. The combination of low visual quality and very small number of visual receptors indicates that the project site has low visual sensitivity.

Given the very sparsely settled nature of the WSP vicinity, the primary observers or visual receptors would be travelers on the public roadways passing through and alongside the WSP solar facilities. The effects of the visual changes resulting from the WSP solar development are discussed below, first in general terms, and then in specific terms from the vantage points of the various receptors.

#### ***General Visual Effects***

Upon completion of the project, the visual character of the site would be altered from a predominantly rural agricultural character to one where structural elements are visually dominant. The solar arrays which would occupy the vast majority of the plan area would be low in profile and relatively uniform in height. The taller and larger structural elements, such as substations and transmission tower lines, would make up a small portion of the overall solar projects (see Figure AE-1b (photo 1)).

The specific visual effects of the project upon visual receptors traveling along public roadways and at existing dwellings are discussed below.

#### ***Visual Effects along Public Roadways***

The public roadways traversing the site include Avenal Cutoff Road, Laurel Avenue, Nevada Avenue, as well as short segments of other County roads such as Lincoln/Gale Avenue, and 30<sup>th</sup> Avenue. In addition, SR-41 runs parallel to the southeast portion of the plan area at a distance of about one-half mile from the



nearest WSP boundary. All other public roadways, including SR-198 to the north, are at least two miles from the plan area. Interstate 5 passes through the region to the southwest, at a distance of about 2.2 miles from the southern tip of the plan area at the nearest point; however, over 90 percent of the project site is 6 miles or farther from I-5 as it heads off to the northwest.

Avenal Cutoff Road. Upon project buildout, the 8-mile segment Avenal Cutoff Road bisecting the project site would have solar arrays along both sides of the road for the northeastern 4 miles. Along the southwestern 4-mile segment, the solar arrays would be installed only on the east side of the roadway. The solar arrays would be oriented north-to-south, while Avenal Cutoff Road is oriented northeast-to-southwest, so the arrays would not follow the roadway in a near-continuous parallel line. Instead, the arrays would appear to move in and out from the roadway in an irregular sawtooth pattern with triangular open space parcels of varying sizes appearing along the roadway. The setback distance of the solar panels from the paved portion of the roadway would vary from about 60 feet to over 200 feet, which would provide visual relief and variation along the roadside. Since Avenal Cutoff is the heaviest traveled roadway through the WSP plan area, this irregular pattern of solar arrays would help reduce the visual uniformity of the solar arrays along the roadside.

Laurel Avenue. The western segment of Laurel Avenue extends for approximately 4 miles through the northeast portion of the plan area. Solar arrays would be installed along both sides of the roadway for this distance. Since Laurel Avenue is an east-west roadway, the solar arrays would be installed in rows perpendicular to the roadway. This would avoid the appearance of a solid wall of arrays as would occur with fixed-tilt arrays which would be oriented parallel to the roadway. (The WSP solar projects are expected to employ only horizontal tracker arrays, which follow the sun across the sky, and thus are oriented in north-south rows instead of south facing rows typical of fixed tilt arrays.) Along the south side of Laurel Avenue, a large irrigation canal running parallel to the roadway would provide a setback of at least 150 feet from the nearest solar facilities. In addition, this segment of Laurel Avenue is very lightly traveled, which reduces its overall visual sensitivity.

Nevada Avenue. Nevada Avenue traverses the central portion of the plan area between Avenal Cutoff Road and SR-41, a distance of 7.5 miles. The eastern segment (about 2 miles) would have solar arrays installed on both sides of the roadway, while the central segment (2 miles) would have solar arrays installed only on the south side of the roadway, and the western segment (1.9 miles) near Avenal Cutoff Road would have solar panels installed along the north side only. As with Laurel Avenue to the north, the solar arrays would be installed in rows perpendicular to the roadway. This would avoid the appearance of a solid wall of arrays as would occur with fixed-tilt arrays which would be oriented parallel to the roadway. In addition, this segment of Nevada Avenue is very lightly traveled, which would reduce overall viewer exposure.

State Route 41. SR-41 runs parallel to the southeastern WSP boundary for a distance of about 9 miles, with the WSP boundary set back 0.5 to 0.7 miles from the highway for this entire distance. Given the low profile and uniform height of the solar arrays, the nearest panels would be just visible to travelers along SR-41, with larger elements such as substations and power poles being more visible in the distance. Therefore, overall visual change to this travel corridor would be noticeable but minor.

Interstate 5. The southernmost tip of the WSP plan area is 2.2 miles from I-5, but the major portion of the plan area (over 90 percent) is at least 6 miles from freeway as it heads northwest. Since the nearest

segment of I-5 is elevated relative to the valley floor, long distance views are available toward the plan area. However, given the distances separating most of the plan area from I-5, the WSP solar arrays would be barely discernable to travelers on the freeway, and the visual effect would be minimal.

***Visual Effects from Residential Vantage Points***

As noted previously, there are no residential properties within the plan area. In the immediate vicinity of the WSP boundary there are 2 groups of existing dwellings, including: Shannon Ranch located at the southwest corner of Avenal Cutoff Road and Lincoln/Gale Avenue; and the Stone Land Company Ranch located on the south side of Nevada Avenue approximately 1.4 miles east of Avenal Cutoff Road. These and other rural dwellings in the vicinity are shown in Figure PD-2, and discussed below.

Shannon Ranch. Located at the southwest corner of Avenal Cutoff Road and Lincoln/Gale Avenue, the ranch includes 20 single-family residences along with a number of operations buildings (e.g., office, machine shop, storage barns, etc.). The WSP solar arrays would be installed on the east side of Avenal Cutoff Road opposite the Shannon Ranch, and also along the north side of a short segment of Lincoln/Gale Avenue extending approximately 700 feet west of Avenal Cutoff Road. Six of the Shannon Ranch residences are located along the Avenal Cutoff Road frontage and would be approximately 200 feet from the nearest solar arrays across the road to the east. Along this frontage, densely planted and tall landscaping provides full visual screening from the roadway and the planned solar arrays beyond (see Figure AE-1c (photo 5)).

