

APPENDIX 2.1-1
Visual Resources Report

DRAFT

**Visual Resources Report
for the
Jacumba Solar Energy Project
Major Use Permit PDS2014-MUP-14-041
Environmental Review Project Number PDS2014-MPA-14-015
Jacumba, San Diego County, California**

Lead Agency:

County of San Diego
Department of Planning and Development Services
5510 Overland Avenue
San Diego, California 92123
Contact: Ashley Gungle

Prepared for:

Jacumba Solar LLC
700 Universe Boulevard
Juno Beach, Florida 33408
Contact: Jesse Marshall

Prepared by:

DUDEK
605 Third Street
Encinitas, California 92024
Contact: Michael Sweesy



APRIL 2015

Visual Resources Report for the Jacumba Solar Energy Project

TABLE OF CONTENTS

<u>Section</u>	<u>Page No.</u>
1 INTRODUCTION.....	1
1.1 Purpose.....	1
1.2 Visual Resource Concepts and Terminology.....	1
1.3 Key Issues.....	5
1.4 Principal Viewpoints to Be Covered.....	5
2 PROJECT DESCRIPTION	7
3 REGULATORY SETTING	25
3.1 Federal.....	25
3.2 State.....	25
3.3 Local	26
4 VISUAL ENVIRONMENT OF THE PROJECT	31
4.1 Project Setting.....	32
4.2 Project Viewshed	33
4.3 Landscape Character Units	34
5 EXISTING VISUAL RESOURCES AND VIEWER RESPONSE	41
5.1 Existing Visual Resources	41
5.1.1 Visual Character.....	41
5.1.2 Visual Quality	41
5.2 Viewer Response	46
5.2.1 Viewer Sensitivity.....	46
5.2.2 Viewer Groups.....	47
5.2.3 Viewer Exposure.....	52
5.2.4 Viewer Awareness	52
6 VISUAL IMPACT ASSESSMENT.....	55
6.1 Guidelines for Determining Significance	56
6.2 Key Views.....	61
6.2.1 Key View 1 – Existing Conditions	62
6.2.2 Key View 2 – Existing Conditions	79
6.2.3 Key View 3 – Existing Conditions	84
6.2.4 Key View 4 – Existing Conditions	88
6.3 Assessment of Visual Character and Visual Quality	92
6.3.1 Assessment of Visual Character	92

Visual Resources Report for the Jacumba Solar Energy Project

TABLE OF CONTENTS (CONTINUED)

	<u>Page No.</u>
6.3.2 Assessment of Visual Quality.....	94
6.3.3 Assessment of Viewer Response.....	95
6.4 Determination of Significance.....	97
6.5 Cumulative Impact Analysis.....	117
6.6 Summary of Project Impacts and Conclusions.....	125
7 VISUAL MITIGATION AND DESIGN CONSIDERATIONS.....	129
8 REFERENCES.....	131
9 REPORT PREPARERS.....	133

FIGURES

1 Regional Map.....	9
2 Vicinity Map.....	11
3 Project Site Plan.....	13
4 Land Use Designation.....	19
5 Project Zoning.....	21
6 LCU Map.....	35
7 Viewshed.....	49
7a Viewshed – Old Highway 80.....	57
7b Viewshed – Interstate 8.....	59
8 Key View Points.....	63
9 Key View 1 – Westbound Interstate 8.....	65
10 Key View 2 – Eastbound Old Highway 80.....	67
11 Key View 3 – Airport Mesa.....	69
12 Key View 4 – Table Mountain ACEC.....	71
13 Cumulative Projects Map.....	119

TABLES

1 Summary of Visual Quality Ratings.....	127
2 Viewer Response Ratings.....	127
3 Summary of Visual Impact Ratings.....	127

Visual Resources Report for the Jacumba Solar Energy Project

1 INTRODUCTION

Jacumba Solar LLC (Project applicant), proposes to develop, finance, construct, and operate a solar energy facility in southeastern San Diego County. The Proposed Project encompasses a property of approximately 304 acres within the Mountain Empire Subregional Plan Area in unincorporated San Diego County. The solar facility comprising the Proposed Project would utilize photovoltaic (PV) fixed tilt rack electric generation system technology to produce solar energy at the utility-scale on approximately 108 acres. The Proposed Project is designed to produce up to 20 megawatts (MW) of alternating current (AC) generating capacity and would consist of approximately 81,108 PV modules fitted on 2,253 fixed tilt rack panels (solar arrays). A 10 MW battery energy storage facility would also be included. Ancillary facilities and components are also proposed and are discussed in detail in Section 2, Project Description.

1.1 Purpose

The purpose of this study is to assess potential visual impacts of the Proposed Project, determine the significance of the impacts under the California Environmental Quality Act (CEQA), and to propose measures to avoid, minimize, or mitigate adverse visual impacts associated with the construction and operation of the Jacumba Solar Project on the surrounding visual environment.

1.2 Visual Resource Concepts and Terminology

Visual Resources

For purposes of this study, visual resources are defined as the various elements and features of the landscape that contribute to the visual character of a particular setting. Visual resources encompass natural elements such as terrain (landforms, rock outcroppings, etc.), vegetation, water bodies (lakes and streams), atmospheric conditions, (i.e., sky, clouds, sunlight) etc., and man-made elements such as roads, vegetation clearing, excavations, and structures of all kinds. Visual resources are perceived within the context of a viewshed or the aggregate area viewed from a stationary viewpoint or multiple viewpoints in the case of an observer in motion. Within the defined viewshed of an individual project, visual resources are observed as pieces of the overall viewshed generally due to the screening effects of terrain and vegetation when in open space areas. However, in particular situations where the viewpoint is elevated, larger portions of the viewshed are visible as from vistas.

Visual Resources Report for the Jacumba Solar Energy Project

A visual resource assessment typically begins with fieldwork and an inventory of the existing visual resources and conditions of a particular site. In general, a visual resource assessment includes the following processes:

- Inventory and describe the existing visual quality, character and visual resources of the project site and surrounding viewshed area of the project being analyzed.
- Identify visually sensitive resources.
- Identify sensitive viewers and representative viewpoints (also known as key views) to the project site – representative viewpoints are used in the visual assessment to document the anticipated level of visual change occurring in the area because of the project in question.
- Analyze the potential effects on visual resources occurring as a result of the proposed project using visual simulations.
- Identify appropriate mitigation measures to avoid or reduce these negative visual effects, if adverse visual effects are determined to be potentially significant.

The process described above is based on the Federal Highway Administration assessment method and is consistent with the County of San Diego *Guidelines for Determining Significance and Report Format and Content Requirements – Visual Resources*. The intent of the process is the measurement of the aesthetic value of an area according to visual character, quality, and viewer response to a particular visual resource change represented by the Project. These concepts and other key issues discussed in this visual resource assessment are described below.

Visual Character

The descriptive attributes of a landscape (including natural and human-made features) contribute to the visual character of a locale or a viewshed. Influenced by geologic, hydrologic, botanical, and recreational features as well as by roads, structures, utilities and other human-made features, the perception of visual character can vary according to season and time of day as the atmospheric elements within the viewshed context (i.e., weather, light, and shadow) fluctuate over time and work to either obscure or highlight particular features. The fundamental elements used to describe visual character are form (bulk, mass, size and shape), line, color, patterns and texture. The appearance of a landscape is often described according to the dominance of one or more of these elements. For example, the geometric lines and vertical forms of an urban setting can dominate the visual landscape and produce very little contrast in terms of color and texture. On the other hand, a natural setting comprised of rolling hills, rough textured vegetation, flat, rolling and rugged forms, and earth tone colors could harmonize into a visual character in which none of the elements is particularly dominant. However, in absence of viewer response to change in the environment, neither landscape is considered to have greater or higher visual character.

Visual Resources Report for the Jacumba Solar Energy Project

Visual Quality

Visual quality is evaluated according to the vividness, intactness, and unity presented in the viewshed as modified by public judgment/viewer sensitivity. The three criteria used to evaluate visual quality are defined as follows:

- *Vividness* is the visual power or memorability of landscape as a whole and/or individual components as they combine in distinctive visual patterns.
- *Intactness* is the visual integrity of the natural and built landscape and its freedom from encroaching elements. Intactness can be present in developed urban and rural landscapes, as well as in natural settings.
- *Unity* is the visual coherence and compositional harmony of the landscape considered as a whole. Unity can frequently relate to the careful design of individual built components in the landscape.

While high quality views are highly vivid, mostly intact, and are highly coherent and exhibit visual continuity, low quality views are not particularly memorable and contain numerous contrasting and encroaching elements that contribute to weak visual unity.

Viewshed

The Project viewshed is composed of all surface areas from which views of Project components would be visible. In addition, the viewshed includes the location of viewers whose perceptions are likely to be affected by visual changes brought about by Proposed Project features. For purposes of this analysis, the viewshed depicted in report graphics does not consider the screening effect of existing vegetation and structures within the viewshed; rather, incidents of screening associated with vegetation and structures are discussed in the text as a refinement of the viewshed based on these site-specific view modifications.

Viewer Response

Viewer response is composed of two elements: viewer sensitivity and viewer exposure. These elements combine to form a method of predicting how the viewers might react to visual changes brought about by a project. The concepts of viewer sensitivity and viewer exposure are described below.

Viewer Sensitivity

Visual sensitivity is described in qualitative terms of high, medium, or low and is based on user volume and attitudes toward changes to the visual environment. Factors considered include the

Visual Resources Report for the Jacumba Solar Energy Project

number and types of viewers potentially affected, viewing distances, and documented public concerns about visual changes.

Viewer Exposure

In addition to the visual factors described previously, the visual resources analysis considered viewer exposure. The elements of viewer exposure help to define viewer perceptions resulting from a dynamic experience with the landscape and related visual resources. Viewer exposure varies depending on the angle of view (i.e., normal, inferior, or superior viewing angles); view distance (foreground, middle ground and background); relationship to sun angle (backlighting vs. front or side lighting); the extent of visibility (i.e., whether views are panoramic or limited by vegetation, topography, or other land uses); and viewer screening conditions (e.g., whether the Project facilities will be skylined on ridgelines, backscreened by topography and/or vegetation, or screened by structures or vegetation in the foreground). Viewer exposure also considers the duration of view based on viewer activity (e.g., travel route, residential, recreation) and often relates to speed of travel (pedestrian, vehicular, or stationary). Viewer exposure is generally considered long term for residents and short term for travelers along roadways. Viewer exposure can happen in a single event or through multiple successive views human perception can aggregate into a more general perception.

Viewer Groups – Number and Types of Viewers

Potentially sensitive viewers are determined based on the type and amount of use various land uses receive. Land uses that derive value from the quality of their settings are considered potentially sensitive. Land uses within the Project area that are considered sensitive to visual changes to their settings include residential and natural areas, designated and eligible state historic routes and scenic highways.

Distance Zones—Foreground, Middle-Ground, and Background Distances

The distance from which a Project component may be viewed affects the visual dominance and clarity that a feature or component may have within the seen landscape. Distance zones are described in this section according to foreground views, middle-ground views, and background views. Foreground views pertain to viewing distances where the viewer has close-range visibility of a given object (generally within 0.25 to 0.5 mile), which afford the greatest amount of visual detail of an object or feature. Middle-ground views typically pertain to viewing distances between 0.5 mile and 3 miles away, where objects are still distinguishable from other adjacent visual features. Background views pertain to viewing distances up to 15 miles away, where visibility of objects is less distinctive, and where ridges and skylines provide the greatest

Visual Resources Report for the Jacumba Solar Energy Project

potential viewing opportunities to an object. A single viewpoint most often encompasses foreground, middle ground, and background elements. However, there are circumstances, normally caused by terrain, where one or more of these view distances can be cut-off from the viewer. The effects of distance zones can be modified by environmental conditions such as angle of view related to landscape topography (acute angles can foreshorten distance zones), and view angle relative to sun location (backlighting can reduce visual clarity that modifies the effective viewing distance).

1.3 Key Issues

Adverse effects typically associated with solar development includes the loss of natural vegetation, terrain modification, removal of natural features with aesthetic value, and/or the introduction of contrasting elements within the existing landscape setting. In addition, potential effects may include the loss or degradation of significant visual features or views and the introduction of Project features that would significantly contrast with the existing elements of form, line, color and texture. The effects and elements of the Proposed Project that could potentially result in significant visual quality impacts include:

- Removal of vegetation from an approximate 108-acre portion of the 304-acre Project area and replacement with a 20 MW solar facility to include photovoltaic (PV) modules, associated inverters and transformer units for DC to AC conversion, access roads, an on-site private collector substation and an 10 MW energy storage facility;
- Contrasts in color and texture between tan colored soil surface of access roads and dark-colored solar panel structures and the light gray to brown/dark green color of the surrounding expanse of peninsular juniper woodland, semi-desert chaparral and Sonoran mixed woody scrub resulting from grading activities;
- Maintenance and security nighttime lighting;
- Installation of an 8-foot-high chain-link perimeter fence with 1 foot of three-strand barbed wire along the top; and
- Potential glare and secondary coloring effects from operation of solar arrays.

1.4 Principal Viewpoints to Be Covered

The segment of Interstate 8 (I-8) from State Route 67 (SR-67) east to the Imperial County line is an eligible state scenic highway. In addition, from the El Cajon city limits east to the Imperial County line, I-8 is included in the County of San Diego Scenic Highway System. Views of the Project site are intermittently available from westbound I-8 for approximately 0.8 mile as

Visual Resources Report for the Jacumba Solar Energy Project

measured from approximately Jade Peak to the west. From eastbound I-8, views of the Project site are available for approximately 0.25 mile.

Views of the Project site are also available from several viewpoints along an approximate 1.4-mile segment of Old Highway 80 located east of the Airport Mesa landform and west of Jade Peak. From SR-79 (Pine Valley) to I-8 (Jacumba), Old Highway 80 is included in the County of San Diego Scenic Highway System.

Visual Resources Report for the Jacumba Solar Energy Project

2 PROJECT DESCRIPTION

The Jacumba Solar Energy Project (Proposed Project) includes a major use permit (MUP) to authorize a Major Impact Utility pursuant to Sections 2926 of the Zoning Ordinance. The Project would produce up to 20 megawatts (MW) of solar energy and would be located on approximately 304 acres of private lands in southeastern San Diego County near the unincorporated community of Jacumba, California. See Figure 1, Regional Map, and Figure 2, Vicinity Map, for Project location. In addition to the PV modules, fixed tilt rack panels (solar arrays), and direct current (DC) to AC conversion equipment (i.e., inverter and transformer units), the Project would include a 1,000-volt DC underground collection system and a 34.5-kilovolt (kV) underground collection system linking the panels to the 110- by 215-foot on-site Project substation. The Project would also feature a 10 MW energy storage facility near the Project substation and with the fenced boundary of the site. An aboveground 138 kV transmission line (gen-tie) is also included and would connect the on-site Project substation to the adjacent East County (ECO) Substation.

A site plan of the Proposed Project is presented on Figure 3, Project Site Plan.

PV Modules

The Project would include installation of approximately 81,108 individual PV modules fitted on 2,253 fixed tilt rack panels (solar arrays). PV modules and associated racking systems would comprise the majority of the proposed facilities. PV modules generate electricity by safely converting the energy of the sun's photons into DC electrons. PV modules are wired in series and/or parallel to obtain a required nominal voltage. The PV modules are interconnected and arranged to increase overall reliability. This technology requires no moving parts or fuel, needs limited maintenance, and is a proven technology that can withstand long-term exposure to the environment.

The PV modules have been stringently tested and are robustly constructed with a lifespan of approximately 30 years. The PV modules are uniformly dark in color, coated with non-reflective treatment, and designed to be highly absorptive of all light that strikes their glass surfaces. The PV modules deployed for use in the Project would comply with all industry standard quality testing. The PV modules are electrically connected to the grounding system of the facility in accordance with local codes and regulations. The final PV module selection would be determined during the detailed engineering phase.

Support Structures

Racking refers to the support structure to which the solar PV modules are affixed that allow the panels to be properly positioned for maximum capture of the sun's solar energy. The PV module arrays (a row of PV modules) would be a fixed-tilt system that would be oriented along an east-west axis. The mounting structures are typically mounted on metal pipe pile or beam foundations

Visual Resources Report for the Jacumba Solar Energy Project

four to six inches in diameter. The beams would be driven into the soil using a pile/vibratory/rotary driving technique similar to that used to install freeway guardrails. Driven pier foundations offer multiple benefits, including quick installation and minimal site disturbance, and are a “concrete-free” foundation solution that would allow for easy site reclamation at the end of the Project life cycle. Most foundations would be driven to approximate depths of 10 to 15 feet deep. The PV modules, at their highest point, would be approximately 8 feet above the ground surface.

Depending on final engineering, the arrays may be equal in length, creating a uniform rectangular Project footprint, or may vary in length in order to avoid sensitive resources and work with the site terrain. The east–west arranged fixed-tilt arrays would be constructed approximately 25 feet apart (centerline to centerline) in a north–south direction, with an east–west array spacing of approximately 12.5 feet. Each PV module array “row” would measure approximately 144 feet in total combined length and approximately 6.5 feet in width. The PV module arrays’ final elevations from ground would be determined during detailed Project design; however, it is common to maintain as low of an elevation profile as possible to reduce potential wind loads on the PV module arrays.

Inverters, Transformers, and Associated Equipment

PV modules would be electrically connected to adjacent modules to form module “strings” using wiring attached to the support structures. PV module strings would be electrically connected to each other via underground wiring. Wire depths would be in accordance with local, state, and federal codes. String wiring terminates at PV module array combiner boxes, which are lockable electrical boxes mounted on or near an array’s support structure. Output wires from combiner boxes would be routed along an underground trench system approximately 3.5 feet deep and 1 foot wide, including trench and disturbed area, to the inverters and transformers.

Inverters are a key component of solar PV power-generating facilities because they convert the DC generated by the PV module array into AC that is compatible for use with the transmission network. The inverters within the electrical enclosures would convert the DC power to AC power and the medium-voltage transformers would step up the voltage to collection-level voltage (34.5 kV).

The inverters, medium-voltage transformers, and other electrical equipment are proposed to be located on skids located throughout the Project site. These power conversion stations would be either shop fabricated as one unit, or field assembled on site. The inverter and medium-voltage transformer units would be mounted on concrete foundation pads. All electrical equipment would be either outdoor rated or mounted within the electrical enclosures designed specifically for outdoor installation. The proposed equipment poses no electrical shock risk and is safe to touch.



DUDEK

8477

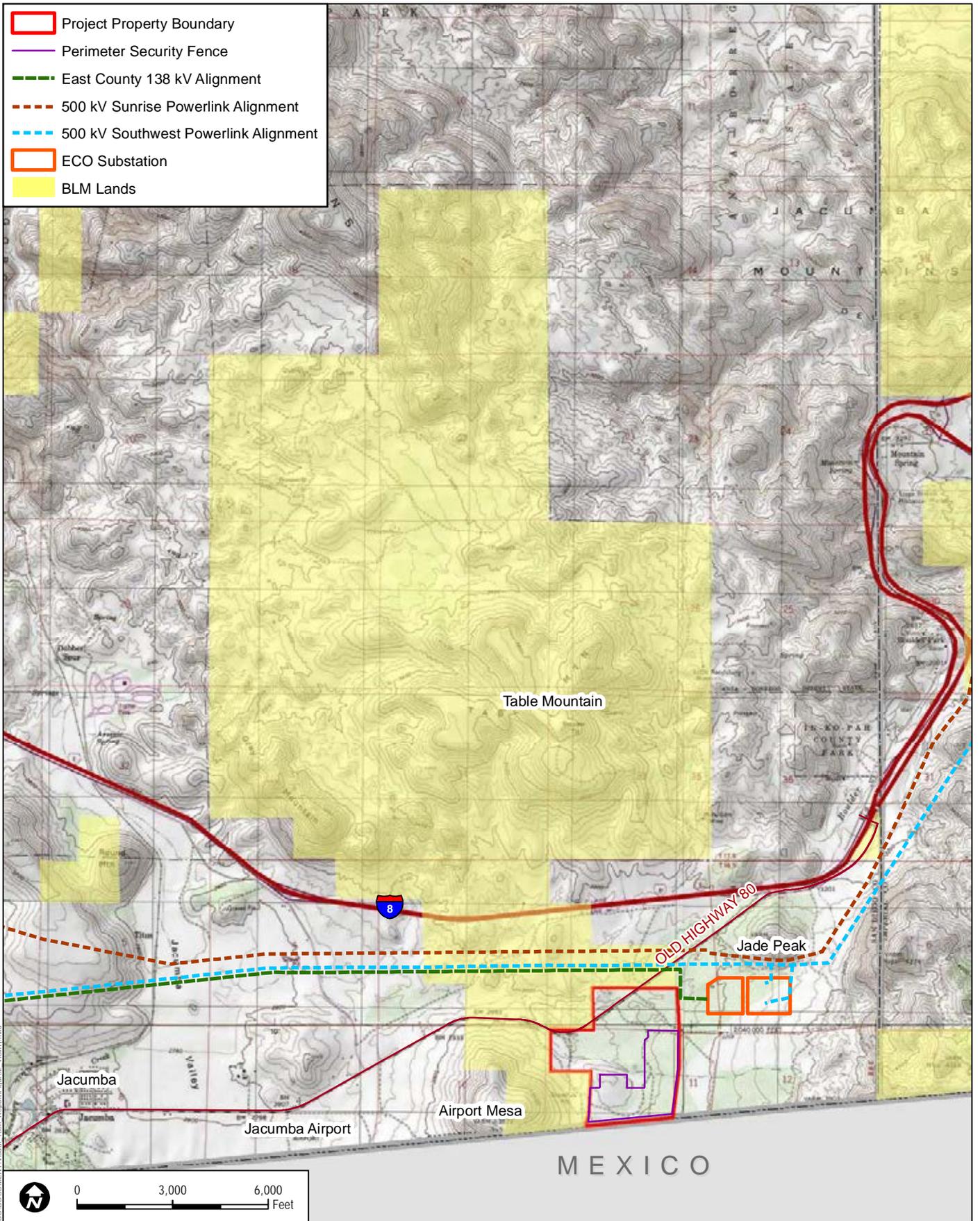
Jacumba Solar Project Visual Resources Report

Copyright © 2014 Esri

FIGURE 1
Regional Map

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK



Path: Z:\Projects\84770\1\MAPDOC\DOCUMENT\Visual_Tech_Report\Figure2_Vicinity.mxd

DUDEK

8477

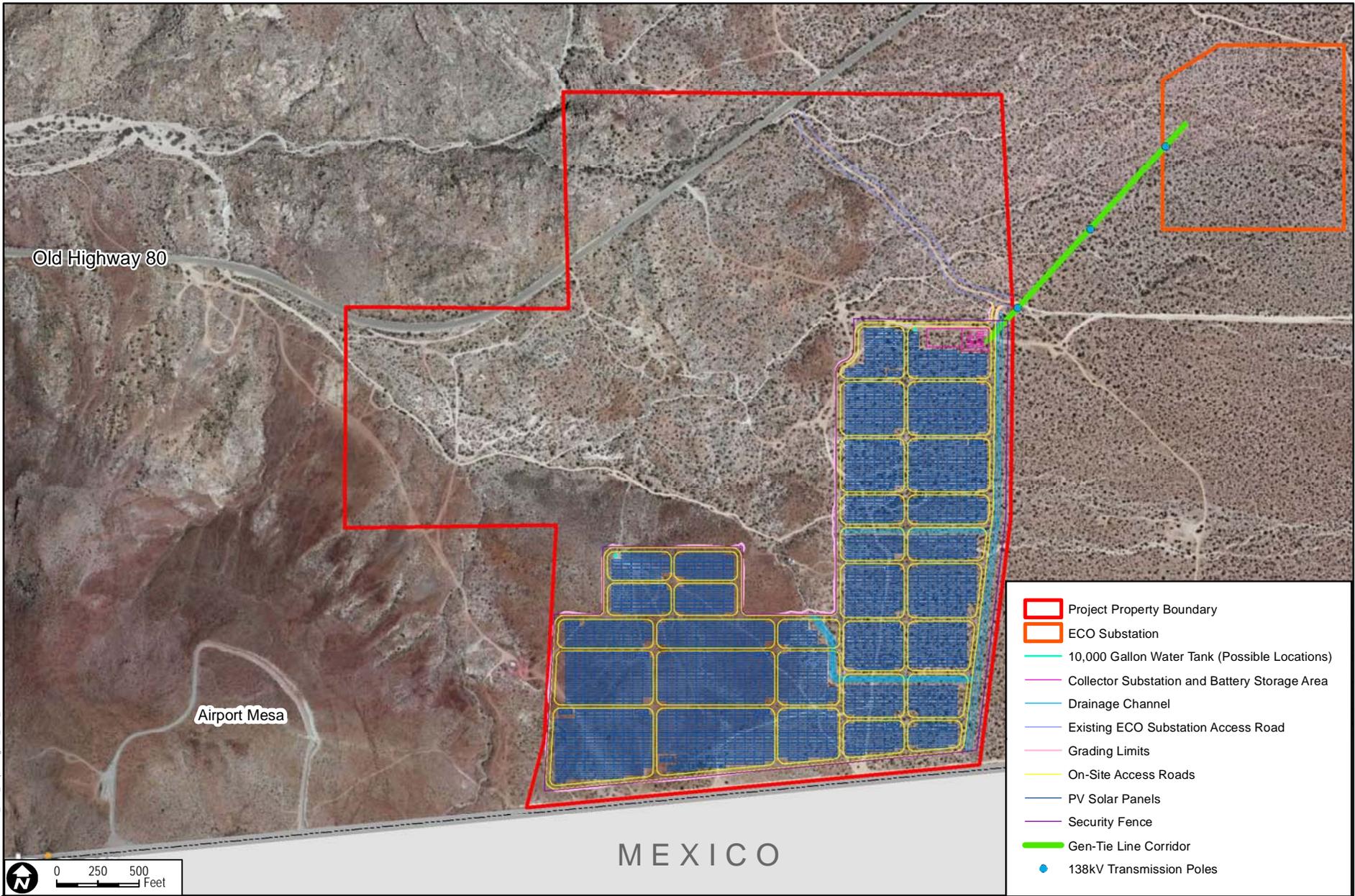
SOURCE:USGS 7.5 Jacumba Quadrangle

Jacumba Solar Project Visual Resources Report

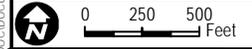
FIGURE 2
Vicinity Map

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK



- Project Property Boundary
- ECO Substation
- 10,000 Gallon Water Tank (Possible Locations)
- Collector Substation and Battery Storage Area
- Drainage Channel
- Existing ECO Substation Access Road
- Grading Limits
- On-Site Access Roads
- PV Solar Panels
- Security Fence
- Gen-Tie Line Corridor
- 138kV Transmission Poles



MEXICO



SOURCE: Bing 2014

FIGURE 3
Project Site Plan

8477

Path: Z:\Projects\8477\MAPS\DOCUMENT\Visual_Tech_Report\Figures3_Site_Plan.mxd

Visual Resources Report for the Jacumba Solar Energy Project

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

Project Substation

The Proposed Project requires the use of a private on-site collector substation (110' X 215' (23,650 sq. ft.)) that would be located on the northeastern corner of the Project site. The purpose of the substation is to collect the power received from the collector lines and convert the voltage from 34.5 kV to 138 kV as well as to be able to isolate equipment (i) in the event of an electrical short-circuit, or (ii) for maintenance.

The major components of the on-site substation are as follows:

- One 138 kV transformer including secondary containment area per local and state regulations.
- One 138 kV circuit breaker used to protect equipment from an electrical short circuit on the gen-tie. Disconnect switches, wire, cables and aluminum bus work used to connect and isolate the major pieces of equipment.
- The substation also includes a single 34.5 kV circuit breaker used to protect equipment from an electrical short circuit on the collection system, disconnects and bus work to connect and isolate the collector circuits, relays used to detect short circuits, equipment controls, telemetering equipment used to provide system control and data acquisition, voice communication, and the meters used to measure electrical power generated from the Project. Switching gear and other components would be a maximum of 35 feet in height.
- A 138 kV dead-end structure that would have a maximum height of 35 feet. This structure is where the power output from each transformer is delivered to the gen-tie line.

Energy Storage System

A battery energy storage system is proposed to be located adjacent to the on-site substation in the northeast section of the Proposed Project. It would consist of ten enclosures equipped with batteries that will be capable of delivering approximately 10 MW AC of energy. Each enclosure would include an air conditioning unit for cooling purposes and a self-extinguishing fire system. Critical information from the system would be monitored along with the solar plant performance. A master control system would coordinate operation of the solar generation equipment and the energy storage system.

Visual Resources Report for the Jacumba Solar Energy Project

Connector Line, Fiber Optic Line, and Point of Interconnection

The Project would interconnect to the ECO Substation project, which is owned and operated by San Diego Gas & Electric (SDG&E). A 138 kV line interconnecting from the ECO Substation project to the Proposed Project would be constructed above grade.

The 138 kV interconnection line would consist of two or three overhead steel poles that would be up to 150 feet in height. The vertical distance between the cross-arms on the steel case riser would be 20 feet. The distance between the ground and the lowest conductor would be at least 30 feet and the distance between conductors would be 18 feet horizontally and 12 feet vertically. Although span lengths between poles would be dependent on terrain, lengths would generally be between 400 and 800 feet. Components used to construct the proposed 138 kV transmission line would all feature non-reflective surfaces. For instance, the insulators would be constructed of gray polymer, the non-specular conductors would be made from aluminum-wrapped steel, and the transmission poles and associated hardware would be composed of galvanized steel.

Site Design

Fencing and Security

The Project site would be fenced along the entire property boundary for security with fencing that meets National Electrical Safety Code (NESC) requirements for protective arrangements in electric supply stations. Fencing will be 9 feet in height with an 8-foot chain-link perimeter fence with one-foot of three strands of barbed wire along the top with a 4-inch maximum clearance from the ground surface. The mesh of the fencing would be sized in coordination with Border Patrol and anti-climbing material(s) would be used. Signage in Spanish and English for electrical safety would be placed along the perimeter of the Project site, warning the public of the high voltage and the need to keep out. Signage would also be placed within the Project site where appropriate. Some localized security-related lighting, on-site security personnel, and/or remotely monitored alarm system may be required during construction and/or operation. Remote-monitored cameras and alarm system(s), and perimeter and safety lighting that would be used only on an as-needed basis for emergencies, protection against security breach, or unscheduled maintenance and trouble-shooting (such as may occasionally be required) would be installed.

Maintenance and Security Lighting

Lighting would be designed to provide security lighting and general nighttime lighting for operations and maintenance personnel, as may be required from time to time. Lighting would be shielded and directed downward to minimize any effects to the surrounding area, and would be

Visual Resources Report for the Jacumba Solar Energy Project

used only on an as-needed basis. Lighting would be provided at the entrance gates, and the Project substation.

The on-site substation would include lighting inside the substation to allow for safety inspections or maintenance that may be required during the evening hours. Lighting would also be provided next to the entrance door to the control house and mounted at the entrance gates to allow for safe entry. Since maintenance activities are not anticipated to be completed during the evening hours (except in case of an emergency), lights would only be turned on if needed.

All lighting for the solar facility would have bulbs that do not exceed 100 watts, and all lights would be shielded, directed downward, and would comply with the County of San Diego Light Pollution Code Section 59.101 et seq.

Access Roads

The Proposed Project would include dual purpose fire access roads and service roads. All road surfaces would have a permeable nontoxic soil binding agent in order to reduce fugitive dust and erosion in accordance with County Code Section 87.428, Dust Control Measures, and with San Diego Air Pollution Control District (SDAPCD) Rule 55, which regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions. In addition, the primary access driveway would be approximately 35-foot wide and provided off the existing paved ECO Substation driveway.

Fire Access Roads: The interior site roads would be constructed as suitable for fire access roads and would be constructed to a minimum width of approximately 24 on the perimeter and 20 feet between panel blocks. The roads would be graded and maintained to support the imposed loads of fire apparatus (not less than 50,000 pounds), and would be designed and maintained to provide all-weather driving capabilities. The purpose of the fire access roads is to allow for one-way access of fire apparatus throughout the Project site in order to reach all of the inverter stations.

The non-load-bearing surface material of the fire access roads would consist of an all-weather surface capable of supporting 50,000 pounds as required by County Fire Code. Fire access roads would be oriented in a north–south direction and would have east–west connections. An access-controlled gate would be installed at the substation driveways, which would be constructed off existing roadways with direct access to the Project site.