Along the north ranch frontage on Lincoln/Gale Avenue, there is one existing dwelling located directly across the roadway from the project site. This dwelling would be located approximately 130 feet from the nearest solar arrays within the plan area. Due to the lack of substantial landscaping in the front yard of this dwelling, it would have unobstructed views of the solar arrays directly across Lincoln/Gale Avenue. However, the visual effect of the solar development upon this residence would be reduced by the distance separation and the relatively low profile of the solar panels.

There are another four dwellings fronting onto Lincoln/Gale Avenue in the western portion of the ranch complex that would have partial oblique views of the nearest solar located from 400 to 700 feet to the northeast. These views would be largely screened by existing landscape trees in the front yards of these dwellings. The remaining 9 residences front onto an internal ranch driveway that extends south from Lincoln/Gale Avenue and passes through the ranch interior to Avenal Cutoff Road. These dwellings would be located from 400 to 800 feet from the nearest solar arrays to the northeast, and 300 to 700 feet from the nearest solar arrays to the southeast. Although some solar arrays may be obliquely visible from these dwellings across the ranch equipment yard, much of this visibility would be screened by landscape trees associated with these residences, as well as dense landscaping along portions of the ranch frontages along Lincoln/Gale Avenue and Avenal Cutoff Road.

In summary, the visual effects of the WSP solar development upon the 20 existing residences in the Shannon Ranch complex would be reduced due to the distances separating the Shannon Ranch dwellings from the solar arrays, and would be further minimized by existing landscaping that screens the sightlines between these dwellings and plan area. The overall visual effect of the project upon the Shannon Ranch dwellings would be minor.

Stone Land Company Ranch. This ranch is located on the south side of Nevada Avenue approximately 1.4 miles east of Arenal Cutoff Road. The ranch includes 2 single-family dwellings that are each located approximately 150 feet from the roadway centerline, and would be at least 215 feet from the nearest solar arrays. The views of the solar arrays from these dwellings would be largely screened by a number of existing mature landscape trees planted in the front yards of these dwellings (see Figure AE-1d [Photo 7]). Given the distance separating these two residences from the nearest solar arrays, and the visual screening provided by the existing residential landscaping at the ranch, the visual effect of the solar arrays upon these ranch dwellings would be minor.

Other Residences in the Project Vicinity. In addition to the adjacent ranches discussed above, there are 12 dwellings (in 3 groups) located within one mile of the WSP boundary. These are shown in Figure PD-2, and listed in Table PD-7 as residential groups #3, #4, and #5. Residential group #3 consists of 4 dwellings at the Westlake Farms complex located 0.75 miles east of the WSP plan area on the east side of SR-41, south of Nevada Avenue. Residential group #4 consists of 2 ranch dwellings located 0.5 miles east of the WSP plan area at the east end of Nevada Avenue east of SR-41. Ground-level views from these ranch dwellings to the west are obstructed by the levees associated with Blakely Canal and Empire Westside Ditch, as well as the raised roadbed of SR-41, which all run between the WSP plan area and these residences. Given the distance and the view obstructions between the WSP plan area and the residences, the low profile solar arrays within the plan area would not be visible from these ranch dwellings, although the taller structural elements such as gen-tie towers or substations may be partially visible in long-distances views from these locations.

Residential group #5 comprises 5 dwellings located along and near 22<sup>nd</sup> Avenue, which are located at distances of 1.0 to 1.4 miles from the eastern WSP boundary. At these distances, some solar facilities, such as the taller structural elements of the substations or the gen-tie towers, might be visible, but the lower profile solar arrays would not be visible. The overall effect of the WSP solar facilities on views from these residences would be negligible at these distances.

#### ***Visual Effects of Construction Activity***

Construction activity associated with the WSP solar facilities would involve ongoing visual changes over a period of years. The dominant visual features associated with construction would be the staging and laydown areas, as well as concentrations of equipment and construction workers at active construction sites, and movement of delivery vehicles and equipment. Construction activity would sometimes occur in proximity to roadways and residences. However, since solar arrays are installed at a rapid pace, the construction activity would constantly move over the landscape, so construction would occur for short periods at any given location. Thus, while construction over the entire WSP plan area may take a number of years, the visual effects associated with construction activity at any given location would be temporary and relatively brief in duration. The potential visual impacts associated with WSP construction activity would be *less than significant*.

#### ***Summary and Conclusion – Visual Impacts Resulting from WSP Solar Development***

Upon full buildout of the WSP solar facilities, the visual character of the plan area would be altered from a predominantly rural agricultural character to one where structural elements are visually dominant, albeit generally low in profile. While this represents a substantial visual change, the level of impact of this

change depends on the visual sensitivity of the setting, as determined by its existing visual quality, combined with the specific visual effects upon receptors who would be affected by the visual change.

As discussed in Section 3.1.1. *Environmental Setting*, the WSP plan area has been highly modified from its original natural state and is generally absent of non-agricultural vegetation or other natural attributes. The site is essentially flat and featureless, and lacks scenic resources. Overall, the WSP plan area has low visual quality, with its dominant visual characteristic being its flatness and almost total absence of trees and structures.

The various elements of the WSP solar facilities would be visible along roadways passing through and along the plan area, and from existing dwellings adjacent to the plan area. However, the principal project elements – the solar arrays – are low in profile and non-obtrusive. The larger structural elements such as electrical substations and gen-tie lines would be visually prominent, but would comprise a very small portion of the overall visual effect of the solar facilities. From available public viewpoints, the overall visual effect would be of low-profile facilities, with occasional higher profile elements dispersed over a large area.

There are two general groups of visual receptors who would be subject to the changes resulting from WSP solar development. The first group consists of occupants of residences within visual range of the WSP solar facilities; and the second group comprises travelers along public roadways passing through the WSP plan area. For the few existing dwellings that have direct visibility into the WSP plan area, the views of the solar facilities would be largely screened by existing landscaping on the residential properties themselves, with the visual effects further diminished in some instances by distances separating the dwellings from the solar facilities. Given also the generally low profile of the solar arrays that would be installed in proximity to the existing nearby dwellings, overall visual effect on residential receptors in the project vicinity would be minor or negligible.