Service Roads: Service roads inside the fence would be constructed to a width of approximately 24 feet on the perimeter and 20 feet between panel blocks and would be compacted to support washing equipment loads of 15,000 pounds. An approximate 20-foot-wide road outside the fence would be constructed within the 125-foot gen-tie ROW in order to service the 138kV gen-tie line

Visual Resources Report for the Jacumba Solar Energy Project

during construction and operations. Service roads would also be treated with a nontoxic soil binding agent to control dust.

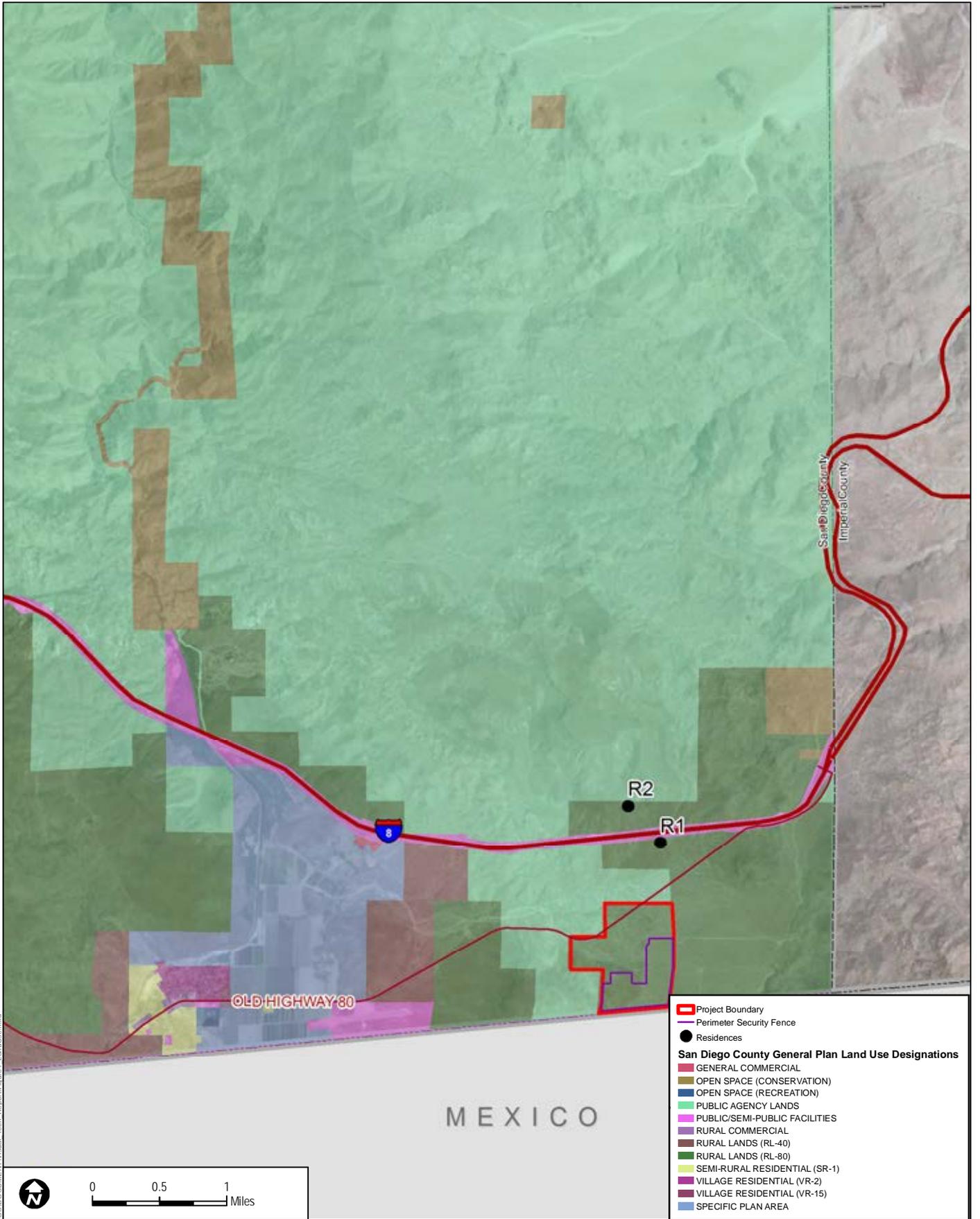
Land Use Designations and Zoning

The Project site is situated on privately owned lands located directly north of the U.S./Mexico international border and east and south of public lands managed by the Bureau of Land Management (BLM). Privately owned lands are located east of the Project site and extend to the San Diego/Imperial County border. The site is located within the Jacumba Subregional Group Area, which is part of the Mountain Empire Subregional Plan Area. The Jacumba Subregional Group Area land use map designates the site as Rural Lands 80 (RL-80), which translates to one dwelling unit per 80 gross acres (County of San Diego 2011a). The Project site is zoned General Rural (S92) (SANGIS 2013). Privately owned lands to the northeast and east are also designated RL-80 and zoned S92. Lands managed by the BLM are located immediately adjacent to the west and north of the site and are designated Public Agency Lands by the County of San Diego. Public Agency Lands are zoned Open Space (S80) by the County of San Diego but are managed by the BLM according to the Eastern San Diego County Resource Management Plan. Lands located approximately 0.5 and 1.0 mile to the west of the Project site are designated RL-80 and RL-40 and are zoned S92, respectively. The Jacumba Airport is located approximately 1.2 miles west of the Project site. The airport is designated Public /Semi-Public Facilities and is zoned S80. The Jacumba Valley Ranch Specific Plan Area is located approximately 1.5 miles west of the Project site and the I-8 corridor is located 0.5 miles north of the Project site.

General Plan Land Use designations and zoning associated with the Project site and surrounding area is depicted on Figure 4, Land Use Designation, and Figure 5, Project Zoning.

Surrounding Land Uses

The surrounding Jacumba area, which includes the community of Jacumba Hot Springs, is characterized as a predominantly rural landscape featuring large-lot ranches and single-family homes with a mixture of small-scale agriculture, recreational opportunities, and vast areas of undeveloped lands. Old Highway 80 runs through the community and functions as its main street. Single-family residences, limited commercial businesses, the Jacumba branch of the San Diego County library and an adjacent community park front Old Highway 80 through Jacumba. Agricultural fields are located to the east of the community. The Jacumba Airport is located approximately 1 mile east of Jacumba (as measured from the intersection of Old Highway 80 and Heber Road) and 1.2 miles west of the Project site. The airport is unattended, unlighted, and used mainly on the weekends as an operations area for gliders (County of San Diego 2014a).



Path: Z:\Projects\847701\WAP\DOC\DOCUMENT\Visual_Tech_Report\Figure4_LandUse.mxd

DUDEK

8477

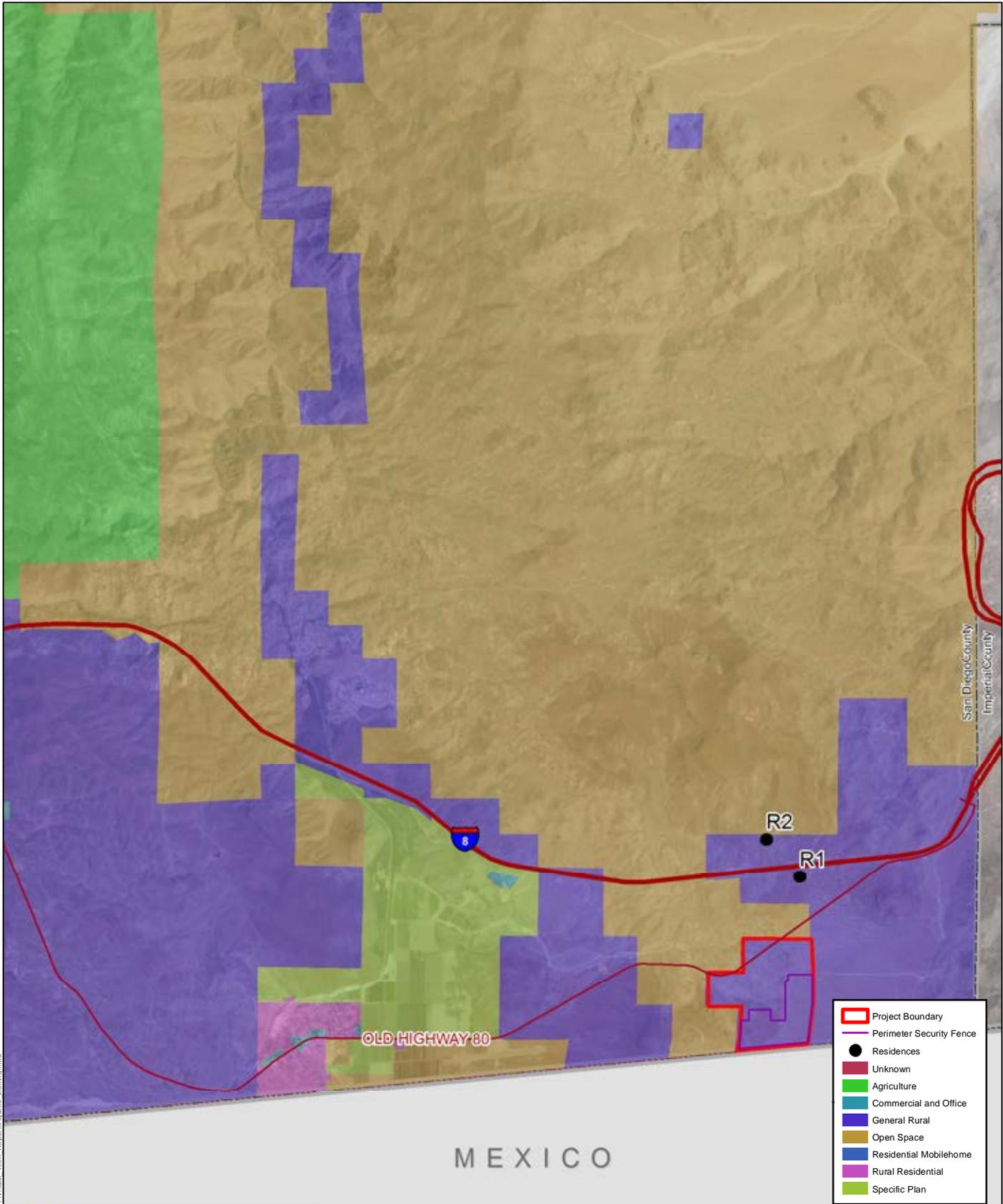
SOURCE: Bing 2014, SANDAG 2014

Jacumba Solar Project Visual Resources Report

FIGURE 4
Land Use Designation

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK



Path: Z:\Projects\847701\WAP\DOC\DOCUMENT\Visual_Tech_Report\Figure5_Zombor.mxd


0 0.5 1
Miles

© Harris Corp, Earthstar Geographics LLC Earthstar Geographics SIO ©
 2015 Microsoft Corporation

DUDEK

8477

SOURCE: Bing 2014

Jacumba Solar Project Visual Resources Report

FIGURE 5
Project Zoning

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

While two rural residences are located in the Project viewshed and large portions of the landscape display an undeveloped, natural visual character, past and recent development has resulted in a variable physical setting that includes regional energy infrastructure and local and regional transportation corridors. As shown on Figure 2, the 500 kV Southwest Powerlink and 500 kV Sunrise Powerlink transmission lines traverse the Project area and are supported by large steel lattice towers that dot the landscape north of the Project site and south of I-8. Currently under construction, the ECO Substation includes both a 500 kV and a 230/138 kV yard on approximately 86-acre as well as a short loop-in of the Southwest Powerlink. The substation Project also includes a 13.3-mile long 138 kV transmission line, segments of which have been and will be constructed above-ground and supported by steel monopoles. Lastly, the rust-colored international border fence is also located in the Project area. The approximately 12-foot-tall fence runs west from the foothills of the Jacumba Mountains, nearly bisects the Airport Mesa landform, and is relatively continuous for approximately 4.5 miles as measured west from the west-facing slopes of Airport Mesa.

Public lands managed by the BLM are located immediately north and west of the Project site. These lands are identified in the Eastern San Diego Resource Management Plan as the Airport Mesa Resource Management Zone (RMZ). The Airport Mesa RMZ is managed for its rural recreational qualities and primarily provides recreationists opportunities for hiking (BLM 2008). The RMZ is also identified as a limited OHV management area where OHV use is restricted at certain times, in certain areas, and/or to certain vehicles (BLM 2008). The Table Mountain Area of Environmental Concern (ACEC) is located north of the RMZ and I-8. ACECs are managed by the BLM to provide protection for special status plant and wildlife species, and significant scenic and/or cultural values. The Table Mountain ACEC is managed for biological and cultural values (BLM 2008). Lastly, the Jacumba Wilderness comprises rugged ridgelines and intervening valleys located east of the Project site. Permitted use of wilderness areas is established in the Wilderness Act of 1964. Certain uses including temporary roads, motorized vehicles and other forms of mechanical transport; structures or installation are prohibited. Low-impact recreation including hiking and camping are permitted in the Jacumba Wilderness (BLM 2014).

Visual Resources Report for the Jacumba Solar Energy Project

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

3 REGULATORY SETTING

3.1 Federal

There are no relevant federal policies concerning the protection of visual resources that would be applicable to a solar development on County of San Diego jurisdictional land.

3.2 State

California Environmental Quality Act

Under CEQA, impacts to aesthetic resources resulting from a project must be considered by state and local agencies. Appendix G of the CEQA Guidelines includes a series of questions that agencies may use when assessing the potential aesthetic impacts of a proposed project. The questions, which identify scenic vistas, trees, rock outcroppings, and historic buildings within a state scenic highway system as important scenic resources, often formulate the impact analysis within the relevant environmental document accompanying a project

Appendix G of the CEQA Guidelines states that the potential for aesthetic resource impacts exists if the project would:

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

California Scenic Highway System

Created by the California State Legislature in 1963, the California Scenic Highway Program includes highways designated by the California Department of Transportation (Caltrans) as scenic. The purpose of the program is to protect the scenic beauty of California highways and adjacent corridors through conservation and land use regulation. For a highway to be included in the program, it must first be nominated by the specific city or county in which it is located. The nomination/eligibility process also entails that the city/county identify and define the scenic corridor of the highway to better understand the extent of visual resources requiring conservation. For an eligible highway to be officially designated and included in the program,

Visual Resources Report for the Jacumba Solar Energy Project

the local government with jurisdiction over lands abutting the highway must implement a scenic highway corridor protection program that safeguards the scenic appearance of the corridor. Corridor protection may be achieved through a variety of means including (but not limited to) regulation of land uses and intensity of development, detailed land and site planning, control of outdoor advertising, consideration of earthmoving and landscaping, and the design and appearance of structures and equipment. If the local Caltrans district and State Scenic Highway Coordinators determine that the corridor protection program meets the five legislatively required elements discussed above, a recommendation to designate the highway as scenic is forwarded to the Caltrans Director (Caltrans 2008).

There are four officially designated scenic highways in San Diego County: SR-163 (from the north to the south boundary of Balboa Park), SR-75 (from Imperial Beach city limits to Avenida Del Sol in the city of Coronado, and Coronado Bridge), SR-125 (from SR-94 to SR-8), and SR-78 (from west to east boundary of Anza-Borrego Desert State Park). In the Project area, I-8 is an eligible state scenic highway; however, the County of San Diego has not defined the scenic corridor of I-8 nor adopted a scenic highway corridor protection program. In addition, this highway has not received official scenic designation from Caltrans (Caltrans 2014).

3.3 Local

San Diego County Zoning Ordinance

The provisions of Sections 5000 through 5964 of San Diego County's Zoning Ordinance, also known as the Special Area Regulations, set forth regulations to ensure that consideration is provided for areas of special interest or unusual value. When Special Area Regulations require the issuance of a minor use permit or a major use permit (MUP), such permits are only issued when the proposed use satisfies all conditions and requirements of the Special Area Regulations and is found consistent with the intent and purpose of the applicable Special Area Regulations. The Special Area Regulations and associated Zoning Ordinance Sections that apply to the Project include Scenic Area (S), Sections 5200–5212.

The provisions of Sections 6000 through 6991 of San Diego County's Zoning Ordinance outline general zoning regulations and include a few regulations regarding glare and outdoor lighting. Sections of the general regulations applicable to the Project include 6320, 6322, and 6324 (County of San Diego 1978).

Section 6952 of the County's Zoning Ordinance regulates Solar Energy Systems. Section 6952 (b) (2) specifies that a photovoltaic solar energy system for off-site uses with a project area greater than 10 acres is considered a Major Impact Service and Utility within all zones and

Visual Resources Report for the Jacumba Solar Energy Project

requires a MUP. In addition, Section 6952 (3) (c) specifically relates to visual resources and requires that the following measures be implemented to minimize the visual impacts of a project:

- Removal of existing vegetation shall be minimized;
- Internal roads shall be graded for minimal size and disruption;
- Any accessory buildings shall be painted or otherwise visually treated to blend with the surroundings; and
- A structures shall be non-reflective in all areas possible to blend with the surroundings.

San Diego Light Pollution Code

The Light Pollution Code was developed by the County Planning and Development Services and Department of Public Works in cooperation with lighting engineers, astronomers, land use planners from SDG&E, Palomar and Mount Laguna observatories, and local community planning and sponsor groups to address and minimize the impact of new sources light pollution on nighttime views. For purposes of lighting requirements, the code separates the unincorporated portion of the County of San Diego into two zones: Zone A and Zone B. Zone A includes all unincorporated lands located within a 15-mile radius of the Palomar or the Mount Laguna observatories, and Zone B includes all areas not included in Zone A (County of San Diego 2006). Section 59.105 includes general lighting requirements applicable to all unincorporated lands in the County, and Section 59.106 includes shielding requirements per fixture by lighting type (i.e., outdoor lighting used for outdoor sales, eating areas, or advertisements (Class I), security lighting (Class II), and decorative lighting (Class III)) and according to location (Zone A or B) (County of San Diego 1986). The Jacumba Solar site is located in Zone B.

San Diego County General Plan

The General Plan, through elements established to address the various issues accompanying planning and development, provides guidance for the protection of visual resources. Selected policies within the Conservation and Open Space Element of the General Plan (County of San Diego 2011b) speak to the protection of existing visual character and/or quality of areas and contain general direction regarding the minimization of adverse impacts to visual resources.

The following policies of the Conservation and Open Space Element concern the preservation of visual and scenic resources:

- **Policy COS-11.1: Protection of Scenic Resources.** Require the protection of scenic highways, corridors, regionally significant scenic vistas, and natural features, including prominent ridgelines, dominant landforms, reservoirs, and scenic landscapes.

Visual Resources Report for the Jacumba Solar Energy Project

- **Policy COS-11.3: Development Siting and Design.** Require development within visually sensitive areas to minimize visual impacts and to preserve unique or special visual features, particularly in rural areas, through the following:
 - Creative site planning;
 - Integration of natural features into the project;
 - Appropriate scale, materials, and design to complement the surrounding natural landscape;
 - Minimal disturbance of topography;
 - Clustering of development so as to preserve a balance of open space vistas, natural features, and community character; and
 - Creation of contiguous open space networks.
- **Policy COS-11.7: Underground Utilities.** Require new development to place utilities underground and encourage “undergrounding” in existing development to maintain viewsheds, reduce hazards associated with hanging lines and utility poles, and to keep pace with current and future technologies.
- **Policy COS-13.1: Restrict Light and Glare.** Restrict outdoor light and glare from development projects in Semi-Rural and Rural Lands and designated rural communities to retain the quality of night skies by minimizing light pollution.
- **Policy COS-13.2: Palomar and Mount Laguna.** Minimize, to the maximum extent feasible, the impact of development on the dark skies surrounding Palomar and Mount Laguna observatories to maintain dark skies, which are vital to these two world-class observatories by restricting exterior light sources within the impact areas of the observatories.

In addition to goals and policies, the Conservation and Open Space Element of the General Plan establishes a County Scenic Highway System that identifies particularly scenic segments of county roadways, state routes, and interstate freeways. Within the Jacumba area and Project viewshed, I-8 and Old Highway 80 are included within the County Scenic Highway System (County of San Diego 2011b).

Mountain Empire Subregional Plan

The Mountain Empire Subregional Plan (a supplement to the County General Plan) establishes goals and policies to guide development within the areas of Tecate, Potrero, Boulevard, Campo/Lake Morena, Jacumba, and the Mountain Empire Balance, which together compose the Mountain Empire Subregion of southeastern San Diego County. The goals and policies of the

Visual Resources Report for the Jacumba Solar Energy Project

Subregional Plan (County of San Diego 2011c) are intended to be more specific than those of the County General Plan as they consider the distinct history, character, and identity of Mountain Empire communities.

The following policies in the Mountain Empire Subregional Plan relate specifically to aesthetics and visual resources.

- **Land Use General Goal, Policy, and Recommendation 1:** The landforms of the Subregion are an important environmental resource that should be respected in new development. Hillside grading shall be minimized and designed to blend in with the existing natural contours.
- **Residential Goal, Policy, and Recommendation 2:** Preserve the rural atmosphere of the Subregion by blending roads into the natural terrain.
- **Residential Goal, Policy, and Recommendation 4:** All development proposals shall demonstrate a diligent effort to retain significant existing natural features characteristic of the community's landscape. Existing topography and landforms, drainage courses, rock outcroppings, vegetation, and views shall be incorporated, to the maximum extent feasible, into the future development of the land.
- **Conservation Policy and Recommendation 1:** All development shall demonstrate a diligent effort to retain as many native oak trees as possible.
- **Conservation Policy and Recommendation 4:** The dark night sky is a significant resource for the Subregion and appropriate steps shall be taken to preserve it.

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

4 VISUAL ENVIRONMENT OF THE PROJECT

The Project site consists of undeveloped desert lands crossed by a network of dirt roads and dry washes/drainages. The northern portion of the site is crossed by Old Highway 80. I-8 is located approximately 0.5 miles north of the Project site. The topography of the site generally slopes upwards to the north and east and the lower, easternmost extent of the Airport Mesa landform extends across the southwestern portion of the site. On-site vegetation communities include juniper woodland and Sonoran mixed woody scrub. Plants commonly associated with these communities include creosote bush (*Larrea tridentata*), ephedra (*Ephedra* spp.), jojoba (*Simmondsia chinensis*), and yucca (*Yucca schidigera*) and a variety of annual forbs in the herbaceous layer. Plant communities vary in height from 1 to 6 feet and colors tend to be yellow, brown and gray during dry seasons and green during wet seasons. The overall color value is medium to dark with dark shadows. The rounded, shrubby form, light to dark green color and rough texture of desert vegetation, as well as the tan to gray color of exposed rocky soils, is displayed across much of the site. The spatial distribution of vegetation varies. The majority of the site has a scattered, patchy composition; however, moderately dense stands of vegetation occur adjacent to washes/drainages. Views from the site are relatively wide in nature but tend to be enclosed by the Jacumba Mountains to the east and the In-Ko-Pah Mountains to the north. The tall, mounded form of Airport Mesa limits the availability of long views to the west and tends to direct the eye to the northwest.

East of the site, the terrain rises gently at first and then much more steeply into the Jacumba Mountains and the vegetation exhibits a coarse, patchy texture. The Jacumba Mountains extend to the south into Mexico, where they are referred to as the Sierra de Juarez. Tall, skylined wind turbines have recently been installed atop the Sierra de Juarez southeast of the Project site. Steel lattice structures and a curving access road associated with the wind turbine project descend the ridgeline and west-facing slopes and proceed to the northwest toward the international border. A series of electrical lines span the international border fence and are supported by three steel lattice structures. The approximately 1-mile-long segment of electrical lines (and three steel lattice structures) located north of the international border comprise the Energia Sierra Juarez (ESJ) gen-tie line project and eventually tie into the ECO Substation. South of the Project site, the brown vertical slats and rust-colored rectangular panels of the international border fence create a bold, dark line that interrupts the intactness of the landscape and the continuity of desert vegetation and exposed pale soils. Also, while not prominent due to the screening effect of existing vegetation and terrain, the straight line created by the wide, exposed tan soil surface of the border fence access road disrupts the continuity of vegetation across the landscape. Tall, steel lattice structures of the Southwest Powerlink and Sunrise Powerlink transmission lines are visible to the north, as is traffic on I-8 and Old Highway 80 and the large, rectangular form of

Visual Resources Report for the Jacumba Solar Energy Project

Table Mountain. The tan-colored, sloped walls of the ECO Substation; tall, steel substation racks and bays; and large 138 kV transmission line monopoles are located to the northeast and north. Although not currently installed, four additional monopoles associated with the ECO Substation 138 kV transmission line would be constructed between the ECO Substation and Old Highway 80. The ECO Substation is accessible via a paved asphalt driveway constructed off Old Highway 80.

The undeveloped natural lands in the immediate Project area and the presence of mountainous terrain create a generally rural ambiance; however, modifications to the landscape associated with electrical infrastructure and the international border fence are visible and partially interrupt the intactness of the natural landscape.

4.1 Project Setting

The Proposed Project is located in southeastern San Diego County at the convergence of the California Peninsular Ranges and desert regions at an elevation of approximately 3,100 feet above mean sea level (amsl). Mountainous terrain is located north and east of the Project site and reaching off to the south into Mexico. The Jacumba Mountains are located to the east of the Project site, the In-Ko-Pah Mountains are located to the north, and Gray and Table Mountains are located to the northwest and north of the site at distances of 2.5 and 1.75 miles, respectively, at elevations of approximately 3,800 feet amsl. Jade Peak, a conical, elevated landform with an approximate summit elevation of 3,600 feet amsl, is located south of I-8 and less than 1 mile northeast of the Project site. Nopal Peak, with an elevation of just under 4,300 feet amsl, lies approximately 1.4 miles to the east-northeast in Imperial County. At an elevation of just under 3,600 feet amsl, the broad Airport Mesa landform is located immediately west of the Project site and provides a topographic barrier to direct lines of site to the community of Jacumba Hot Springs.

The local mountainous terrain near the Project site is rugged and steep, and typically covered by scattered, dark green chaparral vegetation and grayish granitic boulders on west-facing slopes. East-facing slopes are typically dotted with desert chaparral. Elevations in the desert region range from sea level to approximately 3,000 feet amsl. The terrain is variable and consists of the low desert floors, alluvial fans, foothills and mountains. The mountainous terrain is generally undeveloped; however, dispersed rural residential development is located in lower-lying desert valleys and is difficult to discern at greater viewing distances. The Project site is situated in the eastern extent of the Jacumba Valley.

Visual Resources Report for the Jacumba Solar Energy Project

4.2 Project Viewshed

The Project viewshed encompasses the landforms in the surrounding area from which the Project would be visible. Due to the presence of higher-elevation terrain to the southeast and southwest, portions of the viewshed lie outside the United States and extend to the south into Mexico. Because these resources are part of the Project viewshed that is perceived by receptors within the United States, these resources are considered part of the visual analysis. As stated above, the Project site is located in the eastern extent of the Jacumba Valley. The physical limits of the Project viewshed are defined by the presence of higher-elevation topography to the west, north, and east and by the presence of the international border fence to the south. The Jacumba and In-Ko-Pah Mountains to the east and the north limit the extent of the Project viewshed, as does the elevated terrain of the Airport Mesa landform to the west. Views to the Project site from high-elevation peaks and ridgelines to the east, north, and west are available and tend to be panoramic and expansive in nature.

Juniper woodlands are present on the Project site; however, the predominant vegetation community in the Project viewshed is Sonoran mixed woody scrub. The continuity of light to dark-green colors and coarse texture of scrub vegetation on the valley floor is interrupted by patches of the light tan colored soils of desert terrain and sandy washes. Lightly colored exposed boulders are also present in the landscape. These features appear in mounded outcrops on the valley floor, dot mountainous terrain, and are occasionally draped over lower-elevation hills. The steep, rugged and rocky terrain of the Jacumba Mountains, the flat mesa top and spreading base of Table Mountain and Airport Mesa, and the conical form of Jade Peak are also present in the viewshed and contribute unique forms to the visible landscape. Unlike the ground plane of the landscape, these landforms tend to display tan or tan–reddish hues that create color contrast and attract the attention of passing motorists.

Although the viewshed primarily consists of undeveloped desert lands and washes, regional and local transportation corridors, regional energy infrastructure, and sparse rural residential development are also supported. I-8 creates an east–west cut through the viewshed from which motorists are afforded views of the valley and mountain landscape. Mobile viewers (i.e., motorists) are offered long views along segments of the I-8 between mountain ranges; however, unencumbered views to the south and north are interrupted by road cuts and/or boulder outcrops that partially enclose the visible landscape. Old Highway 80 is the primary local road in the viewshed and provides connectivity between the rural communities in the area. Through the Project viewshed, I-8 is an eligible state scenic highway and both I-8 and Old Highway 80 are included in the County of San Diego’s Scenic Highway System.

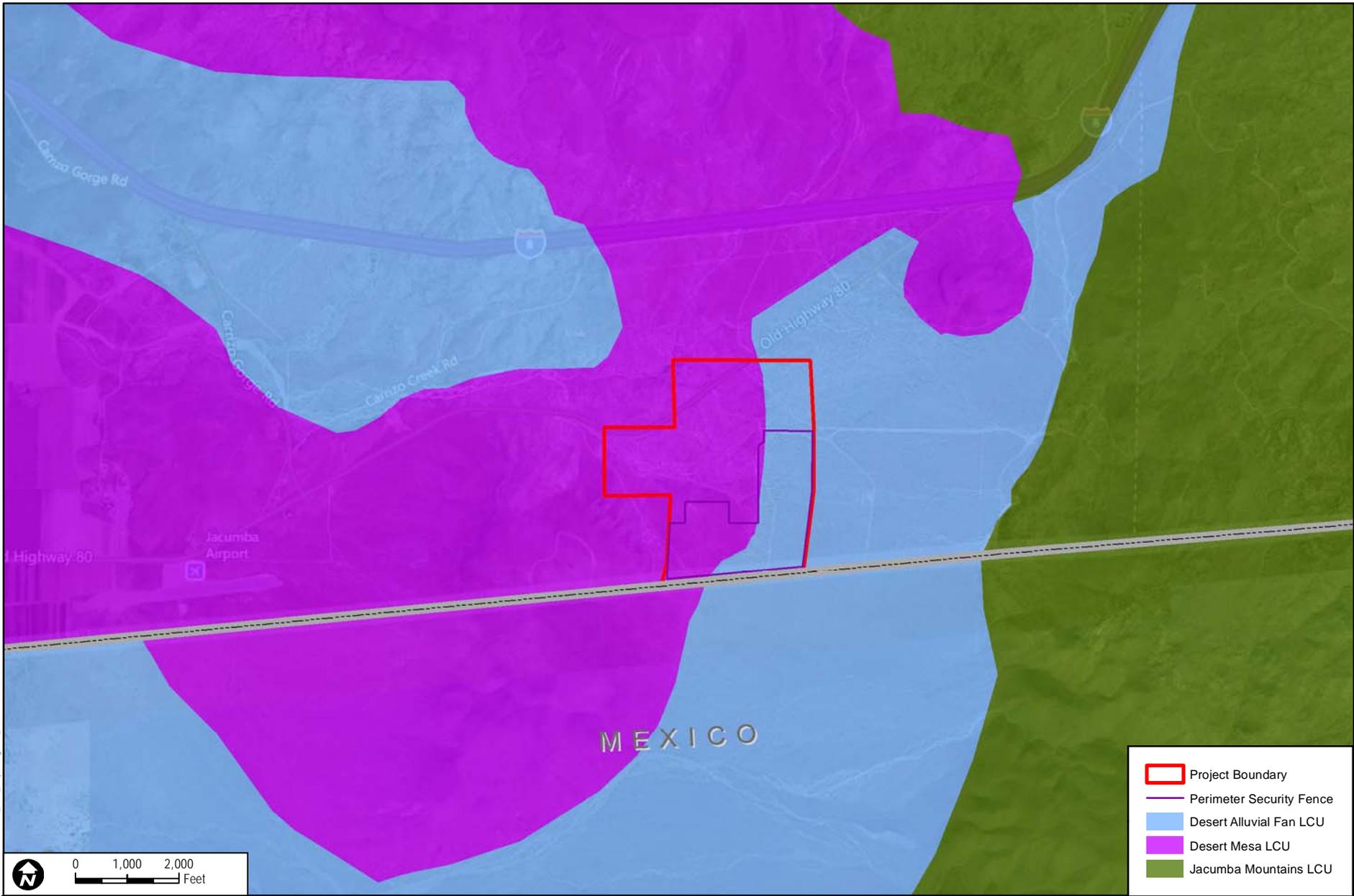
Visual Resources Report for the Jacumba Solar Energy Project

In addition to wind turbines and steel lattice structures in Mexico, tall, geometric steel lattice towers associated with the ESJ gen-tie and the 500 kV Southwest Powerlink and Sunrise Powerlink transmission lines are located in the viewshed. Numerous steel structures and components comprising bays and transformer banks at the ECO Substation also contribute to the Project viewshed and the gray surface and light-tan-colored slopes of the ECO Substation yards create noticeable color contrast with the surrounding expanse of low, gray/green vegetation and sandy exposed soils. Rural residential development in the viewshed is limited and consists of modest single-story residences located on private land approximately 3,500 feet to the north and 5,370 feet to the northwest of the Proposed Project's on-site substation yard.

4.3 Landscape Character Units

A landscape character unit (LCU) is a portion of the regional landscape that is analogous to an outdoor room, which exhibits a distinct visual character. Terrain, vegetation, and existing land use contribute to the distinctness of visual character. Slopes, watershed ridges, and other physical elements can serve to distinguish one unit from another. The lines and elements that define LCUs may be abrupt and obvious (a mountainous ridgeline for example) but may also be less obvious and transitional in nature (the broad sweep of a valley or a transitional uplands area featuring irregular clumps of granite boulders which slowly gradate to distinct boulder-strewn mountain foothills). A landscape unit will often correspond to a place or district that is commonly known among local viewers.

For purposes of this study, three LCUs were identified in the Project area: Desert Alluvial Fan LCU, Jacumba Mountains LCU, and the Desert Mesa LCU. The approximate LCU boundaries are depicted in Figure 6, Landscape Character Units. LCUs in the Project area were first identified in the *Visual Resources Report for the Energia Sierra Juarez U.S. Transmission, LLC Generation Tie Line Project* (ICF Jones & Stokes 2010). These LCUs were reviewed and observed during site visits and were slightly modified for inclusion in this visual resources report. While the characteristics of the LCUs previously identified are verified in this study as the prevailing features of units within the identified viewshed, the LCUs' names were modified to be more indicative of similar topographical characteristics. In addition and as shown on Figure 6, this report acknowledges that the Desert Alluvial Fan LCU, Desert Mesa LCU, and Jacumba Mountains LCU extend into Mexico to complete the overall viewshed area.



	Project Boundary
	Perimeter Security Fence
	Desert Alluvial Fan LCU
	Desert Mesa LCU
	Jacumba Mountains LCU

0 1,000 2,000 Feet

DUDEK

SOURCE: Bing 2014

FIGURE 6

Landscape Character Units

8477

Path: Z:\Projects\8477\11\MAP\DOC\DOCUMENT\Visual_Tech_Report\Figure7_LUCs.mxd

Visual Resources Report for the Jacumba Solar Energy Project

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

Desert Alluvial Fan LCU

The Desert Alluvial Fan LCU is centrally located within the Project viewshed and abuts the rising, mountainous terrain of the Jacumba Mountains LCU to the east and the gradual sloping terrain of the Desert Mesa LCU to the west. The elevated mesa top form of Airport Mesa is located to the west and south and Desert Alluvial Fan LCU surrounds the conical form displayed by Jade Peak. Based on aerial photography, there is visual continuity of this LCU with similar vegetation and terrain that occurs south into Mexico to the base of the Jacumba Mountains / Sierra de Juarez Mountains (south of the international border, this range is referred to as the Sierra de Juarez Mountains). Therefore, as shown on Figure 6, the Desert Alluvial Fan LCU extends to the south into Mexico. This LCU is defined by a patchwork of light to dark green and occasional gray mixed woody scrub shrubs regularly interrupted by lightly colored exposed tan soils and, intermittently, by the tan-reddish colors of boulder outcrops. Low, sandy washes are also present in the LCU and are distinguishable by their lack of vegetation, smooth sinuous form and lightly colored sandy soils. Located south of I-8, elevations of the LCU range from approximately 3,100 feet to 3,200 feet.

Cultural modifications in this LCU include Old Highway 80, ESJ gen-tie, the Southwest Powerlink and the Sunrise Powerlink 500 kV transmission lines, the ECO Substation, and numerous dirt roads. Old Highway 80 introduces straight, disparate lines to the landscape and the paved asphalt surfaces contrast with the tans and green hues of the surrounding desert landscape. At a distance and from superior viewing angles, large steel lattice structures of the ESJ gen-tie, Southwest Powerlink, and the Sunrise Powerlink are backscreened by mountainous desert terrain and as a result tend to blend into the colors of background terrain. However, when viewed from an inferior viewing angle, the large scale of the geometric structures becomes apparent and the tall forms and complex lines become prominent features in the landscape. Similarly, the tan color of ECO Substation yard slopes and repetitive tall, bold forms of transmission line steel support structures disrupt the intactness and unity of the LCU.

Jacumba Mountains LCU

Located east of the Project site, the Jacumba Mountains comprise the eastern flank of California's coastal peninsular ranges. The LCU consists entirely of the portion of the Jacumba Mountains located in the Project viewshed. The mountain range is relatively wide and characterized by a series of almost parallel rocky ridgelines and intervening valleys that descend from west to east towards to the Colorado Desert. In the United States, this LCU primarily consists of public lands managed by the BLM as wilderness. Popular destinations in the Congressionally designated wilderness include Davies Valley, Valley of the Moon, and Smuggler's Cave. In the vicinity of the Project, the elevation of the Jacumba Mountains range

Visual Resources Report for the Jacumba Solar Energy Project

from approximately 3,500 feet at the western foothills to 4,300 feet at the summit of prominent peaks located east of the Project site.

The LCU rises abruptly from the adjacent Desert Alluvial Fan LCU. Rocky foothills appear lighter in color than more prominent peaks and elevated terrain. Peaks and ridgelines display both pyramidal and broad arching forms that extend south past the international border and into Mexico. South of the border, the mountainous terrain is referred to as the Sierra del Juarez range and several wind turbines have been installed atop prominent peaks and steel lattice structures descend the ridgeline to deliver power to the ECO Substation across the international border. The grayish, west-faces slopes of the Jacumba Mountains support boulder outcrops and sporadic clumps of low, dark green to gray shrubs. The rocky, rugged ridgeline of the mountains is silhouetted against the desert sky creates a vivid scene and comprises an element of interest to passing motorists and locals. North of the international border, the LCU is primarily undeveloped; however, several access roads traverse the western foothills and intervening valley areas and the tall, thin lines displayed by communication towers at a small, unmanned communication facility located atop Nopal Peak add contrasting lines and forms to the landscape. Access roads and the communications towers are visible from eastbound I-8 and Old Highway 80.

Desert Mesa LCU

Several isolated mesas are present in the region and within the Project viewshed area. These mesas include Jade Peak, Airport Mesa, and Table Mountain. These land features share common topographic forms, soil color, and spatial relationships with the surrounding landscape. Each feature is isolated from adjacent mountainous terrain and is typified by a lower profile and broad flat mesa top with gently sloping sides that gradually spread out and downward into the adjacent Desert Alluvial Fan LCU. A description of each feature is provided below.

Jade Peak

Jade Peak is a low, conical hill that rises from the Desert Alluvial Fan LCU and is located west of the Jacumba Mountains LCU. Jade Peak is also located south of I-8 and northeast of the Project site. Elevations range from approximately 3,240 feet amsl at the wide, spreading base to nearly 3,600 feet amsl at the peak. Vegetation at the base of Jade Peak is similar to that of the surrounding Desert Alluvial Fan LCU. Low to moderately tall, spreading shrubs are relatively patchy in distribution and display colors ranging from tan to gray to dark green. As the terrain climbs towards the summit, vegetation appears to become slightly denser and exhibits a smoother texture. From eastbound Old Highway 80 and I-8, a short vertical occurrence of exposed rock is visible on the northwest-facing slope and disrupts the gradual rising line and

Visual Resources Report for the Jacumba Solar Energy Project

form created by the slopes of Jade Peak. Where visible beneath vegetation, the soils of the low hill display a reddish-rust colored hue that is darker in value than other prominent landforms and terrain in the viewshed.

Jade Peak displays a primarily natural, rugged character that is briefly interrupted by cultural modifications. While the peak is undeveloped, two large, geometric steel lattice towers associated with the Southwest Powerlink are located at the base of the peak's southern slopes. Dirt access roads between the structures also traverse the landform and create straight lines and sandy colors that contrast with that of the characteristic woody scrub vegetation and darker colored soils of the LCU. Dirt access roads are also located on the west, north and east-facing slopes. Although the peak is an elevated landform surrounded by the comparably low, spreading form of the Desert Alluvial Fan LCU, Jade Peak is routinely backscreened by the Jacumba Mountains and is rarely skylined. Still, the reddish tinged soils of the LCU tend to stand out when viewed against the backdrop of the tan to grayish colors displayed by the Jacumba Mountain LCU. The simple, conical form and reddish hues of Jade Peak creates an element of moderate interest in the Project viewshed.

Airport Mesa

The Airport Mesa landform is comprised of a wide spreading base that rises to form a series of relatively flat mesa tops. Elevations range from approximately 2,870 feet at the base to approximately 3,580 at the mesa tops. Vegetative coverage appears denser at the base than on the higher elevation terrain. The mesa displays yellow to tan colored hues and a generally smooth, sloping façade. As viewed from Old Highway 80 and I-8, the reddish colored international border fence and lightly colored exposed soils of a rising access road on east-facing slopes disrupt the mesa intactness and visual unity; interrupting the otherwise uniform color and texture of the landform. Managed by the BLM for its rural recreation opportunities, the rising terrain of Airport Mesa obstructs views of the Project site from the community of Jacumba and helps define the Project viewshed.

Vegetated by typically sparse, low shrubs and yellow-tan to rust colored grasses, Airport Mesa is unique in that rock outcrops are fairly limited and occur primarily on the north-facing slopes of the landform. With the exception of the rust-colored international border fence and Border Protection access (both of which are highly visible from surrounding roads) development is limited. The international border fence nearly bisects the mesa and creates a bold, dark colored line that contrasts with the lighter colored Airport Mesa landform. While difficult to view from Old Highway 80 and I-8, the straight, light-colored line created by the Border Protection access road that parallels the border fence is visible from the Project site and is prominent in aerial photographs.

Visual Resources Report for the Jacumba Solar Energy Project

Table Mountain

Table Mountain is a relatively vast expanse of land that includes a prominent albeit generally obscured peak surrounded by a descending series of long, wide mesa top features. Table Mountain is located north of I-8. North of I-8, the dark-green mixed scrub vegetation and exposed tan to reddish terrain gradually rises towards the pronounced uplifted mesa forms. Vegetation on the steeper mesa slopes is sparser and the slopes are awash in underlying colors ranging from tan to yellow to reddish rust. The mesa top is generally flat; however, when viewed from Old Highway 80 and I-8, the asymmetrical landform displays a diagonal line created by variations in east–west elevations. Several valleys and corresponding washes are located on the south-facing slopes of mesa landform. Rocky and routinely dry washes extend beyond the southern slopes of the Table Mountain mesa complex to I-8. Elevations of the mesa complex within in the Project viewshed range from approximately 3,200 feet at the wide landform base to approximately 3,775 feet at the mesa top located closest to I-8.

Visual Resources Report for the Jacumba Solar Energy Project

5 EXISTING VISUAL RESOURCES AND VIEWER RESPONSE

5.1 Existing Visual Resources

5.1.1 Visual Character

The visual character of each of the identified LCUs is described in Section 4.3, Landscape Character Units.

5.1.2 Visual Quality

A discussion of the visual quality as it pertains to the vividness, intactness, and unity associated with each identified LCU identified in the Project area is presented below. Vividness, intactness, and unity are discussed below and evaluated according to a scale of low, moderately low, moderate, moderately high, and high.

Desert Alluvial Fan LCU

Vividness

Compared to surrounding LCUs, this LCU displays a consistently low, flat and spreading form. In addition, the Desert Alluvial Fan LCU supports a patchwork of coarsely textured, light to dark green and occasional, gray, mixed woody scrub vegetation regularly interrupted by lightly colored exposed tan dry washes and intermittently, by tan-reddish and gray colored boulder outcrops. Vegetative coverage in the LCU tends to be more dense than in the more mountainous LCUs in the area but colors and textures are generally uniformly drab and coarse. The sinuous form and line of several low, sandy washes are also included in this LCU but are partially obscured when viewed from a normal viewing elevation and acute angle. The LCU includes the contrasting forms, lines and colors displayed by 500 kV transmission lines and steel lattice structures and the ECO Substation. As a result, the overall memorability of the LCU is weakened.

The vividness of the Desert Alluvial Fan LCU is assessed as moderate.

Intactness

While large portions of this LCU are intact and display uniformity in form, color and texture, the presence of numerous access roads, regional energy infrastructure and the international border fence reduces overall intactness. The continuity of coarsely textured, light to dark green and occasional, gray, mixed woody scrub shrubs and lightly colored exposed tan soils is interrupted by the effects of past and current development. More specifically, natural visual patterns of

Visual Resources Report for the Jacumba Solar Energy Project

vegetation and the predominately-horizontal lines of the terrain are interrupted by straight lines displayed by numerous dirt access roads, the dark, curving line of the newly constructed paved ECO Substation access road off Old Highway 80, the tan colored slopes of substation yards and numerous vertical tall, metallic forms of substation support structures. In addition, the bold, dark line of the international border fence abruptly interrupts the integrity of the visual pattern and encroaches upon the primarily natural appearing Desert Alluvial Fan landscape to the south of the Project site.

The intactness of the Desert Alluvial Fan LCU is assessed as moderate.

Unity

Rural residential development, transportation corridors, energy infrastructure and the international border fence have altered the composition of the visual landscape and have diminished the overall unity of the LCU. Rural residential development is visually subordinate to natural features and the straight horizontal line and dark color of man-made linear elements (i.e., transportation corridors at the ground plane) are not typically considered to be contrasting elements in the landscape. As viewers tend to experience landscapes from transportation corridors, the line and color of roads, highways and interstates are viewed differently than landscape modifications occurring outside of the transportation corridor and within the visible landscape. The lightly colored sloped yards of the ECO Substation and the concentration of numerous metallic support structures at the substation locally diminish the integrity of the predominant visual pattern of desert vegetation and terrain. Several large steel lattice structures dot the LCU and while the backdrop of these features is mountainous terrain when viewed from elevated vantage points, from Old Highway 80 the tall, metallic forms are prominent. Lastly, colored marker balls strung between steel lattice structures detract from views of mountainous terrain and the surrounding desert landscape.

The unity of the Desert Alluvial Fan LCU is assessed as moderate.

Jacumba Mountains LCU

Vividness

As viewed from surrounding LCUs, transportation corridors and rural residences in the Jacumba area, the rocky ridgelines of the Jacumba Mountains are visually prominent and create a bold, dark line that defines the eastern horizon. Due to their large and prominent pyramidal and broad arching forms, the Jacumba Mountains are silhouetted against the desert sky and the resulting visual pattern is notable. The elevated mountainous terrain and ridgelines create an element of interest to passing motorists and local residents. With the exception of skylined wind turbines

Visual Resources Report for the Jacumba Solar Energy Project

and tall, geometric steel lattice structures located southeast of the Project site in Mexico, cultural modifications in the LCU are limited in number, are unobtrusive, and do not substantially degrade the memorability of views of the characteristic steep and rocky mountainous terrain.

The vividness of the Jacumba Mountains LCU is assessed as moderate.

Intactness

North of the international border, several narrow dirt roads/trails traverse the west-facing slopes of the Jacumba Mountain and a small communications facility is located atop Nopal Peak. Tall, narrow wind turbines have been recently installed atop prominent peaks in Mexico and several steel lattice structures descend the rugged, west-facing slopes of the Sierra de Juarez. Although light-colored lines created by access roads and the grayish and thin vertical forms of communication towers located east and northeast of the Project site are visually subordinate to the broad, pyramidal, and slightly arching forms of mountainous terrain, wind turbines are prominently displayed on terrain to the southeast and a winding access road has created visible contrast in color, line, and texture with surrounding terrain.

The intactness of the Jacumba Mountains LCU is assessed as moderate.

Unity

South of the international border, wind turbines atop ridgelines and steel lattice structures and a wide access road on west-facing slopes create noticeable contrast and attract attention. In addition, the terrain displays a rugged form and natural-appearing character that is interrupted by white, skylined wind turbines and the winding, light-colored line of an access road climbing south-facing slopes. North of the international border, visible development in the LCU primarily consists of several narrow dirt roads/trails and a small communications facility atop Nopal Peak, and these features are not visually prominent. The steep slopes and broad, yet at times jagged, ridgelines create a seemingly undisturbed backdrop to the local surroundings and attract the attention of viewers in the areas. Although the Nopal Peak communication facility is skylined and contributes straight, vertical lines to an otherwise rugged horizon, communication towers are situated near the northern extent of the LCU and avoid the tallest peaks in the range. Although the integrity of views and visual quality are affected by the inclusion of the communications facility and by wind turbines and steel lattice structures south of the international border, the LCU displays a relatively harmonious visual pattern of steep terrain populated by shrubs and rock outcroppings.

The unity of the Jacumba Mountains LCU is assessed as moderate.

Visual Resources Report for the Jacumba Solar Energy Project

Desert Mesa LCU

Vividness

Jade Peak is backscreened by prominent mountainous terrain to the east and is lower in elevation than both the Table Mountain and Airport Mesa landforms in the Project viewshed. While not visually prominent, the conical form and lines of Jade Peak are unique and are visually distinct from the pyramidal and mesa landforms in the surrounding area. The existing land cover of light to dark green scrub shrubs interrupted by exposed soils is relatively commonplace in the viewshed; however, the reddish-tinged soils of the LCU tend to stand out when viewed against the backdrop of the tan to grayish colors displayed by the Jacumba Mountains LCU. The simple, conical form and reddish hues of the Jade Peak creates an element of moderate interest in the Project viewshed.

The wide spreading base and series of relatively flat mesa tops associated with the Airport Mesa and Table Mountain rise from the surrounding Desert Alluvial Fan LCU west of the Project site. The mesa landform itself is unique in the Project area and when viewed in the context of the surrounding desert environment, the trapezoidal landform and gradual rising, diagonal lines create a distinct visual pattern. Table Mountain includes pockets of lightly colored soils and boulders that contrast with the otherwise uniformly drab color of the landform and sparse vegetation that dot the south-facing slopes. From a distance, these features appear sparsely vegetated and smoothly textured.

The vividness of the Desert Mesa LCU is assessed as moderate.

Intactness

Existing 500 kV transmission line structures located in the LCU are tall and display a series of complex, geometric lines. However, these features are occasionally backscreened by the Jacumba Mountains and as a result are not visually prominent. In addition, an existing access road traversing the west- and south-facing slope of Jade Peak is obscured from the view of passing Old Highway80 motorists by intervening terrain and vegetation. The access road is visible to eastbound I-8 motorists and while the horizontal, lightly colored line contrasts with the gradually sloping line and dark green and tan-reddish color of vegetation and terrain, the contrast is experienced briefly and does not substantially affect the overall intactness of LCU.

While the trapezoidal form and seemingly smooth façade of the Airport Mesa LCU is unique and visual striking, the mesa landform is nearly bisected by the rust colored slats and panels of the international border fence. A man-made feature that encroaches on the visual pattern of the LCU, the dark colored fence climbs a portion of the west- and east-facing slopes of the mesa landform

Visual Resources Report for the Jacumba Solar Energy Project

and is visible from Old Highway 80, I-8, and surrounding undeveloped lands. In addition to the fence, the line and color contrasts created by the Border Protection access road climbing the east-facing slope of the landform is apparent to westbound Old Highway 80; however, from other locations in the viewshed, the access road is obscured and visual effects are concealed.

From inferior and normal viewing angles (such as from I-8 and Old Highway 80), the Table Mountain LCU appears untouched and displays a slight diagonal line created by variations in east-west elevations. While variations in colors and textures are visible and are associated with the geologic properties of the landforms, modifications to the LCU are difficult to detect by passing motorists. Views of gradually rising terrain and steep mesa slopes are visible along the I-8 corridor; however, dirt access roads climbing the northeast-facing slope are concealed by terrain and the network of roads/trails atop the mesa landform is revealed only after a review of aerial photography. This LCU is experienced and observed primarily at the ground plane and from this vantage point; the LCU appears to be free of visually encroaching elements.

The intactness of the Desert Mesa LCU is assessed as moderately high.

Unity

Factors that affect visual unity within the Desert Mesa LCU include the presence of large transmission lattice towers and gen-tie monopoles associated with the ESJ gen-tie, Southwest Powerlink, Sunrise Powerlink, and ECO Substation, respectively. Other features analyzed include existing paved and unpaved roads that modify the surface texture of the natural features. This LCU is composed of prominent landforms that contribute to the overall character of the scene enjoyed by residents or motorists passing through the Project viewshed.

The Desert Mesa LCU is a primarily natural appearing landscape with visually encroaching elements. Several existing unpaved access roads have varying degrees of visibility and several roads are screened from the view of passing I-8 and highway motorists. Transmission infrastructure present within the Desert Mesa LCU has produced moderate visual effects due to blending with the landscape backdrop and the comparative scale relationship with the mesa landforms. Therefore, natural elements such as terrain and vegetation create the observable visual pattern of the LCU. Because modifications are generally concealed, the introduction of access roads has not substantially affected the visual unity of the natural landscape elements.

As mentioned above, steel lattice towers, monopoles, transmission wires, and wire identification/ marker balls are included in the LCU. The majority of the poles and towers are viewed against the backdrop of the rising, tan to grayish-colored terrain of the Jacumba Mountains. As a result, steel lattice towers tend to blend into background elements and do not command the attention of

Visual Resources Report for the Jacumba Solar Energy Project

passing motorists or display overly noticeable visual contrast. Line and color contrast created by the existing road access is noticeable when viewed from a superior viewing angle; however, the contrast is experienced briefly and the prominent natural landform elements of this relatively LCU remain dominant.

While mesa tops display a variable line and form, slight variations in elevation are visible when viewed from Old Highway 80 and I-8 and as such, the straight horizontal line of the border fence that climbs up the side of the Airport Mesa portion of the LCU contrasts with the smooth, flowing horizon line of the mesa landform. While large portions of the Desert Mesa LCU appear untouched and display a rugged, almost mountainous character, the international border fence is a disparate landscape element that diminishes the visual quality and unity of the Desert Mesa LCU.

The unity of the Desert Mesa LCU is assessed as moderately high.

5.2 Viewer Response

Viewer response is based on several factors including viewer sensitivity, viewer groups, viewer exposure, and viewer awareness. Each of these factors influences how a viewer might respond to a change or changes in the environment and in particular to changes involving development of a site from a natural, undeveloped state. Each factor contributing to viewer response is discussed below.

5.2.1 Viewer Sensitivity

The Jacumba solar facility is located within the eastern extent of the Jacumba Subregional group area of the Mountain Empire Subregion. While the community of Jacumba does not have a stand-alone community or subregional plan, the community sponsor group has adopted a vision statement that describes the services the community envisions as necessary and discusses the existing resources valued by the community. As stated in the vision statement, “the community supports new development that is compatible with and preserves the natural and historical environment” (County of San Diego 2011d). Furthermore, proposed growth shall be effectively managed “to reinforce the rural small town character of the area.” Based on the vision statement and comments received, concerns of the community include potential Project-generated glare and associated effects to residents, motorists and aircraft, the alteration of the existing site through removal of vegetation and installation of racks of solar panel modules, and effects to the existing rural desert character of the Project area.

The Project would be visible to two rural residences, motorists on I-8 and Old Highway 80, and an assumed low volume of recreationists at the Jacumba Mountains, Table Mountain ACEC and possibly, at Airport Mesa. Airport Mesa is a recreation management zone managed by the BLM. Policies of the County of San Diego General Plan Conservation and Open Space Element and the

Visual Resources Report for the Jacumba Solar Energy Project

Mountain Empire Subregional Plan support the protection of existing scenic resources, visual character and scenic corridors. In addition, in the Project area, I-8 is an eligible state scenic highway and both I-8 and Old Highway 80 are included in the County of San Diego's Scenic Highway System (County of San Diego 2011b). It should also be noted, however, that the international border fence displays a strong visual presence in the Project viewshed, as do the sprawling yards and numerous metallic and geometric support structures of the ECO Substation that is currently under construction. Therefore, for purposes of this report, a moderately high level of visual sensitivity is assumed in the Jacumba planning area.

5.2.2 Viewer Groups

Viewer groups analyzed in this study consist of individuals that frequent public viewpoints in the Project viewshed. Three viewer groups were identified: residents, motorists and trail-based recreationists on public lands in the surrounding area. As previously mentioned, two residences are located in the Project viewshed as are short segments of I-8 and Old Highway 80. Trail-based recreation occurs on BLM-designated routes and lands at the Jacumba Mountains, Table Mountain ACEC, and Airport Mesa; therefore, trail-based recreationists were identified as a distinct viewer group.

Residential Groups

Based on site observations and a review of aerial photography, there are two residences located in the Project viewshed. One residence (R1) is located south of I-8 approximately 0.7 mile north of the proposed solar facility, and approximately 0.5 mile north of the proposed gen-tie transmission line. The other residence (R2) is located north of I-8 and approximately 1 mile north of the proposed solar facility and gen-tie transmission line. Due to a lack of intervening terrain and vegetation, both residences would experience direct views to the Project site. The locations of R1 and R2 are depicted on Figure 7.

Views of the Project from R1 fall within the middleground to foreground view distance. An existing landscaped perimeter of 8- to 12-foot-tall mature trees surrounds R1. The presence of mature trees in close proximity to R1 could screen or partially screen views to the Proposed Project site and gen-tie poles/lines. The house is situated approximately 29-32 feet above the Project site, creating a low angle view that would further reduce visibility of the Project due to intervening vegetation. The southerly view direction also places the Project site in a backlit condition for much of the daylight hours when residents would be active. This condition would reduce the visibility of Project details because the visible side of the solar facility would be in shadow and the viewer would be viewing into the oncoming sunlight.

Visual Resources Report for the Jacumba Solar Energy Project

Project views from R2 are more distant than from R1. The middleground distance and backlit condition as discussed above would limit visibility of Project features. The house is situated approximately 88-91 feet above the Project site. This superior view angle places the Project within the lower portion of the vista obtained from this location that stretches into Mexico. As such, the limited visibility of Project detail and position within the landscape would both serve to minimize the prominence of the Project within the overall viewshed for the R2 location.

The more concentrated residences in the community of Jacumba Hot Springs community are located approximately 3.4 miles west of the Project. Views to the Project site from the community are blocked by Airport Mesa.

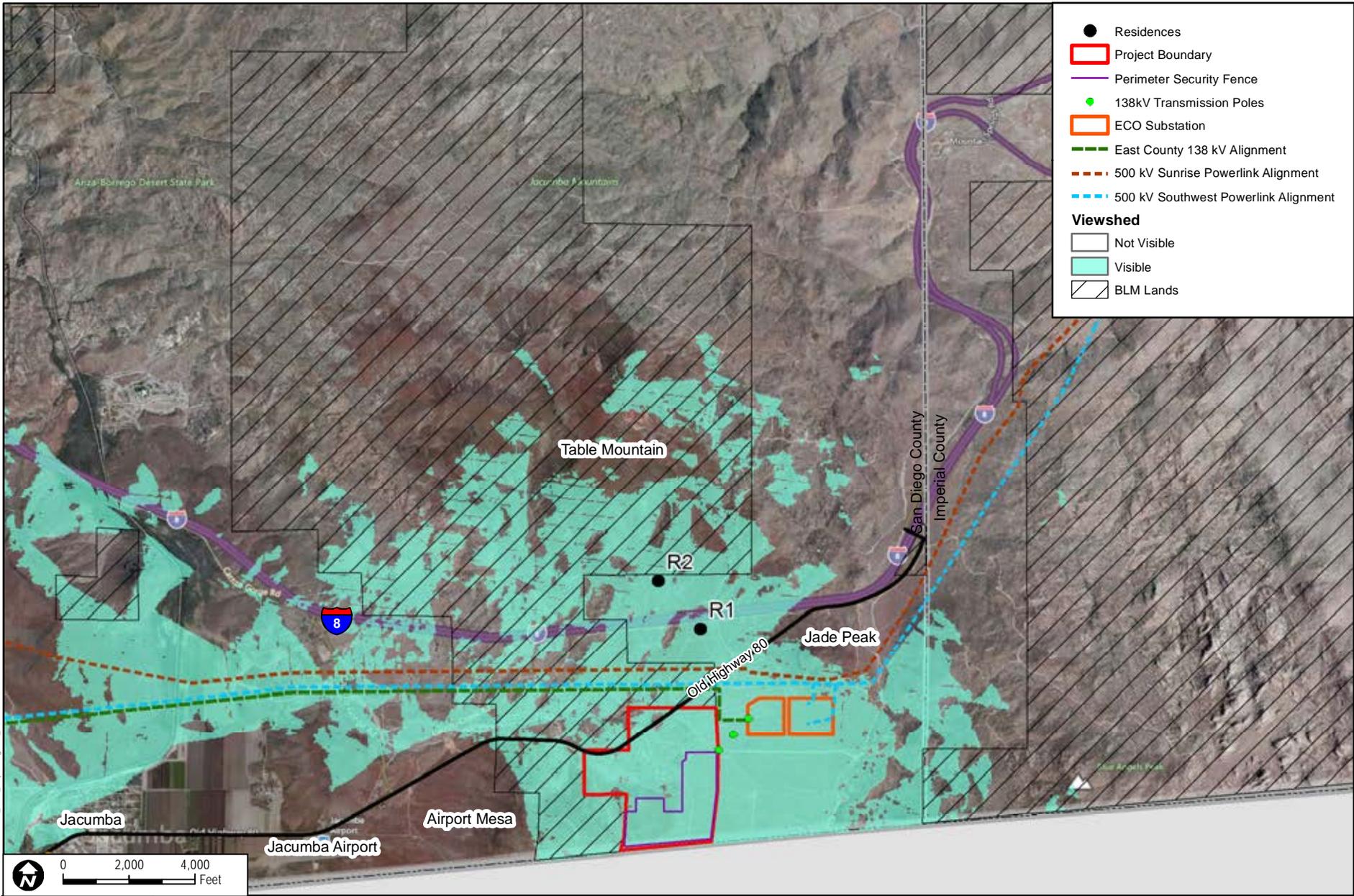
The sensitivity of residential viewer groups is anticipated to be moderate, except those individuals with direct, unobstructed views to the Project whose sensitivity is likely to be moderately high.

Motorists

As stated in Section 1.47, the Project viewshed extends north of the Project site and encompasses discontinuous segments of Old Highway 80 and I-8. The discussion below characterizes the visibility of the Project site from the east and westbound lanes of Old Highway 80 and I-8.

Old Highway 80

An approximately 1.4-mile-long segment of Old Highway 80, generally from Jade Peak west to Airport Mesa, is located in the Project viewshed. Old Highway 80 is a scenic corridor identified on Figure C-5 (Scenic Highways) of the General Plan Conservation and Open Space Element (County of San Diego 2011b). Although not continuous, existing views to the low, mounded hill and lower-elevation portions of the Project site are available along this relatively short segment of the highway. From eastbound motorists, visibility to the site is generally unencumbered along the pronounced curve of the highway north of the Airport Mesa landform. Further to the east, the low, mounded hill exits the field of vision and the site is briefly obscured by two elevated, roadside-adjacent berms populated with low boulder outcrops and scattered native shrubs. Between the berms and the paved driveway to the ECO Substation, views to the south are relatively unimpeded. East of the ECO Substation driveway, the Project site is generally outside the normal field of vision of motorists.



Path: Z:\Projects\8477\MAP\DOCUMENT\Visual_Tech_Report\Figure7_Viewshed.mxd



SOURCE: Bing 2014

8477

Jacumba Solar Project Visual Resources Report

FIGURE 7
Viewshed

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

West of Jade Peak, existing views of the Project site from westbound Old Highway 80 are obscured by a noticeable uplift in the terrain to the south. However, views are available through several pronounced peaks and dips in the roadway between Jade Peak and the ECO Substation driveway. In addition to higher-elevation terrain to the south, the varying elevation of the highway and shrub, spreading vegetation affects the availability of views to the lower-elevation portions of the Project site but the low, mounded hill rises above the valley floor vegetation. West of the ECO Substation driveway, views to the south and to the Project site are the same as discussed above for eastbound motorists.

Interstate 8

I-8 from the El Cajon city limits to the Imperial County line is a scenic corridor identified on Figure C-5 (Scenic Highways) of the General Plan Conservation and Open Space Element. I-8 cuts a dark, horizontal line through the landscape and intermittent views to the Project site are available between Exit 73/Carrizo Gorge Road and Jade Peak (a distance of approximately 3 miles). However, between these locations/features, the presence of intervening terrain, vegetation, large rock outcrops, and I-8 road cuts interrupt the availability of long, continuous views. From the eastbound travel lanes, continuous and unimpeded views of the Project site are available after motorists pass through an elevated road cut located approximately 0.5 mile west of the Mica Gem overpass/bridge. From the westbound travel lanes of I-8, unobstructed views to the Project site and into Mexico are generally available upon passing the conical Jade Peak landform and extend to the elevated road cut located west of the Mica Gem overpass. A mounded berm/road cut occurs along this segment and limits views to the south, but this feature is relatively short (i.e., approximately 600 feet long).