For travelers along the public roadways passing through the project site, the visual effect of the solar arrays themselves would be reduced by their relatively low profile and by the fact that open space would be maintained between, under, and around the solar panels. While the larger structural elements would still be visible, they would be few in number and dispersed, thus reducing their overall visual effect. Since there are no elevated vantage points for distant or panoramic views into or over the solar fields, the visual perception of WSP's overall scale would be limited. Thus while regular travelers passing through the plan area would notice a visual change to the site character, the magnitude of that change would be relatively small. Additionally, the travelers would not be subject to degradation of scenic resources or blockage of scenic views since these visual attributes are not present under current conditions. As such, the overall visual impact of the project upon travelers passing through it would not be significant.

In summary, the WSP solar development would result in a visual change to the character of the plan area. However, the low visual quality of the WSP plan area, the very small number of residences in the immediate WSP vicinity, and limited visual access along relatively lightly traveled roadways, all indicate that the WSP plan area has low visual sensitivity. Given the generally low profile and unobtrusive character of the WSP solar facilities, in the context of the low sensitivity of the visual setting, it is concluded that the visual changes resulting from the WSP solar development would not substantially degrade the existing visual character or quality of the site and its surroundings, and that the visual impact would therefore be *less than significant*.

## **WSP Gen-Tie Corridors**

### **Visual Characteristics of Gen-Tie Lines**

The gen-tie tower lines would constitute the dominant visual element of the WSP Gen-Tie projects. The towers are planned to consist entirely of tubular steel monopoles, which would be up to 150-feet tall. Conductors would be strung between the towers which would be spaced at intervals of up to about 1,300 feet. The gen-tie projects would also include improvements at the existing Gates substation, but since these improvements would be made within the existing substation, the resulting visual effects would be negligible. The gen-tie projects would also involve the construction of temporary access driveways, establishment of temporary staging areas and temporary pulling and tensioning sites. Since these construction-related features would be temporary and short-lived, the visual effects associated with these temporary features are considered minimal. Therefore, the primary focus of this analysis is on the visual effects of the transmission tower lines.

### **Visual Effects of Gen-Tie Lines**

Visual impacts are evaluated in terms of the visual quality of the project setting, and the project's effects upon those who are subject to the visual changes resulting from a proposed activity. As discussed in Section 3.3.1. *Environmental Setting*, the gen-tie corridors would pass entirely through flat agricultural landscapes where scenic value is limited but somewhat enhanced by the visual backdrop formed by the foothills to the west. Thus the visual quality of the west side of the valley floor is moderate, albeit somewhat aesthetically diminished by the large infrastructure elements that run through it (e.g., California Aqueduct, I-5 freeway, multiple transmission lines). Visual access to the gen-tie corridors is available to the public via several county roads and a state highway. The corridors are also visible from 20 dwellings located within one mile of the corridors, of which 10 dwellings are located within 125 to 180 feet of the southern gen-tie corridor. Thus visual accessibility to the gen-tie corridors is relatively moderate for motorists and low to high from residential viewpoints, indicating that overall visual accessibility of the valley corridor segments is moderate. The combination of moderate visual quality and moderate visual accessibility indicates that the overall visual sensitivity of the gen-tie corridors is moderate.

### ***General Visual Effects***

In general, the introduction of a transmission tower line to a natural landscape would result in high visual contrast between the natural setting and the introduced structural forms. The visual effect is somewhat reduced by the small visual mass of the tower lines, especially at a distance, since they essentially consist of monopole structures supporting a series of overhead electrical cables. The planned gen-tie corridors are located directly adjacent to existing transmission lines along over 50 percent of their overall length, with the remaining segments running entirely along existing roadway corridors. The addition of a second tower line to the existing transmission corridors represents an incremental visual change to a setting where tower lines are already present, and would not represent a substantial change to the visual character and quality of the setting. The addition of a new line of narrow-profile monopoles along an existing transportation corridor would represent a noticeable change to the visual setting, but would not represent a substantial change to the visual character and quality of the setting.

The specific visual effects of the gen-tie projects upon visual receptors traveling along public roadways and at existing dwellings are discussed below.

***Visual Effects along Public Roadways***

Nevada/Jayne Avenue. As mentioned, the WSP-South to Gates Gen-Tie line would run along the north side of Nevada Avenue in Kings County, which becomes Jayne Avenue in Fresno County, for a total distance of 11.5 miles. It is anticipated that steel monopoles would be utilized along the entire length of the gen-tie line. Nevada and Jayne Avenues are lightly traveled roadways which mainly serve local traffic. Since there is no existing transmission line along this roadway corridor, the planned gen-tie would add a new linear structural element to the setting. However, the use of steel monopoles would minimize the visual profile of the gen-tie line. At the west end of this corridor, several major transmission lines converge at the Gates Substation, which itself is a large and prominent structural element in the landscape. Given the generally low quality of the agricultural landscape in this area, as discussed previously, and the relatively small number of motorists who use this travel corridor, as well as the presence of a major regional substation with converging transmission lines at the west end of this corridor, and considering that low-profile monopoles would likely be utilized, this gen-tie line would not result in a substantial change to the visual character and quality of the setting. Therefore, the visual impact to the public of the planned transmission tie-line along Nevada/Jayne Avenue would be *less than significant*.

Other Roadways. As discussed, several other county roads and a state highway cross the gen-tie corridors, although the visibility of the gen-tie lines would be limited to the crossing points and their approaches. The period of time that motorists would be within view of the gen-tie lines would be brief. In all instances, motorists would briefly notice an incremental addition to an existing linear structural element in the setting, which would not represent a substantial change to the visual character and quality of the setting. Therefore, the visual impact to the public from the gen-tie lines along other roadways in the area would be *less than significant*.