Recreationists

Superior angle views of the Project site are available from a BLM designated motorized route that traverses the Jacumba Mountains at the southwestern most corner of Imperial County. Dispersed recreation (i.e., hiking) also occurs in the BLM-managed and non-BLM-managed areas of the Jacumba Mountains and prominent ridgelines offer opportunities for long views to the western horizon. Other BLM designated motorized routes are located on Airport Mesa and in the Table Mountain ACEC (designated non-motorized routes are also located on Table Mountain). Although motorized access to these trails is generally limited to four-wheel-drive vehicles (existing trails and roads are steep and rocky) and no formal trailheads or parking areas have been developed, the trails are used by local hikers, hiking clubs, and horseback riders. According to the BLM, the Jacumba Mountain Wilderness, Nopal Peak, and Elliot Mine area are accessible via a narrow and winding designated motorized route located off Old Highway 80 and east of the San Diego and Imperial County border (BLM 2014, 2010). As stated in Section 2.1.1,

Visual Resources Report for the Jacumba Solar Energy Project

Surrounding Land Uses, the Table Mountain ACEC is managed by the BLM for biological and cultural values; however, existing designated motorized and non-motorized routes are present in this area and may be used by area recreationists to access scenic and panoramic vista points and limited hiking opportunities. The flat mesa top of the southernmost portion of the Table Mountain landform is located approximately 1.5 to 2 miles north of the proposed solar facility. Lastly, while managed by the BLM for its rural recreational qualities, existing designated motorized routes provide limited recreational opportunities at the Airport Mesa landform. The international border fence nearly bisects the landform and access roads are regularly used by Border Protection vehicles when conducting patrols in the area. No staging or parking areas for hikers or other trail-based recreationists are provided in close proximity to the Airport Mesa landform and users often rely on the U.S. Customs and Border Protection access road to reach the top of Airport Mesa. Also, the recreational qualities of Airport Mesa were further limited by a temporary prohibition of target shooting along Airport Mesa enacted by the BLM in 2009 (BLM 2009, 2010).

Based on visual evidence of a complex trail network that extends from the designated BLM trail to the edge of the mesa top, a viewpoint on the southern edge of the mesa landform in the Table Mountain ACEC appears to be used by off-road recreationists. A broad vista is available from this location that stretches from desert views to the east to distant views south into Mexico and southwest to the community of Jacumba Hot Springs. With the exception of the south-facing slope of the low, mounded hill, the Project is visible in its entirety from this viewpoint.

5.2.3 Viewer Exposure

Existing viewing conditions and exposure of residents, I-8 and Old Highway 80 motorists, and recreationists at the Jacumba Mountains, Table Mountain ACEC, and Airport Mesa to the Project site are addressed in Section 5.2.2.

5.2.4 Viewer Awareness

Due to the permanent nature of views, the existing natural state of the Project site and the familiarity with the local area landscape, residents, local area motorists, and recreationalists in the immediate area are anticipated to be highly aware of changes occurring in the existing landscape setting. Commuters and other motorists passing through the may not be as familiar with the local area landscape and as a result, would not be as sensitive to changes in the environment as the local area population. In addition, the alteration of the landscape to accommodate the proposed solar facility may not fully “register” to casual motorists on I-8 and Old Highway 80 due to brief nature of available views, unfamiliarity with the landscape and the presence of existing cultural modifications in the Project viewshed. However, for purposes of

Visual Resources Report for the Jacumba Solar Energy Project

this study, viewer awareness is anticipated to be moderate to high based on the characteristics of the existing rural environment, the expressed and anticipated concerns of the community, and the inclusion of I-8 and Old Highway 80 in the County Scenic Highway System.

While the volume of sensitive visual receptors is anticipated to be low, trail-based recreationists on public lands to the north and west are assumed to have a moderate to high level of awareness regarding changes to the local area landscape. The visual expectations for recreationists in southeastern San Diego County would be that of a natural looking landscape with transportation corridors and occasional rural residential and roadside commercial uses. Vegetation and terrain would likely be the perceived dominant features in the landscape.

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

6 VISUAL IMPACT ASSESSMENT

To approximate the visibility of Proposed Project in the surrounding area, a proposed Project viewshed was created and is presented in Figure 7. Figures 7a and 7b present a more detailed version of the proposed Project viewshed as it relates to I-8 and Old Highway 80. The viewshed presented in Figure 7 does not consider the screening effect of existing vegetation and structures, and was created by assigning a height of 8 feet (i.e., the height of proposed solar panel installed on the proposed racking support system) at 16 locations within the identified solar facility boundary. In addition, a height of 150 feet was assigned to potential gen-tie pole locations along the proposed gen-tie line corridor. The GIS-based software then references the assigned height of the Project components and creates a raster file consisting of points or terrain in the surrounding area from which the assigned height would be visible. The viewshed presented on Figure 7 is an approximation of the potential visibility of Project components from locations in the United States and is based purely on the elevation of existing terrain and the assigned elevation of Project components. No digital topographic data was available for analysis of the viewshed area within Mexico, which would be dominated by the international border fence at all but the highest nearby elevations.

Although the Project viewshed approximates the availability of views of the Proposed Project from the surrounding area, the visual impact assessment uses visual simulations of the Proposed Project from identified Key View locations to assess the level of visual change and overall effects to visual resources within the Project viewshed. Key Views are essentially static images of the area that are selected as representative locations from which views of the Project would be experienced by sensitive receptors. However, visual resources are experienced in dynamic conditions as people move through the environment in the conduct of their daily lives. This dynamic experience forms human perception of surroundings and these perceptions can be modified by many variables such as viewer activity (driving, work activities, recreational activities, etc.) and atmospheric conditions, among others. For solar energy projects, political and economic values can modify personal attitudes toward visual change when the project represents a valued social and/or personal goal. However, these attitudes are more difficult to assess and the acceptable balance between personal lifestyle and larger economic themes is not easily weighed.

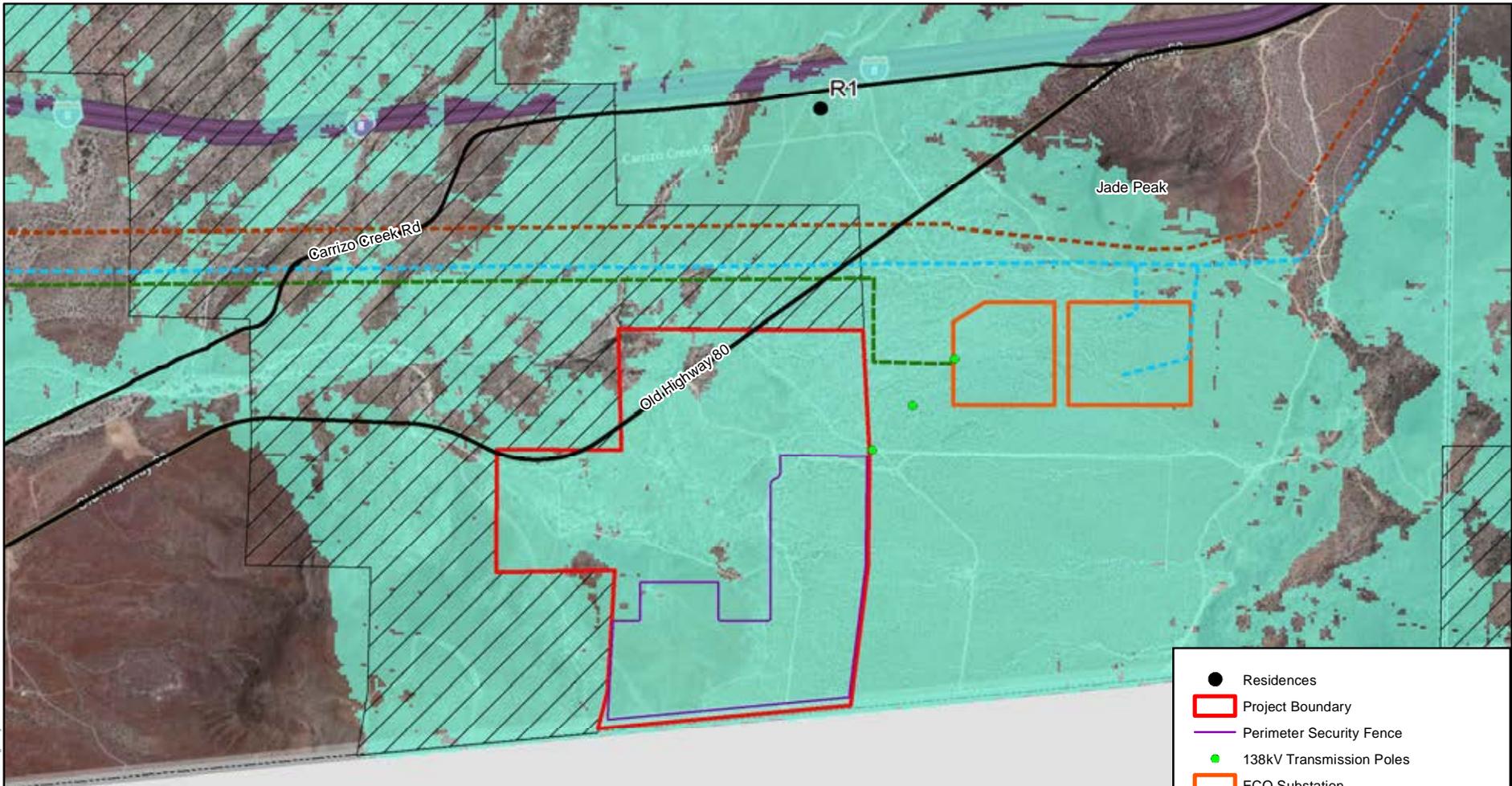
This visual impact assessment focuses on the dynamic experience associated with the Proposed Project and uses Key View simulations to inform the analysis. However, other factors that modify perception and public attitudes are considered in order to reach conclusions regarding visual resource impacts and significance determinations. The potential effects of the Project on visual resources are evaluated for each Key View in the context of the overall LCU and how viewers experience and form perceptions of the visual resources through an experiential process.

Visual Resources Report for the Jacumba Solar Energy Project

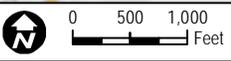
6.1 Guidelines for Determining Significance

The County of San Diego Guidelines for Determining Significance and Report Format and Content Requirement for Visual Resources (County of San Diego 2007) and Dark Skies and Glare (County of San Diego 2009) were reviewed to determine the applicable significance thresholds for the Proposed Project. According to the County of San Diego Guidelines for Determining Significance, a project will generally be considered to have a significant effect if it proposes any of the following, absent specific evidence to the contrary:

- The project would introduce features that would detract from or contrast with the existing visual character and/or quality of a neighborhood, community, or localized area by conflicting with important visual elements or the quality of the area (such as theme, style, setbacks, density, size, massing, coverage, scale, color, architecture, building materials, etc.) or by being inconsistent with applicable design guidelines.
- The project would result in the removal or substantial adverse change of one or more features that contribute to the valued visual character or image of the neighborhood, community, or localized area, including but not limited to landmarks (designated), historic resources, trees, and rock outcroppings.
- The project would substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from:
 - A public road.
 - A trail within an adopted County or State trail system.
 - A scenic vista or highway.
 - A recreational area.
- The project would not comply with applicable goals, policies, or requirements of an applicable County Community Plan, Subregional Plan, or Historic District's Zoning.
- The project will install highly reflective building materials, including but not limited to reflective glass and high-gloss surface color, that will create daytime glare and be visible from roadways, pedestrian walkways, or areas frequently used for outdoor activities on adjacent properties.



●	Residences
□ (Red)	Project Boundary
— (Purple)	Perimeter Security Fence
● (Green)	138kV Transmission Poles
□ (Orange)	ECO Substation
— (Green)	East County 138 kV Alignment
— (Brown Dashed)	500 kV Sunrise Powerlink Alignment
— (Blue Dashed)	500 kV Southwest Powerlink Alignment
Viewshed	
□ (White)	Not Visible
□ (Cyan)	Visible
□ (Hatched)	BLM Lands



DUDEK

SOURCE: Bing 2014

8477

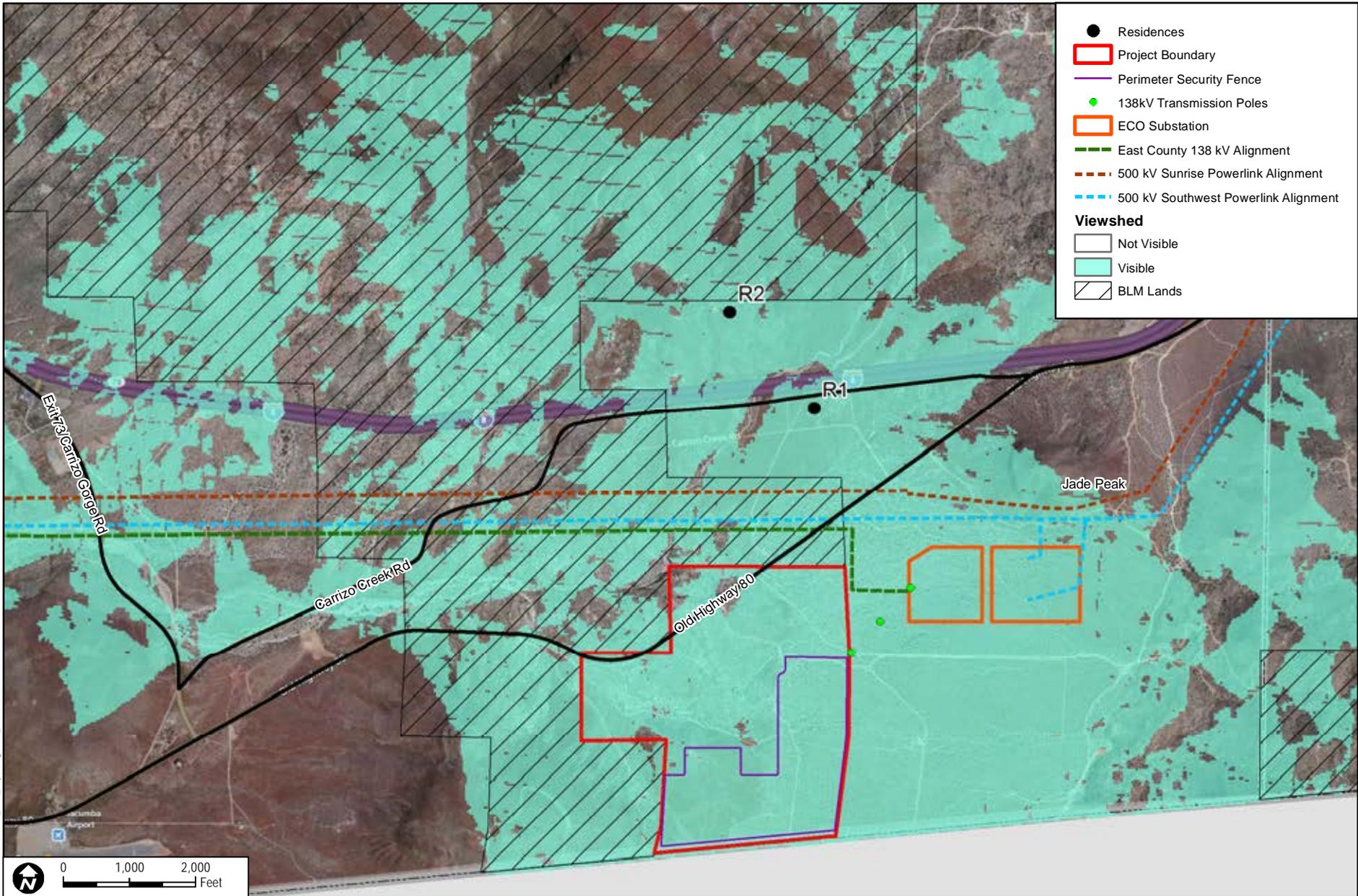
Jacumba Solar Project Visual Resources Report

FIGURE 7a
Viewshed - Old Highway 80

Path: Z:\Projects\8477\MAP\PROJECT\DOCUMENT\Visual_Tech_Report\Figure7a_ViewshedOldHighway80.mxd

Visual Resources Report for the Jacumba Solar Energy Project

INTENTIONALLY LEFT BLANK



- Residences
- ▭ Project Boundary
- Perimeter Security Fence
- 138kV Transmission Poles
- ▭ ECO Substation
- East County 138 kV Alignment
- - - 500 kV Sunrise Powerlink Alignment
- - - 500 kV Southwest Powerlink Alignment

Viewshed

- ▭ Not Visible
- ▭ Visible
- ▨ BLM Lands

Path: Z:\Projects\8477\01\MAP\DOC\DOCUMENT\Visual_Tech_Report\Figure7b_Viewshed8.mxd



SOURCE: Bing 2014

8477

Jacumba Solar Project Visual Resources Report

FIGURE 7b
Viewshed - Interstate 8

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

6.2 Key Views

Methodology

Key Views of the Project site were selected that typify the likely effects on visual resources as experienced by a range of expected viewers in a dynamic experiential setting. Locations in the Project viewshed from which views of the Proposed Project site would be available were identified on aerial photography prior to the initial site visit conducted by Dudek's visual resources team in June 2014. Subsequent site visits were conducted in October 2014 and January 2015 to assess and catalog the visual environment. Once identified, candidate Key View locations were field verified to confirm orientation and visibility to the Proposed Project site. Initial locations were modified and/or new locations were established based on field conditions. Photographic images from each candidate Key View location were taken and the existing conditions including time of day, weather, vegetation, topography and visual character were noted and recorded. Initially, photographic images were captured using a high-resolution digital Cannon camera with a fixed focal length 50mm lens. Further, two or more digital images were digitally spliced together to produce a final image that accurately characterizes the resource area available to viewers. Multiple images create a wider image that is comparable to the view available to the normal unconfined range of motion of a human scanning an open landscape.

Key View locations are depicted on Figure 8.

Two Key Views were submitted to the County of San Diego for review in June 2014 and were approved for use in this visual resource assessment. The selected Key Views provide a static image of the Proposed Project site from westbound I-8 and eastbound Old Highway 80 where conditions afford generally unimpeded visibility to the Project site. It should be noted that as motorists pass through the Jacumba Valley, views of the Project site from both I-8 and Old Highway 80 are interrupted by intervening terrain and road cuts. Therefore, the relatively clear views of the Project site presented in Figure 9, Key View 1 – Westbound Interstate 8, and Figure 10, Key View 2 – Eastbound Old Highway 80, are not entirely representative of the range of available views afforded to motorists along these roadways. Instead, Figures 9 and 10 are used to provide a before and after depiction of the Project as experienced by mobile viewers from particular vantage points to help assess the overall visual change resulting from implementation of the Proposed Project. Also, while not conveyed in Figures 9 and 10, views of the Proposed Project from Key Views 1 and 2 would be made in passing at approximately 70 mph from I-8 and 55 mph from Old Highway 80.

In response to comments received in December 2014 from the County of San Diego and the public, two additional Key Views from which to assess the Proposed Project were identified and

Visual Resources Report for the Jacumba Solar Energy Project

are included in this assessment. These Key Views are situated to the west of the Project site atop the Airport Mesa landform and to the north of the Project site atop prominent mesa terrain located within the Table Mountain ACEC. Existing photos and proposed visual simulations from Airport Mesa and the Table Mountain ACEC are included in Figure 11, Key View 3 – Airport Mesa, and Figure 12, Key View 4 – Table Mountain ACEC.

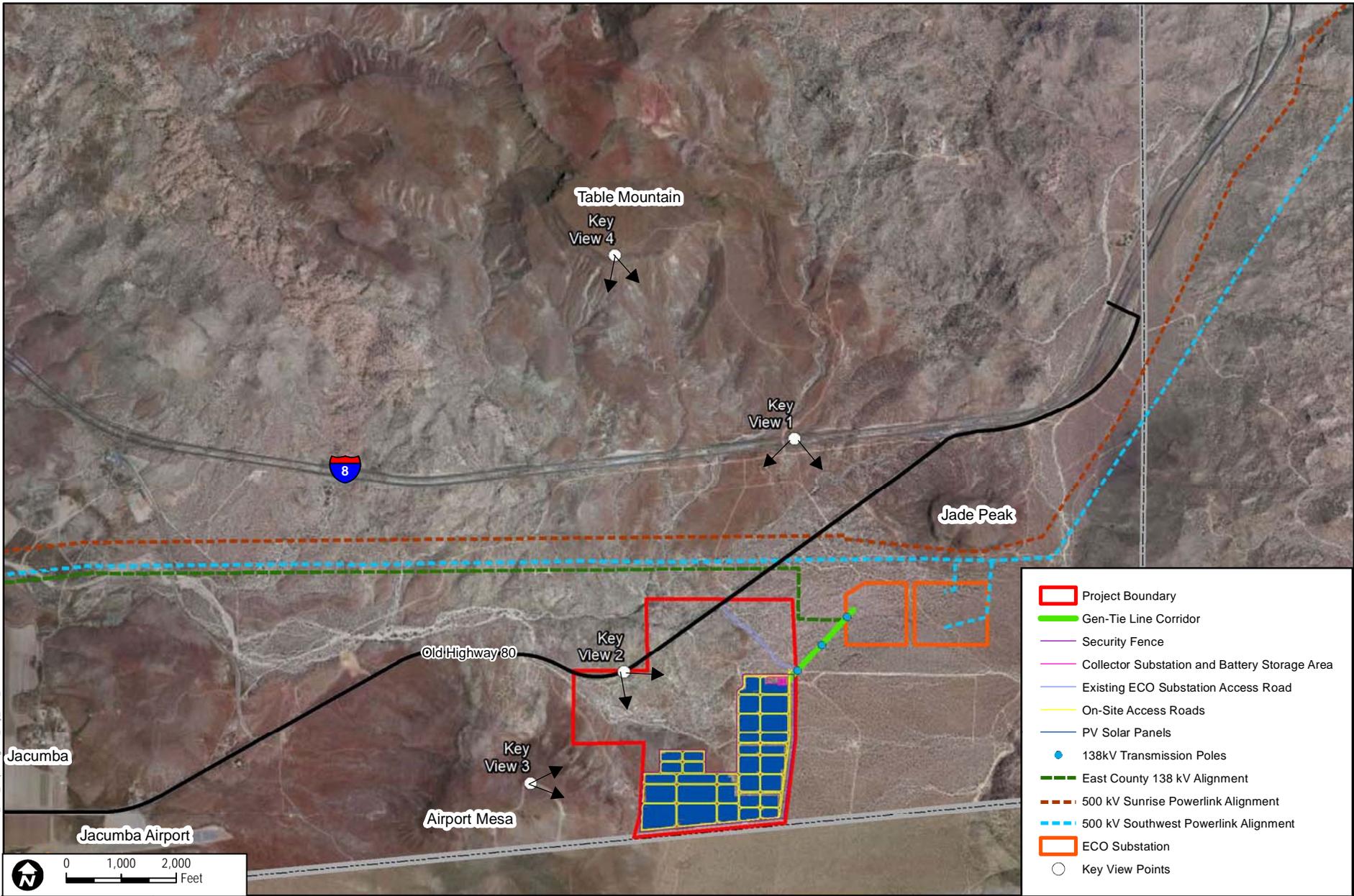
Consistent with visual resource reports prepared for other energy-related discretionary projects in the County of San Diego, a numerical rating for each contributing factor (vividness, intactness, and unity) to visual quality at each representative Key View is provided below. A rating scale of 0 to 5 is used, with a rating of 0 equating to a landscape with an utter lack of vividness, intactness, or unity and a rating of 5 describing a highly vivid, intact, and unified landscape. Ratings are provided for each individual contributing factor of visual quality.

6.2.1 Key View 1 – Existing Conditions

Orientation

Key View 1 provides a southerly view to the Project site for westbound motorists on I-8. From Key View 1, the landscape to the south is framed by Airport Mesa to the west and the Jacumba Mountains to the east. The Sierra de Juarez are visible to the south in Mexico. The Key View is situated at an approximate elevation of 3,200 feet and the high point of the Project site sits at an approximate elevation of 3,120 feet. The northernmost boundary of the proposed solar facility is located approximately 0.8 mile south of Key View 1.

The ECO Substation was under construction during field work conducted for this analysis and the facility appears on the left side of the Key View 1 photograph. A single monopole associated with the ECO Substation 138 kV line and installed outside of the substation yard was also observed during fieldwork conducted in June 2014. Features of the ECO Substation observed during June 2014 fieldwork contribute to the existing conditions as viewed from Key View 1.



- Project Boundary
- Gen-Tie Line Corridor
- Security Fence
- Collector Substation and Battery Storage Area
- Existing ECO Substation Access Road
- On-Site Access Roads
- PV Solar Panels
- 138kV Transmission Poles
- East County 138 kV Alignment
- 500 kV Sunrise Powerlink Alignment
- 500 kV Southwest Powerlink Alignment
- ECO Substation
- Key View Points

0 1,000 2,000
Feet

DUDEK

SOURCE: Bing 2014

8477

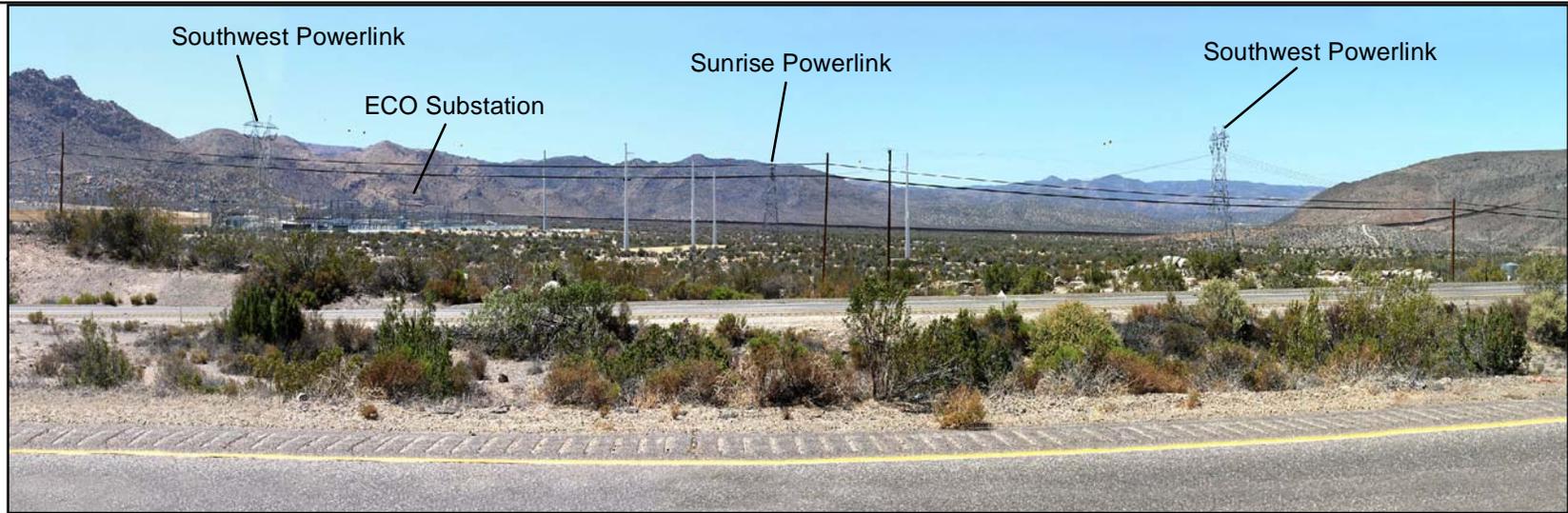
Jacumba Solar Project Visual Resources Report

FIGURE 8
Key View Points

Path: Z:\Projects\8477\11M\BPP\DOCUMENT\Visual_Tech_Report\Figure8_Key_View_Points.mxd

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK



Existing Conditions



Proposed Conditions

Visual Resources Report for the Jacumba Solar Energy Project

INTENTIONALLY LEFT BLANK



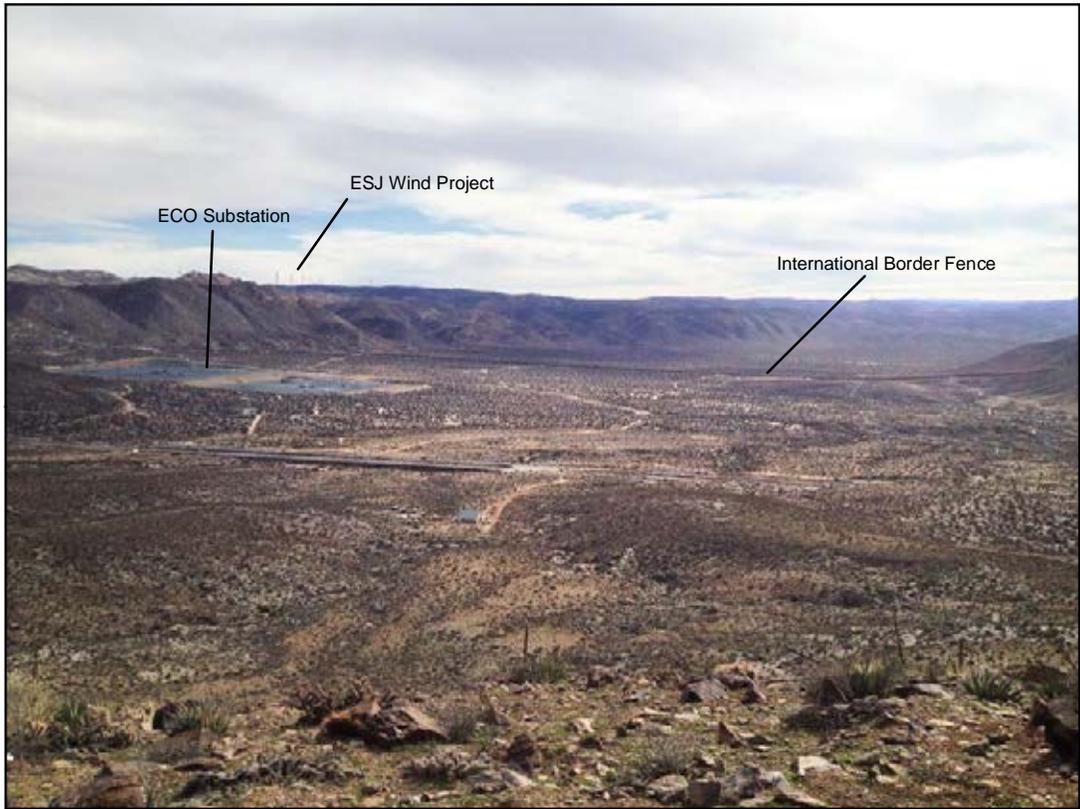
Existing Conditions



Proposed Conditions

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK



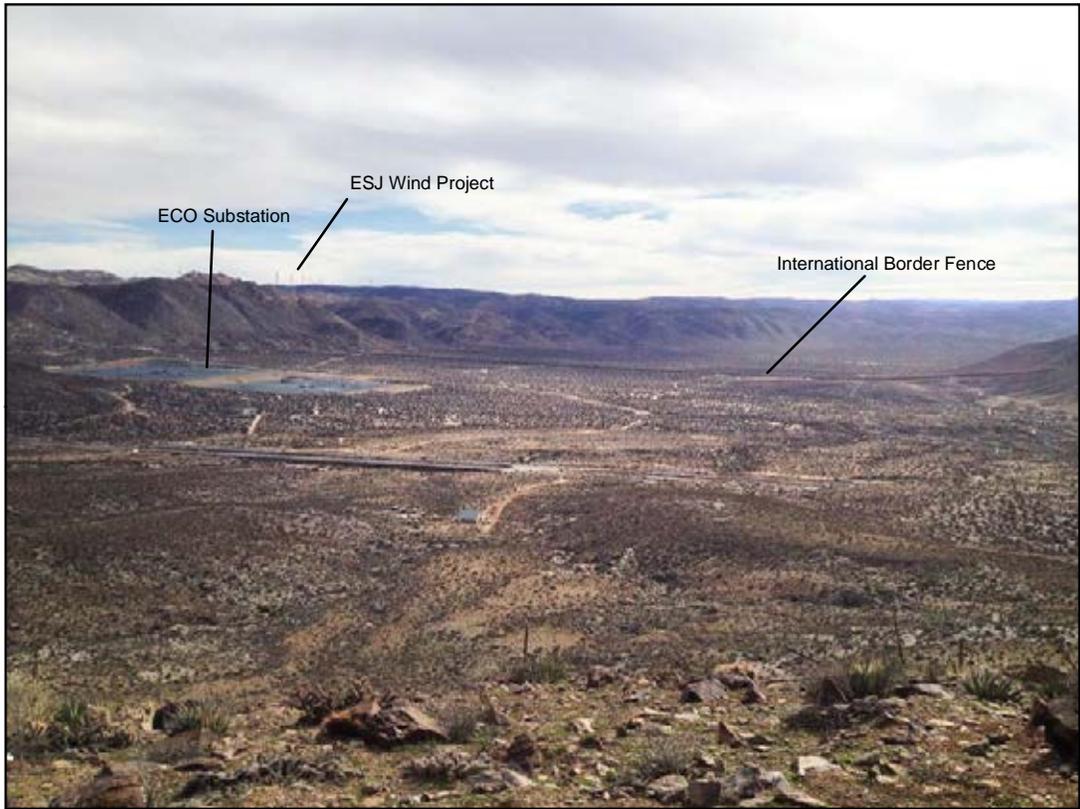
Existing Conditions



Proposed Conditions

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK



Existing Conditions



Proposed Conditions

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

Visual Character/Quality

As shown in Figure 9, the rugged, rural desert landscape comprised of natural elements including the Jacumba Mountains and Sierra de Juarez and the shrubs and soils of the Desert Alluvial Fan LCU has been noticeably modified by the introduction of man-made elements that are concentrated to the south and east as viewed from Key View 1 (see Figure 9). More specifically, metallic bays, insulator racks and tan soils and slopes at the ECO Substation and the tall, light-colored monopoles that would support the 138kV transmission line have modified the visual character of the landscape. The tall forms, geometric lines, and smooth metallic texture of Southwest Powerlink and Sunrise Powerlink steel lattice towers are also visible and contrast with natural elements in the landscape; however, these features are regularly spaced and due to lattice construction the towers tend to visually blend with the backscreening landscape when viewed from a distance. As a result, non-skylined portions of steel lattice towers blend with the mountainous backdrop when viewed from Key View 1.

A number of strong vertical lines created by power and communication poles tend to contrast with the dominantly horizontal lines viewed within the broader landscape. The light color and continuous form of the 138 kV monopole installed immediately outside the ECO Substation yard stands out against the tan and darker brown colors of the Sierra de Juarez Mountains. Four narrow wood poles installed south of I-8 run perpendicular to the Key View 1 sight line and in combination with the ECO Substation and other energy development, these features detract from the overall visual quality of the landscape.

From Key View 1, the Project site would be visible to the west of the ECO Substation and to the east of the Airport Mesa landform. The proposed solar facility would occupy a seemingly unaltered, low area of the desert landscape supporting low, dark green to reddish tinged shrubs occasionally interrupted by tan soils. From I-8, the density of shrubs in southerly views appears to increase with distance and vegetation on the Project site tends to display a solid form and smooth texture as viewed from this acute angle. The continuity of vegetation is noticeably interrupted by the horizontal form and dark line of the international border fence and by the angular, metallic forms and lightly colored soils associated with the ECO Substation.

Vividness (Rated 2.8)

The visual pattern of the low desert floor against the distant mountainous terrain of the Sierra de Juarez Mountains is visually striking yet somewhat typical of the landscapes along I-8 in southeastern San Diego County. The addition of landform features (e.g. Airport Mesa and Jade Peak) within the Desert Mesa LCU increase the vividness of the broad landscape imagery from this Key View. The memorability of the view is reduced by noticeable contrast in form, line and color associated with cultural modifications found within the broad landscape view. Notable

Visual Resources Report for the Jacumba Solar Energy Project

features include the metallic, angular lines of bays and racks at the 230/138kV yard of the ECO Substation that protrude from the valley floor, smooth textured and tan –colored slopes between the substation yards, and the tall, lightly colored monopole located just outside 230/138kV substation yard. Along with the, bold, dark colored, line displayed by the international border fence, these features interrupt the continuity of low, dark green and red tinged shrubs intermixed with small pockets of lightly colored soils. In addition, vegetation removal at the edges of the ECO Substation yards is apparent due to resulting contrasts in color and texture with the surrounding darkly colored and coarsely textured shrubs. The lightly colored vertical monopole stands out against background features and a short segment of the pole breaks the horizon line. Tall and geometric steel lattice towers of the Southwest Powerlink pierce the skyline and rise above the distant mountainous ridgeline. When viewed at an angle, the towers reveal additional angular lines and display an increasingly complex form. At Key View 1, the eye is distracted from the distant tan to grayish colored ridgelines by the chaotic series of angular and metallic forms and lines of the ECO Substation and tall, vertical lines associated with transmission and communication infrastructure. The bold, horizontal line of the international border fence also commands attention at Key View 1.

Intactness (Rated 2.5)

The Key View 1 landscape includes several visually encroaching elements most notably of which are the ECO Substation and single 138 kV transmission line monopole. The straight, dark line of the international border fence runs parallel to I-8 and while the fence is located approximately 1.3 miles to the south, it creates a prominent horizontal component that visually flows with of the middleground horizontal landscape . In the foreground, steel lattice towers display tall, geometric forms and vertical lines that pierce the horizon and contrast with the low, mounded form of desert shrubs and the overall horizontal composition of the ground plane. This contrast is repeated in the foreground-middleground and is attributable to the lightly colored, tall vertical line of ECO Substation 138 kV transmission line monopole. Similarly, vertical, dark wooden poles located immediately south of I-8 contrast with the low form of ground plane shrubs and stand out when viewed against the grayish color of the background mountainous terrain. The concentration of tall, angular lines and grayish steel support structures at the ECO Substation, as well as noticeable contrast in color and texture resulting from vegetation removal, reduces the integrity of the natural visual pattern of clumped, darkly colored vegetation and small pockets of lightly colored soil. While a portion of the middleground landscape displays characteristic features (i.e., low, mounded and darkly colored shrubs), the concentration of grayish colored angular lines at the ECO Substation creates a slightly chaotic foreground visual scene within approximately 25% of the Key View 1 that, along with vertical lines of electrical infrastructure, detracts from the overall intactness of the landscape.

Visual Resources Report for the Jacumba Solar Energy Project

Unity (Rated 2.8)

The numerous angular lines of grayish steel structures at the ECO Substation are backscreened but contrast with the low, mounded form and dark green to red-tinged color of desert shrubs. The tall, vertical form of the lightly colored monopole rises from the alluvial fan landscape to pierce the distant rugged ridgeline. Steel lattice towers are located in close proximity to I-8 and as a result, portions of these elements are skylined as viewed from Key View 1. Despite the tall form of these features, towers are primarily backscreened by mountainous terrain and steel lattice construction allows for visual permeability. As a result, the towers are better able to blend with the landscape than the strong vertical form and lightly colored ECO Substation 138 kV monopole. The bold, dark color of the international border fence stands out amongst drab colored shrubs and distant tan to grayish colored terrain. The fence disappears shortly behind a low hill and then reappears to seemingly bisect the Airport Mesa landform. The introduction of contrasting forms, lines, and colors of substation and electrical transmission infrastructure has produced a deleterious effect on the overall unity of the Key View 1 landscape.

Proposed Project Features

From Key View 1, the east “arm” of the proposed solar facility would be visible on the slightly west to east rising topography located approximately 0.80 miles to the south. The proposed on-site substation and energy storage facility would also be visible from the elevated travel lanes of I-8. As shown on Figure 9, the proposed solar facility would occupy the portion of the middleground landscape located east of the Airport Mesa landform and north of the international border fence. The east arm of the solar facility would be constructed on the low terrain of the Alluvial Fan LCU. PV modules of the solar facility would however extend into the higher elevation Desert Mesa LCU by climbing the southern slope of the low hill located near the western Project site boundary. A cylindrical, relatively low profile and lightly colored 10,000-gallon water tank could also be installed atop the low hill. Because the stationary solar panels would be oriented to the south at an approximately 25° angle, the back of panels and the supporting racking system would be visible from Key View 1. Chain-link perimeter fencing would also be visible but would not be visually prominent. Access to the proposed solar facility would be provided via the existing ECO Substation access road. At Key View 1, the access road is screened from view by terrain and would remain so during Project operations. Lastly, three new monopoles supporting the proposed 138kV gen-tie would run between the on-site substation and the ECO Substation and would display a similar profile and vertical line as the existing monopole installed outside the ECO Substation 230/138kV yard.

Visual Resources Report for the Jacumba Solar Energy Project

Changes to Visual Character and Quality

Vividness (Rated 1.9)

The removal of existing vegetation and the result contrasting in line, color and texture associated with the denuded site would be visible from I-8 and would attract the attention of passing motorists. Support racks and arrays would be oriented towards the south and the shadow side of panels would face I-8 motorists. While the visual details of individual support racks and panels would not be discernable from I-8 due to distance, the concentration of thousands of racks and panels would display a uniform grayish color and would appear as a single, smoothly textured mass in the landscape. Discoloration within the eastern, lower elevation arm of the solar facility is anticipated as light reflecting off panel edges would be visible from the superior viewing angle afforded to motorists at Key View 1. In contrast, PV modules installed atop the low hill located on site at the western Project boundary would be located at a higher elevation than Key View 1 and as a result, reflected light and discoloration within the solar array is not anticipated to be visible. Line, color and texture contrast would occur at Project edges where the straight line, tan color and smooth surface of on-site perimeter access roads would be highly visible alongside undisturbed vegetation and soil located outside of the Project fence line. The tan colored lines created by perimeter access roads at the eastern edges of the solar array and at the eastern edge of the low hill located on site would also interrupt the uniformly grayish color of the proposed solar facility. Internal east-west access roads and gaps between panel arrays are not expected to be visible due to the tangential view angle to the road openings.

Overall, the solar field is expected to present a horizontal composition and would lie within the horizontally dominate Desert Alluvial Fan LCU. As a result, contrast in form would be somewhat subdued. PV modules extending into the Desert Mesa LCU would generally follow the contours of the mounded low hill and as a result, would create a grayish low, arching line that would mimic the line of the low hill located on site. Elsewhere on the Project site the rectangular form and slightly larger vertical scale of inverters would rise above the relatively low horizontal line displayed by fixed solar PV modules and would be visually detectable. The energy storage facility and on-site private substation would also be visible from Key View 1 and would add boxy forms and vertical lines to the landscape that would stand out against the backdrop of the horizontal solar field. The visible contrast in color, form and line between the panels, substation and inverters would contrast with nature elements in the landscape. Lastly, the three tall, lightly colored monopoles of the proposed gen-tie line would emulate the form, line and color of the existing monopole associated with the ECO Substation 138 kV transmission line and would create further interruption of views of the rugged ridgelines of the distant Sierra de Juarez Mountains. New monopoles would be backscreened, but the light color and vertical line

Visual Resources Report for the Jacumba Solar Energy Project

character of these features would attract viewer attention and would diminish the quality of existing views of mountainous terrain.

Intactness (Rated 1.7)

As viewed from I-8, the proposed solar facility would reduce the integrity of the landscape scene by introducing new contrasting lines, colors, and textures to a moderately altered desert landscape. Support racks and PV modules would display a dark grayish color that would contrast with the light gray to dark green shrubs located nearby at the ground plane. Perimeter access roads would create wide, smooth lines at the Project edges that would appear disparate from the natural patterns of exposed soils and low, mounded shrubs in the existing landscape. The regular, vertical form and lines of A-frames at the on-site substation would contrast with the horizontal line displayed support racks and PV modules. The rectangular form of energy storage systems would not reference any existing natural elements in the landscape but would appear similar to rectangular features installed at the ECO Substation 230/138 kV yard to the east. Tall, lightly colored monopoles would create new vertical elements in the landscape that would attract attention and contribute an increasingly jumbled visual scene.

Unity (Rated 2.1)

Similar to the visual effects of the ECO Substation including the transmission line monopole, the introduction of the Project would diminish the visual unity of the landscape. The large, grayish mass created by the concentration of fixed solar PV modules and associated shadows would be located approximately 0.85 mile to the south of Key View 1. As shown in Figure 9, the proposed solar facility would create noticeable color contrast with surrounding shrubs and soils. Site preparation of the ECO Substation has resulted in noticeable color and texture contrast at substation edges and the tan surface and smooth texture of perimeter access roads at the proposed solar facility would create similar contrasts. In addition, the introduction of numerous metallic structures (i.e., A-frame support structures and gen-tie monopoles) to the scene tends to divert attention away from natural elements including distant mountainous terrain and desert shrubs and soils at the ground plane. While both the ECO Substation and the Proposed Project would occupy discontinuous space in the middleground landscape and natural vegetation between the two features would remain intact, the installation of regularly spaced gen-tie monopoles would visually merge these two facilities into a connected visual image. This association would be reinforced by the similarities in form, line, and color of monopoles, edge contrast associated with tan-colored soils, and color contrast associated with the concentrated introduction of grayish colored features to the landscape. .

Visual Resources Report for the Jacumba Solar Energy Project

Viewer Response (Rated 3.0)

As I-8 motorists approach and pass Jade Peak, the Airport Mesa landform is revealed and views to the south become longer and broader in extent. Portions of the ECO Substation are obscured by Jade Peak and while a short road cut would briefly screen southerly views, relatively clear views the Project site (located approximately 0.85 miles to the south) would be available. Assuming travel at the posted speed limit, views of the Project would be available for approximately 21 seconds. While the availability of views would be brief, the anticipated color and line contrasts of existing electrical and transmission line infrastructure and the proposed solar facility and associated connector line monopoles would attract the attention of passing motorists.

Resulting Visual Impact

The proposed solar field would be located in the middleground viewing distance, approximately 0.85 mile south of the westbound travel lanes of I-8. As viewed from Key View 1, the details of individual racks and solar PV panels would not be discernible; the concentration of these features and associated shadows on the Project site would appear as a grayish mass in the landscape. Solar PV modules, racks and shadows would present a similar color as metallic components at the ECO Substation. At the viewing distance, the predominately-horizontal form of the proposed solar facility including the on-site substation and energy storage component are not anticipated to result in strong visual contrast however; color and texture contrast from the tan-colored Project edges and the grayish color of thousands of racks and PV modules would draw the attention of passing I-8 motorists. In addition, tall, lightly colored monopoles would introduce additional strong vertical elements to the scene that would interrupt and adversely modify views of the foreground desert landscape and distant mountainous terrain. While these new poles would display a similar tall form and vertical line as existing energy infrastructure in the middleground and wooden support poles in the foreground, the continuous form and light color of monopoles would be difficult to overlook and would instead contribute to an increasingly jumbled visual landscape.

As depicted in Figure 9, the proposed solar facility would create noticeable contrasts with existing terrain and vegetation but would also display similar lines, colors and textures as existing cultural modifications. While the Proposed Project would mainly add new horizontal features when viewed at a distance where Project details will not be readily apparent, line, color and texture contrasts at Project edges and within the solar arrays would be apparent and would detract from existing visual resources. Furthermore, the Proposed Project would add new vertical elements to the landscape that, along with the existing ECO Substation 138kV transmission line monopole and tall, skylined steel lattice towers, would dominate visual perception due to the contrast with nature horizontal lines in the landscape. Due to the anticipated degradation in the

Visual Resources Report for the Jacumba Solar Energy Project

quality of views available from I-8, implementation of the Project would result in a moderate visual impact at Key View 1.

6.2.2 Key View 2 – Existing Conditions

Orientation

Key View 2 is situated on the eastbound Old Highway 80, approximately 0.3 mile east of the Carrizo Creek overpass and approximately 0.4 mile west of the eastern arm of the proposed solar facility. Old Highway 80 is a two-lane road with narrow shoulders that winds through the desert landscape while gently rising in elevation from west to east. The road cuts through numerous low north-south trending ridges resulting in low exposed road cuts. These cut slopes and the vegetation atop often rise just high enough to block motorist views laterally from the highway. Longer landscape views are most often afforded where the road crosses or runs parallel to one of the many dry arroyos that cut through the landscape.

The low, mounded hill representing the easternmost extension of the Airport Mesa landform conceals a segment of the international border fence and Sierra de Juarez Mountains from view. This low hill would also effectively screen from view major portions of the southern and westernmost areas of the proposed solar facility. The Key View is situated at an elevation of 3,050 feet amsl and the existing high point of the proposed solar site is approximately 3,170 feet amsl. As shown on Figure 10, Key View 2 provides views of the visually dense vegetated desert floor against the backdrop of the mounded and rugged, boulder-covered Jacumba Mountains and Sierra de Juarez Mountains. The Desert Alluvial Fan LCU and Jacumba Mountains LCU are visible within this key view.

Visual Character/Quality

As shown on Figure 10, the view from Key View 2 is characterized as a primarily undisturbed expanse of low, dark green to grayish shrub-covered desert landscape intermixed with small rock outcrops and pale desert soils. The color and texture of shrubs, rock outcrops, and soils are detailed in the foreground, while in the middleground viewing distance, shrub canopies visually coalesce into a dense, darkly colored consolidated mass. The rugged form and line displayed by distant mountain ranges attract the attention of passing motorists as does the dark, horizontal line of the international border fence. The low hill located in the foreground is stippled with characteristic desert shrubs and creates a low arching horizon line to the southeast. A thin, diagonal line created by a steep access road appears on the north-facing slope of the hill.

Visual Resources Report for the Jacumba Solar Energy Project

Vividness (Rated 3.5)

At Key View 2, there is a perceptible change in the visual pattern of form, line, color and texture as the eye moves from the foreground to the middleground and background viewing distance. This noticeable change helps to create the open spatial quality that is typical of the desert and enhance the memorability of the view.

The spreading form of low, dark green and red tinged shrubs and the coarse texture of vegetation, rocks and soil in the immediate foreground changes to a dense and smooth, dark green to grayish colored mass in the middleground. The bold line of the international border fence viewed above the irregular shrub canopy interrupts this pattern but marks the transition from low desert valley to foothills and mountains. Beyond the fence, the mounded, slightly pyramidal forms of mountainous terrain provide a striking backdrop to the scene and create a strongly defined skyline.

Intactness (Rated 3.8)

From Key View 2, the landscape displays a primarily undisturbed natural character. Visual disturbance associated with access roads in the foreground and middleground is concealed by intervening terrain and vegetation and by the normal to inferior viewing angle afforded to viewers at Key View 2. The bold, rust-colored line of the international border fence creates a moderate disruption of continuity of dense, dark green to grayish shrubs in the middleground; however, segments of the fence are obscured by vegetation and terrain.

Unity (Rated 4.2)

As stated above, there is a perceptible gradual change in the visual pattern of form, line, color and texture as the eye moves from the various viewing distances in the Key View 2 landscape. The foreground visual pattern is defined by the coarse textures of shrubs, rock outcrops and soils that display green hued and sandy colors. In contrast, the middleground visual pattern is defined by a seemingly continuous mass of dark green to grayish colored shrubs. While the bold, rust-colored line of the international border fence contrasts with the low, mounded form and drab color of middleground shrubs, the fence displays a relatively low profile and is situated between grayish colored vegetation and rising terrain of the Sierra de Juarez Mountain. The repetition of color within and across the various distances reinforces the visual coherence of the Key View 2 landscape.

Visual Resources Report for the Jacumba Solar Energy Project

Proposed Project Features

From Key View 2, the east arm of the proposed solar facility would be visible as would the edges of several PV modules climbing the southern slope of the low on-site hill. Viewers would be afforded an angled view to the east arm of the facility and as a result, multiple rows of solar panel racks would occupy the middleground landscape (see Figure 10). The solar panels would be partially screened by the tops of intervening vegetation that would break up the mass of the Project. In addition, the low form of solar panel arrays would create a horizontal feature that is compatible with the dominant horizontal lines of the Desert Alluvial Fan LCU. The edges of several PV modules located atop the low hill to the southeast of Key View 2 would be skylined and their grayish color and rectangular form would be viewed against the backdrop of the expansive desert sky. A cylindrical, lightly colored water tank could also be installed atop the low hill at the western boundary of the solar facility and would be partially skylined. The edges and lines of other PV modules installed on the south slope of the hill would also be visible but would be backscreened by mountainous terrain. In addition to chain-link perimeter fencing along the east arm of the solar facility and atop the low hill, lightly colored racks and bays of the on-site substation would rise above the low-form of foreground vegetation and would be visible to the east. The energy storage facility would be screened from view by intervening vegetation and terrain. Lastly, tall, grayish colored monopoles of the proposed 138kV gen-tie line would run northeast from the on-site substation to the ECO Substation. These features would be backscreened by the Jacumba Mountains.

Changes to Visual Character and Quality

Vividness (Rated 3.1)

Due to the normal to slightly inferior viewing angle afforded to motorists at Key View 2, the moderate height of foreground desert shrubs and occurrences of intervening terrain, the east arm of the proposed solar facility would be partially screened from viewed. The edges of several PV modules installed on the southern slope of the low on-site hill would be skylined however; PV modules (approximately 8 feet in height) would largely follow the contours of existing topography and would be partially obscured by the northern slope of the low hill. Furthermore, when viewed from Key View 2, the sequence of skylined panel edges would appear as a low, arching line that would mimic the arching line created by the low on-site hill. Additional PV modules installed on the southern slope of the hill would descend the terrain and would be obscured from view.

Changes to the existing visual pattern following introduction of the Proposed Project would be subdued due to limited views of proposed facilities that would contrast with the overall

Visual Resources Report for the Jacumba Solar Energy Project

horizontal composition of Desert Alluvial Fan LCU. The shadow side of solar panels would introduce a dark grayish color and horizontal line across the Project site that would reference and generally align with the dark color and line of the existing international border fence. From Key View 2, the seemingly continuous line created by the east arm of the solar facility would appear as a northerly extension of the existing line displayed by the border fence. The lighter, grayish color of solar PV module racks and perimeter fencing would contrast with the low, dark green and red tinged desert shrub vegetation in the middleground beyond the Project site. The form and line of individual panels and rack within the east arm of the facility would be difficult to discern and instead, from Key View 2, the individual components of the proposed solar facility would appear as gray mass in the middleground viewing distance. Similar to existing conditions, the grayish concentrated mass that defines the middleground visual pattern would be interrupted by the dark, bold line of the international border fence. The on-site substation racks and bays would be visible however; the light color and thin profile of these features would be backscreened by the Jacumba Mountains and would not be visually prominent. While the gen-tie line monopoles would display a similar form, line and color as existing ECO Substation transmission line monopoles and would be backscreened, the introduction of additional vertical elements would contrast with the largely horizontal composition of the foreground-middleground landscape. The low, arching ridgeline of the on-site hill would be interrupted by a grayish, slightly elevated arching line displayed by several skylined PV modules and a length of the perimeter fence that would in turn be broken by the vertical line and color of a possible water tank. Despite the anticipated contrast in line and color associated with PV modules and the possible water tank atop the low hill, background terrain would continue to be the prominent visual feature in the view. Visual contrast and prominence of these solar Project components will create greater contrast when viewed long the skyline of the hill. Moreover, the vividness of the visual pattern created by low desert in the foreground and middleground set against the backdrop of pyramidal, mounded forms and rugged ridgelines would remain relatively undiminished.

Intactness (Rated 3.2)

As viewed from Key View 2, the shadow side of panels at proposed solar facility would create a new dark, horizontal line that would display a similar hue and form as the international border fence. The new line would run perpendicular and parallel to the border fence and would appear as an extension of this existing feature. Metallic racks and chain-link perimeter fencing would display a relatively low profile and would be partially screened by foreground terrain and mounded, spreading shrubs. A portion of the east arm of the proposed solar facility would be screened by a low, shrub and a small hill located in the middleground. The edges of several PV modules would be skylined due to their location atop the low on-site hill however, the low, arching line created by panel edges would mimic the low, arching line display by the mounded

Visual Resources Report for the Jacumba Solar Energy Project

terrain. As viewed from Key View 2, the dark, grayish color of solar PV module edges, support racks and fencing would tend to recede into background vegetation and terrain displaying grayish green tones.

Connector line monopoles associated with the Project are generally not viewed from Old Highway 80 in the same context (viewpoints) with the panel array. The monopoles would display a similar form, line and color as existing ECO Substation and transmission line monopoles. The additional of new, and lightly colored vertical features and hilltop facilities would decrease the intactness of the desert landscape.

Unity (Rated 3.5)

The largely horizontal composition of the foreground visual pattern would not be substantially altered by the introduction of the proposed solar facility. Solar PV modules and metallic support racks, occasional rectangular transformers and chain link fencing would occupy undeveloped, natural space in the middleground populated by a grayish green, seemingly dense mass of desert shrubs. The visual prominence and perceptible details of Project components would be reduced by distance. Furthermore, due to the dark, grayish tones and regular spacing of Project components, the proposed solar facility would appear as a uniformly gray mass. A slightly darker horizontal line created by the shadow side of solar arrays would be apparent to viewers as they scan the landscape from south to north. This darker line would also be perceptible atop the low hill at the western extent of the Project site. These new lines would resemble the existing line of the international border fence and the existing arching line of the low on-site hill and would not detract from the dominant ridgelines of the Jacumba and Sierra de Juarez Mountains that form the horizon from the vicinity of this viewpoint. The introduction of new vertical element (i.e., gen-tie monopoles) would contrast with the low, primarily horizontal form of the Desert Alluvial Fan LCU while these features would be backscreened by the Jacumba Mountains, the tall, lightly colored poles would reduce the overall unity of the visible landscape.

Viewer Response (Rated 3.0)

As motorists enter the Project viewshed along from the west along Old Highway 80, brief, partially screened viewing windows to the proposed solar facility would become available. Mounded, rising terrain would tend to direct views to the southeast towards foreground desert shrubs, the east arm of the proposed solar facility, the international border fence and the rugged Jacumba and Sierra de Juarez Mountains. With the exception of connector line monopoles, Project components would display a low-vertical profile and a grayish color similar to the dark green and grayish green tones of existing vegetation in the middleground viewing distance. The duration of available views to PV modules, the on-site substation, and Project fencing would be

Visual Resources Report for the Jacumba Solar Energy Project

brief and due to the viewing angle and presence of intervening terrain and vegetation, the full horizontal scale of the solar facility would be obscured from view. Due to presence of existing energy infrastructure and other modifications in the landscape, installation of the Proposed Project is not anticipated to create a perception of substantially degraded visual quality. However, the introduction of new, dark colored lines and metallic structures to the landscape would attract the attention of passing motorists.

Resulting Visual Impact

As viewed from Key View 2, modification of existing vegetation and terrain and introduction of the proposed solar facility would result in a moderately low visual impact.

6.2.3 Key View 3 – Existing Conditions

Orientation

Key View 3 is located on the steep road/trail that climbs the east- and north-facing slopes of the Airport Mesa landform. Although the available view from atop Airport Mesa is panoramic in nature, Key View 3 is oriented to the east toward the Project site and Jacumba Mountains/Sierra de Juarez. Located approximately 0.36 mile (1,892 feet) west of the western boundary of the proposed solar facility, Key View 3 provides a representative superior angle view from higher-elevation terrain in the area afforded to local recreationists. Key View 3 is located at an approximate elevation of 3,475 amsl and the high point of the low, wide hill situated between Airport Mesa and the valley floor is located at an approximate elevation of 3,165 feet amsl.

Visual Character/Quality

As shown in Figure 11, Key View 3 provides views of a valley floor covered with sandy exposed soils and dotted with low, dark-green shrubs. In addition to the international border fence and the ECO Substation, thin, light-colored lines of access roads are visible. In addition approximately 20 skylined wind turbines can be seen atop the high, prominent terrain in Mexico. North of the international border, the rugged Jacumba Mountains provide a mountainous backdrop to the scene. The faint, vertical lines of communication towers east of Nopal Peak in the Jacumba Mountains can be seen in northeasterly views from atop Airport Mesa (see Figure 11). Patches of light-colored soils resulting from installation of the ESJ gen-tie are detectable, although the steel lattice structures supporting the gen-tie are difficult to detect due to the mountainous terrain in the background. Steel lattice structures of the Southwest Powerlink and Sunrise Powerlink are installed at the base of Jade Peak. Although not seen in Figure 11, additional steel lattice structures associated with the Southwest and Sunrise Powerlinks dot the middleground valley floor terrain to the north. The dark-colored, straight lines of Old Highway 80 and I-8 cut through

Visual Resources Report for the Jacumba Solar Energy Project

the middleground landscape to the northeast, north, and northwest. The Desert Mesa, Desert Alluvial Fan, and Jacumba Mountains LCUs are visible within this Key View orientation

Also, although not apparent in Figure 11, panoramic and long views to the south into Mexico and to the distant western horizon are available. Views to the south consist of a desert valley stippled with small brown and red shrubs and occasionally marked by rising, mounded terrain and narrow bands of low, green/yellow grasses. Westerly views include a chain of rugged and domed peaks, a primarily horizontal line created by the western horizon, and the expansive desert sky. Views to the northeast and north are fairly limited in extent due to the presence of the rugged Jacumba Mountains, the mesa landform in the Table Mountain ACEC, and other mountains, including Table Mountain.

Vividness (Rated 3.7)

The Jacumba Mountains (and Sierra de Juarez) are pyramidal and relatively steep, and the rugged, seemingly unaltered ridgelines create a strongly defined eastern horizon. With the exception of the mounded and spreading low hill in the foreground, the valley floor displays a diagonal form and line, as the terrain gradually climbs to the east towards the Jacumba Mountain foothills. Dark green/brown shrubby vegetation is intermittent, but appears dense in the east and southeast. Exposed soils are characteristically sandy in color, but occasionally display brown and red hues in the foreground. There is a continuity and consistency in the visual pattern created by terrain and vegetation that is broken by particularly prominent man-made development. For example, the low, black diagonal line and parallel band of soil create a visible break in the continuity of sandy soils stippled with low shrubby vegetation at the international border. North of the international border, the pattern of dark green/brown and patchy vegetation intermixed with sandy soils is interrupted by the light-gray surface of the ECO Substation including thin vertical poles and bays, and light tan-colored soils around the border. Ridgelines enhance the vividness of the scene, yet this feature is also broken by the thin, dark-colored vertical lines of radio towers atop Nopal Peak (north of the international border) and wind turbines and steel lattice structures (south of the international border). The movement of wind turbine blades would also draw the attention of observers at Key View 3 and detract from the vividness of natural elements in the landscape.

Intactness (Rated 3.2)

Both the dark, diagonal line of the international border fence and brief visible pattern of dark tan and light gray-colored horizontal bands associated with disturbed soils and substation surfaces encroach on the intactness of the scene. These elements create visible breaks in the continuity of exposed sandy soils intermixed with low, dark-green and gray, patchy shrubs characteristic of

Visual Resources Report for the Jacumba Solar Energy Project

the valley floor. The low hill in the foreground contributes reddish-soils to the view; however, this feature is relatively subdued and is not visually prominent. Steel lattice structures on the valley floor are backscreened by rising, mountainous terrain and are at times difficult to detect. The dark-colored, skylined silhouette of two communication towers at Nopal Peak and wind turbines and steel lattice structures in Mexico are visible but faint due to distance.

Unity (Rated 3.2)

The linear aspect of visible man-made development creates a scene in which the landscape features strips of unaltered terrain and vegetation disconnected from one another by dark diagonal lines and a concentration of light gray color. Although thin, the seemingly black, diagonal line of the international border fence is long and interrupts the characteristic pattern elements of the valley floor. Similarly, the light gray surface of substation yards, numerous white/gray vertical structures, and dark tan and wide bands of exposed soils at substation edges lack harmony with the natural and characteristic pattern elements of the landscape. Also, although the ridgeline of the Jacumba Mountains and Sierra de Juarez are rugged and at times rough, the faint vertical line of communication towers near Nopal Peak and skylined wind turbines and steel lattice structures in Mexico contribute to the moderate visual unity of the scene.

Proposed Project Features

From Key View 3, the water tank and solar modules installed atop low, spreading hill on the Project site would be visible, as would solar modules installed on the south-facing slope and the less prominent terrain to the east. Local area recreationists at Key View 3 would be afforded views of the entire site. Also, due to the elevated vantage point of Airport Mesa, spacing and roadways between solar arrays would be visible. Lightly-colored, pad-mounted inverters and smaller, rectangular transformers distributed throughout the site would also be visible and some occurrences would be located at the edges of solar array blocks. The on-site substation and battery storage area would be detectable at the northeastern corner of the Project site, and the light grayish and white color of these components would contrast with the noticeable darker surface of solar panels. Three tall gen-tie structures that would deliver power from the on-site substation to the ECO Substation would create a series of tall forms and vertical lines akin to that of the ECO Substation 138 kV transmission line.