***Visual Effects from Residential Vantage Points***

WSP-North to Gates Gen-Tie. This gen-tie corridor commences in the northern portion of the Westlands Solar Park and extends southwesterly for a distance of 11.5 miles to the Gates Substation. This Gen-Tie corridor runs parallel and adjacent to the existing 230-kV Henrietta to Gates transmission line. There are 10 dwellings located within one mile of this corridor, the nearest of which are over 1,500 feet from the gen-tie corridor. Given that the setting of these dwellings includes the existing transmission corridor, the addition of a second parallel transmission line over ¼ mile from the nearest affected dwelling would not represent a substantial change to the visual character or quality of the setting of these residences. Therefore, the visual impact to residences in proximity to the WSP-North to Gates Gen-Tie line would be *less than significant*.

WSP-South to Gates Gen-Tie. As discussed above, this gen-tie line would run parallel and adjacent to the north side Nevada/Jayne Avenues for a distance of 11.5 miles from the Westlands Solar Park to the Gates Substation. Along this corridor there are two groups of existing dwellings along the south side of the roadway. These include 2 dwellings at the Stone Land Company Ranch discussed previously, and a row of 8 dwellings located on the south side of Jayne Avenue approximately 1.3 miles east of SR-269, which are discussed in turn below.



The dwellings at the Stone Land Company Ranch are set back 180 feet from the transmission corridor at its nearest point, and are screened from the roadway by a dense stand of landscaping trees throughout the front setback area of the ranch property. Since span lengths between transmission towers can range from about 800 feet to 1,400 feet, there is substantial flexibility in the siting of tower locations, which allows for minimization of impacts including visual effects. It is also most likely that steel monopoles would be utilized along the length of this gen-tie line. It is assumed that tower locations in the vicinity of the Stone Land Company Ranch will be spaced the maximum feasible distances from the existing dwellings, i.e., at least 600 feet from each dwelling, and that no towers will be placed directly opposite the dwellings. In addition, the existing frontage landscaping at the ranch will screen the overhead conductors between the towers. With the distance separation from the towers, and the screening of the conductors, and the likely utilization of steel monopoles, the transmission line would not result in a substantial change to the visual character or quality of the setting of these residences.

The row of 8 dwellings in the eastern portion of this gen-tie corridor are set back approximately 125 feet from the transmission corridor at its nearest point. Many of these residences have mature landscape trees in the front yards which provide some visual screening from the roadway. The row of dwellings extends for a distance of 900 feet along the south side of Jayne Avenue. It is assumed that the transmission towers will be placed the maximum feasible distance apart (i.e., 1,400 feet) so that towers can be placed at least 300 feet away (diagonally across Jayne Avenue) from both ends of the row of dwellings, and that no towers will be placed directly opposite any of the dwellings. As mentioned is likely that steel monopoles would be utilized along the length of this gen-tie line. In addition, the existing landscape trees in most of the front yards will partially screen the overhead conductors between the towers. With the distance separation from the towers and the partial screening of the conductors, and the likely utilization of steel monopoles, the transmission line would not result in a substantial change to the visual character or quality of the setting of these residences.

In summary, although the Nevada-Jane gen-tie-line would be in proximity to 10 existing dwellings, the visual effects would be minimized by providing maximum distance separation between the dwellings and the transmission towers, and by the visual screening provided by the existing landscaping along the frontages of the affected dwellings, as well as the planned utilization of narrow profile steel monopoles along this gen-tie route. Therefore, the southern tie line would not represent a substantial change to the visual character or quality of the setting of these residences. As such, the visual impact to residences in proximity to the WSP-South to Gates Gen-Tie line would be *less than significant*.

#### **Summary and Conclusion – Visual Impacts Resulting from WSP Gen-Tie Projects**

As discussed above, about 50 percent of the WSP Gen-Tie Corridors run parallel and adjacent to existing transmission lines (i.e., WSP-North to Gates Gen-Tie). The incremental visual changes resulting from the addition of the planned transmission lines to similar linear structural elements that exist in the setting would not substantially degrade the existing visual character or quality of the corridors or their surroundings.

In the 50 percent of corridor length where there are no existing parallel transmission lines, the visual effect of the planned gen-tie line would be reduced by screening from existing landscape trees and strategic placement of transmission towers (i.e., WSP-South to Gates Gen-Tie), and utilization of narrow profile monopoles. Thus the WSP gen-tie lines would not substantially degrade the existing visual character or quality of the corridors or their surroundings.

In conclusion, the visual impacts resulting from the WSP Gen-Tie projects would be *less than significant*.

### **Mitigation Measures:**

**Westlands Solar Park.** No mitigation is required.

**WSP Gen-Tie Corridors.** No mitigation is required.

---

### **Impact AES-4. Light and Glare**

**Westlands Solar Park.** The WSP solar development would introduce new sources of light and low level glare to the plan area; however, this would not represent a substantial new source of light and glare and would not adversely affect day or nighttime views in the area. (*Less-than-Significant Impact*)

**WSP Gen-Tie Corridors.** The WSP Gen-Tie projects would not introduce new permanent sources of light or glare to their settings; and the night lighting that may be employed at work sites and staging areas would temporary and designed to be non-obtrusive. (*Less-than-Significant Impact*)

*This impact analysis addresses significance criterion 'd' above.*

### **Westlands Solar Park**

#### **Lighting**

Under existing conditions, the northern portion of the plan area is subject to night lighting from recently completed solar generating facilities and substation located at the corner of Avenal Cutoff Road and 25<sup>th</sup> Avenue, as well as from security lighting at the agricultural processing plant and the Henrietta substation/power plant complex to the north along 25<sup>th</sup> Avenue. Another source of night lighting is headlights from vehicles traveling on Avenal Cutoff Road and other roads in the vicinity.