Changes to Visual Character and Quality

Vividness (Rated 2.6)

The rugged ridgeline of the Jacumba and Sierra de Juarez Mountains would not be altered by the proposed Project. Both the apex and south-facing slope of the low, mounded hill, as well as a

Visual Resources Report for the Jacumba Solar Energy Project

portion of the low valley floor, would be covered with solar modules (see Figure 11). The characteristic visual pattern of light brown to tan soils and shrubby, stippled vegetation would be replaced by the dark grayish-blue color and rectangular form of solar panels, underlying shadows and the horizontal, light grayish colored lines displayed by on-site access roads. The change in color at the valley floor and abrupt break in the visual pattern of vegetation and soils would be noticeable and would detract from the vividness of the scene. From the on-site low-mounded hill, the eastern arm of the solar facility would protrude to the north towards the ECO Substation and would create a series of darkly colored rectangular forms on the gently rising terrain. Although the mountainous backdrop would continue to be a vivid feature in the landscape, alteration of the valley floor would interrupt the existing composition of low, gently rising shrub and soil-covered terrain that transitions to moderate foothills, and eventually, steep mountainous landforms.

Intactness (Rated 2.2)

Similar to the visual effects of the ECO Substation, development of the proposed solar facility would encroach on the existing pattern of brown and tan soil covered terrain stippled with low, dark green/gray desert shrubs. Modification of the landscape would extend east of the low, mounded hill and north of the horizontal, tan line displayed by the border patrol access road. Rectangular and dark, grayish-blue colored solar panels would occupy the Project site and three apparently narrow vertical elements (i.e., monopoles) would stretch from the on-site substation northeast to the ECO Substation. From the superior perspective of Airport Mesa, the gen-tie access road would create a sandy and thin diagonal line that would appear to tether the proposed solar facility to the ECO Substation to the northeast.

Unity (Rated 2.1)

With development of the proposed solar facility, the valley floor would begin to display a checkerboard pattern consisting of the gray surface and wide tan bands of perimeter soils of the ECO Substation, and the grayish, grid-like pattern created by linear rows of solar modules and parallel east-west access roads at the Project site. The proposed solar facility would create a new break in the continuity of desert vegetation and arid soils and as a result, the valley floor would appear somewhat jumbled and patchwork. Moreover, from atop Airport Mesa, easterly and southeasterly views of the desert landscape would display an increasingly industrial character marked by substation and solar facility development, high-voltage regional transmission lines, prominent, skylined wind turbines and large, steel lattice towers and monopoles.

Visual Resources Report for the Jacumba Solar Energy Project

Viewer Response (Rated 3.5)

Airport Mesa is located adjacent to the international border, and recreationists routinely rely on the border patrol public reserve road for access to the flat, mesa top road that is particularly steep in segments. These recreationists have a heightened sense of change in the landscape due to a longer duration view from their slower speed of travel. Furthermore, U.S. Customs and Border Protection has installed security cameras at the top of Airport Mesa and visits to the landform sometimes trigger a patrol response. Therefore, because users access the Airport Mesa summit via a monitored and regularly patrolled U.S. Customs and Border Protection access road, and because the road does not have a recognized trailhead, a low volume of recreational use is assumed. As such, viewer response to changes in the landscape resulting from development of the Jacumba Solar Project anticipated to be moderate.

Resulting Visual Impact

As viewed from Key View 3, modification of the existing landscape resulting from development of the proposed solar facility would result in a moderately high visual impact.

6.2.4 Key View 4 – Existing Conditions

Orientation

Key View 4 is located approximately 1.5 miles north of the Project site and is situated at the southern extent of the prominent mesa-top landform in the Table Mountain ACEC. Similar to the view afforded to recreationist from Airport Mesa, Key View 4 provides a representative superior angle view for local hiking clubs and other recreationists, including off-road vehicle enthusiasts. Key View 4 is approximately 3,770 feet amsl and is the highest point of the relatively low, wide hill. The hill is situated between Airport Mesa and the valley floor at an approximate elevation of 3,165 feet amsl. The low point of the Project site is approximately 3,120 feet amsl and occurs at the base of the south-facing slope of the low on-site hill.

Visual Character/Quality

The view from the mesa landform at the Table Mountain ACEC is wide and relatively long (see Figure 12). Southerly views extend to the distant mountains in Mexico, while the foreground and middleground is occupied by seemingly flat terrain with occasional hills and a subtle central depression. The valley floor is covered with desert shrubs and tan to dark brown colored soils. The Jacumba Mountains and Sierra de Juarez provide a rugged backdrop to the view. A modest rural residential structure, water tank and access road are visible in the foreground and the north- and southbound I-8 travel lanes are located farther to the south. In addition to the ECO

Visual Resources Report for the Jacumba Solar Energy Project

Substation and the international border fence, steel lattice structures both sides of the international border and associated access roads can be seen south of I-8. Although not apparent in Figure 12, clumped landscape screens and single-story residential structures and trailers in the community of Jacumba Hot Springs can be seen in southwesterly views from the Table Mountain ACEC mesa landform. The Desert Mesa, Desert Alluvial Fan, and Jacumba Mountains LCUs are visible within this Key View.

Vividness (Rated 3.9)

The valley floor displays a generally flat, horizontal form that is occasionally broken by low, mounded landforms. The Jacumba Mountains and Sierra de Juarez create a vivid backdrop to the scene with geology varying from sandy to granitic features (see Figure 12). South of the international border, the mountainous terrain appears continuous and seemingly endless. The valley floor is stippled with low, dark green and brown shrubs among the smooth, tan colored soils. The curving, lightly colored surface of access roads, the dark and long, horizontal lines of I-8 and the international border fence, and the pattern of sandy and gray colored bands at the ECO Substation, disrupt the continuity of vegetation and soils on the valley floor. While backscreened, transmission lines and steel lattice structures at the foothills of the Sierra de Juarez contribute cool colors to an otherwise drab middleground scene. Lastly, over twenty tall wind turbines are located atop prominent, mountainous terrain to the southeast, more than two miles from Key View 4. This skylined silhouette of wind turbine towers along with the movement of turbine blades, attract attention and detract from the wide and long views available from Key View 4.

Intactness (Rated 3.6)

The color and line of I-8 and the international border fence are apparent in the landscape, and create breaks in the characteristic visual pattern of flat terrain, low shrubs and sandy soils throughout the valley floor. With the exception of the narrow and lightly colored lines of dirt access roads, portions of the middleground landscape from the ECO Substation and Airport Mesa to the international border appear unaltered. From Key View 4, development on mountainous terrain located south of the border is concentrated to the southeast where transmission lines, steel lattice structures and winding, climbing access roads create noticeable line, color, and texture with the surrounding landscape. Prominent, skylined wind turbines to the southeast also disrupt the otherwise continuous and rugged ridgeline of the Sierra de Juarez. North of the international border, north-south dirt access roads contribute both straight and curved lines to the composition of the valley floor. Vertical and metallic structures rise from the dual yards of the ECO Substation and lightly colored soils at the substation perimeter create a series of light and cool colored bands on the valley floor.

Visual Resources Report for the Jacumba Solar Energy Project

Unity (Rated 3.5)

From the superior angle perspective of Key View 4, linear, east-west oriented features in the landscape display a relatively flat form and horizontal line, which is consistent with that of the characteristic form and line of valley floor terrain. In contrast, dirt access roads create light colored, north/south breaks within the area otherwise occupied by low shrubs and sandy soils, which are draped across the majority of the foreground and middleground landscape. An additional break in this characteristic visual pattern is visible at the ECO Substation, where a large expanse of native vegetation has been removed and replaced with alternating bands of light tan and gray colors displayed by substation yard edges, slopes and surfaces. Numerous tall and angular structures rise from the substation yards and contribute vertical elements to an otherwise flat and horizontal valley floor landscape. Recently installed electrical lines, steel lattice structures, and wind turbines installed atop the prominent mountainous terrain in Mexico also creates a noticeable visual contrast that reduces the overall unity in the visible landscape.

Proposed Project Features

With the exception of the south-facing slope of the low, mounded hill, the entirety of the Project site would be visible from the elevated vantage point offered at Key View 4. The removal of existing vegetation to accommodate the proposed solar facility would be apparent and would produce a color and line contrast similar to that at the ECO Substation yard edges. Rows of solar modules would produce a swath of dark gray colors that would be bordered by bands of lightly colored soils. The water tank installed atop the low, mounded hill would be visible, but not prominent. While the on-site substation and battery storage area would be backscreened by rows of solar modules, a color contrast between light and dark gray tones would be noticeable. The rectangular form of inverters distributed across the Project site would be visible since they would rise above the comparatively low and horizontal form of solar modules. Gen-tie structures would display a vertical form, line and color similar to that of existing ECO Substation 138kV transmission line poles and the gen-tie access road would contribute an additional sandy colored, straight line to the valley floor.

Changes to Visual Character and Quality

Vividness (Rated 3.2)

Solar modules would display a darker gray tone than that of the surface of ECO Substation yards; however, the visual effect of vegetation removal and development would display similar form, line and texture contrasts. The geometric form and straight lines created by the perimeter of the of the proposed facility would create a dark-colored, noticeable break in the visual pattern

Visual Resources Report for the Jacumba Solar Energy Project

of low desert shrubs and exposed soils draped over the slightly concave form of the valley terrain. However, from the elevated vantage point offered at Key View 4, the proposed solar facility would display a horizontal composition consistent with that of the surrounding low valley floor. From this distance, the concentration of low shrubs begins to take on the appearance of a concentrated mass of color (as opposed to the stippled texture of foreground vegetation). Although the proposed facility would not alter ridgelines visible alterations of the valley floor and the introduction of ordered, rectangular forms and straight lines would detract from the rather striking visual pattern of desert shrub and exposed soil valley terrain juxtaposed against rugged and steep mountainous terrain.

Intactness (Rated 2.8)

Similar to existing substation development, development of the proposed solar facility would create a noticeable interruption in the characteristic visual pattern of tan to dark brown soils and low desert shrubs across the valley floor. From this elevated perspective, lightly colored north-south access roads would be noticeable and would contribute additional line contrast to the scene. North of the international border, the terrain would feature an additional wide, grayish, geometric form that would encroach on the soils and vegetation spread across the Project site. Views from Key View 4 would continue to be panoramic and both the context and the expansiveness of the surrounding landscape would somewhat subdue the resulting visual response. Also, as with existing substation development, vegetation removal, installation of a solar modules and the resulting grayish, ordered mass on the Project site would degrade the integrity of the existing visual pattern.

Unity (Rated 2.7)

Similar to the anticipated visual effects from Key View 3, views of the proposed development from Key View 4 would create a visible checkerboard pattern consisting of the gray surface and bands of soils of the ECO Substation, and the concentrated grayish mass of the proposed solar facility. Access roads associated with the solar facility and gen-tie line would create new lightly colored, horizontal and diagonal lines on the valley floor. The dark color of solar modules would somewhat resemble the color displayed by clumps of desert shrubs when viewed from a distance and at a superior angle perspective. The distance between Key View 4 and the Project site would make the details of solar modules difficult to discern. The solar facility would generally be experienced by Key View 4 recreationists as alternative bands of sandy/tan and grayish color. The proposed solar facility and gen-tie line would interrupt the continuity of the existing visual pattern across the Project site. Furthermore, there are numerous gray-colored solar modules bordered by lightly colored soils at the Project edges which would attract a viewer's attention and amplify anticipated contrast with the surrounding terrain and vegetation.

Visual Resources Report for the Jacumba Solar Energy Project

Viewer Response (Rated 4.0)

As stated above for Airport Mesa, trail-based recreationists on Table Mountain would have a heightened sense of change in the landscape due to a longer duration view and slower speed of travel. Existing roads and trails to the mesa landform in the Table Mountain ACEC are consistently rocky and at times steep, making four-wheel drive a necessity for some routes. The area is used by local hikers and is assumed to receive use from local off-road vehicle enthusiasts. Due to the existing level of development in the landscape, trail-based recreationists may have an increased sensitivity to new development on the valley floor. As such, viewer response to change in the existing landscape from the Key View 4 is anticipated to be moderately high.

Resulting Visual Impact

As viewed from Key View4, modification of the existing landscape resulting from development of the proposed solar facility would result in a moderate visual impact.

6.3 Assessment of Visual Character and Visual Quality

6.3.1 Assessment of Visual Character

Existing Condition

The approximately 108-acre proposed solar facility development would be located within a larger 304-acre Project site crossed by Old Highway 80 and located approximately 3.5 miles east of the community of Jacumba and immediately north of the U.S./Mexico border. Within the Project viewshed, residential development is limited; however, the area is crossed by regional and local transportation corridors and by regional energy transmission infrastructure. The Project site is located within a small, rural valley bordered by Table Mountain to the north, the Airport Mesa landform to the west and the Jacumba and Sierra de Juarez Mountains to the east and south. While the natural visual pattern of dense desert shrubs and pockets of exposed arid soils extends to south into Mexico, the international border fence introduces a dark, straight horizontal line that, while visually bold, does not interrupt the flow of the visual landscape or the dominant mountain ridgelines that form the area horizon. In addition to limited residential development, transportation and transmission corridors, the ECO Substation is currently under construction to the east of the proposed solar facility development and has introduced disparate vertical forms and lines and metallic colors to the landscape. The Project site itself is crossed a network of informal dirt access roads but is primarily covered by the characteristic low, dark-green desert shrubs and pale soils of the Desert Alluvial Fan LCU.

Visual Resources Report for the Jacumba Solar Energy Project

During Construction

As proposed, construction of the Project would consist of several phases that would include site preparation and grading, development of staging areas and site access roads, solar array assembly and installation, and construction of electrical transmission facilities. During site preparation and grading, construction vehicles and equipment would be mobilized on the Project site and the characteristic desert scrub shrub and arid soil visual pattern would be replaced with a cleared, gently sloping and smooth development pad. The contrast in form, line, color and texture between the cleared site and surrounding desert landscape would be apparent and the presence of construction vehicles and equipment would create additional contrast. Site preparation and grading (and all phases of construction) would introduce movement to the site. Due to the concentration of vehicles and equipment, the movement of vehicles across the denuded site would be more apparent to passing motorists and residents than the occasional Border Protection vehicles across the site under current conditions. Grading activities may also produce localized, but visible, fugitive dust that would be moderated by the routine dust suppression such as application of water. The development of staging areas and site access roads and trenching activities would similarly create visual disturbance to the characteristic visual pattern of the landscape through the removal of vegetation and disturbance of soils. Once site preparation is complete, solar panels and racking systems would be brought to the site, assembled and installed in east-west rows. During this process, stockpiled materials, the angular lines of the racking systems and the horizontal and occasionally serrated line of solar panels would be introduced to the Project site. The form, line and color of these components would contrast with that of surrounding shrubs, soils and mountainous terrain. PV modules would also rise above the low arching skyline created by the low hill at the western Project boundary. Lastly, the installation of electrical transmission facilities would involve vehicles and personnel accessing the alignment and removing vegetation at pole locations. In addition, the installation of three 150-foot steel monopoles poles would introduce new vertical lines to the landscape. Construction of the on-site substation and delivery of energy storage facility would also be visible to motorists and residents as described in the Key View discussion.

End of Construction

The smooth texture and straight lines of the solar field edges would contrast with the coarse texture and ragged lines of surrounding vegetation. Solar panel racks and rows across an approximate 108-acre area would display smooth dark-colored rectangular forms and regular horizontal lines. The on-site substation would introduce a series of complex, angular lines to the site and the energy storage facility would entail the installation of boxy shipping containers over a small portion of the Project site. Tall and lightly colored monopoles would rise from the

Visual Resources Report for the Jacumba Solar Energy Project

ground plane and introduce additional vertical lines that would contrast with the low form of mounded vegetation and the largely horizontal composition of the Desert Alluvial Fan landscape.

Maturity

Temporarily disturbed areas of the Project site may be reseeded with a native plant hydroseed mix; however, the Project applicant has made no commitments regarding restoration activities. Since it is unknown whether restoration activities would occur, for purposes of this report reseeded of temporarily disturbed areas is not assumed. Therefore, the maturity phase of the Project would display a similar visual character as previously discussed above for the end of construction phase.

6.3.2 Assessment of Visual Quality

Existing Condition

The rounded, shrubby form, light to dark green color and rough texture of desert vegetation, as well as the tan to gray color of exposed rocky soils, is displayed across much of the Project area. The majority of the landscape displays a scattered, patchy texture; however, with distance, vegetation appears more dense and uniform in color and texture and pockets of exposed pale soils are less prominent. Views to the site are relatively wide in nature but tend to be enclosed by the Jacumba Mountains to the east the Airport Mesa landform to the west. The undeveloped natural lands in the immediate Project area and the presence of mountainous terrain creates a generally rural ambiance and spatial expansiveness. However, the presence of cultural modifications including the international border fence, the Southwest Powerlink and the ECO Substation have introduced noticeable visual contrast in form, line, color and texture that diminishes the vividness, intactness and unity of the natural visual pattern.

During Construction

During site preparation, the vividness of the landscape would be diminished by vegetation removal that would disrupt the natural visual pattern and create a rectangular, denuded site. The light color and straight edges of the Project site would be surrounded by an otherwise concentrated mass of dark-green shrubs. The horizontal character of the visual disturbance from the solar Project would be prominent, attracting the attention of passing motorists and residents, but would not distract viewers from the visual resources within the broader viewshed context. The new monopoles associated with the connector line would combine with existing monopoles and transmission infrastructure to strongly contrast with existing visual resource quality.

Visual Resources Report for the Jacumba Solar Energy Project

Grading activities would entail a concentration of vehicles and equipment across the Project site and the element of movement would contrast with the static nature of natural features. The development of staging areas and access roads would create additional lines and pockets of visual disturbance in the landscape; however, unlike the visual effects associated with site preparation, these features are smaller in scale and visual effects would be less apparent. The delivery of solar panels and racking systems to the Project site would entail additional elements of movement and increased activity in the landscape. Solar array assembly and installation would result in the introduction of disparate rectangular forms and horizontal lines that would mimic the bold line of the international border fence but would contrast with that of surrounding vegetation and terrain. Viewers would be afforded views of the backside of panels and racking systems and a grayish shadow would spread across the site. The construction of connector line facilities would require additional pockets of vegetation across a linear alignment. While connector line monopoles would appear similar in form and line to the existing ECO Substation 138 kV transmission line monopole, the introduction of additional tall, vertical lines would contrast with the largely horizontal composition of the Project area landscape.

End of Construction

Installation and operation of the Proposed Project would create noticeable visual contrast in form, line, color, and texture that would reduce the visual quality of the landscape. Within the middleground viewing distance, the horizontal line and form of solar PV modules and support racks would contrast with the low, mounded form vegetation and the rugged line of more distant mountainous terrain. The vividness, intactness and unity of the landscape would be diminished by the introduction of new vertical lines and light colors that would detract from views of the natural visual pattern of desert scrub vegetation, pockets of arid sandy colored soils and rugged mountains.

Maturity

Visual quality anticipated at maturity would be similar to visual quality at end of construction. Please refer to discussion above.

6.3.3 Assessment of Viewer Response

The proposed solar PV arrays would display a height visually consistent with that of the international border fence and single-story rural residences in the Project viewshed; however, the bulk, horizontal scale, and grayish to grayish-blue color of the solar facility would draw the attention of passing motorists. Furthermore, disturbance to the existing visual pattern across the Project site resulting from site preparation and grading activities would be apparent and would

Visual Resources Report for the Jacumba Solar Energy Project

stand out in the landscape. While the Project would primarily be viewed from a distance and would be experienced in the larger landscape context, the perceived intactness and unity of the landscape as viewed from stationary and mobile locations would be diminished by the introduction of the solar facility and associated monopoles.

I-8 motorists would be afforded brief views of the proposed solar facility. As shown on Figure 9, the solar arrays would display a horizontal composition that would be harmonious with the horizontal form of the existing form of the Desert Alluvial Fan LCU. However, the solar arrays would be uniformly dark in color and light colored access roads at Project edges would create a perceptible contrast with the darker greens displayed by vegetation in the surrounding area. In addition, perimeter roads, solar arrays, and monopoles would exhibit a smooth texture that when viewed from I-8 would be distinguishable from adjacent vegetation. While new monopoles would display similar characteristics as the existing ECO Substation 138 kV transmission line monopole installed outside the 230/138kV substation yard, tall and lightly colored monopoles would contrast with the horizontal composition of the Desert Alluvial Fan LCU. In addition, the continuous form and light color of the monopoles would cause these features to stand out in the landscape when viewed from I-8.

Brief, partially screened view windows of the proposed solar facility would be available from Old Highway 80. As shown on Figure 10, from Old Highway 80 solar PV modules, fencing, and the on-site substation would display a low-vertical profile and a grayish color that would appear similar to the grayish-dark green tones of existing vegetation in the middleground viewing distance. Several PV modules would be visible atop the low hill located on site and would display grayish tones and horizontal, slightly arching lines. While the introduction of the new, dark colored lines associated with solar arrays to the middleground of the landscape visible from Old Highway 80 would garner the attention of passing motorists, the duration of views would be brief and the normal viewing angle afforded to motorists would conceal the full horizontal scale of Proposed Project from full view. As discussed above for I-8, the form and color of connector line monopoles would enhance the visibility of these features and would cause these elements stand out when viewed from Old Highway 80.

From higher-elevation landforms offering a superior angle view to the Project site and surrounding landscape (see Figures 11 and 12), solar modules on the Project site would create a grayish swath of color on the valley floor that would be bordered and interrupted by the thin bands of lightly colored soils of Project edges and access roads. The removal of vegetation from the site would be apparent and the proposed solar facility would disrupt the continuity of desert shrubs and arid soils that characterize the valley floor landscape. From Airport Mesa (see Figure 11) and the mesa landform at the Table Mountain ACEC (see Figure 12), the proposed solar facility would be viewed in the context of the surrounding landscape which includes: the ECO

Visual Resources Report for the Jacumba Solar Energy Project

Substation, the ESJ gen-tie line, existing 500 kV transmission lines, transmission lines and steel lattice structures in Mexico, and skylined wind turbines installed atop the Sierra de Juarez. Alteration of the landscape associated with development of the solar facility would be clearly visible to local recreational users. Also, while not considered permanent views, the duration of views from elevated vantage points is considered moderately long, since recreationists tend to linger and closely examine foreground, middleground, and background features comprising these long and sweeping views.

6.4 Determination of Significance

The criteria used to assess the significance of visual impacts resulting from the Proposed Project are derived from the County of San Diego's Guidelines for Determining Significance and Report Form and Content Requirements – Visual Resources (County of San Diego 2007a). As such, the Project is considered to have a significant impact if it proposed any of the following, absent specific evidence to the contrary:

1. The project would introduce features that would detract from or contrast with the existing visual character and/or quality of a neighborhood, community, or localized area by conflicting with important visual elements or the quality of the area (such as theme, style, setbacks, density, size, massing, coverage, scale, color, architecture, building materials, etc.) or by being inconsistent with applicable design guidelines.
2. The project would result in the removal or substantial adverse change of one or more features that contribute to the valued visual character or image of the neighborhood, community, or localized area, including but not limited to landmarks (designated), historic resources, trees, and rock outcroppings.
3. The project would substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from:
 - A public road,
 - A trail within an adopted County or state trail system,
 - A scenic vista or highway, or
 - A recreational area.
4. The project would not comply with applicable goals, policies or requirements of an applicable County Community Plan, Subregional Plan, or Historic District's Zoning.

In addition, the County of San Diego's *Guidelines for Determining Significance and Report Form and Content Requirements – Dark Skies and Glare* (County of San Diego 2007b) were

Visual Resources Report for the Jacumba Solar Energy Project

also used to assess the significance of visual impacts resulting from the Proposed Project. As such, the project is considered to have a significant impact if it proposed any of the following, absent specific evidence to the contrary:

1. The project will install outdoor light fixtures that do not conform to the lamp type and shielding requirements described in Section 59.105 (Requirements for Lamp Source and Shielding) and are not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code.
2. The project will operate Class I or Class III outdoor lighting between 11:00 p.m. and sunrise that is not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code.
3. The project will generate light trespass that exceeds 0.2 foot-candles measured 5 feet onto the adjacent property.
4. The project will install highly reflective building materials, including but not limited to reflective glass and high-gloss surface color that will create daytime glare and be visible from roadways, pedestrian walkways or areas frequently used for outdoor activities on adjacent properties.
5. The project does not conform to applicable Federal, State or local statute or regulation related to dark skies or glare, including but not limited to the San Diego County Light Pollution Code.

Visual Resources

Guideline 1

The project would introduce features that would detract from or contrast with the existing visual character and/or quality of a neighborhood, community, or localized area by conflicting with important visual elements or the quality of the area (such as theme, style, setbacks, density, size, massing, coverage, scale, color, architecture, building materials, etc.) or by being inconsistent with applicable design guidelines.

Guideline 2

The project would result in the removal or substantial adverse change of one or more features that contribute to the valued visual character or image of the neighborhood, community, or localized area, including but not limited to landmarks (designated), historic resources, trees, and rock outcroppings.

Visual Resources Report for the Jacumba Solar Energy Project

Impact Analysis

The introduction of the proposed solar facility and connector line would create visual contrast in form, line, color and texture that would degrade the visual quality of the Project area landscape. The severity of visual changes and contrast would be informed by distance and viewing angle. For example, from middleground viewing distances, the details of individual racks and solar PV panels would not be discernible; the concentration of these features and associated shadows on the Project site would appear as a singular grayish mass in the landscape (see Key View 1 – Figure 9). The visual pattern of racks and panels would be routinely intruded upon by the slightly taller, rectangular form and light gray color of inverters that would be distributed across the proposed solar field. Furthermore, as depicted on Figure 9, the smooth, sandy horizontal line displayed by access roads and solar field edges would interrupt the predominantly dark gray color of the proposed solar field and would contrast with the seemingly dense texture of dark green desert shrubs outside the solar field fence line. The energy storage facility and on-site private substation would be visible from middleground viewing distance such as I-8 and would add new horizontal and vertical lines to the landscape. The installation of PV modules atop the low hill located on site would also create a gray, low and arching line that would mimic the ridgeline displayed by existing terrain. The form, line, and color of Project components would garner attention from passing I-8 motorists that would be afforded brief views of the Project site. Lastly, a 138 kV gen-tie line is proposed and would deliver power generated at the proposed solar facility to the adjacent ECO Substation. The connector line would be supported by approximately three 150-foot-tall, light-colored monopoles that would be backscreened by distant mountainous terrain. As shown on Figure 9, the proposed monopoles would display a similar tall form and line as existing ECO Substation transmission line monopoles in the middleground viewing distance; however, the tall, light-colored monopoles would contrast with the largely horizontal composition and green to brown hues of the Project area landscape.

As shown on Figure 9, discoloration within the eastern, lower elevation arm of the solar facility is anticipated as light reflecting off panel edges would be visible from the superior viewing angle afforded to motorists at Key View 1. In contrast, PV modules installed atop the low hill located on site at the western Project boundary would be located at a higher elevation than Key View 1 and as a result, reflected light and discoloration within the solar array is not anticipated to be visible. Line, color and texture contrast would occur at Project edges where the straight line, tan color and smooth surface of on-site perimeter access roads would visibly contrast alongside undisturbed vegetation and soil located outside of the Project fence line. The tan colored lines created by perimeter access roads at the eastern edges of the solar array and at the eastern edge of the low hill located on site would also interrupt the uniformly grayish color of the proposed solar facility and the surrounding color and texture of the vegetation.

Visual Resources Report for the Jacumba Solar Energy Project

While the Proposed Project would mainly add new horizontal features to the predominately horizontal Desert Alluvial Fan LCU, the proposed solar facility would require the installation of up to three gen-tie monopoles to deliver generated power to the nearby ECO Substation. As shown on Figure 9, new monopoles would display a similar form, line, color and texture as the existing monopole located outside the ECO Substation 230/138 kV substation yard. While new monopoles would be backscreened, the introduction of additional vertical elements to the landscape would create further interruption of views to the rugged ridgelines of the distant Sierra de Juarez Mountains and the light color and strong vertical line of monopoles would attract attention and diminish the existing visual quality of the landscape. Implementation of the Proposed Project would contribute to an increasingly jumbled visual scene that currently includes the ECO Substation and steel lattice towers of the Southwest Powerlink and the Sunrise Powerlink (see Figure 9). Due to the anticipated visual contrast associated with the proposed solar facility and connector line, implementation of the Project would result in a moderate visual contrast as viewed from Key View 1.

From foreground viewing distances such as Old Highway 80, the normal to slightly inferior viewing angle afforded to viewers and the presence of intervening terrain and vegetation affect visibility to the Project site. For example, from Key View 2, the moderate height of foreground desert shrubs and occurrences of intervening terrain would partially screen the proposed solar facility from the view of Old Highway 80 motorists. As depicted on Figure 10, changes to the existing visual pattern and perceptible contrast with the established landscape character following introduction of the Proposed Project would be relatively subdued. As viewed from Old Highway 80, the shadow side of solar panels would introduce a dark grayish color and horizontal line across the Project site that would reference the dark color and bold line of the existing international border fence. The lighter, gray color of solar PV module racks and perimeter fencing would blend in with the gray tones of existing desert shrub vegetation in the middleground beyond the Project site. The form and line of individual panels and racks would be difficult to discern and instead, from Key View 2, the proposed solar facility would appear as gray mass in the middleground viewing distance (see Figure 10). The edges of several PV modules installed on the southern slope of the low on-site hill would be skylined; however, these modules (approximate 8 feet in height) would largely follow the contours of existing topography and would be partially obscured by the northern slope of the low hill. The side-by-side sequence of skylined panel edges would appear as a low, arching line that would mimic the skyline created by the on-site low hill. A cylindrical, light-colored water tank would also be installed atop the low hill at the western boundary of the solar facility and would be partially skylined. Additional PV modules installed on the southern slope of the hill would descend the terrain and would be obscured from view. Lastly, the introduction of new vertical element (i.e., gen-tie monopoles) would contrast with the low, primarily horizontal form of the Desert Alluvial Fan LCU. While

Visual Resources Report for the Jacumba Solar Energy Project

these features would be backscreened by the Jacumba Mountains and would display similar tall form and vertical lines as the installed ECO Substation 138 kV transmission line monopole, vertical features would be visually prominent, would attract attention and would diminish the visual quality of the existing landscape. Therefore, from Key View 2, implementation of the Project would result in moderately low visual contrast as viewed from Key View 2.

From elevated vantage points in the surrounding area such as Airport Mesa (Key View 3) and the mesa terrain at the Table Mountain ACEC (Key View 4), the rugged and mountainous backdrop of the Jacumba Mountains and Sierra de Juarez would continue to display spatial dominance and visual prominence. Background mountains would be a vivid feature in the landscape. However, alteration of the valley floor associated with development of the proposed solar facility and associated gen-tie line would interrupt the existing composition of low, gently rising shrub- and soil-covered terrain that transitions to moderate foothills and steep mountainous landforms. The proposed solar facility would create a new break in the continuity of desert vegetation and arid soils and as a result, the valley floor would appear somewhat jumbled and would begin to display a slight patchwork quality when viewed alongside the ECO Substation (see Figures 11 and 12). While the visual details of the proposed solar facility and resulting effects of Project development would tend to decline with distance, a moderately high visual impact was identified at Airport Mesa and a moderate visual impact was identified at Table Mountain, since visual effects would be apparent to recreationists afforded long, sweeping views of the Project area landscape.

Significance of Impact

Impacts to the existing visual character and/or quality of the area would be **potentially significant**.

Mitigation Measures

Impacts to visual character and/or quality of the area would be potentially significant. While there is no feasible mitigation available to reduce the anticipated form, line, color and texture contrast of the proposed solar facility and gen-tie line to a less than significant level (see Section 7, Visual Mitigation and Design Considerations for discussion of mitigation measures considered), implementation of the following Mitigation Measures would ensure that visual contrast with the surrounding landscape is minimized to the extent practicable.

M-AE-1 If installed, inverter enclosures shall be painted with a flat, non-reflective grayish or dark green color to match the color of surrounding Project components and the existing landscape. Alternatively, enclosure walls shall have a coarse texture

Visual Resources Report for the Jacumba Solar Energy Project

(such as a split-face concrete block) to reduce reflectivity and blend with surrounding vegetation; flat building surfaces should be avoided.

M-AE-2 The installation of water tanks atop elevated landforms shall be avoided. If the installation of water tanks atop elevated landforms is required by San Diego Rural Fire Protection, then water tanks shall be installed with the top of the tank no more than 8 feet above the native terrain. Any remaining visible tank surface shall be painted with a flat, non-reflective grayish or dark-green color to match the color of surrounding Project components and the existing landscape.