The WSP solar facilities will introduce new sources of light to the area, although permanent exterior lighting will be mainly located at the site entrances, the operations yards, and the substation/switching stations. Lighting within the solar fields will be confined to the inverter/transformer pads, which will be activated only when needed by switch or motion sensors. There will be no permanent lighting within the solar fields, along any internal access driveways, or around the perimeters of the SGFs. Permanent lighting would be no brighter than required to meet safety and security requirements, and would be directed inward and downward to avoid direct illumination of adjacent properties and public rights-of-way. Mobile lighting would be employed within the solar fields for maintenance or equipment repair and replacement, and would be directed away from external boundaries.

During the construction phase for each solar facility, the construction staging areas would have security lighting. Temporary night lighting would be needed if and when construction activity extends into the nighttime hours. As with mobile lighting during facility operations, the temporary lighting would provide the minimum illumination needed and would be directed away from facility boundaries.

Potentially sensitive receptors to unwanted illumination from the project primarily include the existing residences in the vicinity and travelers on public roadways within and near the plan area. The nearest residences are at the Shannon Ranch complex located at the southwest corner of Avenal Cutoff Road and Lincoln/Gale Avenue, and at the Stone Land Company Ranch on Nevada Avenue east of Avenal Cutoff Road. Under current conditions, both ranch complexes employ night lighting for security and operational visibility. Both ranches include dense landscaping along their frontages which would provide screening from any light sources at the nearby solar facilities. However, it is not anticipated that any solar facilities with permanent lighting, such as operations yards or substations, or temporary facilities such as construction staging areas, would be located in the vicinity of either the Shannon Ranch complex or the Stone Land Company Ranch.

Travelers along the roadways traversing the plan area would notice the increased light sources associated with WSP solar development. Currently, the nighttime conditions throughout the majority of the plan area are essentially dark with isolated light sources associated with the ranch complexes, the existing solar facilities and substation at the intersection Avenal Cutoff Road and 25<sup>th</sup> Avenue, and the Henrietta substation and peaker plant to the north along 25<sup>th</sup> Avenue. The main source of night lighting for motorists is from headlights of oncoming vehicles. Within WSP, the few areas of permanent lighting would illuminate relatively small areas distributed throughout the plan area. Since the solar fields would not be illuminated, much of the plan area would remain in darkness.

In summary, the WSP solar projects would introduce new sources of permanent and temporary nighttime lighting to the plan area, although the vast majority of the plan area would be occupied by solar fields which would not be illuminated. The few residential receptors adjacent to the project would be subject to construction lighting, and occasional mobile lighting for nighttime maintenance and repair, but these light sources would be temporary, with light sources directed inward away from external boundaries, with substantial screening from indirect lighting provided by existing landscaping at the receptor sites. Travelers on public roadways traversing the plan area would notice an increase in permanent night lighting at the substations and operations yards, but the overall dark rural quality of the plan area would be largely maintained. Therefore, the lighting impacts resulting from the project would be *less than significant*.

### **Glare**

Glare is an intense light effect resulting primarily from the reflection of sunlight off reflective surfaces when the angle of the sun to the surface is such that sunlight is reflected toward the receiver, causing potential discomfort or distraction of the receiver, or potential impairment of vision under extreme conditions. The main source of potential glare within the plan area would be from solar panels.

All of the solar panels installed within the plan area will be composed of photovoltaic cells. Solar PV employs glass panels that are designed to maximize absorption and minimize reflection in order to increase electrical production efficiency. Untreated silicon reflects about one-third of incoming sunlight. To limit reflection, solar PV panels are constructed of dark, light-absorbing materials, and are given an anti-reflective coating or textured surface. With the addition of the anti-reflective coating or treatment, the

reflectivity can be reduced to less than 4 percent of incoming sunlight (EE Times 2012). In comparison, the reflectivity of standard glass is over 20 percent, or about double that of uncoated solar panels. By contrast, concentrating solar thermal systems, which employ arrays of highly polished mirrors to refocus the radiation on a receiving tube or tower, reflect about 90 percent of the incoming sunlight (FAA 2010, p. 37).

In addition, PV solar systems are designed to maximize absorption of sunlight by keeping the panel surfaces oriented directly to the sun as much as possible. When the sun is high in the sky, sunlight is reflected skyward. However, when the sun is low in the sky (i.e., at dawn or dusk), the angle of reflectance increases, thereby increasing the potential for reflection at or near ground level. The potential for ground-level reflection is greatest with fixed-tilt solar arrays. When the sun is very low in the sky at sunrise and sunset (i.e., in the east or west), there is a potential for sunlight to be reflected obliquely from the east-west oriented panels at a similarly low angle to observers at ground level. The potential for ground-level reflection is substantially reduced in tracking systems, such as those planned for the WSP solar projects, which allow panels to follow the sun across the sky from east to west. Since tracking systems minimize the angle of incident sunlight at the panel surface, the angle of reflectance is also smaller, thus tending to direct reflected sunlight skyward even when the sun is low in the sky.

Since solar panels are designed specifically to maximize absorption of sunlight and minimize loss of incident sunlight through reflection, the potential for glare is also greatly reduced even during occasional periods when sunlight from module surfaces may be reflected to ground-level receptors. Under such conditions, the modules may produce a dull reflection of low-intensity light, but would not result in intense glare that would adversely affect views in the area or cause discomfort to receptors.

#### ***Potential Glare Effects at Existing Residences near WSP***

There are two groups of dwellings adjacent to the project site that could be subject to potential low-intensity glare from WSP solar facilities. These include the cluster of ranch dwellings in the Shannon Ranch complex at the southwest corner of Avenal Cutoff Road and Lincoln/Gale Avenue, and the two dwellings at the Stone Land Company Ranch located on the south side of Nevada Avenue, about 1.4 miles east of Avenal Cutoff Road. In both instances, the dwellings nearest to the WSP plan area have existing landscape trees and shrubs along their property frontage which would minimize the potential for glare effects at these locations. In summary, the low intensity of any reflected sunlight from WSP solar panels, combined with the screening effects of existing landscaping along the frontages of existing ranch dwellings, would minimize the potential for adverse glare effects at these existing residential locations. Therefore, the potential glare impacts upon adjacent and near-by residential receptors would be *less-than-significant*.

#### ***Potential Glare Effects on Motor Vehicle Operation***

Automobiles passing along the WSP solar facilities could be subject to low-intensity reflected sunlight from nearby solar panels at certain times of day. As discussed above, the potential for glare would be greatest at sunrise and sunset when oblique reflections could be received at or near ground level (but this applies mainly to fixed tilt systems which are not anticipated to be employed within WSP). However, due to the low level reflection from the solar panels and the short duration of driver exposure to any low-intensity reflected light, traffic passing through the WSP plan area would not be subject to significant visual impairment or a safety hazard due to potential glare. In summary, the potential for driver discomfort or hazard to automobile operation posed by low-intensity reflected light from WSP solar facilities would be *less than significant*.

In summary, the solar panels installed in the plan area would be specifically designed to minimize glint and glare, and the remaining potential for low-intensity reflected light would not have a significant adverse effect on views from potential ground level receptors or motorists in the area. (See Section II. K. *Hazards and Hazardous Materials* for discussion of potential glare hazard to aviation.) Therefore, the glint and glare impacts resulting from WSP solar facilities would be *less than significant*.

In conclusion, the potential lighting and glare impacts associated with the WSP solar development would be *less than significant*.

### **WSP Gen-Tie Corridors**

#### **Lighting**

Construction of the planned gen-tie facilities is expected to occur during daylight hours. However, in the event night construction may occasionally be required, temporary lighting would be required for security and safety. Night lighting may also be required for security at staging areas. However, it is anticipated that any such lighting would be directed inward toward the work areas and that direct lighting beyond the work areas would be avoided. Night lighting at any given work site would be temporary since each tower would be completed in a matter of days, and work sites for conductor stringing would continuously shift along the gen-tie routes. Therefore, the potential lighting impacts due to gen-tie line construction would be *less than significant*.

Once completed, the gen-tie lines would not include lighting, so no new sources of light would occur. Therefore, the potential lighting impacts from the operation of the gen-tie lines would be *less than significant*.

#### **Glare**

The transmission towers, conductors, and insulators could have potentially reflective surfaces that could cause glare. However, it is expected that the materials selected for the transmission projects would be non-reflective and non-refractive, or would be treated with non-reflective coatings. Therefore, the potential glare impacts from the WSP Gen-Tie projects would be *less than significant*.

### **Mitigation Measures:**

**Westlands Solar Park.** No mitigation is required.

**WSP Gen-Tie Corridors.** No mitigation is required.

## ***Cumulative Impacts***

### **Impact AES-5. Cumulative Aesthetic Impacts**

**Westlands Solar Park.** The WSP solar projects and the other cumulative projects would result in visual changes to their settings; however, these visual changes would not represent cumulatively significant visual impacts. (*Less-than-Significant Cumulative Impact*)

**WSP Gen-Tie Corridors.** The WSP gen-tie projects and the other cumulative projects would result in visual changes to their settings; however, these visual changes would not represent cumulatively significant visual impacts. (*Less-than-Significant Cumulative Impact*)

### ***Geographic Scope of Analysis of Cumulative Aesthetic Impacts***

Aesthetic impacts tend to be localized and generally extend a short distance beyond project boundaries. Two or more cumulative projects would have the potential to result in visual impacts if they are located in the same field of view of a given observer. Given the essentially flat terrain of the WSP vicinity, the distance that objects would be clearly visible by observers situated within view of a project would be less than one mile. Thus, for purposes of this EIR, the geographic scope of the cumulative analysis of aesthetic impacts is considered to extend approximately one mile beyond the boundaries of the WSP plan area and the WSP gen-tie corridors.

### ***Westlands Solar Park***

#### ***Near Term***

Under near-term conditions, there are 4 pending, approved, and completed projects (or groups of projects) within a one-mile radius of the WSP's outside boundaries. All 4 of these projects comprise solar PV developments. (Note: The Westside Solar project and Westlands Aquamarine solar project, shown in Figure PD-9, are located within the WSP plan area. However, since the impacts associated with these projects are addressed in the WSP impact analysis, they are not included again in the list of cumulative projects below.) These solar projects are listed below and described in Section 2.5. *Completed, Approved and Pending Projects/ Introduction to Cumulative Impact Analysis*. Their locations are shown in Figure PD-9.

- Mustang/Orion/Kent South
- Kettleman
- American Kings
- Mustang 2

It is noted that the Mustang/Orion/Kent South and Kettleman solar projects have been completed and are operating. The American Kings and Mustang 2 solar projects are pending approval as of this writing.

The WSP plan area and the other cumulative project sites have relatively low visual quality and no significant scenic resources in their vicinities. Given the small number of residences in the area, and the few roadways that pass through the area, the visual access of the sites to the public is also low. Thus the overall visual sensitivity of the WSP plan area and other cumulative project sites is considered to be low. While the solar generating facilities would represent a visual change to the predominantly agricultural character of their settings, the low profile of the solar facilities would not be out of scale with their rural surroundings. Given also the low visual sensitivity of the cumulative project sites, the visual impacts resulting from each individual solar project would be less than significant.

Visual impacts can occur at residential receptor sites or in areas visible to the traveling public along area roadways. As mentioned, the residential receptors near the WSP plan area include the Shannon Ranch complex and the Stone Land Company Ranch. The visual impacts of WSP solar development upon these residences would be less than significant, and a significant cumulative impact would occur only if visual impacts from the other cumulative projects combined with the less-than-significant impacts of WSP solar development to produce a significant visual impact. However, none of the other cumulative projects are in proximity to either the Shannon Ranch or the Stone Land Company Ranch, with the nearest cumulative projects located at least 3 miles from the Shannon Ranch and 5 miles from the Stone Land Company Ranch. Since none of the other cumulative projects would have a visual effect on these residential receptors, the near-term cumulative visual impact upon the nearest residences would be *less than significant*.