M-AE-3 Prior to the end of one-year from the date of building permit issuance, the Project Applicant shall submit a Decommissioning Plan that shall at a minimum identify removal of all above grade structures from the site and any non-shared transmission facilities, associated decompaction activities, recontouring the site to restore preconstruction site topography, erosion control, application of hydroseeding, and installation of permanent Best Management Practices (BMP). The Project shall comply with all requirements of San Diego Regional Water Quality Control Board General Construction Permit for Notice of Termination filing associated with site stabilization.

Guideline 3

The project would substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from:

- A public road,
- A trail within an adopted County or State trail system,
- A scenic vista or highway, or
- A recreational area.

Impact Analysis

Public Roads/Scenic Highways

The Proposed Project viewshed would encompass segments of I-8 and old Highway 80. I-8 is an eligible state scenic highway and both I-8 and Old Highway 80 are included in the County Scenic Highway System.

Visual Resources Report for the Jacumba Solar Energy Project

Interstate 8

The Proposed Project viewshed as it relates to I-8 is shown on Figure 7a. Areas from which views of the Proposed Project would be available as depicted on Figure 7a are approximate and do not consider the screening effect of intervening vegetation and structures. As shown on Figure 7a, brief view opportunities of the proposed solar facility would be available to eastbound motorists through three viewing windows separated by rocky, boulder outcrops and intermittent road cuts/berms. The viewing windows are approximately 1,000 feet, 350 feet, and 1,800 feet in length and are located 1.7 miles, 1.1 miles, and 0.8 mile from the proposed solar facility site. Assuming travel at the posted speed limit of 70 mph, view opportunities of the proposed solar facility through these windows would be available for durations of approximately 10 seconds, 3 seconds, and 17 seconds, respectively. For westbound motorists, views of the proposed solar facility would be available through one longer viewing window of approximately 2,200 feet beginning at Jade Peak and continuing to the west. The viewing window is located approximately 0.85 mile north of the proposed solar facility and assuming travel at the posted speed limit, view opportunities of the Project would be available for approximately 21 seconds.

As stated above, views to the proposed solar facility are intermittently available to east and westbound I-8 motorists generally between Exit 73/Carrizo Gorge Road and Jade Peak (a distance of approximately 3 miles). As westbound motorists travel through the proposed Project viewshed, views to the west extend to the distant horizon. Views to the north are unavailable due to the upward sloping terrain, Table Mountain and the prominent mesa landform located south of Table Mountain. Views to the south extend to the Sierra de Juarez Mountains. However, continuous views of mountainous terrain to the south, southwest, and west are interrupted by the mounded Airport Mesa landform. The prominent and elevated landform substantially blocks views of the distant mountain backdrop. Similarly, as eastbound motorists travel through the landscape, Airport Mesa and Table Mountain interrupt continuous views of mountainous terrain to the south and west, and establish limits on the length of views to the north. The Jacumba Mountains also limit the availability of particularly long and expansive views to the east as eastbound motorists pass travel through the proposed Project viewshed. As such, views from I-8 through the proposed Project viewshed are not considered panoramic vistas.

The landscape visible to the I-8 motorists as they pass through the proposed Project viewshed includes prominent mesa landforms, unique conical peaks, rugged ridgelines of the Jacumba Mountains and Sierra de Juarez, relatively flat and horizontal form of the valley floor, and the ECO Substation, along with several tall steel lattice structures. There are multiple elements of interest presented to motorists as they pass through the proposed Project viewshed, and attention does not tend to linger on any one focal point in the landscape. The Project site is situated between the Airport Mesa landform to the west and the Jacumba Mountains to the east, and

Visual Resources Report for the Jacumba Solar Energy Project

mountainous terrain in Mexico occupies the middleground landscape between these elements. As a result, there is no sharp convergence of terrain that would create a particularly strong focal point. Therefore, valued focal vistas are not considered to occur along the approximate 3-mile-long segment of I-8 included in the Proposed Project viewshed. As such, introduction of the proposed solar facility and gen-tie would not substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from I-8.

Old Highway 80

The Proposed Project viewshed as it relates to Old Highway 80 is shown on Figure 7b. Areas from which views of the Proposed Project would be available as depicted on Figure 7b are approximate and do not consider the screening effect of intervening vegetation and structures. For eastbound motorists, views of the Project site are available along three noncontiguous segments of the highway. Between the Carrizo Creek overpass and the existing ECO Substation access road (a distance of approximately 0.6 mile), views of the proposed solar facility are available through viewing windows of approximately 500 feet, 390 feet, and 1,100 feet in length. Assuming travel at the posted speed limit of 55 miles per hour (mph), interrupted views of the easternmost portion of the proposed solar facility through these viewing windows are available for approximately 6 seconds, 5 seconds, and 13 seconds, respectively. Through these view opportunities, motorists would be located approximately 0.75 mile, 0.6 mile, and 0.4 mile from the proposed solar facility. East of the ECO Substation access road, the proposed solar facility is located outside of the normal cone of vision of passing motorists. Views of the gen-tie structures would be available along the entire segment of Old Highway 80 included in the Proposed Project viewshed.

The Project viewshed encompasses an approximate 1.4-mile-long segment of Old Highway 80 generally from Airport Mesa east to Jade Peak and as stated above there is opportunity to view the proposed solar facility and gen-tie line from the highway. As viewed from the highway, the Jacumba Mountains and Sierra de Juarez display spatial dominance and are visually prominent in the landscape. Therefore, midground and background mountainous terrain tends to attract the attention of east and westbound motorists along the approximately 1.4-mile-long segment of the highway located in the Proposed Project viewshed. Also, when viewing a relatively long feature in the landscape, viewers tend to scan the feature and follow the forms and lines. After passing Airport Mesa and Jade Peak, southerly views are relatively open and extend to the Sierra de Juarez, with exception given to road cuts/berms along the highway. Despite the relative openness of the views, there is a lack of noticeable sharp convergence in terrain or other elements in southerly views that would suggest a particularly dominant focal point in the landscape. In addition, the mountainous terrain lacks a particularly prominent peak that would be considered a focal feature. As such, southerly views from Old Highway 80 through the Proposed Project viewshed are not considered focal vistas. While views to the south between Airport Mesa and

Visual Resources Report for the Jacumba Solar Energy Project

Jade Peak are relatively open, the Jacumba Mountains, Table Mountain, and Airport Mesa limit views available from Old Highway 80. These landforms are all located within the foreground to middleground distance and provide verticality and ruggedness to the Project area landscape. Therefore, views from Old Highway 80 through the Proposed Project viewshed are not considered panoramic vistas. Because valued focal and/or panoramic vistas are not considered to occur along the segment of Old Highway 80 included in the Proposed Project viewshed, impacts would be less than significant.

County or State Trail System

The viewshed of the Proposed Project does not extend to a trail or segments of a trail within an adopted County or State trail system. The County of San Diego has developed a Community Trails Master Plan that includes individual community trails and pathways plans for several communities and subregional areas; however, a plan for the community of Jacumba has not been prepared and/or adopted. There are no known trails within an adopted State trail system located in the Proposed Project viewshed.

Recreation Areas

The Project viewshed encompasses existing trails located on the west-facing slopes of the Jacumba Mountains, the east-facing slopes of the Airport Mesa landform and the southerly mesa landform of the Table Mountain ACEC.

While a large portion of the Jacumba Mountains is managed as designated wilderness by the BLM, a designated motorized route outside of the wilderness boundary traverses the southwestern most extent of public lands in Imperial County. Recreationists may also utilize designated routes and existing dirt roads in the BLM-managed and non-BLM managed portions of the Jacumba Mountains to access nearby ridgelines for scenic viewing opportunities. Brief, intermittent and partial views of the Project are available from the identified southwesterly route on BLM-managed lands and views from this route are routinely obscured by intervening terrain. However, long views stretching to the western horizon, mountainous terrain to the south in Mexico and the Imperial Valley to the east are available from several ridgelines located on both BLM- and non-BLM managed portions of the Jacumba Mountains. Due to the availability of long views to the western horizon and the broad, seemingly horizontal composition of the visible landscape, westerly views from accessible ridgelines in the Jacumba Mountains are considered panoramic vistas. These views are not, however, considered valued focal vistas as there is no noticeable convergence of terrain or other elements that would draw attention to a particular focal point in the landscape.

Visual Resources Report for the Jacumba Solar Energy Project

From elevated vantage points, the proposed solar facility would display a dark color and horizontal form on the valley floor. The removal of vegetation from the Project site and development of a solar facility would create a break in the continuity of vegetation and soils visible on the valley floor. However, a similar break resulting from development of the ECO Substation is currently visible from these elevated and scenic vantage points. In addition, due to the apparent horizontal composition of the proposed solar facility, the Project would not block views of prominent middleground features (i.e., Airport Mesa, Table Mountain, etc.) or distant background features from view. The Project would also introduce three new lightly colored monopoles and an associated access road that would run between the proposed solar facility and the nearby ECO Substation. While these elements would be visible from elevated vantage points, the area surrounding the Project site features a number of access roads that have produced lightly colored lines in the landscape. In addition, new monopoles would be backscreened by soils and vegetation, and would display similar form, line, and color as the existing poles concentrated around the ECO Substation. These elements would also not block views of prominent middleground or background objects and, as such, would not substantially obstruct, interrupt, or detract from existing panoramic views.

The Airport Mesa landform is a designated Recreation Management Zone managed by the BLM for rural recreation opportunities. A road is located on the east-facing slope of the landform and provides access to a relatively wide summit, which affords recreationists long and expansive views to the southwest and west. Views to the north, northeast and east however, are shorter in length (i.e., views are limited to the middleground distance) due to the presence of Table Mountain and the Jacumba Mountains which limits the views. Therefore, due to the limitation of views, eastward-oriented views from the Airport Mesa landform towards the Project site are not considered panoramic vistas. Due to the spatial dominance and visual prominence of rugged mountainous terrain, the Jacumba Mountains tend to draw attention in easterly-oriented views from atop the Airport Mesa landform. When viewed from Airport Mesa, the proposed solar facility would be located in the foreground-middleground distance and would display a dark color and horizontal form on the low, mounded on-site hill and nearby valley floor. Gen-tie poles would be backscreened by soils and vegetation and would display similar form, line, and color as existing poles concentrated around the ECO Substation. Because the Project would not block views of the Jacumba Mountains and Project elements would not be located near the focal point of easterly-oriented views (the proposed solar facility and gen-tie structures would be located on the valley floor), the Project would not substantially obstruct, interrupt or detract from existing focal views.

Lastly, a broad vista is available from the southern edge of the mesa landform located within the Table Mountain ACEC. At this elevated landform (located approximately 1.5 miles north of the

Visual Resources Report for the Jacumba Solar Energy Project

proposed solar facility), views extend to the east into the Imperial Valley, to the south and southwest into Mexico and to the community of Jacumba Hot Springs, and to the west to the distant, darkly colored horizon. A wide, valley landscape bordered by mountainous terrain to the east, south and west is apparent from Table Mountain ACEC mesa landform looking south. Due to the availability of expansive and distant views, the Table Mountain ACEC mesa landform is considered a scenic vista. From the elevated vantage point offered at Table Mountain, nearly the entire proposed solar facility would be visible; however, the details of individual solar modules would be difficult to discern. Still, the solar facility would display a dark, grayish color, and lightly colored lines would be visible both within the solar facility and at facility edges. Gen-tie poles would be backscreened by soil and vegetation on the valley floor, and the thin, lightly colored diagonal line of the gen-tie access road would connect the proposed solar facility to the ECO Substation. The rectangular form, lines, and the dark color of solar arrays of the Project would somewhat resemble agricultural fields as an example comparative land use that exists in the Jacumba area, as a visual element. would appear similar to the dark line exhibited by the international border fence. Three new, lightly colored monopoles would display similar lines and colors as existing monopoles and structures concentrated around the ECO Substation. In addition, the Project would account for a small percentage of the overall land area visible from this viewpoint. Because the solar facility would display a horizontal form, the Project components would not block views of distant background elements or views of prominent middleground landforms, and therefore would not obstruct or detract from a strong focal point in the landscape. For these reasons, the proposed solar facility and associated gen-tie line would not obstruct, interrupt, or detract from the panoramic view available to recreationists at the mesa landform within Table Mountain ACEC.

Significance of Impact

The Project would not substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from I-8 or Old Highway 80. Both roadways are included in the County of San Diego Scenic Highway System, Impacts would be **less than significant**.

There are no known trails within an adopted state trail system located in the Proposed Project viewshed; therefore, **no impacts** to a valued focal and/or panoramic vista from a trail within an adopted County or state trail system would occur.

The Project would not substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from the Jacumba Mountains, the Airport Mesa RMZ or the southerly mesa landform at the Table Mountain ACEC. Impacts would be **less than significant**.

Visual Resources Report for the Jacumba Solar Energy Project

Mitigation Measures

Impacts to focal and or panoramic vistas would be less than significant; therefore, no mitigation is required.

Guideline 4

The project would not comply with applicable goals, policies or requirements of an applicable County Community Plan, Subregional Plan, or Historic District's Zoning.

Impact Analysis

There is no historic zoning located near the proposed solar facility site.

As stated in Section 3.3, the San Diego County General Plan and the Mountain Empire Subregional Plan are the relevant planning documents for development in the Project area. Further, both the General Plan and Subregional Plan contain policies related to the protection of visual resources that are applicable the Project. More specifically, General Plan Conservation and Open Space policies COS-11.1, COS-11.3, COS-11.7, COS-13.1 and COS-13.2 are applicable to the Project. These policies concern the protection of scenic resources including scenic landscapes and corridors, minimization of visual impacts through development siting and design, undergrounding of utilities and restriction of outdoor lighting and glare. A detailed consistency analysis regarding the Proposed Project and relevant policies of the General Plan is provided in Chapter 3.1-5, Land Use and Planning (see Table 3.1.5-3). Several subregional plan policies concerning the minimization of hillside grading and retaining significant natural features characteristic of the community's landscape are applicable to the Project. A detailed consistency analysis regarding the Proposed Project and relevant policies of the subregional plans is provided in Chapter 3.1-5, Land Use and Planning, of the Jacumba Solar Energy Project Environmental Impact Report (EIR) (see Table 3.1.5-4).

General Policy COS-11.1 pertains to the protection of scenic resources including scenic highways. The Project would be visible from I-8 and Old Highway 80, both of which are County designated scenic roads. Fixed-tilt, south-oriented solar PV modules would be located approximately 0.8 mile from the eastbound lanes of I-8 and as close as 0.25 miles to Old Highway 80. As shown on Figure 9, from I-8 the visual details of the proposed solar facility would be difficult to discern and the Project would appear as a concentrated mass of gray horizontal lines occasionally interrupted by bands of lightly colored soils. A-frames at the on-site substation would introduce additional vertical lines and these features would be backscreened by panels and the distant foothills of the Sierra de Juarez Mountains. The introduction of the Proposed Project to the I-8 landscape would create similar line contrasts as the international

Visual Resources Report for the Jacumba Solar Energy Project

border fence and similar color and texture contrast as the ECO Substation. From I-8 and Old Highway 80, support racks and solar PV modules of the Proposed Project would display low vertical profiles that would be compatible with the largely horizontal composition of the Desert Alluvial Fan LCU. The low profile of solar PV modules and the distance to the Project site from I-8 would decrease the visual prominence of the solar field; however, the horizontal bulk and grayish color would be apparent to passing motorists. From Old Highway 80, low-profile solar PV modules would be partially screened by intervening vegetation and terrain and would create similar line contrasts as displayed by the international border fence. The edges of several PV modules installed atop the low on-site hill would be partially skylined; however, PV modules would generally follow the contours of the existing terrain and would create a similar (albeit slightly elevated) line as that displayed by the low hill. Despite the relatively close proximity of the highway to the proposed solar field, the visual details of racks and solar panels would be difficult to detect. The uniformly dark color associated with the shadow side of solar panels would create a dark, horizontal line that would appear similar to dark line of the international border fence. The grayish edges of solar PV modules would blend in with the grayish green color of existing desert shrubs located to the east in the middleground.

While the Proposed Project would result in potentially significant impacts to visual character and quality, existing views from I-8 and Old Highway 80 would be protected to the extent feasible. The proposed solar facility would be sited near existing substation, regional transmission line and wind turbine. Furthermore, due to the proximity of the ECO Substation, the length of the gen-tie line would be minimized and new monopoles would be installed within an existing transmission corridor alongside ECO Substation 138 kV transmission line monopoles that would display similar form, line and color. In addition, the Proposed Project would install low-profile racks and PV modules within a low, desert alluvial fan landscape and would avoid alteration of dominant landforms and prominent ridgelines. As such, development of the Project would be consistent with General Plan Policy COS-11.1.

Policy COS-11.3 pertains to development siting and design and requires development to minimize visual impacts and preserve unique or special visual features through creative site planning, integration of natural feature into the Project, and use of appropriate scale, material an design to complement the surrounding landscape. Policy COS-11.3 also recommends minimal disturbance of topography, clustering of development and creation of contiguous open space network. Development of the Project would not require the removal of existing oak trees or rock outcroppings and the height of solar panel systems (approximately 8 feet above ground surface) would be consistent with the height of the international border fence and limited single-family rural residential development in the surrounding area. Further, the proposed solar array would occupy an approximately 108-acre portion of a larger, approximately 297-acre parcel; therefore,

Visual Resources Report for the Jacumba Solar Energy Project

more than half of the Project site would retain its existing rural and rugged desert characteristics. Clearing, grubbing, and grading would be required for site preparation and the construction of access and service roads, such that all vegetation on the 108-acre area would be completely removed. However, the topography of the site is relatively mild and is not anticipated to require substantial excavation of the soil or modification of prominent landforms. PV modules installed on the southern slope of the low hill would generally follow existing contours and minimal changes to existing landforms would result. The solar panels and associated racking system, on-site substation, and energy storage facility would create visible form, line, and color contrasts in the landscape; however, from public viewpoints along transportation corridors, the visual details of the proposed solar facility would be obscured by distance and routinely screened by road cuts, intervening terrain, and vegetation. As such, development of the Project would be consistent with General Plan Policy COS-11.3.

General Plan Policy COS-11.7 concerns the undergrounding of utilities. The Proposed Project proposes a short overhead 138 kV gen-tie line, as undergrounding the entire gen-tie as part of the Proposed Project would increase impacts relative to biology, cultural resources, and air quality due to required trenching activities and would be cost prohibitive. Facilities exceeding 34.5 kV are exempt from the intended undergrounding requirements. It should be noted that multiple existing overhead high-voltage transmission lines are located in the viewshed of the aboveground gen-tie associated with the Project.

General Plan Policies COS-13.1 and COS-13.2 pertain to restriction of light and glare and minimization of lighting impacts on dark skies within impact areas of the Palomar and Mount Laguna Observatories. As proposed, the Project would install motion-triggered outdoor lighting at Project vehicle entrance gates and at the on-site collector substation. Outdoor lighting would be installed for security and safety purposes and would operate during nighttime hours only on an as-needed basis. When not in use, lighting would be turned off. Furthermore, compliance with County of San Diego Light Pollution Code (see Dark Skies and Glare analysis below) would ensure that all lighting would conform to the lamp type and shielding requirements applicable to lighting in Zone B as established by the County of San Diego Light Pollution Code. In addition and as further discussed below under the Guideline 5 Dark Skies and Glare analysis, glare generated by proposed solar modules would be restricted by the angle and orientation of fixed-tilt trackers and limited daily glare would be received by recreationists at prominent ridgelines of the Jacumba Mountain and at Airport Mesa. Therefore, impacts associated with light and glare and the existing quality of night skies would be minimal.

Visual Resources Report for the Jacumba Solar Energy Project

Significance of Impact

As demonstrated above and in Chapter 3.1-5, Land Use and Planning, of the EIR, the Project would be consistent with the applicable policies of the San Diego County General Plan Conservation and Open Space Element and the Mountain Empire Subregional Plan. Impacts would be **less than significant**.

Mitigation Measures

Impacts would be less than significant; therefore, mitigation measures are not required.

Dark Skies and Glare

Guideline 1

The project would install outdoor light fixtures that do not conform to the lamp type and shielding requirements described in Section 59.105 (Requirements for Lamp Source and Shielding) and are not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code.

Guideline 2

The project would operate Class I or Class III outdoor lighting between 11:00 p.m. and sunrise that is not otherwise exempted pursuant Section 59.108 or Section 59.109 of the San Diego County Light Pollution Code.

Guideline 3

The project would generate light trespass that exceeds 0.2 foot-candles measured 5 feet onto the adjacent property.

Impact Analysis

Construction is anticipated to occur during hours permitted by the County, and therefore, nighttime lighting to accommodate construction activities would not normally be required. However, during autumn and winter months when sunset would occur prior to 7:00 p.m., lighting during nighttime hours may be required. Construction activities are permitted between 7:00 a.m. and 7:00 p.m., Monday to Saturday by the County of San Diego. Although use of nighttime lighting would be limited and only two residences are located in the Project vicinity, nighttime lighting could affect existing views in the surrounding area which is generally devoid of significant nighttime lighting sources. All lighting at the site would comply with the

Visual Resources Report for the Jacumba Solar Energy Project

County of San Diego Light Pollution Code Section 59.101 et seq. in regards to both general requirements (i.e., use of low-pressure sodium lamps, shielded light fixtures, hours of operation limitations) and lamp type and shielding requirements for Class I and II lighting in Zone B. Conformance with the County of San Diego Light Pollution Code during construction would ensure that light trespass from the site would be minimized and lighting would conform to the applicable local regulation.

All outdoor lighting installed at the proposed solar facility would be shielded and directed downward to comply with the applicable requirements of the San Diego County Light Pollution Code. The Project site is located more than 15 miles from the Mount Laguna Observatory; therefore, lighting at the Project site would be subject to Zone B standards for Class I and Class II lighting. As stated in Section 2, Project Description, of the EIR, all lighting for the solar facility would have bulbs that do not exceed 100 watts; however, per the San Diego County Light Pollution Code, the acceptability of a particular light is decided by its lumen output, not wattage. Therefore, in compliance with the San Diego County Light Pollution Code, all outdoor lighting at the proposed solar facility will conform to the Zone B lamp type and shielding requirements of the Light Pollution Code.

Outdoor lighting is proposed at entrance gates to the solar facility and at the Project substation for security and safety purposes. Lighting would also be provided next to the entrance door to the substation control house. While nighttime outdoor lighting may be required to illuminate particular areas of the substation for operations and maintenance personnel, all outdoor lighting would be turned off when not in use and would only be used on an as needed basis. Maintenance activities are not anticipated to be conducted during the evening hours. If nighttime lighting does operate between 11:00 p.m. and sunrise such as may occur during emergency work, use of lighting would be temporary. In addition, conformance with the San Diego Light Pollution Code Zone B lamp type and shielding requirements for all outdoor lighting at the solar facility would minimize the potential for light trespass and effects to the surrounding area including excess illumination of the nighttime sky. Furthermore, there are no existing residences located on properties adjacent to the solar facility. There are two residences located in the Project viewshed and both are located more than 0.5 mile from the solar facility. Therefore, due to distance and through conformance with applicable regulations pertaining to lighting, outdoor lighting installed at the proposed solar facility would not substantially affect the nighttime views of existing residences in the local Project area.

Significance of Impact

Outdoor lighting installed for security and safety purposes would operate during nighttime hours only on an as need basis. When not in use, lighting would be turned off. All outdoor lighting

Visual Resources Report for the Jacumba Solar Energy Project

would comply with the San Diego Light Pollution Code Zone B lamp type and shielding requirements. Conformance with applicable lamp type and shielding requirements would minimize the potential for light trespass onto adjacent properties and excess illumination that could adversely affect nighttime views in the area. Therefore, potential lighting impacts would be **less than significant** for Guidelines 1, 2, and 3.

Mitigation Measures

Potential lighting impacts would be less than significant; therefore, no mitigation would be required.

Guideline 4

The project would install highly reflective building materials, including but not limited to reflective glass and high-gloss surface color that will create daytime glare and be visible from roadways, pedestrian walkways or areas frequently used for outdoor activities on adjacent properties.

Guideline 5

The project would not conform to applicable federal, state or local statutes or regulations related to dark skies or glare, including but not limited to the San Diego County Light Pollution Code.

Impact Analysis

While the Project does not propose to install traditional highly reflective building materials such as glass windows or metallic siding, the Project entails the introduction of thousands of glass-surfaced solar modules on fixed tilt racks across the 108-acre site. Solar PV modules are designed to be highly absorptive of all light that strikes their glass surfaces. Steel support structures and steel shipping containers would be installed at the on-site substation and energy storage facility and three connector line structures would be required to deliver power generated at the proposed solar facility to the nearby ECO Substation. In addition to two residences, the Proposed Project viewshed would encompass portions of I-8 and Old Highway 80, and would extend to the Jacumba Mountains to the east, the Table Mountain ACEC to the north, and the Airport Mesa RMZ to the west.

As shown on Figures 9 and 10, fixed tilt racks and solar panels would be oriented towards the south. Motorists on I-8 and Old Highway 80 would be afforded views of the shadow side of the panels as well as the beams of the racking system. Because panels would not be oriented to the north and towards I-8 and Old Highway 80 and because solar PV modules are coated with a non-reflective treatment, no daytime glare would be generated and glare would not be visible from

Visual Resources Report for the Jacumba Solar Energy Project

these roadways. Slight variations in the color of individual or small groups of solar panels resulting from the specific angle of orientation may be perceptible to passing motorists afforded a superior angle view of the solar field. However, this effect would be experienced as a contrast of color as opposed to received glare. Therefore, due to the southerly orientation of fixed –tilt solar panels and because solar PV modules would be coated with a non-reflective treatment, daytime glare would not be generated and would not be visible from I-8 or Old Highway 80.

The southerly orientation of fixed-tilt solar panels would limit opportunities for motorists to receive glare as they pass through the Proposed Project viewshed; however, the presence of prominent and mountainous terrain to the east and west of the site may expose recreationists to Project-generated glare. To determine the likelihood for recreationists at the proposed components. Latitude, longitude, and elevation of Project components are recorded and specific Jacumba Mountains and Airport Mesa to receive glare during operation of the proposed solar facility, the Solar Glare Hazard Analysis Tool from Sandia National Laboratories and the U.S. Department of Energy was used. The Solar Glare Hazard Analysis Tool uses an interactive Google map that can be used to identify the specific location of Project site and off-site locations that may have susceptibility to glare can be identified (location and elevation information is used for sun position and vector calculations). The product of the Solar Glare Hazard Analysis Tool is a simple glare occurrence plot that approximates when glare would occur throughout the year and the severity of glare at the given observation point. The severity of glare is placed into one of three categories: (1) potential for permanent eye damage; (2) potential for temporary after-image (i.e., temporary disability of distraction); and (3) low potential for temporary after-image. While the Solar Glare Hazard Analysis Tool does have limitations (for example, the tool does not consider obstacles (man-made or natural) such as trees, intervening terrain or buildings between the observation point and solar facility that may obstruct observed glare), the tool does allow for general approximation of the severity of received glare in the surrounding landscape.

Two specific observation points from Airport Mesa were identified and considered in the Solar Glare Hazard Analysis Tool. The first location is located on the summit route/trail at the gate and culvert at an approximate elevation of 3,340 feet amsl and is located 570 feet north of the international border and 0.23-mile west of the Project boundary. The second location is located atop Airport Mesa at an approximate elevation of 3,570 feet amsl, approximately 260 feet north of the international border and approximately 0.46 mile west of the Project boundary. According to the Solar Glare Hazard Analysis Tool, temporary disability/distraction glare may be received by recreationists at Airport Mesa generally during the hour immediately after sunrise (6:00 a.m. to 7:00 a.m.) and from April to October. Glare exposure would be slightly greater (i.e., glare could be received year-round) for recreationists on the trail/route traversing east-facing slopes

Visual Resources Report for the Jacumba Solar Energy Project

when compared to the summit but would be experienced for less than one hour from January to March and November to December.

Although recreationists at Airport Mesa would receive Project-generated glare, glare exposure would be of limited duration and would not substantially affect the availability of panoramic views from the elevated landform. Glare would be received by recreationists during the hour immediately following sunrise and glare exposure would be concentrated during spring and summer months. During fall and winter months, glare would be received but daily duration would decrease to between 15 minutes and 45 minutes. While it is not known whether Airport Mesa is a popular destination for early morning hikes (the proximity of the international border and surveillance of the landform by U.S. Customs and Border Protection suggests that this is unlikely), panoramic views to the southwest and west are available from Airport Mesa. Because glare would be experienced in easterly oriented views during early morning hours, glare would not substantially affect panoramic views to the southwest and west and would not obscure or interrupt the casting of light onto the expansive valley and distant mountain landscape. Therefore, Project-generated glare would not substantially affect the daytime views of recreationists at Airport Mesa and impacts would be less than significant.

Three specific observation points from the Jacumba Mountains were identified and considered in the Solar Glare Hazard Analysis Tool. Identified observations points are situated atop ridgelines located between 1.4 and 2 miles east of the Project site in the Jacumba Mountains at elevations ranging from approximately 3,980 feet amsl to 4,520 feet amsl. According the Solar Glare Hazard Analysis Tool, temporary disability/distraction glare would be received by recreationists at elevated vantage points (ridgelines) for an approximate daily duration of between 15 and 45 minutes prior to sunset between the months of March to May and September to November. The Jacumba Mountains is not likely a destination for large numbers of late evening hikers because it was not designated as part of a state or local trail system that could attract large numbers of hikers. In addition, the steep, mountainous and rocky roads would tend to limit nighttime hikers along existing routes, and the lack of established trails to ridgelines discourages nighttime trail-based recreation. For purposes of this analysis, ridgelines in the Jacumba Mountains are considered to offer panoramic viewing opportunities to the west. Because daily glare exposure would be limited between 15 and 45 minutes prior to sunset during the months of March to May and September to November, the availability of panoramic views would not be substantially affected. Glare is not anticipated to be received by recreationists at ridgelines within the Jacumba Mountains during the majority of daytime hours, which in turn, would not affect the daytime views from these vantage points. Therefore, impacts would be less than significant.

Due to the southern orientation of solar modules, glare would not be received by recreationists at the mesa landform within the Table Mountain ACEC. An observation point atop the mesa

Visual Resources Report for the Jacumba Solar Energy Project

landform was considered in the Solar Glare Hazard Analysis Tool and no glare was identified for this particular location.

Reflective materials may be introduced elsewhere on the proposed solar facility site. Steel support structures and shipping containers at the on-site substation and energy storage facility could potentially produce daytime glare that would be visible by passing motorists. The use of highly reflective materials at the on-site substation would be limited to the extent feasible and with the exception of the energy storage facility, similar materials installed at the neighboring ECO Substation would be introduced to the solar field site at the private collector substation. Solar reflectance off the steel shells of the energy storage containers may produce glare that could be visible by passing motorists along I-8 and Old Highway 80, and to recreationists in the adjacent mountain areas. Components used to construct the proposed 138 kV transmission line would all feature non-reflective surfaces. For example, insulators would be constructed of gray polymer, conductors would be made from aluminum-wrapped steel, and the transmission poles and associated hardware (as proposed) would be composed of galvanized steel.

As stated above in response to Dark Skies and Glare Guidelines 1, 2, and 3, outdoor lighting at the proposed solar facility would conform to the San Diego Light Pollution Code Zone B lamp type and shielding requirements. Therefore, the Proposed Project would conform to all applicable regulations related to dark skies or glare.

Significance of Impact

Daily exposure of Project-generated glare to area recreationists at the Airport Mesa and Jacumba Mountains would be limited to early morning and late evening hours (i.e., immediately after sunrise and prior to sunset) and depending on location, exposure would be limited to certain times of the year. With the exception of energy storage containers, Project materials would not include highly reflective materials that would adversely affect daytime views in the area. Mitigation measure M-AE-4 has been provided to address potential glare generated by energy storage containers. Therefore, impacts would be **less than significant with mitigation implemented**.

Mitigation Measures

M-AE-4 Energy storage containers shall be painted a flat, non-reflective color to match the color of surrounding Project components and the existing landscape.

Visual Resources Report for the Jacumba Solar Energy Project

6.5 Cumulative Impact Analysis

According to CEQA Guidelines Section 15335 “cumulative impacts” refers to two or more individual effects which, when considered together, are considerable and compound/increase other environmental impacts. Therefore, for purposes of this study, the individual impacts of the Proposed Project as well as the impacts associated with selected projects in the cumulative study area are considered in this cumulative impacts analysis. Regarding the consideration of time, the CEQA guidelines (specifically, Section 15335 (b)) require that the cumulative impacts analysis consider the change in the environment resulting from the Proposed Project in conjunction with other closely related past, present, and reasonably foreseeable probable future projects. Therefore, the cumulative impacts analysis presented below considers the potential incremental effects of the Project when added to similar impacts from other actions in the vicinity.