To motorists traveling along Avenal Cutoff Road, the WSP solar development and three of the other cumulative projects would be visible along the roadside. Given the low visual sensitivity of the setting and the low profile of solar PV development, the visual impact of the WSP solar development would be less than significant, as discussed under Impact AES-3 above. The three cumulative projects that would also have frontage on Avenal Cutoff Road – Kent South, American Kings, and Mustang 2 – would increase the distance along which motorists on Avenal Cutoff Road would view solar fields along the roadside. The cumulative visual effect of four projects along Avenal Cutoff Road would be that of a noticeable change but would not substantially degrade the existing visual character or quality of the setting. Therefore, the near-term cumulative visual impact to the traveling public would be *less than significant*.

As discussed under Impact AES-4 above, the WSP solar facilities would require minimal night lighting, and this is also expected to be the case for the cumulative solar projects. In addition, solar PV facilities produce minimal glare. The lighting and glare impacts from WSP solar development and from each of the other solar projects would be less than significant. These less-than-significant lighting and glare effects would not combine to produce a cumulatively substantial lighting and glare effect. Therefore, the near-term cumulative lighting and glare impacts would be *less than significant*.

In summary, near-term cumulative visual impacts and lighting and glare impacts associated with the WSP solar development would be *less than significant*.

#### **Far Term**

To evaluate far-term conditions, the cumulative analysis of visual impacts considers the full buildout of land uses in the vicinity of the WSP plan area as shown on the 2035 Kings County General Plan and the Fresno County General Plan (which covers lands immediately to the west of WSP). The 'Kings County Land



Use Map' of the Land Use Element shows that Kings County lands near the WSP plan area are designated as either 'General Agriculture 40 ac.' or 'Exclusive Agriculture 40 ac.' Similarly, the Fresno County General Plan shows the lands near the WSP plan area are designated 'Agriculture.' Thus it is reasonable to assume that agricultural production will remain the dominant land use in surrounding lands for the life of the General Plans.

It is important to note that, as with the lands of the WSP plan area, the agricultural designations of the 2035 Kings County General Plan allow the installation of utility-scale PV solar generating facilities (KC 2010). Thus it is possible that additional solar development projects could be proposed in the WSP vicinity within the remaining 20-year planning horizon of the General Plan. Since the adjacent lands to the west of the WSP plan area are located within Fresno County, the corresponding General Plan designations for Fresno County lands would guide permitted uses on adjacent lands to the west. While the Fresno County General Plan does not specifically allow PV solar development on agriculturally-designated lands, the County has initiated a process for considering solar PV development on agriculturally-designated lands, and has approved a number of solar PV projects under this process (Fresno County 2011). Few solar projects have been proposed or approved by Fresno County in the nearby areas to date, and none have been proposed within 5 miles of the WSP plan area in Fresno County. However, Fresno County has approved a number of solar projects on other agricultural lands in the western portion of the County, so it is reasonable to assume that the County would consider proposals for PV solar development on agricultural lands near the WSP plan area. Thus it is anticipated that any development on nearby lands would consist predominantly, if not exclusively, of solar PV projects.

As discussed in Section 3.1.1. *Environmental Setting*, the WSP and surrounding lands have low visual quality given the flat and featureless character of the agricultural lands in this area. The presence of very few residences in the area and the relatively lightly traveled roadways in the area indicate that the area has a low level of visual access. Thus the WSP plan area and surrounding lands have low visual sensitivity. Assuming that most, if not all, substantial future development in the area would consist of low profile and non-obtrusive solar PV projects, the visual impacts of individual future solar projects in the area would be less than significant. In the event that any future solar projects in the area are located in proximity to visual receptors that are common to such projects and WSP solar development, the combined visual effect would not substantially degrade the visual character and quality of the setting. Therefore, the far-term cumulative visual impacts associated with WSP solar development would be *less than significant*.

### **WSP Gen-Tie Corridors**

Depending on the setting, transmission tower lines can be visible for several miles, but their visual prominence is substantially diminished within one mile. Therefore, the geographic scope of analysis for cumulative visual impacts related to the planned transmission corridors is set at one mile from the corridors. Thus cumulative projects located within one mile of the planned transmission corridors are considered in this analysis

#### **Near Term**

Under near-term conditions, there are four pending, approved, and completed solar projects and two transmission projects within one mile the WSP Gen-Tie Corridors. These projects are listed below and

shown in Figure PD-10, and described in Section 2.5. *Completed, Approved, and Pending Projects/Introduction to Cumulative Impact Analysis.*

- Westlands Solar Farm
- PGE Gates Solar
- PGE Huron Solar
- EC&R Solar Project
- Westside Transmission Project (Gates to Dos Amigos/Los Banos Substation)
- Central Valley Power Connect (CVPC)(Gates to Gregg Transmission Project)

It is noted that the first three solar projects listed have been completed and are operational. It is also noted that the CVPC transmission project has been placed on hold and may not move forward. However, for purposes of this analysis, it is considered an active pending project and thus is included in this cumulative analysis.

As discussed under Impact AES-3, the visual impacts resulting from the WSP Gen-Tie projects would be less than significant. As discussed, the overall visual sensitivity of the corridors area is moderate. The planned gen-tie lines would run parallel and adjacent to existing transmission lines for about 50 percent their overall length (i.e., WSP-North to Gates Gen-Tie), and the other 50 percent would run alongside the Nevada/Jayne Avenue roadway corridor. Thus the new gen-tie lines would represent an incremental addition to a similar structural corridor along the northern gen-tie corridor, and would similarly represent an incremental addition to an existing linear human-made feature along the southern gen-tie corridor. Since neither gen-tie line would introduce a new structural elements into a visually sensitive area that is absent of linear structural elements, the overall visual impact of the WSP gen-tie projects would be less than significant.