Methodology

For most projects, the cumulative study boundary for visual resources encompasses the project viewshed. The character elements of cumulative development occurring within the project viewshed contribute to the overall visual character of the viewshed and would affect, either negatively or positively, the quality of existing views of the landscape. However, when scenic roads are included in the project viewshed, an expanded cumulative study area is warranted. Both the Proposed Project and similar development occurring or planned within the viewshed of a designated scenic road could combine to permanently alter the visual character of the landscape and diminish the quality of existing views of valued scenic resources. For purposes of this analysis, the List of Projects method is used in the cumulative impacts discussion below.

The viewshed for the Jacumba solar facility extends to I-8 and Old Highway 80 and both roads are included in the County Scenic Highway System. I-8 from the El Cajon city limits to the Imperial County line and Old Highway 80 from SR-79 (Pine Valley) to I-8 (Jacumba) are designated by the County of San Diego as scenic highways. For purposes of this analysis, the cumulative study area is defined as the viewshed of I-8 from SR-79 (Pine Valley) to the Imperial County line. Due to the proximity of I-8 and Old Highway 80 along this corridor, projects that would be visible from I-8 would also be visible from the highway. Extending the cumulative study area further to the west is not warranted as the landscape becomes increasingly developed west of SR-79 and into the community of Alpine. In addition, renewable energy development and projects that could create similar visual impacts as the Proposed Project are generally located east of SR-79 in southeastern San Diego County. Extending the study area east into Imperial County is not warranted because I-8 is not a designated or eligible scenic highway in Imperial County and the visual character of the landscape is distinct as viewers enter the desert valley floor.

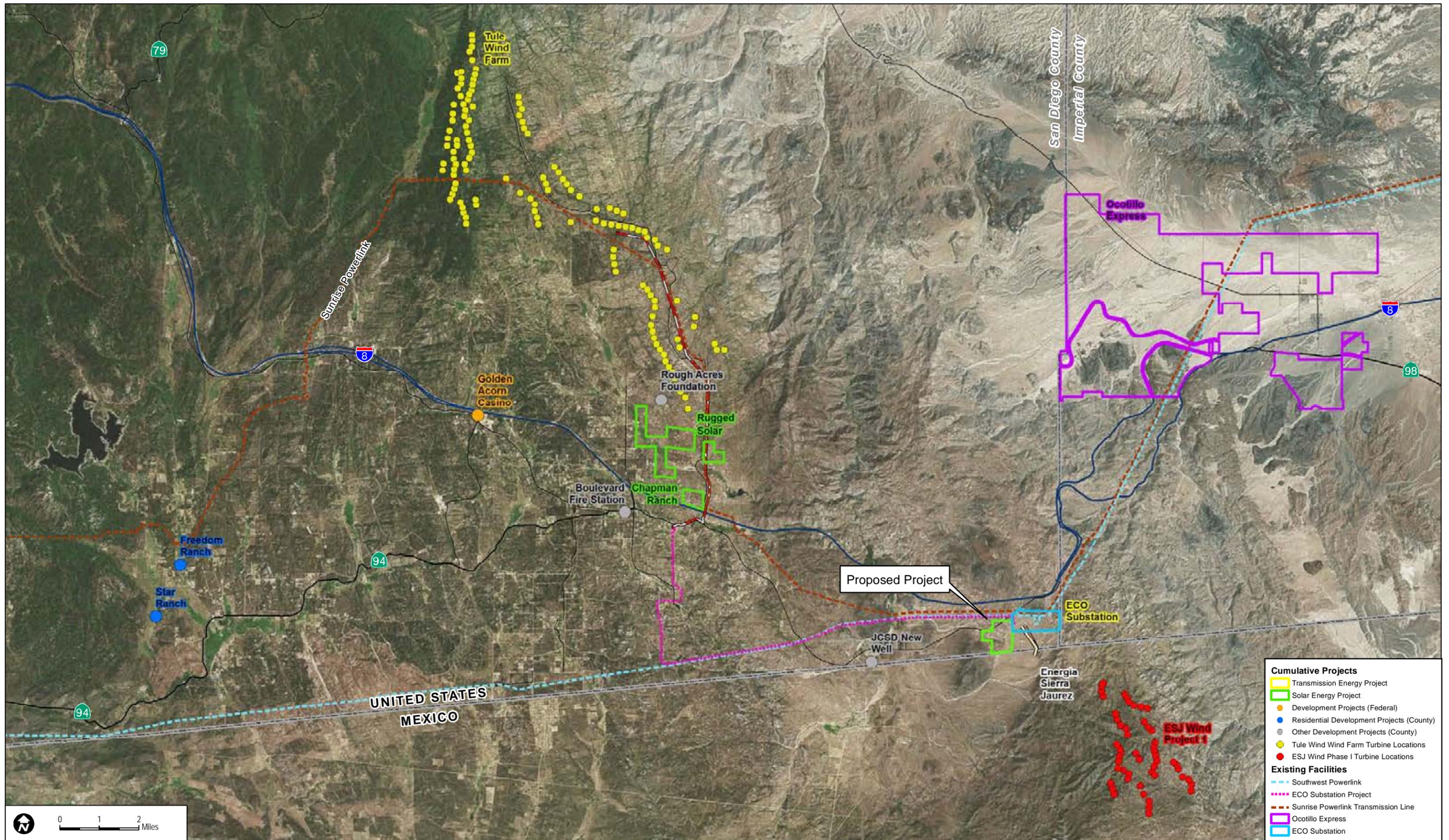
Visual Resources Report for the Jacumba Solar Energy Project

Cumulative Projects

Cumulative projects considered in this analysis are those in the study area that would produce similar visual effects as the proposed Jacumba solar facility. Therefore, for purposes of this analysis, electric substation, solar energy and transmission projects within the cumulative study area are considered and they would create similar form, line, color, and texture contrasts as the proposed solar facility. The locations of cumulative projects are depicted on Figure 13, Cumulative Projects Map.

The following projects are considered in the cumulative impact analysis provided below:

- **Rugged Solar Facility).** Proposed as 765-acre CPV solar facility north of I-8 in the community of Boulevard. The approximate electrical generation capacity of the proposed solar facility is 80 MW.
- **Chapman Ranch Solar Project.** Proposed by Solar Electric Solutions LLC as a 50-acre solar project on a 133-acre site. Located north of I-8 near McCain Valley Road and Rocky Knoll Road.
- **ECO Substation Project (energized February 2015).** Located northeast of the proposed Jacumba solar facility. The ECO Substation project consist of the construction of a 500/23/138 kV substation on approximately 86 acres, a short loop-in of the existing Southwest Powerlink to the ECO Substation, a new overhead 138 kV transmission line that would connect the ECO Substation to the Boulevard Substation, and rebuilding of the Boulevard Substation to provide 138 kV and 69 kV facilities on a 3.2-acre site. The ECO Substation, segments of the overhead 138 kV transmission line (a portion of the transmission line would be installed within Old Highway 80), and the rebuilt Boulevard Substation are visible from I-8.
- **Energia Sierra Juarez U.S. Transmission MUP (approved and constructed as of January 2015).** As approved by the County Board of Supervisors in August 2012, the project would construct approximately 1-mile-long, dual circuit 230 kV power lines from the U.S./Mexico border north to the ECO Substation. The power lines would deliver power generated at the ESJ wind project located in the town of La Rumorosa in Mexico to the ECO Substation.



- Cumulative Projects**
- Transmission Energy Project
 - Solar Energy Project
 - Development Projects (Federal)
 - Residential Development Projects (County)
 - Other Development Projects (County)
 - Tule Wind Wind Farm Turbine Locations
 - ESJ Wind Phase I Turbine Locations
- Existing Facilities**
- Southwest Powerlink
 - ECO Substation Project
 - Sunrise Powerlink Transmission Line
 - Ocotillo Express
 - ECO Substation



DUDEK

SOURCE: Bing 2014; County 2014

8477

Jacumba Solar Project Visual Resources Report

FIGURE 13
Cumulative Projects Map

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK

Visual Resources Report for the Jacumba Solar Energy Project

Cumulative Impact Analysis

Short Term

In combination with the Proposed Project and proposed and approved projects, the cumulative scenario amounts to nearly 1,000 acres of solar development located within the viewshed of I-8. The majority of this acreage is attributed to the Rugged solar project and proposed solar facilities of 765 acres. The proposed 765-acre Rugged Solar facility site is well screened from the views of passing motorists. Vegetation removal across the site would be visible briefly to eastbound motorists but given the brief duration of the view and distance to the project, short-term visual impacts associated with construction would be less than significant. The Chapman solar project is located south of the Rugged solar facility and would be visible from I-8 near McCain Valley Road. If the construction of these projects were to occur simultaneously, the line, color, and form contrasts associated with vegetation removal and grading would be apparent to passing motorists and would diminish the visual quality of views to the rural rugged landscape of the Boulevard area. After passing through the Boulevard area and entering Walker Canyon, the cumulative substation, solar, and transmission development would not be visible again for approximately 5 miles, until eastbound motorists enter the Proposed Project viewshed. At this point, motorists are afforded views of the proposed solar facility site, the ECO Substation, and the ESJ transmission line.

Construction of the ESJ gen-tie line is complete and the ECO Substation is currently under construction. , The visual effects associated with vegetation removal, grading, staging, access road development and component installation of the ECO Substation will have already marked the landscape. It is safe to assume that the ECO Substation would be in operation during construction of the Proposed Project. Vegetation removal and alteration of the ground plane resources associated with construction of the Jacumba solar facility, as well as visual effects resulting from development of the ESJ gen-tie line and ECO Substation, are visible to I-8 motorists generally between Exit 73/Carrizo Gorge Road and Jade Peak (a distance of approximately 3 miles). Although combined views of construction activities and substation and gen-tie line development would be experienced briefly by passing motorists, noticeable breaks in the continuity of characteristic soils and vegetation across the flat valley terrain would be visible, and would further diminish the quality of existing southerly views at the eastern extent of the cumulative study area. When combined with the visual effects associated with construction of cumulative projects in the Boulevard area, cumulative solar, substation and gen-tie development would occupy relatively large pockets of the foreground to middleground valley landscape visible from I-8. Furthermore, the horizontal and vertical scale of CPV trackers, solar modules, transmission and gen-tie structures, grayish and metallic colors of components, and smooth, lightly colored soils of access roads would cumulatively degrade the I-8 viewshed. While views of background mountainous terrain would not be altered by the cumulative projects considered in this analysis, foreground and middleground landscapes would be modified from their existing state and the resulting line, color and texture contrasts would appear dissimilar to surrounding

Visual Resources Report for the Jacumba Solar Energy Project

natural vegetation and terrain. Therefore, if the Proposed Project were constructed concurrently with the cumulative solar projects considered in the analysis above, a cumulative short-term impact to the existing visual character and quality of the I-8 viewshed would occur.

While views of the Proposed Project would be available to local area recreationists at Airport Mesa, Table Mountain, and the Jacumba Mountains, the Project viewshed does not extend to cumulative solar development sites located in the Boulevard area. As such cumulative solar development in Boulevard and the ECO Substation, ESJ gen-tie, and Jacumba Solar Energy Project would not be visible from the identified recreational resources considered in this analysis. Combined views of the ECO Substation, ESJ gen-tie, and Jacumba Solar Energy Project would, however, be visible from these recreational resources. Because the ESJ gen-tie line is constructed and the ECO Substation is under construction, short- and long-term cumulative visual impacts to Airport Mesa, Table Mountain, and ridgeline vantage points in the Jacumba Mountains would be similar to that previously discussed for the Proposed Project in Section 6.4.

Long Term

Visual Character

In addition to the Proposed Project, identified cumulative projects considered in this analysis would be visible from I-8, Old Highway 80, local area roads, and recreational lands in the McCain Valley Conservation Area, Table Mountain ACEC, Airport Mesa, and Jacumba Mountains. The cumulative effects associated with the alteration of approximately 1,200 acres of undeveloped lands and introduction of multiple solar facilities, private substations and transmission lines/generator tie line in the I-8 viewshed would result in a perceived increase in the industrialization of the foreground and middleground landscape. The projects considered in the cumulative scenario are concentrated in the communities of Boulevard and Jacumba. As motorists travel through the cumulative study area, and as hikers and horseback riders recreate at local area public lands, a diminution of visual quality, and increase in visual contrast from existing conditions would be experienced. Solar and substation project development would be part of a landscape-scale conversion in the existing visual environment and given the geographic extent of planned projects, the effects of several solar projects and the ECO Substation project would cumulatively alter the landscape character. Therefore, implementation and development of the Proposed Project and cumulative projects considered in this analysis would result in a cumulative long-term impact to the existing visual character and quality of the I-8 viewshed. The visual effects associated with development of the Tule Wind Project would be experienced by the same motorists afforded views of the Jacumba Solar Energy Project at the eastern extent of the cumulative study area and by the same recreationists afforded views of the Rugged Solar Farm Project in the Boulevard area. In contrast the line and color distinction of 490-foot tall wind turbines of the Tule Wind Project would be more prominent and bold than line and color

Visual Resources Report for the Jacumba Solar Energy Project

contrasts associated with the Jacumba Solar Energy. Therefore, in combination with solar development, proposed wind development would contribute to the ongoing change in the visual character of the I-8 viewshed and change in scenic views available from recreational lands in the McCain Valley Conservation Area (BLM-managed lands located in the McCain Valley and north of the community of Boulevard) and in the Jacumba area.

Scenic Vistas

Panoramic vistas in the Proposed Project viewshed were identified at Airport Mesa, the mesa landform at the Table Mountain ACEC, and ridgelines within the Jacumba Mountains. As stated in the analysis presented above for the Jacumba Solar Energy Project, recreationists at elevated vantage points in the local area would be afforded combined views of the proposed solar facility and gen-tie monopoles, the ECO Substation project (energized February 2015) and the completed ESJ gen-tie project. While the removal of vegetation from the Project site and development of a solar facility would create a break in the continuity of vegetation and soils visible on the valley floor, a similar break resulting from development of the ECO Substation is currently visible from these elevated and scenic vantage points. In addition, due to the apparent horizontal composition of the proposed solar facility, the ECO Substation, and the backscreening of gen-tie and transmission steel lattice structures, the Project would not block views of prominent middleground features (e.g., Airport Mesa, Table Mountain) or distant background features.

Due to intervening terrain, cumulative solar development projects would not be visible from Airport Mesa, the mesa landform at the Table Mountain ACEC, or ridgelines within the Jacumba Mountains; however, wind turbines associated with the Tule Wind Project in the McCain Valley may be visible. . Wind turbines associated with Tule, would be located more than 5 miles from these elevated vantage points and would not substantially block views of distant mountainous terrain to the west and southwest. Tecate Divide, the Carrizo and Sacatone Overlooks in the McCain Valley Conservation Area, and Mount Tule are identified as scenic vistas in the Programmatic EIR prepared for the Soitec Solar Development Projects, which included Rugged Solar. Project specific impacts were not identified for any of these vantage points. Also, the Jacumba Solar Energy Project would be located more than 10 miles from the segment of I-8 between the Tecate Divide and Exit 65/Ribbonwood Road, and is screened from this view by mountainous terrain. Due to the presence of intervening, mountainous terrain, views to the Jacumba Solar Energy Project are not available from the Carrizo or Sacatone Overlooks. Although views to the Proposed Project site may be available from Mount Tule, the solar facility would be located approximately 7.75 miles to the southeast on the valley floor, and would not be visually prominent. In addition, from Mount Tule's elevated vantage point, the solar facility would display a flat, horizontal form and would not substantially obstruct, interrupt, or degrade

Visual Resources Report for the Jacumba Solar Energy Project

the existing panoramic view. As such, the Project would not contribute to a potential cumulative impact to valued focal or panoramic vistas.

Plan Compliance

As identified in Section 6.4 above (see Guideline 4), the Jacumba Solar Energy Project would be consistent with the applicable visual resources policies of the San Diego County General Plan Conservation and Open Space Element and the Mountain Empire Subregional Plan. Similarly, projects located on private County lands considered in the cumulative scenario would also be required to demonstrate compliance with the applicable policies and regulations of the County General Plan and Mountain Empire Subregional Plan (the solar development projects in Boulevard area would be required to comply with the visual resources policies of the Boulevard Subregional Plan). Public lands projects (i.e., the Tule Wind Project) and projects under the jurisdiction of a state agency (e.g., the ECO Substation project) were required to demonstrate compliance with the relevant policies of lead agencies. Although it is not required, the Final EIR for the ECO Substation project included a consistency analysis between the project and relevant County policies and regulations. None of the identified cumulative solar projects are anticipated to require a General Plan Amendment or a Rezone. For all projects considered in the cumulative analysis, project-specific analysis would be required to ensure compatibility with applicable plans and policies. Because the Jacumba Solar Energy Project would comply with the goals, policies, or requirements of the County General Plan and the Mountain Empire Subregional Plan, the Project would not contribute to a potential cumulative impact associated with plan conflicts.

Light and Glare

Similar to the Jacumba Solar Energy Project, identified cumulative projects will be evaluated on a project-by-project basis to determine the severity of lighting and glare impacts. Outdoor lighting at the Jacumba Solar Energy would be installed at facility entrance gates, at the on-site substation and next to the entrance door of the substation control house. All outdoor lighting would be turned off when not in use and would only be used on an as needed basis. Furthermore, all outdoor lighting installed at the solar facility will conform to the Zone B lamp type and shielding requirements of the Light Pollution Code. Conformance with the San Diego Light Pollution Code Zone B lamp type and shielding requirements would minimize the potential for light trespass onto adjacent properties and excess illumination of the nighttime sky. All other proposed cumulative solar facilities are anticipated to have similar operational lighting scenarios (i.e., nighttime lighting used on an as needed basis and turned off when not in use, etc.) as the Jacumba Solar Energy Facility. In addition, all of the proposed cumulative solar facilities are located on private lands under County of San Diego land use jurisdiction and would thus be required to conform to the applicable lighting and shielding requirements of the San Diego Light

Visual Resources Report for the Jacumba Solar Energy Project

Pollution Code. Through conformance with existing County regulations, a cumulative nighttime lighting impact would not occur and the operation of outdoor lighting at the Jacumba Solar Energy Facility would not contribute to a potential cumulative lighting effect.

Due to the southerly orientation of fixed –tilt solar panels associated with the Jacumba Solar Energy Project, daytime glare would not be generated and would not be visible from I-8, Old Highway 80, or from the mesa landform at Table Mountain. Project-generated glare would be visible from the Jacumba Mountains and Airport Mesa. However, glare generated from other solar projects considered in the cumulative analysis and located in the Boulevard area would not be visible from these areas due to the presence of intervening landforms, specifically, the In-Ko-Pah Mountains. The In-Ko-Pah Mountains would screen views of the Rugged solar and Chapman Ranch solar projects from recreationists at Airport Mesa and ridgelines in the Jacumba Mountains. The Rugged solar facilities and the Chapman Ranch solar facilities would generate glare that would be visible from Mount Tule (Rugged and Chapman Ranch), I-8, and Old Highway 80 (potentially Chapman Ranch). However, due to the southerly orientation of fixed-tilt solar panels, the Jacumba Solar Energy Project would not generate glare that could be received by recreationists at Mount Tule or by I-8 and highway motorists. As detailed in Section 6.4, glare generated by the battery energy storage system and received by passing highway and I-8 motorists would be potentially significant but would be reduced through implementation of mitigation (see Section 7). As such, glare from Project components would not combine with the anticipated glare effects associated with the Rugged and Chapman Ranch solar projects to create a cumulative glare impact to daytime views in the area.

6.6 Summary of Project Impacts and Conclusions

While the proposed solar PV arrays would display a height visually consistent with that of the international border fence and single-story rural residences in the Project viewshed, the bulk, horizontal scale, and grayish color of the solar facility would draw the attention of passing motorists. Moreover, line, color, and texture contrasts at Project edges would attract the eye and would disrupt the continuity of the grayish mass displayed by the solar facility. From I-8, discoloration within the eastern, lower elevation arm of the solar facility is anticipated as light reflecting off panel edges would be visible from the superior viewing angle afforded to motorists. While the Project would primarily be viewed from a distance and would be experienced in the larger landscape context, the perceived intactness and unity of the landscape as viewed from stationary and mobile locations would be diminished by the introduction of the solar facility and associated monopoles. In addition, as detailed in Section 6.2.1 and 6.2.2, implementation of the Project would result in moderate changes to the existing vividness, intactness, and unity of the landscapes visible from Key Views 1 and 2. A summary of visual quality and visual impact ratings is provided in Tables 1 and 3. While the anticipated severity of

Visual Resources Report for the Jacumba Solar Energy Project

effects to existing visual character and quality were determined to be moderate, no feasible mitigation has been identified that if implemented would reduce Project impacts relative to Visual Resources Guideline 1 and 2 to a less than significant level. As a result, impacts to existing visual character and quality would remain significant and unavoidable.

While impacts would remain significant and unavoidable, implementation of **M-AE-1** and **M-AE-2** would ensure that potential visual contrast associated with inverters and water tanks are minimized to the extent practicable. Feasible mitigation that would further reduce anticipated impacts to existing visual character and quality has not been identified. Implementation of **M-AE-3** would address potential long-term aesthetic impacts and establish decommissioning activities that would occur once the operational life of the Project has expired.

The Project would not substantially obstruct, interrupt, or detract from a valued focal and/or panoramic vista from I-8, Old Highway 80, Airport Mesa, ridgelines in the Jacumba Mountains, or the mesa landform within the Table Mountain ACEC. As a result, impacts to Visual Resources Guideline 3 would be less than significant.

As discussed in Section 6.4, the Project would be consistent with applicable policies of the San Diego County General Plan Conservation and Open Space Element and the Mountain Empire Subregional Plan. Relevant policies within these plans concern the protection of scenic resources including scenic landscapes and corridors, minimization of visual impacts through development siting and design, undergrounding of utilities and restriction of outdoor lighting and glare. The minimization of hillside grading, blending roads into the natural terrain and retaining significant natural features characteristic of the community's landscape are also addressed in local plans. Because the Project would be consistent with relevant policies of applicable plans, impacts to Visual Resources Guideline 4 would be less than significant.

All outdoor lighting for the Project would have bulbs that do not exceed 100 watts. All fixtures would be shielded and directed downward to minimize lighting spillover to surrounding properties and unnecessary illumination of the nighttime sky. In addition, all outdoor lighting at the proposed solar facility would comply with County of San Diego Light Pollution Code Section 59.101 et.al. The proposed solar facility is located in Zone B and would therefore comply with the Zone B lamp type and shielding requirements of Section 59.106 of the County San Diego Light Pollution Code. Because all outdoor Project lighting would comply with the County of San Diego Light Pollution Code Section 59.101 et.al, impacts to Dark Skies and Glare Guidelines 1, 2, 3, and 5 would be less than significant. Implementation of **M-AE-4** would ensure that the energy storage facilities display a non-reflective surface. With implementation of **M-AE-4**, impacts to Dark Skies and Glare Guidelines 4 would be less than significant.

Visual Resources Report for the Jacumba Solar Energy Project

Tables 1 through 3 summarize the visual quality ratings, viewer response, and visual impact ratings at Key Views 1, 2, 3, and 4.

**Table 1
Summary of Visual Quality Ratings**

Visual Quality	Ratings for Key View 1			Ratings for Key View 2			Ratings for Key View 3			Ratings for Key View 4		
	Ex	PP	C	Ex	PP	C	Ex	PP	C	Ex	PP	C
Vividness	2.8	1.9	-0.9	3.5	3.1	-0.4	3.7	2.6	-1.1	3.9	3.2	-0.7
Intactness	2.5	1.7	-0.8	3.8	3.2	-0.6	3.2	2.2	-1	3.6	2.8	-0.8
Unity	2.8	2.1	-0.7	4.2	3.5	-0.7	3.2	2.1	-1.1	3.5	2.7	-0.8
Total	8.1	5.7	-2.4	11.4	10.6	-1.7	10.1	6.9	-3.2	11.0	8.7	-2.3

Note: Ex=Existing, PP= with Proposed Project, C= Change. All ratings are based on a scale from 0 to 5, where 0 = none, 3 = moderate, and 5 = high.

As detailed under each Key View description, viewer response is influenced by viewer location, activity, duration, and exposure. Table 2 lists the viewer response ratings for each Key View location.

**Table 2
Viewer Response Ratings**

Viewer Response	Key View 1	Key View 2	Key View 3	Key View 4
Rating	3.0	3.0	4.0	4.0

Note: All ratings are based on a scale from 0 to 5, where 0 = none, 3 = moderate, and 5 = high.

The level of visual impact has been assessed for each Key View, and was determined by applying the following equation to the visual quality and viewer response ratings:

$$\text{Visual Impact} = \text{Change in Visual Quality} \times \text{Viewer Response}$$

The resulting visual impact scores provide an indication of significance of the Project on the overall visual setting of the Project location. Table 3 lists the visual impact scores for each Key View.

**Table 3
Summary of Visual Impact Ratings**

Visual Impact	Key View 1	Key View 2	Key View 3	Key View 4
Change in Visual Character / Quality	-2.4	-1.7	-3.2	-2.3
Viewer Response	3.0	3.0	4.0	4.0

Visual Resources Report for the Jacumba Solar Energy Project

Table 3
Summary of Visual Impact Ratings

Visual Impact	Key View 1	Key View 2	Key View 3	Key View 4
Visual Impact Scores	7.2	5.1	12.8	9.2
Visual Resource Impact Conclusion	Moderate	Moderately Low	Moderately High	Moderate

Note: All ratings are based on a scale from 0 to 13, where 0 = none, <3 = low, 4–6 = moderately low, 7–9 = moderate, 10–12 = moderately high, and >13 = high.

Visual Resources Report for the Jacumba Solar Energy Project

7 VISUAL MITIGATION AND DESIGN CONSIDERATIONS

Mitigation measures **M-AE-1** and **M-AE-2** address Project design and would be implemented to ensure that visual contrast is minimized to the extent practicable. **M-AE-3** would be implemented to address potential long-term aesthetic impacts and establish decommissioning activities that would occur once the operational life of the Project has expired. **M-AE-4** addresses Project design and would be implemented to ensure that the energy storage facility does not produce daytime glare visible from Project area roadways and more specifically, I-8 and Old Highway 80.

M-AE-1 Inverter enclosures shall be painted with a flat, non-reflective grayish or dark-green color to match the color of surrounding Project components and the existing landscape. Alternatively, enclosure walls shall have a coarse texture (such as a split-face concrete block) to reduce reflectivity and blend with surrounding vegetation; flat building surfaces should be avoided.

M-AE-2 The installation of water tanks atop elevated landforms shall be avoided. If the installation of water tanks atop elevated landforms is required by San Diego Rural Fire Protection, then water tanks shall be installed with the top of the tank no more than 8 feet above the native terrain. Any remaining visible tank surface shall be painted with a flat, non-reflective grayish or dark-green color to match the color of surrounding Project components and the existing landscape.

M-AE-3 Prior to the end of one year from the date of building permit issuance, the Project Applicant shall submit a Decommissioning Plan that shall at a minimum identify removal of all above-grade structures from the site and any non-shared transmission facilities, associated decompaction activities, application of hydroseeding, and, if necessary, installation of permanent best management practices (BMPs). The Project shall comply with all requirements of San Diego Regional Water Quality Control Board General Construction Permit for Notice of Termination filing associated with site stabilization.

M-AE-4 Energy storage containers shall be painted a flat, non-reflective color to match the color of surrounding Project components and the existing landscape.

Additional design considerations were identified and considered but were determined to be ineffective. Implementation of a landscape screening plan and strategic installation of climate and landscape appropriate shrubs around the perimeter of the proposed solar facility site could partially screen low-profile Project components from the view of I-8 motorists and reinforce the

Visual Resources Report for the Jacumba Solar Energy Project

existing visual pattern of the area. However, existing shrubs in the local area display a low, mounded form and implementation of a landscape-screening plan inclusive of planting materials appropriate for the Project area landscape would not be successfully at screening Project components from an elevated vantage point. The installation of taller planting materials such as trees could screen Project elements from view; however, the existing landscape does not support tall trees and the introduction of tall trees would not be appropriate.

Undergrounding the gen-tie line between the proposed solar facility and the ECO Substation was considered as a mitigation measure to reduce anticipated form and line contrasts but was ultimately determined to be infeasible as doing so would result in significant and unavoidable impacts to cultural resources and significant impacts to biological resources identified in the gen-tie alignment. The identification of an alternative underground alignment that would avoid identified cultural resources was also considered but determined to be infeasible by the Project Applicant.

Color treating the gen-tie monopoles was also considered as a mitigation measure to reduce color and line contrast as some success with color treatment of steel lattice structures has been observed in the Project area. However, unlike steel lattice construction, the straight continuous form of steel monopoles would not allow for visual permeability. Furthermore, visual permeability and blending with background terrain and vegetation is typically more successful where Project components relatively distant from sensitive receptors. Lastly, the existing landscape supports lightly colored steel monopoles, galvanized steel lattice structures and wooden poles. Because visual contrast with existing infrastructure could result from the installation of color treated monopoles, this potential measure was not pursued.

The application of color-treated soil binders on internal access roads was considered as a measure to reduce anticipated color and line contrast at Project edges but was ultimately determined to be technically infeasible by the Project Applicant.

Visual Resources Report for the Jacumba Solar Energy Project

8 REFERENCES

- BLM (Bureau of Land Management). 2008. *Eastern San Diego County Resource Management Plan and Record of Decision*. October 2008.
- BLM. 2009. Finding of No Significant Impact, El Centro Field Office EA Number CA670-2010-01 (“Airport Mesa Shooting Closure”). October 5, 2009.
- BLM. 2010. “Jacumba. Imperial–San Diego County Line Recreation Map.” <http://www.blm.gov/ca/st/en/info/maps/recreationmaps.html>. Website accessed August 10, 2014. Map published August 10, 2010.
- BLM. 2014. “Jacumba Mountains Wilderness.” <http://www.blm.gov/ca/st/en/fo/elcentro/recreation/ecwilderness/jacumba.html>. Accessed July 15, 2014.
- Caltrans (California Department of Transportation). 2008. *Scenic Highway Guidelines*. Landscape Architecture Program, Division of Design. October 2008.
- Caltrans. 2014. “California Scenic Highway Mapping System – San Diego County.” http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm. Accessed July 29, 2014.
- County of San Diego. 1978. Zoning Ordinance: San Diego County. Adopted October 18, 1978.
- County of San Diego. 1986. San Diego County Code – Division 9.0, Light Pollution Code. Effective July 1986.
- County of San Diego. 2007a. *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements – Visual Resources*. July 30, 2007.
- County of San Diego. 2007b. *County of San Diego Guidelines for Determining Significance and Report Format and Content Requirements – Dark Skies and Glare*. July 30, 2007.
- County of San Diego. 2011a. “Jacumba Subregional Group Area General Plan Land Use Designations Map.” Adopted August 2011.
- County of San Diego. 2011b. *San Diego County General Plan, Chapter 5: Conservation and Open Space Element*. August 3, 2011.
- County of San Diego. 2011c. *San Diego County General Plan, Mountain Empire Subregional Plan*. August 3, 2011.

Visual Resources Report for the Jacumba Solar Energy Project

County of San Diego. 2011d. "Jacumba Subregional Group Area Vision Statement." In *San Diego County General Plan, Mountain Empire Subregional Plan*. August 3, 2011.

County of San Diego. 2014. "Jacumba Airport." <http://www.sdcountry.ca.gov/dpw/airports/jacumba.html>. Accessed June 24, 2014.

CPUC and BLM (California Public Utilities Commission and Bureau of Land Management). 2011. *Final Environmental Impact Report/Environmental Impact Statement for East County Substation, Tule Wind, and Energia Sierra Juarez Gen-Tie Projects*. SCH no. 2009121079. Prepared by Dudek. Encinitas, California: Dudek. October 2011.

ICF Jones & Stokes. 2010. *Visual Resources Report, Energia Sierra Juarez U.S. Transmission, LLC Generation-Tie Line Project*. March 2010.

SANGIS (San Diego Geographic Information Source). 2013. Zoning Unincorporated (Zoning_CN) shapefile. Published November 22, 2013.

Visual Resources Report for the Jacumba Solar Energy Project

9 REPORT PREPARERS

Michael Sweesy, Principal

Master of Landscape Architecture, Cal Poly Pomona, 1984

BA, Geography, Cal State Fullerton, 1978

California Licensed Landscape Architect #3319

29 years of experience

Certified County of San Diego CEQA Preparer for Visual Analysis

Joshua Saunders

Master of Science, Architecture, New School of Architecture + Design, 2013

BA, Urban Studies and Planning, UC San Diego, 2006

7 years of experience

**Visual Resources Report
for the Jacumba Solar Energy Project**

INTENTIONALLY LEFT BLANK