Among the other cumulative projects, a portion of the Central Valley Power Connect (Gates to Gregg) Transmission Project would run parallel and adjacent to the northern WSP gen-tie corridor. Since there are existing transmission lines in place along these corridors, the cumulative transmission projects, including the affected northern WSP gen-tie, would not substantially degrade the visual character or quality of the setting. At the western end of the gen-tie corridors near the Gates Substation, the completed PG&E Huron and PG&E Gates solar projects and the proposed EC&R solar project would be located a short distance from the WSP gen-tie corridors and the Central Valley Power Connect and Westside transmission projects. As discussed above under Westlands Solar Park, solar projects are generally visual unobtrusive and would not result in a substantial visual impact in the valley setting. Moreover, the area where the cumulative solar and transmission projects would be concentrated is visually dominated by the large Gates Substation and several existing transmission lines that converge on the substation in this area. As such, the visual setting is already substantially degraded by these large-scale electrical facilities. Given the low visual quality of the area where the cumulative projects would be concentrated, and the relatively small number of residential or traveling public receivers, the visual sensitivity of this area is low. The addition of the cumulative solar and transmission projects to this already degraded visual setting would not substantially degrade the visual character or quality of the setting. Therefore, the near-term cumulative visual impacts associated with the WSP gen-tie projects would be *less than significant*.

As discussed under Impact AES-4, the WSP gen-tie projects would not include lighting or reflective surfaces. While night lighting may sometimes be needed for nighttime construction, or for security at staging areas, the effects would be minimal and temporary. The lighting and glare effects of the cumulative solar and transmission projects are also expected to be minimal. Therefore, the near-term cumulative lighting and glare impacts associated with the WSP gen-tie projects would be *less than significant*.

#### ***Far Term***

Under far-term conditions, it is assumed that all cumulative projects considered in the near-term analysis will be completed. The far-term cumulative analysis of visual impacts assumes the full buildout of land uses adjacent to the WSP gen-tie corridors as shown on the General Plans of Kings and Fresno counties. All adjacent lands are designated for agricultural uses in the county general plans. While both counties allow solar PV projects on agriculturally-designated lands, it is not foreseeable which lands, if any, adjacent to the gen-tie corridors will be proposed for solar PV development in the far term. Also, additional transmission facilities or other public utility uses could be planned for adjacent lands, but this eventuality is also unforeseeable at this time. However, this far-term analysis assumes that some solar PV development and additional transmission projects would be constructed in the project vicinity in the far term. It is not anticipated that other non-agricultural development would occur in the vicinity of the WSP transmission corridors under far-term conditions.

Given the relatively low visual mass and profile of the potential cumulative development anticipated in the gen-tie corridors area in the far term, i.e., transmission and solar projects, the combination of these projects and the WSP gen-tie projects would not substantially degrade the visual character or quality of the setting. Therefore, the far-term cumulative visual impacts associated with the WSP gen-tie projects are expected to be *less than significant*.

#### **Mitigation Measures:**

**Westlands Solar Park.** No mitigation is required.

**WSP Gen-Tie Corridors.** No mitigation is required.

---

## **REFERENCES/BIBLIOGRAPHY – AESTHETICS**

- |               |  |
|---------------|--|
| Caltrans 2011 | California Department of Transportation (Caltrans). 2011. <i>California Scenic Highway Mapping System</i> . September. <a href="http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm">http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/index.htm</a> |
| CPUC 1995     | California Public Utilities Commission (CPUC). 1995. <i>General Order No. 131-D. Rules relating to the Planning and Construction of Electric Generation</i> ,  |

### 3. Environmental Setting, Impacts, and Mitigation Measures

#### 3.1. Aesthetics

*Transmission/Power/Distribution Line Facilities and Substations Located in California*. Decision 94-06-014, adopted June 8, 1994, as modified August 11, 1995. <http://162.15.7.24/PUBLISHED/Graphics/589.PDF>

EE Times 2012	EE Times. 2012. "Black Solar Cells Have Lowest Reflectance for Silicon Solar Cells." May 29, 2012. <a href="http://www.eetimes.com/document.asp?doc_id=1261835">http://www.eetimes.com/document.asp?doc_id=1261835</a>
FAA 2010	Federal Aviation Administration. 2010. <i>Technical Guidance for Evaluating Selected Solar Technologies on Airports</i> . November. <a href="http://www.faa.gov/airports/environmental/policy_guidance/media/airport-solar-guide.pdf">http://www.faa.gov/airports/environmental/policy_guidance/media/airport-solar-guide.pdf</a>
Fresno County 2000b	County of Fresno. 2000. <i>Fresno County 2000 General Plan –Policy Document</i> . October. <a href="http://www2.co.fresno.ca.us/4510/4360/General_Plan/GP_Final_policy_doc/Table_of_Contents_rj_blue.pdf">http://www2.co.fresno.ca.us/4510/4360/General_Plan/GP_Final_policy_doc/Table_of_Contents_rj_blue.pdf</a>
Kings County 2009c	Kings County. 2009. <i>Draft EIR – 2035 Kings County General Plan Update</i> . June. <a href="http://www.countyofkings.com/planning/2035%20draft%20general%20plan/DEIR%20Compiled%20for%20viewing.pdf">http://www.countyofkings.com/planning/2035%20draft%20general%20plan/DEIR%20Compiled%20for%20viewing.pdf</a>
Kings County 2010	Kings County. 2010. 2035 Kings County General Plan. Adopted January 26, 2010. <a href="http://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan">http://www.countyofkings.com/departments/community-development-agency/information/2035-general-plan</a>
Kings County 2016a	Kings County. 2016. <i>Kings County Development Code. Kings County Code of Ordinances, Appendix A - Ordinance No. 668.12</i> . Dated January 26, 2016; Effective February 26, 2016. <a href="http://www.countyofkings.com/home/showdocument?id=12535">http://www.countyofkings.com/home/showdocument?id=12535</a>
Sunpower 2011	Sunpower Corporation. 2011. <i>PV Systems: Low Levels of Glare and Reflectances vs. Surrounding Environment</i> . <a href="https://us.sunpower.com/sites/sunpower/files/media-library/white-papers/wp-pv-systems-low-levels-glare-reflectance-vs-surrounding-environment.pdf">https://us.sunpower.com/sites/sunpower/files/media-library/white-papers/wp-pv-systems-low-levels-glare-reflectance-vs-surrounding-environment.pdf</a>

*This page intentionally left blank*